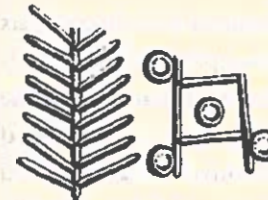


“ . . . the nearest run thing . . . ”

The Genesis and Collapse of a  
Bronze Age Polity in the Maros Valley  
of Southeastern Europe

John M. O'Shea and Amy Nicodemus



**Abstract** *Around 2000 B.C., the settlements of the Maros culture reached their widest extent across southeastern Hungary, western Romania, and northern Serbia. It was at this time that the Bronze Age site of Pecica Șanțul Mare was established. Over the next 500 years, Pecica rapidly became the preeminent Bronze Age center in the region, controlling the distribution of metals and domestic horses throughout the Carpathian Basin, and then with equal rapidity collapsed and was abandoned. Renewed research at Pecica Șanțul Mare affords a fine-grained view of the interplay of factors that led to the genesis and collapse of this important Bronze Age polity and allows regional patterns of growth, aggregation, and dispersal to be linked to specific social processes and elite strategies at this critical center. Pecica provides a valuable case in which a complex polity does not transition into a stable state-like organization. Its example may mirror developments in other contemporary Bronze Age societies in the eastern Carpathian Basin, and may provide important clues for why primary states failed to develop in temperate Europe.*

THE PROBLEM WITH POPULATION

Cities and urbanism are often linked with the origins of the state, and jointly with the traditional concept of civilization. Yet, from the perspective of temperate Europe, none of these concepts really resonate. Outside of the Classical world, both urban centers and state-level organizations are introduced only secondarily. Why such social forms do not develop in temperate Europe is itself an interesting question. The region certainly

sees cycles of population aggregation and dispersal, long-distance trade, and technological innovation, but—outside of the Classical world—nothing approaching urbanism or a primary state. Complicating the investigation is the absence of literacy and both the historical narratives and basic economic records, which provide such insight into the formation of bureaucratic centers in the Aegean and Near East. In prehistoric (nonliterate) contexts, when states do arise—as in the Valley of Oaxaca in Mexico (Marcus and Flannery 1996; Spencer and Redmond 2004)—prehistorians can often reconstruct the key developments from the material evidence. But when cities and states do not emerge, explanations prove much harder to come by.

Absent literacy and the other trappings of civilization, prehistoric archaeologists have typically followed two approaches for the investigation of complexity. The first is typological, where the presence of complexity is asserted given the appearance of some key trait or set of traits, such as monumental construction, “rich graves,” or imported “luxury” goods. These are then embedded in narratives that often invoke the seen and the unseen in equal proportions to account for complexity. Such approaches are rightly seen as static and nonexplanatory.

The second is to focus on population aggregation as a more dynamic indicator of increasing social and economic complexity. The emphasis on large and permanent aggregations rests ultimately on a posited causal relationship between population size and social complexity, of which the development of cities and urban centers is often cited as a special case. It is argued that integrative and hierarchical social structures *must* emerge to manage the greater demands for social control and information processing necessitated by an increasing density of local and regional populations. In essence, if growth or aggregation of population is observed, the emergence of integrative structures can be assumed (Carneiro 1967; MacSweeney 2004; Ortman 2013). While such approaches can accommodate the interaction of multiple social and economic factors and provide a basis for cross-cultural comparison, the causal engine remains the size and density of the population (see Gyucha and Smith this volume).

Arguments for population as a prime mover or causal agent have been around for a long time and periodically appear and disappear as the agent of choice (Boserup 1965; Carneiro 1967; Cohen 1979; Naroll 1956). There is no need to rehash that history here. The question of how to estimate population size, however, continues to perplex. Even contemporary observers viewing living populations have difficulties estimating population size, as anyone who has worked with historical population estimates will appreciate.

Archaeology has long struggled with how to estimate past population size and dynamics. In virtually all cases, these efforts require a series of normative assumptions, which inevitably homogenize the variation in the past we seek to investigate. One common approach is to apply cross-cultural values for floor space usage (Duffy 2014; Kramer 1982; LeBlanc 1971; Naroll 1962). In other cases, archaeologists have focused on their own raw data, equating numbers of carbon dates (Johnson and Brook 2011; Peros et al. 2010; Rick 1987; Shennan and Edinborough 2007; Shennan et al. 2013; Timpson et al. 2014) or the size of sherd scatters/site area (Brumfiel 1976; Parsons

1972; Postgate 1994; Schreiber and Kintigh 1996; Steponaitis 1981) with the number of people inhabiting the locality. These estimates require numerous additional assumptions about archaeological recovery, depositional processes, and unverifiable assertions about the interrelationship between all of these factors. In certain limited cases, such as the stone-constructed settlements at Lepenski Vir, sophisticated Bayesian modeling has been combined with paleodemographic evidence to estimate the size of the local populations (Porčić 2016). But even here, uncertainty regarding cultural practices—such as the portion of the population actually buried at the site and the seasonal organization of the settlement—make the estimates little more than speculative points within a very broad range of potential values.

In many instances, it is possible to make relative statements about population size and density even if precise numbers cannot be attached. An early example of this approach can be found in Sanders's (1976) population models, based on surface surveys in the Valley of Mexico. Similar estimates have been based on the changing number of occupied houses in Middle Neolithic sites (Dubouloz 2008) and Trypillia megasites (Müller et al. 2016; see also Gaydarska this volume). In both instances, the assessments are buttressed by a large number of high-precision radiocarbon dates. In these cases, a likely range of population estimates can be offered, making certain assumptions about the use life of houses, the housing of domestic animals, and the packing of people within structures. But even without precise estimates, the archaeologist can at least argue that there are more houses occupied at the site at one time than another, or that there is not significant change.

