

## Debate

### *The debate on the Mesolithic-Neolithic transition in the western Baltic: a central European perspective*

by *Lutz Klassen*

The Mesolithic-Neolithic transition has been one of the most intensively debated topics in the archaeology of southern Scandinavia for the last thirty years. From the area of the late mesolithic Ertebølle-culture (in the following EBK) and the early neolithic north group of the funnel beaker culture (in the following TBK), that is all of Denmark, southern Sweden, Schleswig-Holstein and Mecklenburg-Vorpommern in northern Germany, no less than about 50 contributions to the debate can be cited from the last 30 years alone. There is no common background or continuously conducted discussion behind this huge number of contributions. What we see is a debate that developed in several steps and in different directions, especially following the partial separation of research traditions in Denmark and Germany from the seventies onwards. This paper does not attempt to give a detailed descriptive survey of the extensive literature. Such surveys can be found in Pedersen (1982), Jennbert (1984), Rowley-Conwy (1986), Madsen (1987) and Price/Gebauer (1992). An account of the contents of articles discussed is given only if required for the understanding of the first part of the paper. In this part an attempt is made to detect steps in the debate, to characterise these steps and to describe their background. In the second part of the paper the comments in the first part are taken as a starting point for an analysis of the factors leading to the present research situation, which is argued to be one of stagnation. Finally, a proposal is made suggesting how to progress from the present situation. This proposal is the basis of work on the Mesolithic-Neolithic transition presently being conducted by the author. To begin with, however, there is a brief discussion of the literature on this topic in the western Baltic that appeared before the sixties, because this is the basis for understanding the remarks that follow.

A discussion of the Mesolithic-Neolithic transition in southern Scandinavia began in the 1920s, more than 70 years after the separation of an older and younger Stone Age by J.J.A. Worsaae. O. Rydbeck was of the opinion that the TBK was an immigrant farming culture that lived side by side with the late mesolithic EBK without any significant interaction. Contrary to this diffusionist theory C.A. Nordmann proposed an evolutionary explanation. He postulated that the TBK evolved from the EBK under strong influence from central Europe with chronological continuity between the two (for references, see Troels-Smith 1953, 6 ff.). In the fifties and sixties, the same opposition between theories of immigration and local development characterised the debate between C.J. Becker and Troels-Smith. Becker (1947, 286 ff.; 1955, 156 ff.) was of the opinion that the TBK, or more precisely the A-group, had immigrated as the first neolithic element in southern Scandinavia, and lived there side by side with the late mesolithic EBK for a long time. Troels-Smith on the other hand (1953; 1960; 1967) saw Becker's A-group, which was defined on purely typological grounds based on single finds from bogs, as an integral part of the EBK. Based on cereal impressions, the bones of domesticated animals and cereal pollen, the earliest traces of farming were associated with funnel beakers of the A-type. Consequently, Troels-Smith viewed the final phase of the EBK as a semi-form of agriculture that had slowly developed from the last hunting groups influenced by the neolithic cultures in the south. Immigration was postulated by Troels-Smith for the following B-phase of the early Neolithic only.

Parallel to this discussion, H. Schwabedissen began excavations in settlements of the late Mesolithic and early Neolithic in Schleswig-Holstein (Schwabedissen 1958a; 1958b; 1972). The results of these excavations formed the basis of a series of works on the Mesolithic-Neolithic transition in northern Germany (Schwabedissen 1967; 1969; 1979; 1981 and again 1994). These papers stress both the significance of influence from neolithic cultures in western, central and south-eastern Europe and the traces of neolithic economy in the EBK. In opposition to Troels-Smith, however, Schwabedissen did not consider Becker's A-group part of the EBK.

A development comparable to that in Schleswig-Holstein is seen in the neighbouring region to the east, Mecklenburg-Vorpommern. Here new small-scale settlement excavations of the local EBK (the so-called Lietzow culture, see Gramsch 1966; 1971a and 1976) resulted in another paper on the Mesolithic-Neolithic transition (Gramsch 1971b). This paper was the first to contain a whole series of new theoretical proposals that came

to dominate the subsequent intensive debate in Denmark and Sweden. In northern Germany, where Schwabedissen's traditional typo-chronological concepts were never disputed, no real debate about the neolithisation process ever took place.

