Mateiciucová, Inna

The beginnings of the Neolithic in central Europe

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3. THE BEGINNINGS OF THE NEOLITHIC IN CENTRAL EUROPE

3.1. Basic models of the Neolithisation of south-eastern and central Europe

At the end of the 19th century it was generally accepted that a hiatus existed between the Palaeolithic and the Neolithic. In most cases, this was explained by the departure of the earlier inhabitants northwards, following the large fauna. This meant that the beginnings of the Neolithic in Europe were automatically associated with the arrival of new people. L. Niederle (1893, 87–90) attempted to refute these opinions. While accepting the arrival of a new population, he ascribed a primary role to the original inhabitants, who did not disappear from Europe but who changed their way of life.

In his *Pravěké Československo* (1948), Jan Filip feels that

> *„...příliv kolonistů, hotové nebo právě se rodící zemědělské civilizace od jihovýchodu do střední Evropy za zatím nejpravděpodobnější.“*
>
> "… a wave of colonists, a complete or nascent agricultural civilisation coming from the south-east to central Europe, is thus far most likely."
>
> J. Filip 1948, 108–109

He does not, however, rule out the possibility that

> *„...že se ve střední Evropě udržely zbytky staršího paleoliticko-mezolitického lidu, a že snad po určitou dobu žily vedle sebe, než domácí složka splynula s novým zemědělským prostředím...“*
>
> "… in central Europe, remnants of the older Palaeolithic/Mesolithic folk persisted, and that perhaps for a certain time they lived side by side, before the native element merged into the new agricultural environment…"
>
> J. Filip 1948, 108–109

Since that time, a whole series of models of the process of Neolithisation in Europe has been developed. These models, whether one-sided or complex and attempting to detail the transition from a foraging lifestyle to a productive economy, can be divided into three main groups depending on whether local (hunter-gatherer communities) or foreign populations (early farmers) play the decisive role:

1. the first group explains the appearance of the Neolithic in Europe through the arrival of colonists from the already Neolithised regions of the Near East and south-east Europe (the diffusionist model and the migration model). This view was treated in detail by Childe in his book *The Dawn of European Civilisation*, published in London in 1925, and was for long the dominant paradigm.
2. the second group of models envisages the beginnings of the productive economy as the uptake of Neolithic ideas by the local forager populations (the acculturation model).
3. the last group accords importance to both the arrival of an agricultural population and to the contribution of the local, non-agricultural population (the substrate theory, = the assimilation of the local population), who played either a more passive or a more active role.

The models in these three groups have come to display a broad range of shades, and not all can be clearly "compartmentalized". The "wave of advance" model developed by A. J. Ammerman and L. L. Cavalli-Sforza (1973; 1984) belongs into the first group. This model was intensively criticised, mainly because of overestimating the abilities of early farmers and interpreting the Mesolithic population as too passive (Dennell 1985; Zvelebil 1986a, 9).

A whole range of authors have subscribed to the colonisation (migration) model (Lichardus & Lichardus-Itten 1985; Runnels & van Andel 1995). A similar view of

the Neolithisation of south-east and central Europe is presented by R. Tringham at the end of 1960s and the beginning of 1970s. She understands it as a continual process linked to the movement of agricultural populations into the fertile regions of the Danube, the upper Elbe, the Vistula and the Rhine. Outside these areas she allows for the distribution of Neolithic ideas rather than the physical movement of farmers (Tringham 1971, 73). In Bohemia, adherents include above all S. Vencl, who carried out an extensive, complex study of the Neolithisation of central Europe in which he employs evidence not only from archaeology but also from other disciplines (anthropology, demography, ecology, botany and ethnology). Similar to Ammermann and Cavalli-Sforza, he assumes that the Neolithisation of central Europe took the form of several waves of colonisation, in which the advancing colonists "after the infilling of settlement within the framework of settlement cells" with each subsequent wave moved on to other suitable and hitherto unoccupied or insufficiently settled spaces (Vencl 1982, 656). In Vencl's view, the original Mesolithic population had a negligible influence on the appearance of the central European Neolithic except in peripheral areas, as the environmental demands of the post-glacial hunters and gathers were sharply different to those placed on the quality of the environment by the agricultural population. The first waves of colonists thus arrived in virtually unpopulated areas, but he also does not exclude some hostile confrontations and "hunts" for the original foraging population (Vencl 1982; 1986b).

