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DIFFERENT APPROACHES TO RESEARCH ON THE INTERACTIONS BETWEEN HUNTER-GATHERERS AND GROUPS OF FARMERS AND BREEDERS

ABSTRACT

Interactions between hunter-gatherers and groups of farmers and breeders have been a subject of archaeological debate for many years. Thanks to the application of different scientific approaches, ranging from material studies to archaeometric analyses, the discussion has not lost its relevance. The aim of this study is to present the

evolution of scientific investigations related to these interactions and to emphasise the potential of the debate: despite the passing of time, it remains an open research issue. The complexity of this discussion will be demonstrated through selected case studies from all around Europe.

Keywords: hunter-gatherers, farmers and breeders, theories and models, material studies, archaeometry, Europe

Introduction

Since the time of V. G. Childe, interactions between hunter-gatherers and groups of farmers and breeders have sparked intense debate. At the beginning, these contacts were examined rather in terms of the dominance of exogenous groups with a productive economy over local foragers who conveyed a general “impression of extreme poverty”.¹ Childe stated that the new qualities brought by the newcomers spread rapidly in a process which he called ‘the Neolithic revolution’.² This term implied either the total disappearance of indigenous people or their subjection to new socio-economic realities.³ A significant change in understanding the status of the hunter-gatherer communities took place gradually as the reflection on their material culture and the relics of “Mesolithic” activity evolved.⁴ The presence of hunter-gatherers started to be regarded not as an expression of “a hiatus or period of quarantine between the Old and New Stone Ages”,⁵ but rather as “an essential prelude to fundamental changes in the development of culture”.⁶ The subsequent development of research on areas such as technology, settlement, subsistence, demography and organisation con-

tinued,⁷ and structures related to foraging finally started to be evolutionally “appreciated” as a result. Since then, the richness of technological and cultural achievements of hunter, gatherer, and fisher populations have been brought to attention and it became obvious why the idea of a rapid ‘Neolithisation’ was inadequate. The main questions that arose were the following:

1. In what manner did the process of Neolithisation occur?
2. What kind of relations emerged between the locals and the newcomers ca. 8000 BP, when the first agricultural, pottery-carrying communities appeared in the Aegean, the Balkan and other Mediterranean territories in general?

At the core of this paper lies the assessment of the potential and complexity of this discussion, as well as the related theories, models and approaches, from material studies to archaeometric analyses. All of these aspects are going to be presented on the basis of selected examples from Europe. The present contribution aims to demonstrate the potentialities of each method and, above all, to highlight the richness of modern research possibilities and of the discussion itself.

¹ Childe 1942, 36.

² For instance Childe 1929.

³ Childe 1925.

⁴ After Price 1983, 770.

⁵ Price 1983, 770.

⁶ Clarke 1980, 7.

⁷ See Price 1983, 770.

⁸ Czernik 1976, 59.

The first studies on Neolithic interactions

As stated by S. A. Czarnik, the definition of the ‘Stone Age’, introduced by C. J. Thomsen was an elementary idea that, with some minor changes, has so far served as a reference point for continental archaeologists.⁸ Having undergone a chronological division, the concept became one of the main paradigms in European archaeology and until now there have been no signs that this is going to change. However, from the very beginning, this definition has exhibited a strong dichotomy, highlighting only the boundaries, not the commonalities between cultures. Subsequently, processualist thinking came up with the idea of a much more complex diffusion that could have occurred, although only in one direction: from the newcomers to the local populations. Still, researchers did not take into consideration any possible interfusion of phenomena that might have acted as a link. This was demonstrated particularly in the ‘wave of advance’ model created by L. Sforza-Cavalli and A. Ammerman.⁹ Genetic studies conducted by these authors showed a limited participation of hunter-gatherers’ genes in the genotype of later European populations. Therefore, it was concluded that the newcomers replaced the local population. Nevertheless, the results did not in fact provide any possible explanation as to what happened to the forager populations, how the process evolved and why it proved to be so enduring. Moreover, since the first heterogeneous finds from the Aegean and Balkan territories were included in research, it has been obvious that simple models cannot serve as a definitive explanation.