Gramsch's paper (1971b) was influenced by the Anglo-American New Archaeology, where the incorporation of anthropological research and ecological reconstruction in archaeological theory was dominant, and traditional typo-chronological work of less importance. For the understanding of the Mesolithic-Neolithic transition, some recent anthropological research on hunting societies was considered to be of special importance. In traditional literature, such societies were often supposed to be more "primitive" than early agricultural ones. With this viewpoint, no special explanation was required to understand the introduction of a neolithic economy, for it constituted a natural form of advance. Thus a simple evolutionist explanation model could be applied. This situation changed drastically as it became apparent that allegedly primitive hunting societies could in fact have quite a complex social structure. It was also shown that the amount of subsistence labour per person per day required could be much lower in hunter-gatherer societies (with low population densities) than in agricultural ones. A simple evolutionist model of natural advance was now no longer sufficient to explain the transition from hunting and gathering to farming. Instead new models were developed, in which factors such as population pressure, ecological change and scarcity of natural resources were key issues. These theories were much inspired by a book of E. Boserup (1965) and were applied for the first time in archaeology in works dealing with Mesolithic-Neolithic transition in the Near East.

Gramsch (1971b) applied these new explanatory models to western Baltic archaeology for the first time, but his work did not provoke a renewed discussion on the subject of neolithisation. This only happened two years later in Denmark and Sweden following an inspiring paper by Andersen (1973). His work, and three other papers that were published in the proceedings of the same conference (Becker 1973; Stürup 1973; Salomonsson 1973), argued from new chronological information. Tauber (1971) published a number of C-14 dates making it clear that the chronological overlap between the early neolithic TBK and late mesolithic EBK must have been a very short one, if existing at all. Stratigraphic evidence for a succession of the two cultures was published by Skaarup (1973) soon afterwards, and was already known to Andersen from observations in kitchen middens when he published his important work in 1973. Consequently, Becker's postulate of a long coexistence of the two cultures as well as Troels-Smith's idea of the A group being part of the EBK were proven wrong. The C-14 dates from the A-group settlement of Muldbjerg in Åmosen in particular, which had been used by Troels-Smith in his arguments, turned out to be several hundred years younger than the EBK dates. As a result, most scholars abandoned conventional immigration theories (with the exception of Becker 1973 and Solberg 1989), and the foundations for a debate influenced by New Archaeology had been laid.

Typical of this discussion was the predominance of models based on ecological explanations of change (Fischer 1974;

Paludan-Müller 1974; 1978; Rowley-Conwy 1984; 1986; Vang-Petersen 1982; Zvelebil/Rowley-Conwy 1984; 1986). All of these authors used almost the same explanation for the introduction of food production in the area. They assumed that a change of climate at the transition between the Atlantic and Subboreal pollen zones, followed by changes in seawater level, resulted in an emergency in the late Mesolithic that could only be resolved by introducing a farming economy. According to these authors, the spread of the primeval forest in the Atlantic period and the resulting reduction of the biomass available for hunting led to increased pressure on the available food resources. At the same time an assumed increase in population due to a settled way of life would have accentuated this development. In response, the late mesolithic population increased its reliance on aquatic resources. The regression of the sea at the beginning of the Subboreal period was assumed to lead to a drop in salinity in the fjord areas, followed by the disappearance of oysters and maybe also some species of fish. By then this would have been fatal for the Ertebølle population for whom these resources were vitally important, so that the adoption of a farming economy was now the only way out.

It is characteristic that all contributions to the discussion at this point were made by researchers who had their main field of interest in the late Palaeolithic and Mesolithic of southern Scandinavia. Heavy reliance on ecologically founded arguments, characteristic of the research in these main periods of prehistory, is very clearly visible in all the models proposed.