A special offshoot of the colonisation model is C. Renfrew's model (1987, 147). He has linked the Neolithic colonisation of Europe to the advent of the first farmers speaking Indo-European languages, whose original homeland he locates in Anatolia.

Models that see the beginning of the productive economy in the uptake of Neolithic ideas by the non-agricultural population are mainly based on an assumption of inequality between population volumes and sources of subsistence, which is the direct cause of the transition to a productive way of life. These external conditions finally resulted in economic intensification and domestication (Binford 1968; Flannery 1969; Harner 1970; Smith & Young 1972; Cohen 1977; Hassan 1978; 1981; Redding 1988). Many of these models originally only referred to the development of the Neolithic in the Near East, where the arising inbalance used to be explained by population pressure. In Europe, the transition of hunters and gatherers to agriculture was more usually explained by shrinkage of accessible resources (Zvelebil 1981; Rowley-Conwy 1983; Zvelebil & Zvelebil 1988). These models generally emphasise (Zvelebil 1986a, 9–10):

1) that hunters and gatherers adopted agriculture only under pressure;
2) the significance of the sedentary way of life as the main linking and overarching element leading to the domestication of animals and plants.

In 1983, L.R. Binford (1983) produced a detailed critique of earlier demographic approaches (Binford 1968; Cohen 1977) and developed the "packing" model according to which the increasing concentration of the population began to have an effect on freedom of movement. The only option then open was the transition to a settled way of life, also involving a more intensive use of poorer resources – until ultimately the productive strategy became essential (Binford 1983).

According to G. Barker (1985, 71, 97–98, 251–255), who developed his hypothesis on the basis of the findings in the Iron Gates region on the Danube (Lepenski Vir, Vlasac), the Neolithic in south-east Europe was created by an indigenous Mesolithic population only adopting some domesticated plants and animals from the Near East. Barker also assumes that the population was pushed to the transition to agriculture by external conditions, such as climatic changes, rise of sea level and population pressure, causing a lack of food sources.

Barker's model is very similar to that of R. V. Dennell (1983), but in contrast to Barker the latter assumes that central Europe must have been Neolithised through colonisation, as in terms of material culture the local Mesolithic cannot be compared to the Neolithic here. However, the reason for the Neolithisation of central Europe was not population pressure, but the presence of fertile soil in unoccupied regions (Denell 1983, 165–167, 170, 189).

Mostly on the basis of the situation in the Iron Gates, R. Tringham also reformulated her original colonisation model and became an advocate of the idea that in the Balkans, the Neolithic way of life was for the most part taken up by the local Mesolithic population (Tringham 2000, 48–51), which adopted it through an exchange of products and people.

Another adherent to the acculturation hypothesis is J. Pavúk (1994, 140–141), who, similar to P. J. R. Modderman (1988) in west Europe, starts from the assumption that Neolithic cultures in southern Europe, much like those in the Carpathian Basin, were typologically and regionally distinct from the start, this being a consequence of the different pre-Neolithic substrate and intensity of communication between particular regions. In his view, it was not necessary, and cannot be demonstrated, that Neolithic agriculturalists migrated long distances in the form of massive waves of colonisation.

A. Whittle (1996) provides a somewhat different view of the acculturation process from a social perspective, emphasizing an active participation of hunters and gatherers. According to him, the original mobile, adaptable forager population expressed sufficient will for change (for the adoption of animal husbandry and plant cultivation) and for making use of new circumstances. Their motivation was perhaps initially supported by the existing social ethic. The transition to the Neolithic is understood here as a process of improving the existing social system, rather than as sudden change. Whittle does not assume that population growth led to the colonisation of new territories, or that the beginning of Neolithisation in Europe was marked by a difference in population density between a dispersed forager population and densely clustered agricultural settlements. He allows for certain, limited colonisation of areas that later display a higher settlement density, such as Thessaly, and central-southern Bulgaria, but elsewhere, including in the Danube Basin and south-eastern Hungary (the Tisza-Körös river network), he assumes continuous development (Whittle 1996, 43–44, 361).