Similar relative arguments are commonly made based on the number of discovered sites within a region. In these cases, it is argued that many of the uncertainties associated with settlement organization, archaeological visibility, and the like are controlled by looking only at sites deriving from a particular cultural group and comparing internal changes within (e.g., Duffy 2014). This may be a reasonable assumption, but if one is looking for evidence of social change, this might be the precise instance when such assumptions should *not* be made.

An increase in the number of houses, in the surface area of settlements, or of the number of sites in a region are all meaningful observations, but none of these lead us unambiguously back to an estimate of population size, density, or organization. The point is not so much to criticize attempts to estimate population, but rather to suggest that a value that is so difficult for archaeology to estimate probably should not be the variable that we use to anchor our investigations of complexity.

A focus on aggregation provides a means to avoid placing absolute numbers on the size and density of past populations and, instead, directs attention to qualitative changes in the way population, or its supposed archaeological surrogates, are distributed and organized (for a similar approach, see Birch and Ryan this volume). This is not unreasonable, although it again must invoke the entire range of assumptions about past human behavior and archaeological formation processes described above. In the end, it is simply a proxy for population size, and continues to be invoked as the causal mechanism for change.

But what if we treat aggregation as a result rather than a cause and, instead, monitor change in the social and economic processes that were occurring contemporary with the apparent growth or reorganization of population? Such an archaeological approach is necessarily multiscalar, linking regional-scale changes in settlement distribution with nearby changes within the locality of the center, and microscaled changes in the spatial, economic, and social organization visible within the center itself. When accompanied by high-precision dating, this approach can produce a detailed and dynamic description of change that links variation observed at these different scales and indicates those factors which seem most closely involved as factors causing and maintaining the observed social changes. It has the additional virtue of focusing attention on a range of variables that can actually be quite successfully monitored in the archaeological record.

In the remainder of this paper, we will briefly describe a complex Bronze Age center from the eastern Carpathian Basin which exhibits a convergence of population aggregation with a series of internal restructurings that often herald the transformation of chiefly centers into protostates. However, in this case, the transformations led not to the establishment of a stable and more complex polity, but instead resulted in the collapse of the system and the abandonment of the center.

#### PECICA ȘANȚUL MARE AND THE MAROS CULTURE

The Maros group was one of a series of cultural entities that crystalized during the Early Bronze Age in the eastern Carpathian Basin, around 2500 B.C. The core region of the Maros group can be thought of as a triangle connecting the confluence of the Tisza and Maros rivers at Szeged in Hungary to the point at which the Maros enters the foothills of the Carpathian Mountains near Lipova, at a distance of 120 kilometers in Romania, and the point south along the Tisza about halfway, roughly 75 kilometers, between the confluence with the Maros and the confluence with the Danube, near Bečej in Serbia. The distance from Bečej back to Lipova is 135 kilometers (Figure 3.1). This constitutes an area of roughly 4,000 square kilometers within which the bulk of Maros settlements and cemeteries are found. Of course, the area described is not uniform or equally suited for settlement or subsistence activities.

The settlements of the Maros group span two distinct regional settings, which had a major impact on site location and distribution. The Lower Maros near the confluence of the Tisza and Maros rivers was—prior to canalization in the nineteenth century—a wet and flood-prone environment. Maros settlements within this region tend to be relatively small and to be concentrated on the limited areas of higher ground within the marsh zone, or on the fringes of marshes, particularly to the south and east (Girić 1984; O'Shea 1996). In this, the Bronze Age settlement pattern is quite similar to the nineteenth century A.D. settlements within the same region (see Third Military Mapping Survey of Austria-Hungary [1910] Sheet 38–46). While a number of Maros hamlet settlements are known, few have been excavated and none have been excavated in their entirety or have been radiocarbon dated. While common in the Lower Maros, hamlets are rare in the Middle Maros region.