Findings from the north-eastern shores of the Mediterranean provided information on the coexistence of material culture belonging to groups of pottery-carrying agricultural communities and Mesolithic hunter-gatherers.¹⁰ As a result, the opinion on the postulated uniformity of the ‘Neolithisation process’ had to change. It seemed that the interactions were more complex than previously believed. Soon, new insights were gained from archaeological data (e.g. T-axes, geometric ornamentation and metatarsal chisels or cleavers found in the Brześć Kujawski group, as well as domestic cattle bones and stone axes with shaft holes in Ertebølle contexts)¹¹ and, in consequence, it became obvious how inadequate the previous colonisationist and diffusionist theories on the Neolithisation of local European communities had been.

No categorical ‘shift’ was observed. Moreover, archaeological materials indicated rather the coexistence, or even ‘cultural exchange’ between both groups. The best-known example is ‘The Whirlpool of Lapena’, commonly known as Lepenski Vir.¹² Motivated by the dual character of finds from this site (of both Mesolithic and Neolithic origin)¹³ and in search of local and non-local attributes, researchers examined more than five hundred individuals from cemeteries located nearby. Interestingly, these studies did not prove any drastic change in economic management, but revealed a subtle dietary transformation during the Mesolithic and Neolithic periods. While the Late Mesolithic subsistence was based on a fish-dominated diet, the newcomers were less dependent on aquatic resources. Findings from Lepenski Vir, along with other similar examples from different parts of Europe, proved that the transition may have been different from what was conventionally thought. However, apart from just a few attempts,¹⁴ its exact course has not been sufficiently explored so far.

Theories and models

Research on Neolithisation and the related social and cultural interactions that started with certain ‘colonisation’ theories, tied to G. Childe’s ‘Neolithic revolution’, remained in the mainstream of the cultural and historical approach. Given the lack of reasonable evidence for a rapid transition in Europe, the term was rephrased as ‘the process of Neolithisation’. Its geographical dimension also varied, as reflected by numerous scientific theories formulated to determine its character.¹⁵ However, to this day none of these approaches was fit to serve as the principal explanation. Certain regularities in this respect can be outlined from the Central European perspective. The Neolithisation process “began [there] during the latter half of the seventh millennium cal. BC, then experienced a major shift with the expansion of the Linear Pottery Culture” (LBK)¹⁶ and ended “within the 3rd millennium BC and the first half of the 2nd millennium BC”,¹⁷ when the last hunter-gatherers faded away among the Early Bronze Age groups or, as others prefer, when the third stage of Neolithisation occurred.¹⁸

Even if the principal subject under discussion has been elaborated in a number of theories, it has to be emphasised that the earliest of these, related to diffusionism,

⁹ Ammerman, Sforza-Cavalli 1984.

¹⁰ After Price 1983, 770.

¹¹ Bogucki 2008.

¹² See Srejović 1969; Borić *et al.* 2012.

¹³ See Borić 2007.

¹⁴ For instance Kozłowski, Nowak 2019.

¹⁵ For instance Clark, Haswell 1967; Lee, DeVore 1968; Binford 1968; Hodder 1990.

¹⁶ Gronenborn 2007, 73.

¹⁷ Nowak 2013, 11–12; 2019.

¹⁸ See Nowak 2019.

are most representative, such as the already mentioned 'wave of advance' model.¹⁹ Only as late as in the 1960s, the idea of diffusion changed to a more processual way of thinking, which was particularly related to a general shift in research methodology. Among others, it was marked by the appearance of the paleo-economic approach²⁰ and the population-resource imbalance model.²¹ The theories evolved into major demographic paradigms, which considered, for example, the idea of territorial nucleation²² or the 'packing model'.²³ The latter two indicate how population growth can ultimately reduce mobility and increase the exploitation of suboptimal resources. According to M. Zvelebil,²⁴ all of these theories (or models) were initially inspired by Testart's theory of complexity of hunter-gatherer communities.²⁵ This theory attempted to encompass the development of many techno-economic domains, including the large-scale storage of food, reduced residential mobility, increased population density, socio-economic differentiation, social division of labour, developed systems of exchange, warfare, as well as intensive ceremonial and social activities. More interestingly, from this moment onwards the original 'Neolithic' communities actually started to be seen as active participants in the process aptly called Neolithisation.