Among the models of the third group, emphasising the contributions not only of incoming farmers but also of the indigenous Mesolithic population, is the "pioneer colonisation" model. It assumes the colonisation of only the most fertile areas, while other locations not at first settled by the earliest colonists are inhabited by a persisting forager population which gradually adopts agriculture (Kruk 1973).

Similar models have been detailed for the specific situation of the Iron Gates territory, and most of them emphasize the role of contacts not only finally leading to the Neolithisation of the local hunter-gatherer communities, but also affecting the Starčevo and Criș cultures (Jovanović 1987; Radovanović 1996; Tringham 2000).

The earlier pioneer colonisation model was taken further in the "availability" model, which concentrates on the process of hunter-gatherer acculturation itself (Zvelebil & Rowley-Conwy 1984; 1986; Zvelebil 1986a; 1986b).

Unlike earlier models, the availability model sees the contact zone of forager – farmer interaction as a whole as the farmer/forager frontier, rather than merely the line of forager–farmer contact. The process of transition to the Neolithic is divided into three phases defined by the relationship between the farming and non-farming elements within a region and by the intensity of farming practices:

1) the availability phase:

   In this period, the Mesolithic population became acquainted with the agricultural (Neolithic) way of life through information exchange and the exchange of raw materials and products. Farming has not at this point been adopted by the Mesolithic inhabitants. This is the earliest phase of the development of contacts between farmers and local foragers, two hitherto culturally and economically independent units.

2) the substitution phase:

   This phase is divided into two forms: a) the external, in which farmers penetrate into forager territory, settle there and compete with the remaining inhabitants for territory and resources, and b) the internal, in which foragers incorporate some elements of the farming economy into their own subsistence strategies. A key concept of this phase is the competition between two mutually incompatible ways of life.

3) the consolidation phase:

   This is the final phase of the transition to farming. Economically, this phase is the first with a predominantly Neolithic economy, marked by the extensive and intensive expansion of food production: the best soils are occupied, the farmers settle new, secondary areas, and having exhausted the possibilities of the extensive form of land-use, more intensive farming practices are employed. Hunting and gathering are merely complementary, and their role increases only in times of crisis. This phase finishes when the socio-economic level in the area is similar to that in areas settled earlier (Zvelebil 1986a, 11–13).

According to Zvelebil (1995), contacts, especially at the social level, that took place within the farmer/forager frontier had a direct impact on the nature and degree of transition to farming.

B. Hayden (1990; 1993), too, sees the transition to agriculture primarily from a social perspective and attempts to interpret it politically. He emphasises the importance of social competitiveness within a society of economically specialised hunters and gatherers. He takes the view that social competition and ceremonies supported economic rivalry between groups and acted as a determining force in the uptake of agriculture. Hayden sees the existence of 'accumulators' in ecologically secure groups and specialised hunter-gatherer communities. These accumulators were the individuals with the greatest power and prestige, who gathered foodstuffs, goods and services and redistributed them, perhaps as gifts. According to Hayden, the items (plants, animals) domesticated first were those intended for ceremonies; these were then reused as a means of ensuring affluence and an accumulation of prestige.

Mention must also be made of models stressing the significance of deeper symbolic meanings in the

Neolithisation process. A pioneer of such ideas is J. Cauvin (1978; 1994), who assumed a connection between the beginning of the Neolithic in the Near East and the increasing sophistication of human symbolic and ritual behaviour.

The role of symbolic domestication has been further developed by I. Hodder (1990), who understands the uptake of agriculture in this sense as a socio-symbolic process, in which the wild and natural was transformed into the domesticated, i.e. into a culture, through human mediation. In order to ensure control of the cultural and social system, all natural phenomena (plants, animals, earth, death etc.) first had to be "civilised".

In recent years, ever more disciplines of the natural sciences have become part of attempts to answer the questions surrounding Neolithisation, e.g. genetics. Their methods are still being verified and tested. It may be expected that in years to come they will make major contributions to the subject.