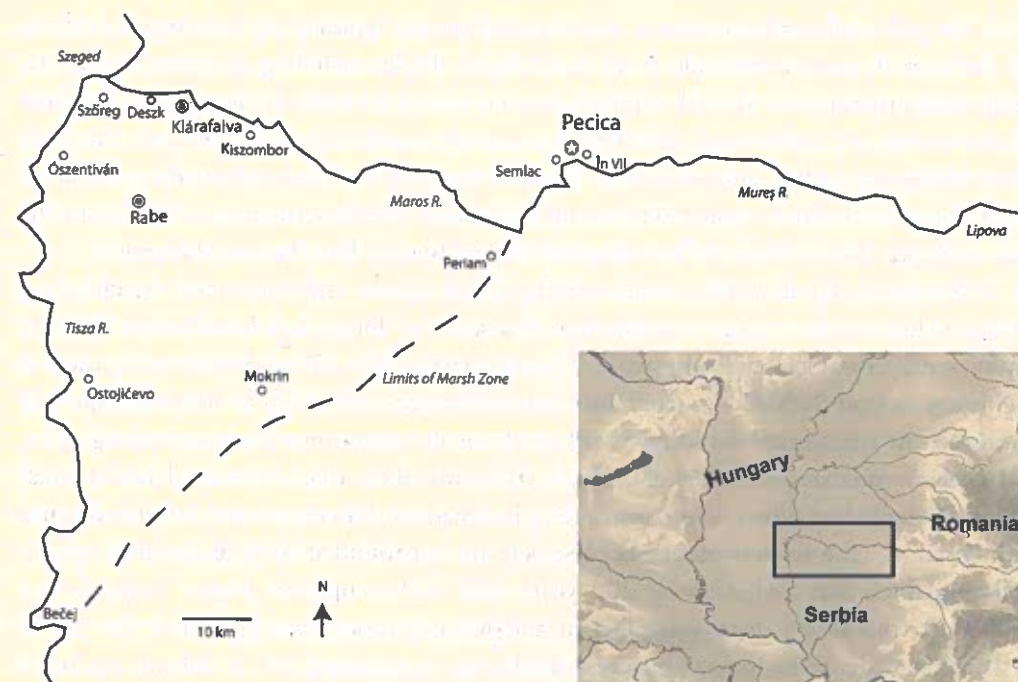


FIGURE 3.1. The Tisza–Maros confluence region and distribution of major Maros group settlements and cemeteries. The modern towns of Szeged in Hungary, Lipova in Romania, and Bečej in Serbia are indicated for reference. The approximate area of regular precanalization flooding is represented by a dashed line.

Hamlets are comprised of a small number of houses, and do not appear to have encircling ditches (e.g., Banner 1929; Girić 1987). Based on the study of the archaeological register of Csongrád County, they may also occur much closer together than the 6 kilometers separation normally observed for the Maros tells, although here the absence of precise dating must raise obvious questions about the contemporaneity of these settlements. Hamlets tend to cluster on raised landforms, which would have afforded some protection from seasonal flooding, as in the vicinity of Szőreg or Ószentiván (now Tiszasziget). The clusters also appear to be anchored by larger or smaller inhumation cemeteries into which the dead from surrounding communities were interred (O'Shea 1996). This use of cemeteries and death rituals as a social and spatial integrative medium is not observed among the Middle Maros tell settlements.

Settlement in the Middle Maros region is quite different. Here settlement tends to be located on high ground, often at the edge of the floodplain. The sites tend to be larger and more long lived, producing substantial tell deposits (Gogáltan et al. 2014), and typically are surrounded by encircling defensive ditches. The Middle Maros tells exhibit a tendency for regular spacing and rarely occur closer than 5 to 6 kilometers to one another. While regional survey only has been conducted on a small portion of the total area, smaller settlements of the kind seen on the Lower Maros are uncommon, as is any evidence for cemeteries.

The tell settlements contain a small, raised center, typically in the range of 0.5 to 1.2 hectares in area, commonly surrounded by multiple encircling ditches (Table 3.1). Habitation structures are found both in the central core and within the surrounding ditches. As few of the tell settlements have been extensively excavated, much remains unknown about settlement within, and potentially beyond, the ditch system or about the motivation for creation of the ditch works. What is known about off-tell occupation comes from the sites of Pecica Șanțul Mare in Romania and Kiszombor Új Élet Tsz. in Hungary.

Kiszombor Új Élet Tsz. is the earliest dated Maros settlement and much of its history is known due to the construction of a series of long silage trenches in the core of the site by the local cooperative (L. Horváth 1982). The initial Maros occupation—beginning around 2600 B.C.—contained a small, raised citadel (in an area subsequently destroyed by agricultural buildings) with additional habitation structures, storage pits, and ovens located beyond the central area. It seems likely that the citadel had a small encircling ditch, but subsequent construction has made it difficult to establish its existence with certainty. The earliest off-tell houses were not surrounded by a ditch, although an enclosing ditch was added about 200 years after the occupation began. Later, before 2000 B.C., this initial ditch was filled in and Maros houses were built over the top of it. There is evidence to suggest a second ditch was constructed, but it did not enclose a substantially larger area since the shape of the landform and surrounding wetland ultimately constrained the size of the settlement. At Kiszombor Új Élet Tsz., the multiple ditches do appear to reflect growth in the settlement over time.

The second instance where there is solid, datable evidence associated with encircling ditches is at Pecica Șanțul Mare itself. The Bronze Age settlement at Pecica began with the occupation of the central tell area around 1950 B.C. There may have been a ditch enclosing this initial occupation, but if so, its traces were destroyed by the subsequent

TABLE 3.1  
AREA OF PRINCIPAL MAROS TELL SETTLEMENTS

Site	Center	Inner Ditch	Outer Ditch
<i>Early Phase Tells</i>			
Kiszombor Új Élet Tsz.	1.2	5.8	6.5
Periam Movila Șantului	1.2	4.8	6.8
Semlác Livada lui Onea	1.1	4.0	6.4
Pecica În Vii	0.6	4.7	
<i>Late Phase Tells</i>			
Pecica Șanțul Mare	1.0	5.7	20.8
Kláralfalva Hajdova	1.2	2.8	
Rabe Anka Siget	1.2	5.3	15.1
Munar Dealul Lupului	1.0	5.9	13.1

Values derive from measurements on satellite imagery, and are reported in hectares. The site of Munar Dealul Lupului is likely not a Maros affiliated tell, but appears to be a contemporary Middle Bronze Age tell, and is located directly opposite Pecica on the south edge of the Maros floodplain.

construction of the "great ditch." About 50 years after the site was founded, the great ditch was constructed as part of the overall definition of the community plan at Pecica. Yet, no evidence of Bronze Age settlement dating to this time period is found beyond the great ditch. At the peak of Pecica's florescence, around 1820 B.C., the first occupation in the area surrounding the central tell is observed. It is likely that this was the time when the additional ditches were constructed, most likely as a rapid sequence of construction episodes.