Despite the emergence of new concepts and differing research results, none of the above has ever enjoyed as much popularity as diffusionist theories. Their plausibility was even confirmed by genetic research a few years later.²⁶ The 'wave of advance' model or the migration theory received support from numerous scholars, including C. Renfrew,²⁷ who added a linguistic aspect to the discussion.²⁸ These and other quite similar theories gained the greatest popularity at that time. However, they did so not only because of their scientific rationale, but also out of the European ambition to have a noble genealogy, referred to by M. Zvelebil as 'farmers our ancestors'.²⁹ In the meantime, the state of the art of global archaeological research changed. As D. Gronenborn pointed out,³⁰ when American scientists agreed upon the migration theory, researchers in the United Kingdom followed post-processual archaeologists and, as a result, also adopted an 'indigenous' concept of Neolithisation.

In both cases, the LBK "played a major role" in changing Europe.³¹ At the same time, continental scientists had their own insights which resulted in a similar discussion regarding the migratory vs. indigenous character of the process. After years of discussion, "an intermediate scenario" was finally reached in all relevant cases.³²

New models of Neolithisation emerged in the 1980s. All of these were grouped around acculturation theories which implied the acceptance of the Neolithic lifestyle by local hunter-gatherer communities. This adaptation came after the spread of information on the attractive 'plant-animal package' which persuaded communities to acculturate to the new conditions.³³ The main paradigm was the so-called 'Neolithic package', the adaptation of which resulted in "a sedentary way of life, the first permanent villages, domesticated crops and animals, and the development of new skills, such as polished stone production and pottery".³⁴ The theory suggested that domesticated animals and plants were acquired via trade with the Neolithic population of the Near East, and subsequently through agriculturalists living in the Balkans and the Mediterranean area.³⁵ Even though this development was supported by archaeobotanical evidence, some scientists remained sceptical. Using climate change as an argument, they pointed to the possibility of a local Neolithic manifestation. It was suggested that the direct environment was also likely to have created favourable conditions for the initiation of such economic changes in Europe.³⁶ Additionally, a social perspective was suggested: A. Whittle claimed that adaptation to the new realities could have taken place thanks to contacts and certain unidentified interactions which were carried out in accordance with specific social ethics.³⁷ The latter are nowadays of particular interest and it seems that ethnographic research is capable of approximating them to a certain extent.

As already mentioned, the most popular approach of our times combines the migration theory and the indigenous concept. In one related model, referred to by M. Zvelebil as "integrationism",³⁸ the agricultural transition is regarded as a "selective colonisation by fairly small groups through mechanisms such as 'leapfrog colonisa-

¹⁹ Ammerman, Cavalli-Sforza 1984.

²⁰ Higgs, Jarman 1969.

²¹ Clark, Haswell 1967; Lee, DeVore 1968; Binford 1968.

²² See Newell 1984.

²³ Binford 1983.

²⁴ Zvelebil 1986a, 8–10.

²⁵ See Testart 1982.

²⁶ See Ammerman, Cavalli-Sforza 1984.

²⁷ Renfrew 2003, 328.

²⁸ Renfrew 1987, 142–152.

²⁹ Zvelebil 1995, 145–147; Divišová 2012, 141–142.

³⁰ Gronenborn 2007, 74.

³¹ Gronenborn 2007, 74.

³² Gronenborn 2007, 75.

³³ Divišová 2012, 141.

³⁴ Divišová 2012, 143.

³⁵ Divišová 2012, 143.

³⁶ Testart 1982; Gronenborn 2007, 77.

³⁷ Whittle 1996.