3.2. The origin of the LBK

Opinions regarding the origin of the LBK can also be divided into three main groups:

- The first group assumes that the LBK developed within the framework of the late Balkan Starčevo-Körös complex and later spread across central Europe through colonisation; the Mesolithic population plays only a negligible role.
- The second group holds that the LBK originated among the indigenous Mesolithic population, which existed on the northern edge of the Starčevo-Körös range (i.e. in northern Transdanubia and in the northern part of the Alföld lowlands). From there, it spread into other parts of Europe by colonisation. Particular models differ from each other in the degree to which the original Mesolithic population living in areas to which the LBK expanded then participated in the further formation of this culture.
- The third group claims that the LBK originated among the indigenous Mesolithic population in various regions of its distribution. The Starčevo, Körös and other Neolithic cultures of south-east Europe took part in its formation only as mediators by way of information exchange.

O. Menghin (1940) and L. F. Zotz (1941) saw the LBK originating among the local Late Palaeolithic or Mesolithic; R. Pittioni (1954, 123) assumed that the Neolithic appeared in central Europe through the acculturation of the local Mesolithic inhabitants.

The interest of researchers in the acculturation process and the possible contribution of local Mesolithic cultures in the formation of the European Neolithic was particularly stimulated by V. Milojčič's work in Thessaly, where he uncovered the first remains of pre-pottery agriculturalists at Argissa Magula (Milojčič 1952; 1956). The first scholar to write on this subject in Poland was J. Kowalzcyk (1962, 273–276), while in Czechoslovakia this role fell to J. Lichardus and J. Pavúk (1963). This new interpretative sphere was also partially accepted by K. Jażdżewski, who felt that the Neolithisation process in Poland took place through both the gradual acculturation of local hunter-gatherer (Mesolithic) cultures and the arrival from outside of "other developed cultural forms, by many different paths" (Jażdżewski 1965, 55). The importance of acculturation in the Neolithisation process in the catchments of the Vistula and the Oder was emphasised still more by J. Kowalczyk (1969, 19–48) and W. Hensel (1973, 30–41), and especially by S. Tabaczyński (1970, 85).

J. Kostrzewski, on the other hand, developed a classic migration theory, which links the beginning of the Neolithic to the appearance of the LBK in Poland, "… the people of the LBK entered Poland from their cradle on the Middle Danube in several waves" (Kostrzewski 1955, 24–25).

Equally, R. Tichý (1960; 1962), as a proponent of the migration hypothesis, stressed the close relationship between the earliest phase of the LBK and the sphere of the Balkan "Starčevo-Criş" Neolithic.

According to H. Quitta (1964, 23), the LBK expanded to central Europe through migration from southern Transdanubia, where it developed indigenously under the influence of the Balkan Neolithic cultures. The eastern Slovakian LBK (AVK) also has its roots in the local Mesolithic substrate (Lichardus 1962). E. Ruttkay (1976, 854), too, seeks the origin of the western branch of the LBK in the Middle Danube region, including Lower Austria and Moravia.

A. Kulczycka-Leciejewiczowa (1979, 36–37) links the Neolithisation of the Oder and Vistula catchments to the penetration of a "group of settlers" of the LBK culture across the Carpathian passes. She suggests that the mutual interaction of the first farming communities and the original inhabitants of the area (Mesolithic communities) is only reflected in the archaeological at a later date, when the first farmers settled the Great Polish Plain.

P. Bogucki and R. Grygiel (1993), proponents of the colonisation model, also emphasise the different traditions of the indigenous Mesolithic (microlith production, oval huts) and the incoming Neolithic populations, represented by the LBK (production of regular blades, longhouses and manufacture of ceramics).

On the basis of similarities between finds from the early LBK settlement at Eilsleben near Magdeburg and from the Starčevo-Körös complex, D. Kaufmann also concludes that the LBK culture originated at the south-eastern edge of its territorial range (in Transdanubia). Rapid migration then took it as far as the middle Elbe and the Saale (Kaufmann 1982, 69, 88; 1991).

Originally, J. Lüning also made similar suggestions (1988). However, today he admits that the formation of the LBK was in some regions influenced by local Mesolithic populations of hunters and gatherers (Lüning 2000; 111).