Taking this reconstruction and the one from Kiszombor Új Élet Tsz. together, it is probably safe to assume that successively larger enclosures reflect population growth at all of the Maros tells. Such a pattern of construction in response to growth is not unique, and is assumed in other portions of the Carpathian Basin Bronze Age sites as well as elsewhere (e.g., Gogáltan et al. 2014; Steadman 2000; see also Birch and Raczky this volume).

The Pecica case is somewhat anomalous in the apparent absence of off-tell settlement prior to ditch construction—a characteristic that it shares with Kláralfalva Hajdova. At both these sites, it appears that neighboring sites and not off-tell settlement were the source of community labor, although for quite different reasons.

#### SETTLEMENT EXPANSION, AGGREGATION, AND DISPERSAL IN THE MAROS REGION

While it is not possible to independently estimate the numbers of people occupying the Maros region, it is possible to trace the pattern of settlement change that occurs during the span of the Maros group in the Early and Middle Bronze Ages. From their earliest appearance at Kiszombor Új Élet Tsz., the settlements of the Maros group appear to increase in number and in regional distribution, peaking around 2000 B.C.

After about 1850 B.C., the majority of settlements in both the Lower and Middle Maros region are abandoned, as are most of the inhumation cemeteries. As this happens, the site of Pecica Șanțul Mare grows in size and area occupied. Aside from Pecica, only the tell settlements at Kláralfalva Hajdova and Rabe Anka Siget continue to be occupied (Grčki-Stanimirov and Stanimirov-Grčki 1998; F. Horváth 1982; Reizner 1891). In the Lower Maros, a few hamlets in the confluence area and around Deszk show evidence of continued occupation and cemetery use (Foltiny 1941a, 1941b). Interestingly, farther south along the Tisza, the Maros cemetery at Ostojićevo and its associated settlements also continue to be used (Girić 1987), arguing for continuous settlement in this region.

From around 1680 B.C., Pecica experiences a sharp decline in settlement density, and by 1545 B.C., it is entirely abandoned. It is followed soon after by the abandonment of Kláralfalva Hajdova and Rabe Anka Siget, along with the remaining Maros hamlets and settlements in the Tisza–Maros region.

So while we cannot directly address the question of population size, the Maros group does exhibit a clear trajectory of settlement growth and expansion, followed by aggregation and then a relatively abrupt dispersal. The significance and potential causes for this trajectory can be found in the sequence of change and restructuring that is observed at the Pecica tell during this time period.

## THE RISE AND FALL OF PECICA ȘANȚUL MARE

Pecica Șanțul Mare ("Great Ditch") is one of the most prominent Bronze Age tells in the Carpathian Basin, and one of the earliest investigated (Crișan 1978; Dömötör 1901; Dörner 1978; Hügel et al. 2012; Roska 1912, 1914). Pecica—and the nearby contemporary tell at Periam—provided the basis for Childe's Perjámos culture in his *The Danube in Prehistory* (1929), and has remained the focus for understanding the regional chronology, metallurgy, and material culture.

The Pecica tell is located on a high bluff line, which forms the northern boundary of the Maros floodplain, and was positioned advantageously to exploit the flow of raw ores or metalwork from the rich western Romanian metal sources in the Apuseni Mountains. Early excavations at the site by Roska (1912, 1914) produced quantities of stone molds, which confirmed the site's importance in the regional metalwork exchange networks. Renewed excavations at Pecica, since 2005, have established an absolute chronology for the site and have revealed much about the founding and role of the settlement within the Maros group (Nicodemus et al. 2015; O'Shea et al. 2005, 2006, 2011).

To understand the development at Pecica and its relationship with the regional changes in Maros settlement, it will be necessary to examine a series of social, economic, and organizational variables and to monitor how they changed relative to the observed shifts in regional Maros settlement. An overview of these transformations is presented in Figure 3.2 and Table 3.2.

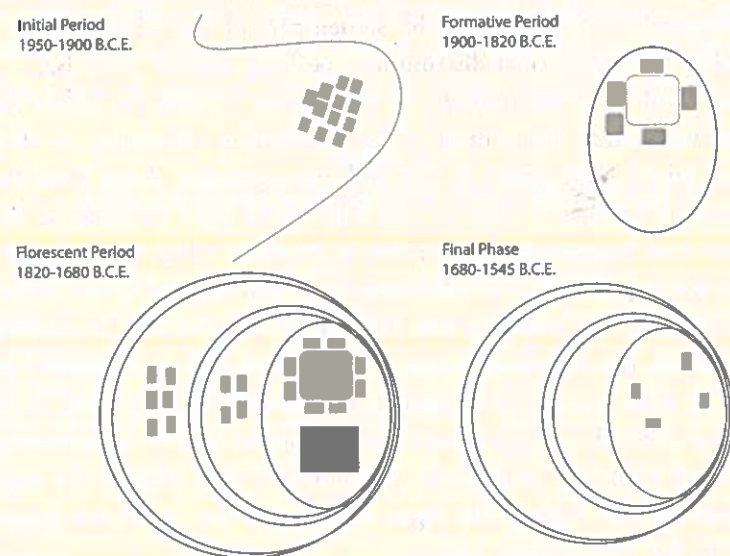


FIGURE 3.2. The evolution of Pecica Șanțul Mare. Light gray rectangles represent houses. The open gray square in the Formative Period represents the central plaza. The closed gray square in the Florescent Period represents the central platform, while the dark gray square marks the location of intensive metallurgical activity. The oval rings around the site area represent the ditch systems which encircle the settlement.