The influence of the research into the Mesolithic-Neolithic transition in the Near East at that time was also clearly present. In one case it was even proposed that the EBK was a kind of harvest-culture that developed its own form of agriculture on the basis of local resources and thus without the influence of the central European neolithic cultures - a concept taken directly from the Near Eastern Natufian (Horowitz 1973).

The publication of K. Jennbert's book *Den produktiva gåvan* in 1984 (Jennbert 1984; see also Jennbert 1988; 1994) started a new wave of contributions to the debate over the Mesolithic-Neolithic transition in southern Scandinavia (see *Journal of Danish Archaeology* 5 and 6). She published cereal impressions in Ertebølle ceramics and a stratigraphy of the coastal settlement of Løddesborg, where TBK and EBK finds occur together in layers, that, according to the author, were not mixed up after sedimentation. Her view was soon criticised by both Danish (Nielsen 1987) and Swedish (M. Larsson 1987) scholars. The most interesting aspect of Jennbert's book is that she used social factors as an explanation for the Mesolithic-Neolithic transition. That had been done before (Persson 1979; Mahler 1981; Jensen 1982; Mahler et al. 1983), but it was not until Jennbert's contribution that social explanations were given priority over ecological explanations (see Blankholm 1987; Madsen 1987; 1988). The types of social processes referred to by the different authors were very different. There was a Marxist-inspired claim of internal contradictions in late EBK society (Persson 1979); a claim for a decreasing standard of living in the late EBK (Jensen 1982); and a claim for an intensification of exploitation leading to overexploitation of resources and in consequence competition for territories (Mahler et al. 1983). Further, it was claimed that some individuals in the late

EBK strove for prestige and that this forced late mesolithic society to adapt to the new economy. Within the latter category, different views may be recognized. Blankholm (1987) suggests that some individuals in the late Mesolithic were integrated in exchange networks (the importation of shoe-last axes) and thus introduced the neolithic economy in order to increase the profits of production which they controlled and converted into prestige items. Madsen (1987; 1988), on the other hand, proposed that a few persons, striving for prestige, monopolised the exploitation of local resources in order to increase control with society. This should have led to over-specialisation and potential instability, where any change rather than being gradual would take the form of a 'catastrophe'. Finally Jennbert herself is of the opinion that domesticated animals and cereals were part of the very exchange of prestige goods and that their local production assured higher prestige for the persons involved.

A group of papers (Fischer 1981; 1982; Nielsen 1987; L. Larsson 1987) do not contain any specific model for the Mesolithic-Neolithic transition. They either stress the importance of imported prestige items in the late EBK (Fischer) or the social and ideological change clearly observable in the early TBK in comparison with the EBK. In this way these authors also turn away from explanatory models rooted purely in ecological determinism.

The emphasis on social factors while still using ecological factors for explanation at this point in the history of research is characteristic of Neolithic research traditions. It is thus no surprise to observe a considerable number of researchers with a principle interest in the Neolithic period taking part in the discussion along with those whose main interests lie in the Palaeolithic/Mesolithic. As in the former and partly overlapping stage of research, the influence of theoretical archaeology in Great Britain and North America was clearly felt at this second stage. This is especially true of the use of centre-periphery models (exchange of prestige items) and the implementation of both mathematical (Madsen 1987) and Marxist (Persson 1979) models of explanation.

The publications of the last ten years have continued to move away from ecological determinism and towards the greater application of socially and ideologically based models of explanation. The relevance of palaeo-ecological arguments is almost or completely denied in these papers (Thomas 1988; Hodder 1990: 178ff; Price/Gebauer 1992: 106ff; Hoika 1993; Klassen 1996: 315ff; Thorpe 1996: 92f; Tilley 1996: 70ff; Jennbert 1997). Only Andersen (1989) still uses purely ecologically-deterministic arguments, while Solberg (1989) even re-introduces immigration theories otherwise abandoned in the beginning of the seventies. The main reason for the development towards models giving more relevance to social explanations is in some cases at least (Price/Gebauer, Hoika, Klassen; partly Jennbert) new information about the early neolithic economy. In general, new excavations of settlements from this period and investigations of animal bones from these excavations have shown that food production accounted for a surprisingly small part of the overall amount of food consumed (e.g. Andersen 1993). This information comes mainly from coastal settlements and thus is not necessarily representative