³⁸ Zvelebil 2002.

tion', frontier mobility, and contact".³⁹ In another approach, probably even more important from the perspective of the present paper, called the "availability model",⁴⁰ the role of Mesolithic communities was finally emphasised. The contacts between foragers and farmers started to be seen as taking place on the frontier rather than in the zone of ephemeral interactions. The availability model was divided into three phases: the availability phase, the substitution phase and the consolidation phase.⁴¹ Their distinction depended on the relationship between the incoming and indigenous populations which were examined in correlation with a particular region and the intensity of farming practices detected there. The phases were ordered "chronologically" according to the types of interaction and depended on the degree of advancement of mutual relations between farmers and hunter-gatherers. The assignment of relationships to specific phases was based on research on the conditions of stable cultural diversity, the external or internal cultural combinations and the general adaptation of the Neolithic means of subsistence. Once these models gained popularity, they were further developed.

Except for theories resulting from a reflection on the environmental and economic aspects, certain other approaches related to the change in social thinking were adopted.⁴² Their aim was to prove "the enormous significance of (non-verbal, non-literate) visuo-symbolic representation".⁴³ This understanding stemmed from the so-called historical actuality, based on the same principle as geological actuality.

However, despite the abundance of models proposed in the past, a new theoretical approach seems to be dominating today's discussion. Since it has been proven that the material and spiritual culture of the hunter-gatherers was substantial (see *The original affluent society* by Sahlins),⁴⁴ while at the same time their ways of subsistence have been declared sufficient, the idea of the Neolithisation of these communities started to be viewed from another perspective. It began to be presented rather as a process of acquiring or incorporating certain elements of the Neolithic package into the daily life habits of the hunter-gatherers and their beliefs.⁴⁵ This led to the implementation of further Neolithisation components such as "prestigious/cultic objects, architecture,

settlement organisation, and a new way of life".⁴⁶ Each of these components could have had a different impact on its observers, so the process of their acquisition could have been carried out differently in various places and not only as a consequence of a 'social disequilibrium', as proposed by M. Zvelebil.⁴⁷ A fine example of these processes is the so-called 'ceramic revolution' which explains how Neolithic innovation expanded in Eastern Europe.⁴⁸

Thus, recent theories and models on Neolithisation postulate a clear heterogeneity of the course of this process.⁴⁹ The same approach may also apply to the mutual interactions that might have taken place between indigenous hunter-gatherers and exogenous farmers and breeders.

Research areas and different approaches

It is somewhat trivial to say that the interactions between hunter-gatherers and groups of farmers and breeders are strongly linked to the process of Neolithisation, which started around 10,000 BC in the Near East, as a "revolutionary moment occurred, when hunter-gatherers began to focus on broad spectrum hunting and gathering (...) which implied the adoption of a more sedentary life".⁵⁰ Factors that influenced these interactions and helped them spread include climate change, demographic growth and the pressure that followed it. So much so that the theory on "over-exploitation by intensive hunter-harvesters who were (semi-)sedentary"⁵¹ has been recognised as an important impulse for agricultural proliferation. Some of these concepts were once rejected,⁵² some were temporarily restored,⁵³ and others were even entirely abandoned (like the term 'revolution' used in reference to the 'Neolithic'), but the debate on Neolithisation and the related topics has not been exhausted yet. Furthermore, it is still gaining both numerous scholars as well as new methods. Combined, these are set to answer the main questions concerning the causes, the course and the effects of the said process and the resulting contacts. Ever since material studies have been defined, they have provided the main evidence regarding these interactions.

Insights into the nature of the relations established between foreigners and agrarian/pastoral populations

³⁹ After Divišová 2012, 143.

⁴⁰ Zvelebil, Rowley-Conwy 1984; 1986.

⁴¹ Zvelebil 1986a, 10–13.

⁴² For instance Hodder 1990; Verhoven 2011; Watkins 2006.

⁴³ Watkins 2006, 82.

⁴⁴ Sahlins 1972.

⁴⁵ For instance Raemaekers 1999, 13–14.

⁴⁶ Mazurkevich, Dolbunova 2015, 13.

⁴⁷ Zvelebil 1986a, 10.

⁴⁸ Mazurkevich *et al.* 2006; Mazurkevich, Dolbunova 2015.