Hungarian authors, too, emphasise the role of the Mesolithic substrate in the appearance of the LBK (Kalicz & Makkay 1977; Makkay, 1978, 32). N. Kalicz and J. Makkay (1977, 114–115) identify the distributions of three different "Late Mesolithic" traditions with the boundaries of the Körös culture, the Transdanubian LBK and the Alföld LBK respectively, and assume the continual development of these Early Neolithic cultures from the indigenous substrate through the adoption of southern European Neolithic elements. Later, N. Kalicz (1993, 92; Kalicz, Virág & Biró 1998, 257) was to conclude that the Starčevo-Körös-Criş culture complex originated within the framework of the Early Neolithic Balkan/Aegean cultural sphere, which through migration spread into the southern part of the Carpathian Basin. The area of origin of the LBK is here located in northern Transdanubia, where it developed out of contacts with the Starčevo culture. The Körös culture is again seen as the main influence on the appearance of the Alföld LBK. The earliest phase of the Transdanubian LBK and the earliest phase of the Alföld (Szatmár group) LBK developed, in Kalicz's view, in parallel with the late phase of the Starčevo culture and the late phase of the Körös culture. The beginnings of the LBK are seen as contemporary to the appearance of the Vinča culture. The partial overlap of the area of the Transdanubian LBK and the Starčevo culture in southern Transdanubia is understood by Kalicz as representing a later expansion of the LBK out of northern Transdanubia and into the Starčevo culture area (Kalicz 1998b, 263–264). Also, new research by E. Bánffy in Transdanubia supports and adds to Kalicz's conclusions (Bánffy 2000; 2001).

The advance of the Balkan Early Neolithic Körös and Starčevo cultures halted in the southern part of the Carpathian Basin. P. Sümegi and R. Kertész (1998) explain this, in defiance of earlier opinions (Kalicz & Makkay 1977; Pavúk 1980, 171–173), with the existence of a central European/Balkan agro-ecological barrier, which separated two environmentally diverse regions. These authors believe that the Mesolithic hunters and gatherers living north of this barrier, in the immediate vicinity of the Early Neolithic population, had sufficient time to adopt the techniques and economic innovations of the Neolithic without having to become a cultural and demographic component of the Balkan Neolithic sphere.

J. Pavúk, who developed a chronology of the earliest phases of the LBK, showed that the much-emphasised similarities between the ceramics of the LBK and the Starčevo-Körös complex do not appear in the earliest developmental phase of the LBK, but only in the third subphase of the earliest phase. This would mean that the LBK developed independently out of the local Mesolithic under influences from the south-eastern Neolithic in the form of ideas and only later encountered the Starčevo-Körös complex, which heavily impacted on its subsequent development (Pavúk 1973, 280; 1980). While the Alföld LBK spread only as far as the foothills of the Carpathians, the Transdanubian LBK advanced through acculturation along the Danube and the Morava and from there to the Elbe and onwards to central Germany. In the Rhineland, the LBK encountered the bearers of La Hoguette ceramics, the roots of which may be sought in both the local Mesolithic and the southern French Cardial Ware (Pavúk 1994, 141).

Whittle (1996, 157) also believes it more likely that the appearance of the LBK and its spread across Europe were caused by the acculturation of the indigenous Mesolithic population rather than by a colonisation by farmers.

Some scholars have observed links between the Epi-Palaeolithic, Mesolithic and LBK, above all on the basis of chipped stone industry analyses (Buttler 1938; Milojčič 1949; Gulder 1953; Mazálek 1954; Feustel 1957; Kunkel 1955). M. Mazálek developed a summary table of tool types that were supposedly typical of the Mesolithic of central and western Europe. He then tracked their occurrence into the Neolithic and Eneolithic. On the basis of their appearance in the Neolithic, he attempted to prove the co-existence of Mesolithic and Neolithic populations (Mazálek 1954). J. Kowalczyk emphasised the importance of a systematic study of Neolithic chipped stone industry and its relationship to earlier settlement (Kowalczyk 1962, 276).