of the whole of the early neolithic TBK. Pollen analysis in fact shows increasing activity inland. Settlement continuity into the early Neolithic observed at most of the larger late mesolithic coastal settlements and the size of the early neolithic settlements at these locations nevertheless point to the very marked importance of coastal settlement at this time. On the other hand, continuity into the early Neolithic in respect of both location and economy at the larger inland Ertebølle settlements can also be demonstrated (e.g. Ringkloster: Andersen 1998), and the early neolithic component of the inland 'Gudenå' hunting stations should not be forgotten either. Even though farming activities occur inland from the beginning of the early Neolithic onwards, it appears for the time being that hunting, gathering and fishing still played a major role in the overall economy of the first phase of the early Neolithic. The facts that the introduction of food production is connected with a major change in material culture, which cannot be characterised as a functional necessity, and that new grave-types appear at the same time also point towards ideological rather than economic reasons for the introduction of food production. In summary this means that food production was not introduced to cope with problems of hunting and gathering at the end of the Atlantic period. The new data available are so unambiguous that even researchers at the forefront of the wave of research characterised by ecological determinism, have now changed their mind and allow social explanations to be relevant (Meiklejohn/Zvelebil 1991, 138). Thus, paradoxically enough, the consequent implementation of ecological research in settlement archaeology proved ecological determinism as employed in the seventies to explain the introduction of farming to be wrong.

In contrast to the authors referred to above, the rejection of palaeoecological explanations by Thomas (see especially Thomas 1991: 11ff), Tilley and Hodder reflects a fundamentally different definition of the term *Neolithic*, at least in the chronological horizon relevant here (see below). The theoretical topics of post-processual archaeology are clearly in evidence, as they are in the works of Jennbert (1997) and Thorpe (1996: 92f). The latter postulates a change in attitude, in the direction of active manipulation of the landscape as being of major importance for the introduction of food production. Thorpe considers this new attitude, allowing direct manipulation of the environment, to be responsible for the fact that the social control of exploited resources in the late EBK (as described by Madsen 1987) could no longer be maintained. In consequence, the previous rejection of food production would have to be given up.

In their survey of 1992, T.D. Price and A.B. Gebauer reached the conclusion that our empirical knowledge of both the EBK and the early TBK is very good and that it is possible to answer questions of "what" happened in a quite detailed matter. In contrast, the question of "why" still awaits an answer (Price/Gebauer 1992: 112). In my view this unsatisfactory situation has several causes, one of which is of a fundamentally methodological nature, as described by Madsen (1987: 235) in connection with his theory about the introduction of farming.

The reasons for the introduction of a farming economy cannot be traced with archaeological methods, as the under-

lying decision-making is an intellectual process that does not leave any traces in the ground. In this context it is irrelevant whether the transition is viewed archaeologically as a fast or a more smooth and subtle one, as postulated by Jennbert. Crucial in both cases is the intention to change. In the words used by Madsen, the process in question is best characterised as a black-box-problem. Of course this does not mean that archaeologists should give up working with the problem of the Mesolithic-Neolithic transition because they cannot reach any certain knowledge, and leave the field to cultural theorists instead. As mentioned above, the intensive settlement-archaeology and ecological research into the late Mesolithic and early Neolithic of southern Scandinavia has demonstrated that some theories could be proved wrong or at least improbable by archaeological methods.