⁴⁹ Watkins 2006, 82–84; Mazurkevich, Dolbunova 2015; Nowak 2019.

⁵⁰ Flannery 1969; Watkins 2006, 74.

⁵¹ Watkins 2006, 74.

⁵² See Braidwood 1960.

⁵³ See Binford 1968; Flannery 1969; Aurenche *et al.* 2013.

come not only from previously mentioned Serbia,⁵⁴ but from all around Europe, including Germany, Denmark, Scandinavia⁵⁵ and Poland.⁵⁶ These examples are mainly related to the so-called “obvious” contacts, such as certain forms of trade, cultural exchange, or a simple chance meeting (as exemplified by the indicators of conflict found at the site of Jagodnjak in Croatia).⁵⁷ Similar contacts can be observed in later periods, in archaeological materials, ethnographic data or historical chronicles where, for instance, the contacts between the Roman Republic and the *Barbaricum* were recorded (see Julius Caesar and his *Gallic Wars*). A similar situation took place during the first interactions between the indigenous peoples of the New World and the European newcomers. These events were described on a number of occasions, but one is of particular interest. In 1524, an Italian explorer in the service of France, Giovanni da Verrazano, described the behaviour of the Narragansett community as very generous.⁵⁸ Another European discovery also resulted in a cultural exchange of economic character. In the first half of the 16th century, Portuguese explorers reached Japan. Initially, some ‘exotic’ items, such as glass, eyeglasses, hourglasses, wine and other curiosities were exchanged. Soon, the European ‘gadgets’ were associated with prestige and became fashionable so that every nobleman had at least one such item in his collection. Afterwards, Portuguese traders began to sell firearms of their production called *harquebus*.⁵⁹ As a consequence, the Japanese soon started to produce their own equivalents called *tanegashima* guns.⁶⁰ These differed in terms of shape but served the same purpose. Even if this situation is not quite identical to the Neolithic because of its economic and political character, it can serve as a good example of the impact of trade contacts on local needs; for instance, as a certain analogy to (or metaphor for) the idea of ‘ceramisation’ of the first Mesolithic communities. From all of the available elements in the Neolithic package, they chose pottery. From this moment on, ceramics started to be incorporated on a larger scale in their daily life. Even if for different reasons, the behaviouristic approach was adopted in a similar manner. The chosen element was an expression of an internal need, not an effect of external pressure.

Another stage of the interactions in question will now be discussed: the incorporation, adaptation or emulation of ideas and stylistic attributes. The best sphere for such investigations is pottery which, according to Prudence Rice,⁶¹ can be seen as a mental template with enormous significance for investigating the origin of its producers and owners. An interesting illustration of this type of approach is provided by research conducted in north-eastern Poland. For a long time (until the mid-2nd millennium BC), this area remained a dominion of hunter-gatherer communities. Although they incorporated certain Neolithic elements (such as pottery), they were economically committed to the Mesolithic tradition. Nevertheless, at the end of the Neolithic period, certain processes of cultural diffusion can be traced. Interestingly, some researchers consider these as the third stage of Neolithisation.⁶² The question of whether this was actually the case is up for debate. However, it can undoubtedly be said that for this territory (and its inhabitants), these processes were the beginning of serious cultural and social changes. A fine example is Site X in Ząbkie, where a huge and heterogeneous assemblage of pottery was discovered.⁶³ There were parts of vessels of diverse archaeological origins, related to the Globular Amphora culture, Rzucewo culture, Corded Ware culture, Iwno culture, Bell Beaker phenomenon, Trzcinniec cultural sphere (known as the Trzcinniec Cultural Circle⁶⁴) and one that could be classified as the Neman cultural sphere (known as the Neman Cultural Circle).⁶⁵ The discovered potsherds showed diverse characteristics. Except for a big number of homogenous fragments of pottery bearing attributes of only one archaeological culture, those displaying a mixture of features of different origins predominated. This was especially apparent in the ornamentation since it combined motifs of the local Neman cultural sphere (an ornamented edge of the pot and characteristic ‘pits’) with, for example, patterns typical of the foreign Globular Amphora culture or the Corded Ware culture.⁶⁶ The amount of diagnostic potsherds was sufficiently large to make the overall interpretation of the site challenging: in contrast to the significant number of fragments of rims, only a few bottoms were found. However, these materials confirmed the complexity of

⁵⁴ Borić 2007.