TABLE 3.2  
CHRONOLOGY OF PECICA ȘANȚUL MARE

Culture/ Group	Site Period	Date	Major Developments	Economic Foci
Árpádian		A.D. 1000–1100		
Dacian		300–100 B.C.		
Maros	Final	1680–1545 B.C.	Off-tell settlement abandoned, decline in occupation intensity, house built over top of central platform	Generalized subsistence
Maros	Florescent	1820–1680 B.C.	Central platform constructed, construction of exterior ditches, off-tell occupation	Peak metal production, peak horse production, display storage and feasting
Maros	Formative	1900–1820 B.C.	Construction of "great ditch," establishment of central site plan, construction of central plaza	Intense metal production, beginning of horse rearing, craft production of elite regalia
Maros	Initial	1950–1900 B.C.	Site leveled, erection of ritual structure	Intensive ore smelting and production, craft production incorporating exotic materials
Hunyadihalom		3935–3800 B.C.		

Table refers to radiocarbon dates only. Previous studies place the Medieval Age occupation through the twelfth and thirteenth centuries A.D., and the Iron Age settlement through the first century A.D. (Hügel et al. 2012).

## THE INITIAL PERIOD: 1950–1900 B.C.

It has already been noted that Bronze Age Pecica was established during the period when Maros settlements reached their maximum geographical extent and number. Pecica was founded *de novo* just after 2000 B.C. The site was located midway between two apparently preexisting Maros tell settlements, Semeș Livada lui Onea and potentially Pecica În Vii, at a distance of 2.5 kilometers from them, and on top of a Middle Copper Age Hunyadihalom culture settlement that had been abandoned almost two millennia previously (Nicodemus et al. 2015; Roman 1971). The Copper Age occupation was leveled and one of the initial Bronze Age structures exhibited many unusual features of potential ritual significance. Built into the floor of one of the houses were a series of perforated pig mandibles, along with a series of broken and unfinished stone axes. The house itself had an unusual circular structure, added to the normal, rectangular Maros house form, and on the floor of the house was found a series of feet from pots or figurines some of which were zoomorphic.

The other houses placed at the site were relatively light structures and were tightly packed together. There is no evidence for a central plan to the settlement, nor is there evidence that any defensive works were constructed during this initial phase. The entire settlement appears to have been confined to the core tell area.

Very rapidly after the initial occupation—perhaps a generation or less—the original habitation structures, including the ritual building, were intentionally burned (compare to Raczky this volume) and replaced by more substantial houses with wood planking and, in some cases, second stories. Substantial midden deposits formed around the base of these larger houses, along with many fired areas and ash dumps.

The principal economic activity evident on the site was metalworking, with a particular emphasis on the processing of raw ores. In addition to metalworking, there was also diverse craft production. This included manufacture of composite ornaments, which figure prominently in Maros elite display, such as the beaded sashes and head ornaments that mark hereditary social positions in Maros funerary treatment (O'Shea 1996). These items incorporated locally worked elements, such as pierced animal teeth, and beads made from imported, unworked raw materials, such as *Columbella* shell and amber. These finds demonstrate that the inhabitants were already well integrated into extraregional exchange networks. Further, the range and scale of high-value goods production far exceeds that seen at other Maros settlements, underscoring Pecica's prominence in local and regional economies. It is clear that the site was founded in a single, deliberate event and that the inhabitants hit the ground running.

#### THE FORMATIVE PERIOD: 1900–1820 B.C.

By 1900 B.C., roughly 50 years after its initial establishment, a major reorganization of the settlement is observed. House orientation shifts to correspond with the orientation of the tell, reflecting the construction of the great ditch, which effectively isolated the tell from the surrounding area. A central open plaza area also was created, which served as a focal point for community activities (see also Birch, Kelly, and Raczky this volume). One very large house with wood planking and a second story was constructed adjacent to this plaza. Other houses show a gradual evolution away from the traditional, thick clay Maros house floors to thinner floors with wood-lined wall trenches. Metallurgical activities and composite ornament manufacture continue unabated. These specialized, high-value crafts also continue to be made in spatially discrete areas of the site.

The neighboring tells—which preceded Pecica's foundation—may now be operating as subsidiary settlements, providing labor and subsistence goods. Differences in crop production between communities are apparent (Oas 2010); compared to the nearby tell of Semlac Livada Lui Onea, Pecica's inhabitants utilize much more barley, which may relate to the production of alcoholic beverages and feasting (Nicodemus et al. 2015). At this same time, the production of horses also begins to intensify.

#### THE FLORESCENT PERIOD: 1820–1680 B.C.

The Florescent Period sees the peak of cultural developments at the Pecica settlement. While the overall plan of the settlement remains the same, the large open plaza is replaced by a central platform which is bounded by elite residences on one side and storehouses on at least one of the other sides. This platform, constructed of sediments burned at industrial temperatures, measures up to 1 meter in thickness. The sheer scale of this construction—both in terms of its mass and invested resources (fuel, labor, and so on)—suggests that it should be viewed a rare example of monumental public architecture in the Carpathian Basin Bronze Age. This feature is unique to Pecica.<sup>1</sup> All of this construction occurs in the northern portion of the tell, while the southern portion is given over to intensive metal production. During this time, the outer encircling ditches are constructed and, importantly, extensive settlement is observed off-tell in the peripheral areas for the first time.