G. Clark (1980, 78) and others (Newell 1970; Modderman 1971; 1988; Gronenborn 1990a; Löhr 1994) have stressed the significant contribution of the indigenous Mesolithic population to the formation of the LBK on the northern and western peripheries of its range. Their beliefs are in the main based on similarities in the chipped artefacts (arrowheads, blade production technology).

A. Tillmann (1993) has attempted to prove the autochthonous evolution of the Neolithic in central Europe on the basis of continuity in blade production technology. He evidently feels – although this is not sufficiently clear in the text – that the core area of LBK appearance is western Hungary and south-west Slovakia. His efforts provoked lively debate (*Kommentare zu* 1994). Equally, C. J. Kind (1997b; 1998), drawing mainly on the results of research into the terminal Mesolithic in southern Germany, feels that the LBK originated in central Europe through a process of acculturation.

In Czechoslovakia, the study of Neolithic chipped stone artefacts and their comparison with Mesolithic ones was taken up seriously by S. Vencl (1960, 65–67), who produced a detailed critique of M. Mazálek's work (1954). In Vencl's view (1960, 72) it is not possible to demonstrate either a close cultural relationship or contemporaneity between the earlier chipped industry and the Neolithic in central Europe. The appearance of the LBK culture is understood as "the invention of successful adaptations to life in a forested environment among certain groups of Neolithic agriculturalists from somewhere on the south-eastern borders of central Europe" (Vencl 1982, 681). Tringham, who devoted herself to the study of the Late Mesolithic and Early Neolithic chipped industry of central and south-east Europe, also sees major differences between the Mesolithic industry and that of the LBK; in her view there is no evidence for contact between the Mesolithic population and early farmers (1968, 67).

While W. Taute (1988) recognised that all forms of Late Mesolithic microliths also appear in the earliest phase of the Neolithic, he nevertheless believed that the LBK developed in southern Germany through colonisation, and that the tools were brought into the region ready-made.

On the basis of an analysis of the chipped stone industry, S. K. Kozłowski assumes that the transition to a Neolithic way of life through the acculturation of the original Mesolithic population occurred somewhere in the Mediterranean region. By contrast, the chipped industry of the Starčevo-Körös complex and the LBK did not arise out of a local, Late Mesolithic substrate, but appeared in these areas with the peoples of these early Neolithic cultures (S. K. Kozłowski 1987).

According to J. K. Kozłowski, too, there is no continuity in chipped stone artefacts between the Late Mesolithic and the Early Neolithic in the northern Balkan/Danubian regions, i.e. he believes that the major transformation of chipped industry occurred in the Danube Basin as a result of the migration of people of the ceramic Neolithic together with painted and barbotine wares (J. K. Kozłowski 1989a, 133, 136). Unlike S. K. Kozłowski, there is also the idea of a migration of agriculturalists from the Near East into the Mediterranean and the Balkans (J. K. Kozłowski 1989a, 133, 136; 1994, 24). Later, J. K. Kozłowski developed the "accumulating wealth" hypothesis of C. N. Runnels and T. H. van Andel (1988), and concluded that the main impulse for early agriculturalists to prospect distant areas, which ultimately led to the Neolithisation of Europe, was the search for new sources of stone raw material. The search for new sources of raw materials also stimulated the expansion of the LBK across Europe, with the initially settled regions supplied with stone raw material from the newly colonized areas (e.g. Bohemia and Moravia were supplied with raw materials from Silesia and Little Poland; J. K. Kozłowski 1994).

The last model relating to chipped stone artefacts to be mentioned here was developed by D. Gronenborn on the basis of the distribution of Transdanubian Szentgál radiolarite. It is a combined model, which considers in particular the means by which the Neolithic spread into central Europe. According to this model, the LBK spread from northern Transdanubia through the establishment of pioneer settlements, i.e. by small groups of farmers settling in areas already occupied by Mesolithic populations, with whom they gradually forged and maintained the contacts that ultimately led to acculturation (Gronenborn 1994; 1997; 1998, 195; 1999).

My PhD thesis which partly takes up Gronenborn's model has briefly been summarised already (Mateiciucová 2003; 2004b).