⁵⁵ After Bogucki 2008.

⁵⁶ Czekaj-Zastawny *et al.* 2011; Czekaj-Zastawny 2015; Nowak 2019, 109.

⁵⁷ Oral information in the paper of Marko Novak *et al.* on “violent Neolithisation” at the site in Jagodnjak in Croatia, presented during the 7th edition of the “Homines, Funera, Astra” conference in Alba Iulia in 2019.

⁵⁸ See Greene 1872, 13.

⁵⁹ Greń 2010, 19–20.

⁶⁰ Lidin 2003; Greń 2010, 19–20.

⁶¹ Rice 1987, 283–284.

⁶² For instance Nowak 2019.

⁶³ See Manasterski 2009; 2016.

⁶⁴ Makarowicz 2010.

⁶⁵ *Sensu* Manasterski 2016.

⁶⁶ Manasterski 2009, figs 2–3.

relations between local pottery-carrying hunter-gatherer communities and agricultural and pastoral societies foreign to this territory. The most probable reason for this kind of admixture was increased contact, perhaps resulting from intermarriages or at least a lively exchange and transfer of knowledge and technology. For this reason, these findings have been added to the inventory of a separate Ząbie-Szestno complex.⁶⁷ Nevertheless, archaeological material from the Masurian Lake District indicates more direct and conscious contacts, which, in fact, were already confirmed by genetic studies.⁶⁸ The results show a mixed genetic component of Mesolithic and Neolithic origin, which only reinforces similar theories. Examples also come from Kuyavia (Poland); however, as proven by Daniel M. Fernandes *et al.*,⁶⁹ the evidence was “certainly composed of the same genetic component present [also] among Anatolian and LBK Early Neolithic farmers”.⁷⁰ Still, this does not exclude contacts, but only indicates that they may have taken place long before the arrival of Neolithic societies on the territory of modern-day Wielkopolska.

Even if the presented evidence for contacts is not as accurate and direct as genetic studies, their existence cannot be excluded. This was thoroughly proven by B. Vanmontfort who studied the frequency of microlithic artefacts in relation to the penetration of the loess zones traditionally seen as the dominion of Neolithic communities.⁷¹ Also, although material data is limited, genetic research backs up such possibilities.

The examples mentioned above proved to provide irrefutable evidence for direct interactions between both groups. At least three different forms of direct interactions can be distinguished:

- I. Exchange. The matter of exchange could have been related to particular items, such as generous gifts or ‘trade’ objects.⁷²
- II. Adaptation/Emulation. The matter of adaptation/emulation could have been related to the incorporation of ideas, technologies, stylistics, or to the morphological syncretisation of manufactured products.
- III. Interbreeding/Intermarriages. Direct relations between particular individuals of both groups.

It is very important to point out that the interactions mentioned above are divided in terms of forms, not phases as suggested by Zvelebil.⁷³ The cause of these contacts is related to their specific characteristics which allow them to occur simultaneously. The exchange of objects, as well as the adaptation, borrowing or emulation of ide-

as can take place at the same time. The reasons for this are numerous: after getting a gift, the recipient could try to copy it in its entirety or just its particular elements. Also, marriages could take place at the same time as the previously mentioned activities, which situates this whole hypothetical group in the first phase according to Zvelebil and Rowley-Conwy, namely ‘availability’. This should be investigated as a priority not only in the case of the interactions themselves, but also as far as the drivers behind the European Neolithisation are concerned.