Evidence for economic activity on the tell also speaks to shifting foci. Metallurgy is being intensively pursued on the southern portion of the tell, but now the emphasis is on casting rather than the primary smelting of ores. This suggests that primary smelting is occurring elsewhere, with ingots arriving at Pecica for use in casting. In addition, finished metal objects—especially personal adornments—become far more frequent at the site and appear to replace the role of composite ornaments. While local manufacture of shell beads and polished teeth diminishes, there is a strong upswing in antler working, occurring at intensities unmatched for this period in the Carpathian Basin (Nicodemus and Lemke 2016).

At this time, horse rearing becomes perhaps the most important concern for the local elites. The number of horses peaks during this time period, with the highest proportion of horse remains known from any Middle Bronze Age site in the Carpathian Basin (Nicodemus 2013). The age and sex distribution of the horses reflect a strong emphasis on stock breeding and also suggest that efforts were being made to control the spread of breeding animals. Horses also become a focus of public display and ritual, with the conspicuous consumption of prime, reproductive-age mares in feasts on the central platform (Nicodemus 2018). These events were commemorated via ritualized deposition of feasting remains, including brazier fragments and meat-rich bones from horses and other high-value animals, some of which appear to have supported large poles. This new focus on horses is likely related to the adoption of chariotry technology—a series of model four-spoked chariot wheels from Florescent Period contexts provides the earliest securely dated evidence for chariots west of the Carpathians.

There is also a dramatic shift in the livestock management from generalized herding in the preceding periods—including an emphasis on secondary products—to practices that focus on the production of high-value meats which are mobilized by elites living on-tell. The contemporary population living off-tell has little access to such quality meats, nor possesses significant numbers of prestige storage vessels, underscoring substantial wealth and status differences between these two groups.

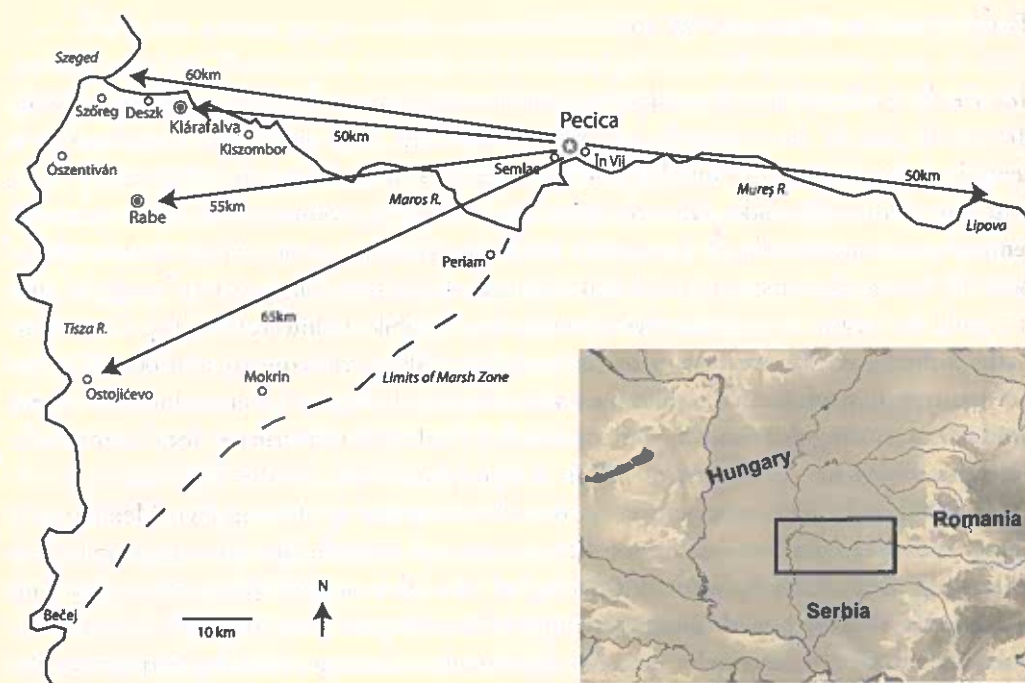


FIGURE 3.3. The Tisza–Maros confluence region during the Florescent Period at Pecica Şanţul Mare. Arrows indicate distances to major Late Maros settlements and to other strategic locations.

Concurrent with these changes at the Pecica tell, most other Maros settlements are abandoned, including those closest to Pecica that previously functioned as subsidiaries. Survey has not located any new Maros settlements in the area and it is tempting to view the sudden occupation of the large outer ditch areas at the Pecica as an influx of people from these other settlements in a process of synoecism.

As noted previously, the exceptions to tell abandonment are at Klárafalva Hajdova and Rabe Anka Siget. During this period, Pecica is a hub with spokes of roughly equal length connecting it to the other major tell sites (Figure 3.3). This regularity of spacing among the late Maros tells and the unequal densities of exotic trade ceramics and other imported goods have already been used to argue for a potential hierarchical relationship between Pecica and these two tells, sites that may have served as secondary centers (O'Shea 2013).

#### FINAL PHASE: 1680–1545 B.C.

After a relatively short-lived florescence, things go rapidly downhill at Pecica. The central site plan is abandoned, with only a few houses present on the tell, and these are built

over the top of the central platform. At the same time, the settlement off the main tell is entirely abandoned. The intensive metalworking and horse rearing both collapse, as does the production of high-value craft goods and other items made on imported raw materials. The subsistence evidence indicates a return to a more generalized subsistence economy. After 1545 B.C., the site is entirely abandoned and is not reoccupied until the Iron Age.

