

5 Conclusion

The Mesolithic population of the Carpathian-Dnieper region was actively 'neolithising', converting to agriculture as people were able to convert to a new religion, according to most accounts on the subject until recently. However, a critical analysis of the available data allows us to question this optimistic picture. First, the refined chronology of Mesolithic lithic industries shows that some could not have participated in Neolithisation because they date back several centuries or even millennia before it began. First of all, it concerns the Kukrek elements in Neolithic industries. The concept of Kukrek is vague enough to find its traces in virtually any Stone Age complex in the region. However, when we define it more narrowly, 'classical Kukrek' became an industry of the late ninth to eighth millennium BCE. The similarity of the Late Mesolithic sites of the Kukrek cultural tradition to it may not indicate an innate connection between them. Instead, it is quite clear that the well-defined complexes of the Kukrek cultural tradition date to the third quarter of the seventh millennium BCE, just before the '8200 cal BP' climatic event, which quite clearly separates them from the first groups with ceramic ware.

The first hunter-gatherers with ceramic vessels appeared over a wide area from the northern Caspian coast to the north-western Black Sea coast in a very short period within the first half of the sixth millennium BCE, possibly in its first quarter. While it is generally

understood that ceramics came to the hunter-gatherers from the east, in the long run from the Far East, its specific source – Central Asia, Trans-Urals – remains unclear. The models of the spread of ceramic ware as an innovative idea may need to be corrected. Carriers of pottery may have brought this innovation with them. Specific types of pottery often symbolised their identities, so the reception of pottery technology as a favourable innovation seems to be too simple an explanation for this rapid spread.

From a chronological point of view, there were the para-Neolithic groups in the valleys of Dnieper, Southern Buh and Dniester when early farmers started their expansion to the region east of the Carpathians. These para-Neolithic sites are classified into ‘Buh-Dniester’ and ‘Surskyi’ cultures. In both cases, speaking about actual complexes of material culture is difficult. ‘Surskyi’ is instead a definition of pottery type, while ‘Buh-Dniester’ is a combination of several styles of ceramic ware with unclear chronological relations. As an archaeological classification unit, the ‘Buh-Dniester culture’ is inconvenient and includes sites from at least two separate chronological blocks: 1. the first half of the sixth millennium BCE, possibly also its third quarter, and 2. the very end of the sixth millennium – the first quarter of the fifth millennium BCE. There is no convincing evidence that the para-Neolithic groups of the Buh and Dniester were introduced to agriculture and cattle breeding in the sixth millennium BCE. All the evidence cited earlier has now been called into question by the latest analyses with improved methodology or for reasons of homogeneity of archaeological complexes, which was often dubious in the excavations of the twentieth century. Thus, we can still only guess whether the local population were hunter-gatherers in the ‘phase of availability’ because, despite the presence of agriculture and cattle breeding in the vicinity, it is not known whether the indigenous groups took advantage of it.

Numerous finds of para-Neolithic ceramics at the sites of early farmers and discoveries of Criş, LBK and Early Trypillian sherds at the sites of hunter-gatherers mostly come from cultural layers. They thus may be the result of several successive episodes of habitation, not a coexistence of two groups at the same site. These imports, then, are not evidence of contact. At the very least, each such case deserves in-depth analysis and the search for new evidence of the cohabitation of farmers and foragers.

The first reliable information about early farmers in the region relates to groups of the Criş culture in its later stages. Thus, Neolithisation took place overland from the inner Balkans, either through the Carpathian passes or south of the Carpathians. Other early Neolithic sites belonged to pre-music note LBK. They were discovered in western Ukraine, thus indicating a dispersal from Central Europe to the north of the Carpathians.

The cultivated plants uncovered at the sites mentioned above are consistent with the typical crop selection of the European Neolithic, comprised of plants originating from West Asia. In this context, there is a notable emphasis on a limited variety of crops, with hulled wheat predominating. The Criş culture groups introduced a set of cultivated plants with West Asian origins to the forest-steppe region of Moldova by at least 5600-5500 BCE, while LBK people further propagated these crops in the territories of modern-day Moldova and Ukraine by 5250-5050 BCE.

The palaeobotanical findings of cultivated plants in Criş and LBK sites are both abundant and diverse. Compared to the claims of similar discoveries from para-Neolithic contexts, the latter seem to be pale imitations. Efforts to identify remains of cultivated plants at para-Neolithic sites through flotation techniques have largely been unsuccessful. Only wild plants were found, or the domesticated plants discovered were intrusions from later periods in the site's stratigraphy. The evidence of para-Neolithic acquaintance with agriculture comes from imprints of remains of cultivated plants on potsherds and daub. However, such imprints are scarce, and the species set varies from one site to another. Recent advances in analysis methodology have cast doubts on the precision of imprint identification. Although it is often assumed that para-Neolithic groups, even in the absence of their agriculture, could have acquired agricultural products through interactions with early farmers, it's crucial to emphasise that, as of now, there is no concrete evidence to support this concept.