***There are as many approaches,
as there are people writing –
instead of a conclusion***

Paraphrasing Marek Zvelebil,⁷⁴ we should be aware that although these words come from 35 years ago, they are still applicable today. Numerous discussions and many papers investigating the problem of the Neolithic transition and consequently, the relations of foragers and farmers/breeders are cases in point. It is difficult to find one adequate model, or a single approach to answer all the questions. Regarding the entire set of available data and the plurality of theories, the Neolithic of the temperate zones of Europe (and Asia) should be seen as a period when communities with different economies based on general productivity functioned in parallel. Thus, this productivity does not solely apply to the farming and breeding conditions, but implies an intentional and ‘conscious’ use of the natural environment for particular economic reasons. Moreover, the economic specialisation of the hunters, gatherers, and fishermen as well as their overall role in the transformation of Europe should no longer be underestimated. This approach could be the answer to questions on the observed acceptance of the new model of life and the final transition from foraging towards farming and breeding. Even if the concept is not yet thoroughly developed, it already fills the gap between the initial process and the final acculturation of both groups. Available data originates in all parts of the world and highlights different models of Neolithisation and the various elements of its package. Therefore, one definition is not enough. Although it is difficult to capture this evolution by reviewing archaeological material, the idea deserves further examination and the significance of hunters and gatherers in the transition has to be emphasised.

⁶⁷ Manasterski 2009, 119–133.

⁶⁸ Borić *et al.* 2012; Chandler *et al.* 2005; González-Fortes *et al.* 2017.

⁶⁹ Fernandes *et al.* 2018.

⁷⁰ Nowak 2019, 109.

⁷¹ Vanmontfort 2008.

⁷² See Zvelebil 2001, figs 5–6.

⁷³ Zvelebil, Rowley-Conwy 1984; Zvelebil 1986a, 1986b.

⁷⁴ Zvelebil 1986a, 8.

In short, having analysed the objects made in hunter-gatherer communities, one simply cannot doubt that they were sufficiently developed for a more 'conscious' productive economy. However, not only artefacts, but also the results of archaeometric research and theoretical deliberations provide us with premises to develop this idea. Thanks to the emergence of the latter, the perception of European Neolithisation has already changed. One can only wonder how much is still ahead with the development of technology, research methodology, and the emergence of new archaeological records.

Evidence from all of the presented research areas shows different networks that were formed between hunter-gatherers and groups of farmers and breeders. However, until today, more daring scientific voices have appeared only sporadically. Nevertheless, the interactionist approach has gained some popularity.⁷⁵ Today, the idea of hunter-gatherers acting as a prelude in the Neolithic has become widely accepted and the role of foragers has finally been acknowledged. Moreover, there are more and more voices in favour of theories suggesting Neolithic development on a local basis. Indigenous European communities could achieve the same cognitive and cultural facilities that their Southwest Asian neighbours had developed only a few centuries earlier.⁷⁶ This explanation could help to understand why the process of Neolithisation succeeded in a given area, but this reasoning leads to the question of inevitability. Was it necessary?

It is possible that the hunter-gatherers could eventually have reached the same level of advancement without any external influences. Would their approach have been different and could this predestined achievement have made them assimilate with the newcomers? Is the 'wave of advance' model still valid? It has to be mentioned that the changes that came about with Neolithisation could not have taken place without the skills and overall development of the hunters and gatherers. This fact has been emphasised more than once, especially by G. Clark, who highlighted the pivotal role of the Mesolithic in the development of later periods and cultures in Eurasia.⁷⁷ The character of these transformations and their consequences depended on specific, local preferences. Clearly, it would be a mistake to define them only from an economic perspective.

As Marek Zvelebil mentioned 35 years ago, the temperate zones had much to offer, including attractive living conditions and a wide range of economic options which should be considered.⁷⁸ It is no wonder that there are so many different forms of the Neolithic, from its classic variant to modifications based on an admixture of different hunting, gathering and fishing strategies. Therefore, the question is not if there were any contacts or interactions, but what forms of these can be distinguished. The answer is connected to the ultimate question of Eurasian Neolithic archaeology: why (or if) the process of transformation finally succeeded and what caused it to stop.

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⁷⁵ See Kozłowski, Nowak 2019.

⁷⁶ Watkins 2006, 84.

⁷⁷ Clark 1980, 7.

⁷⁸ Zvelebil 1986a, 5.

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