Regionally, this is the time when the remaining Maros settlements and cemeteries also are abandoned. During the initial stages of Pecica's decline, one of its potential secondary centers, Klárafalva Hajdova, experiences its peak in metal production. Yet, with a bit of a lag, this site also experiences a similar or possibly even more abrupt abandonment. On a broader scale, most of the Middle Bronze Age polities of the eastern Carpathian Basin also collapse at this time.

#### DISCUSSION

If we look at the Pecica trajectory from a broad perspective, we can make several observations concerning the relationship between apparent population growth and aggregation, and the emergence and subsequent collapse of the Pecica polity. Pecica was a relatively new settlement, founded some 600 years after the first appearance of the Maros group, and was established at the time of maximum settlement expansion. Prior to this time, there were already numerous fortified tell settlements in the Middle Maros as well as unfortified tells and open sites, and, on the Lower Maros, large inhumation cemeteries. From these cemeteries, we know that in the Lower Maros the communities were organized as a confederacy of autonomous villages, with shared social markers and hereditary offices but no vertical political integration (O'Shea 1996).

Pecica was established close to and in between two existing Bronze Age settlements—indeed, it was placed too close, being a mere 2.5 kilometers from either. It is also clear that from the beginning Pecica was not an ordinary Maros settlement, nor was it simply a subsidiary location for the conduct of metal smelting. The elaborate site leveling that preceded construction, the production of elite regalia, and the erection of an unusual ritual structure with special offerings built into its floor all speak to its extraordinary status. It is hard to escape the impression that Pecica was founded as a special site with ritual sanction (for a similar situation, see Fernández-Götz this volume), for oversight of metal and craft production, and that it was rapidly transformed into the principal residence of an emergent elite. Yet, even as this happened, the actual population inhabiting the location was small. And it seems to have retained this modest size even as major public works were undertaken creating the great ditch and central settlement plan. It is only at its peak that the inhabited area of the Pecica site suddenly expanded, and this expansion coincided with the abandonment of most of the other Maros tells and settlements in the region. It is also at this time that elaborate public rituals come to the fore and that additional public architecture was constructed.

Changes in the direct elite control of the economy are also instructive (Table 3.3). From its inception, metallurgy was a major preoccupation of the Pecica elite. Yet, over time, the focus of this activity shifted from the primary processing of ores—which presumably also involved the active acquisition of metal ores—to an emphasis on the casting of bronze weapons and ornaments using metal that had been processed elsewhere and transported to Pecica.

The second category of elite-controlled activity was the production of craft goods. The items manufactured of bone and antler included both ornaments and tools, yet the most interesting category of materials is the composite ornaments. These items were comprised of multiple elements that were either themselves exotic imports, such as amber, marine shell, and faience, or required considerable fine finishing, such as the pierced and polished animal teeth. These ornaments are buried with the dead in the cemeteries of the Lower Maros, and many—including the beaded sashes and head ornaments—were employed as markers for hereditary offices (O'Shea 1996). The fact that these items of regalia performed an important symbolic function, and that they were regularly interred with the dead, implies an ongoing and perhaps dependent connection between the villages of the Lower Maros and Pecica. Yet, during the Florescent Period, the elites no longer maintained direct oversight of regalia production, shifting instead to the manufacture of elaborate metal goods and horse breeding. At this same time, the use of elite regalia in the funerary display of the Lower Maros cemeteries strikingly diminished.

Once large-scale horse rearing entered the picture, it remained under the firm control of the Pecica elite. Not only were horses scarce in the off-tell areas, they were similarly rare at other Maros settlements, including Klárafalva Hajdova (Nicodemus 2013). Horses would potentially have been a game changer for the Pecica elite since they provided not only a commodity to be exchanged and displayed but also a mobility multiplier for transportation and warfare. The monopoly on horses, and likely the attendant chariotry technology, was jealously maintained as long as the elites themselves controlled the Pecica tell. Yet, in the final phase of occupation, horse remains are as scarce on the tell as they

TABLE 3.3  
DIRECT ELITE CONTROL OF THE ECONOMY THROUGH TIME  
AT BRONZE AGE PECICA ȘANȚUL MARE

Economic Activity	Initial	Formative	Florescent	Final
Metal production—smelting	XXX	XX		
Metal production—casting	XXX	XXX	XXXX	
Elite regalia—composite ornaments	XXX	XXX		
Horse rearing		X	XXXX	
Fine ware ceramics				
Subsistence production				

Number of X's reflects strength of elite control.

are elsewhere. Indeed, the explosion of horse breeding, chariotry, and metal production—largely weaponry, as attested by the molds (Gogâltan 1999)—at Pecica's peak strongly suggests that it was not only a center for social, ritual, and economic activities but also for martial power during its zenith.

Finally, Table 3.3 highlights an additional feature of elite control of the economy at Pecica, namely, that fine ware ceramics and primary subsistence production do not appear to have ever figured in the elite economy, despite the prominence of fine ware ceramics as regional markers of identity. While the absence of ceramic workshops at the site is unambiguous, it might be argued that absent written records we would not expect to see overt evidence of elite control of basic subsistence production on the tell.

One line of evidence that may suggest some elite oversight of the subsistence economy is the occurrence of large storage vessels, which increase in number over time, along with the appearance of what is termed display storage, being large, burnished liquid containers that may be associated with alcoholic beverage production. This latter type of vessel is not found in the off-tell area. These—coupled with the appearance of specialized storage buildings—argue for the elite's interest in the productive economy, but they fall well short of the expectation for large-scale food redistribution. It seems likely that the storage represented on the tell relates more to elite usages, such as feasting and possibly for provisioning the immediate workforce on the tell.