The next stage of archaeological periodisation, the Eneolithic, in the region of study, comes with the forming of the Cucuteni-Trypillia cultural block. The latter results from the spread of Early Trypillian (Precucutenian) groups from the Carpathians to the Ukrainian and Moldovan forest-steppe. This migration episode was dated to the 47th-45th centuries BCE. The newly obtained dates indicate a rapid and expansive process of the Early Trypillia dispersal, resembling the swift expansion of the LBK culture and ancient Neolithic migrations, such as the FTN block spread in the inner Balkans. This suggests that similar social structures and motivating factors that drove these movements to new territories likely played a role in these processes.

Considering the earlier establishment of the Gumelnita and Cucuteni A2-3 cultural complexes, the dating of Trypillia B1 implies a gradual and prolonged process of 'Eneolithisation' in the forest-steppe and steppe regions of southern Eastern Europe. This process bears similarities to the dismantling of the LBK culture and the emergence of various post-linear cultural elements in Central Europe. This phenomenon has been described as the post-LBK 'crisis' in Central Europe. Accordingly, the term 'Late Neolithic crisis' better suits the archaeological context in the Carpathian-Dnieper region. The Early Trypillia period falls within these times of crisis, after which the

Neolithic period, characterised by the hierarchical society of Cucuteni A and Trypillia B1, emerges.

These processes took a concrete shape at the microregional level. Early agricultural colonisation occurs in discrete microregions surrounded by non-settled territories. In the LBK studies, the term *Siedlungskammer* was coined to account for these spatial units. Such microregion (Middle Southern Buh region) was situated at the fringe of the early farming expansion: in the Southern Buh river valley, Central Ukraine, some 200 km from the Black Sea. Early farmers settled it on several occasions during the sixth-fifth millennia BCE. Each phase of early farming occupation featured a 'core area', encompassing a small territory where multiple settlements shared direct visibility and notably shorter distances between them. Conversely, another group of sites lacked counterparts in terms of direct visibility and were usually situated at a considerable distance beyond the defined threshold. The landscape between sites with mutual visibility constituted a 'shared territory', even if these sites were not contemporary, there could be continuity in utilising already cleared patches of land by inhabitants who had relocated their settlements slightly. These 'core areas' likely represented cultural landscapes with cleared forests, arable fields, and pastures. While direct empirical research is required to confirm this, spatial analysis data indicate this direction.

Although, in some cases, the sites of para-Neolithic groups have been found only a few kilometres from early farmers' settlements, they occupied very different positions in the landscape and had distinctly different settlement patterns. Modelling radiocarbon dates at the micro-regional level indicates that in a particular micro-region, SBR, para-Neolithic groups lived when there were no early farmers: before the spread of the LBK, and after it, before the Early Trypillian expansion. Thus, if there were contacts between para-Neolithic groups and early farmers, they took place not at the micro-regional level, but at distances of 100 km or more.

However, a distinct settlement pattern emerged whenever prehistoric agriculturalists settled in the region. There are several potential explanations for this observed phenomenon:

1. climate changes may have played a role;
2. early farmers might have had varying preferences for suitable land patches to settle on;
3. local para-Neolithic groups with an extractive economy might have had a different settlement pattern that influenced the choices of early farmers;
4. intentional avoidance of certain areas could also have impacted the settlement pattern;
5. different starting points in development may have contributed to the diversity.

This model, characterized by repeated influxes of early farming groups followed by periods of retreat, can be described as a 'discontinuous model of Neolithisation'. While it is particularly evident in the archaeological finds from the Southern Buh Valley, there is strong evidence to suggest that this model was typical of many 'frontier' situations in the early farming world of Eastern and Northern Europe. The cultural landscapes once created were abandoned, and building a field system and delimiting living space should be started repeatedly. This phenomenon of abandonment of a specific already settled region can be called de-Neolithisation.

Interpretations mentioned above carry equal likelihood at the moment. Understanding the precise nature of the de-Neolithisation processes presents a fascinating challenge to unravel. The sporadic population of the region indicates that early farmers on the periphery of their distribution were susceptible to environmental changes. Establishing sustainable farming on the fertile soils of Central Ukraine and Moldova required multiple attempts.