The contrast in diet between the outer settlement and the main tell also indicates that the specialization in subsistence production—which may have occurred between neighboring settlements—is now full blown within the greater Pecica settlement itself, with the tell-dwelling elite being provisioned with high quality/value meats and grain from the surrounding community.

While the restructuring that occurs during the formation of the Pecica polity is clear, the causes and processes for its collapse are less obvious. There is no evidence for catastrophic destruction or burning at the end of the Florescent Period, nor overt signs of warfare or violence. Based on extensive aeolian deposits dated at this period, Sherwood and her colleagues (2013) have argued for a major episode of drought up and down the Maros, which may have been exacerbated by the extensive deforestation of the region produced by centuries of intensive metalworking. While environmental degradation may have been a contributing factor, the large-scale collapse of economic and social institutions suggests a more complex series of events at play, including the inability to maintain Pecica's centrality in regional trade networks. It is not clear where the elites or the people of the Maros group went once the system collapsed. Most likely they blended into the initial Late Bronze Age complexes that briefly appear and then disappear up and down the river.

So, the aggregation event that is documented at Pecica and in the Maros region generally does correspond to, and is an element in, the development of the Pecica polity. In terms of causality, however, population aggregation appears to be an effect rather than a cause. While the Maros population of the region does appear to grow from the time of initial appearance, this growth is not uniform, nor is the tendency toward



aggregation universal. In the Lower Maros region, the only evidence for increase is the modest intrinsic growth suggested by paleodemographic reconstructions from the cemeteries (O'Shea 1996). On the Middle Maros, growth is suggested at each of the major tells. Yet, given the span of time represented by the tells and the near absence of smaller satellite settlements, it is likely that the rate of increase was similarly modest, and did not involve major recruitment of population from outside. Certainly, at Pecica itself most of the major restructuring occurred prior to the aggregation of population at the center, although the peak of development and population density do co-occur.

So, why did population coalesce at Pecica? It is clear that from the beginning the elites were able to mobilize labor on a substantial scale—to level and initially construct the site and later to construct the great ditch—all before there was any population aggregation at Pecica. It might be argued that the configuration of settlement during Pecica's Formative Period—with Semic Livada lui Onea and potentially Pecica În Vii acting as subsidiary settlements—may have operated as a megasite that enjoyed the benefits of local labor and control, without incurring the costs associated with a large, nucleated settlement. Such an arrangement would also have had benefits in terms of access to arable land and graze. But if this was the case, why abandon the subsidiary settlements and aggregate at Pecica?

There is no evidence for destruction or violence associated with the abandonment of the neighboring sites, which might have necessitated a movement to Pecica. Pecica's continued ties to Klárafalva Hajdova and Rabe Anka Siget, and trade in metals and horses to points beyond, would similarly argue against military necessity. Instead, it seems most plausible that the pull to Pecica reflected an effort to solidify control over economic activities and to minimize the potential for political or economic competition from nearby centers. Yet, this political and social centralization ultimately failed and the system collapsed. While a range of environmental and social factors may have contributed, it is worth noting that similar collapses characterized most of the cultures of the eastern Carpathian Basin at this time.

We hope this brief example has demonstrated that—even in the absence of written records—archaeology can provide a highly detailed and dynamic account of the organizational and economic restructuring associated with the emergence and collapse of complex social forms. Rather than guessing at population numbers and arguing for structural changes that “must have occurred,” archaeologists can describe in often great detail what actually did occur. In this sense, the archaeological case is not interpreted relative to the theory *du jour*, but rather provides an account of events that did occur, which can be compared and contrasted with similar trajectories derived from other archaeological, ethnographic, or historical cases, for use in the process of theory building.

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#### NOTE

1. Several other large tells in the region do have evidence for central plazas, but no platform constructions have been identified elsewhere to date.

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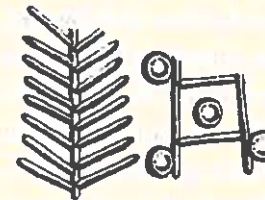
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## CHAPTER FOUR

## Coming Together in the Iron Age

Population Aggregation and  
Urban Dynamics in Temperate Europe

Manuel Fernández-Götz



**Abstract** *Iron Age urbanization processes in temperate Europe were a nonlinear phenomenon which included changing and dynamic cycles of centralization and decentralization. Recent research has demonstrated that the first urban centers developed as early as the sixth and fifth centuries B.C. in an area stretching from Central France to Bohemia. However, this so-called Fürstensitze or “princely seats” constituted an ephemeral phenomenon that was followed by a period of decentralization that some authors have linked with the “Celtic migrations” recorded in Classical sources. A new period of centralization started in the late third century B.C. The appearance of open agglomerations was the prelude for the development of large fortified centers—the Late Iron Age oppida of the second and first centuries B.C. This paper will summarize the new evidence for the different stages of Iron Age urbanism, discussing the social dynamics that lie behind the emergence, abandonment, and reemergence of major agglomerations in temperate Europe during the first millennium B.C.*

## EARLY URBANISM IN TEMPERATE EUROPE: THE FÜRSTENSITZE

The Iron Age (ca. 800–20 B.C.) was a period of profound changes in temperate Europe, with the appearance of a number of features—such as cities, writing, and coinage—that still deeply shape our modern world (Fernández-Götz and Krause 2016; Haselgrove et al. 2018; Wells 2011). The interactions with the Mediterranean Basin were intense and adopted different mechanisms, including trade, migration, and finally military conquest by the Roman Empire. While the use of the term *city* has controversially been debated, in this paper, I propose a context-dependent definition that recognizes the