In northern Germany, research into the Mesolithic-Neolithic transition has been restricted, in the main, to pure description of find materials with few attempts to explore the reasons behind the change. In contrast to archaeological research in the German-speaking area there has been an openness in the Scandinavian countries towards Anglo-American theoretical developments from the seventies onwards. Studies like those conducted in German archaeology have thus become less important while works dealing with local processes of cultural change gain influence. As a consequence, studies that deal with far-reaching cultural relations and models based on diffusion, as for example the classic works of Glob (1944) and Becker (1947), have become almost obsolete. One can observe a retraction of Danish and Swedish research to local source materials. Due to the restriction in the sources used, which was dictated by the theoretical models employed, a Scandinavo-centric picture of the Mesolithic-Neolithic transition emerged. As these restrictions have been maintained ever since the beginning of the seventies, a reader gets the impression that what was originally only a Scandinavo-centric picture of history has turned unconsciously into a Scandinavo-centric conception of history. This is a process that may also have been influenced by the political discussion on the integration of Denmark in the European Community (see Thrane 1997: 155 for an example). The fact that the power of resistance of the Ertebølle culture to far reaching neolithic influences from the south is directly or indirectly stressed in Danish research (see Erny-Rodmann/Gross-Klee et al. 1997: 52, note 107) may also be seen as an expression of this attitude. As a result the reasons for the introduction of farming are sought only in the global climatic change and its consequences for local ecological conditions (first step) or in local social developments (second step). Firstly, this means that people in the late Mesolithic are denied the ability to adapt socially and in a flexible manner to far-reaching European influences. Secondly, it means that the early and middle neolithic cultures of central and western Europe are degraded to supernumeraries that only fulfil their humble contribution of delivering cereals and domesticated animals after they have been asked for this by the main actors in southern Scandinavia. Thomas, who already in 1988 formulated similar thoughts, used the term of automates for the neolithic cultures of central Europe. Automates where

the people of the late Mesolithic could get the agricultural products when desired (Thomas 1988).

Any more active and decisive role for the central European Neolithic is no longer even a matter for discussion in the Scandinavian literature since immigration theories in general have been dismissed since the beginning of the 1970s. The only exception that can be cited is the work of Solberg (1989), but this paper argues for immigration too. It is obvious that the development in the Scandinavian countries described above, leading to an intensification of local research, and including important work on palaeoecological problems, hampered the advance of research into the Mesolithic-Neolithic transition. Becker's remark (1973: 6f) at the same conference where Andersen (1973) gave the paper that became so decisive for subsequent developments, that the early TBK occurred in huge areas of Europe in a very similar form, was largely neglected. That super-regional influences thus must be considered very important for the understanding of local development in southern Scandinavia have been totally neglected in recent Scandinavian research. Only very recently has it been made the starting point of renewed work on the Mesolithic-Neolithic transition (Klassen 1996: 315ff; 1997).

The narrowing of the territory in which Scandinavian researchers have been looking for the causes of the Mesolithic-Neolithic transition has gone further yet. The area of research is often reduced to that of modern national states, see, thus, the titles of papers by Madsen 1987; Becker 1985; Fischer 1981 and 1982; Jennbert 1986; M. Larsson 1987; Pedersen 1982; Rowley-Conwy 1984 and 1986; and Stürup 1973 (see also Rudebeck 1997: 66 for this). The attempt to deal with Stone-age cultural history in the framework of the then non-existent national borders is dangerous, even though there are obvious regional differences in the EBK and TBK between Sweden, Denmark and northern Germany. These doubts get even more pronounced when it is realised that there are not only restrictions of a national-geographic nature involved, but also of a cultural-chronological character. This means that no attempt was made to consider both the Mesolithic and the Neolithic points of view and thus the different traditions of research linked with them. Instead the view chosen is often one-sidedly either Mesolithic or Neolithic (Andersen 1973; Blankholm 1978; M. Larsson 1987; Rowley-Conwy 1984; 1986; Vang-Petersen 1982; Zvelebil/Rowley-Conwy 1984; 1986). The use of the far reaching Continental connections of the EBK and the high priority given these in almost all explanatory models of the Mesolithic-Neolithic transition appears almost paradoxical in this situation. A closer examination shows that almost no attempt has been made to examine these connections any closer and that their use in the argumentation is mostly very superficial, the paper by Andersen (1973) being the only exception. The imported Danubian stone axes, for instance, play an important role in almost all contributions to the discussion without any attempts to find out their real region of origin or precise dating. Research in the earliest copper finds in the western Baltic has shown how misleading the application of the dating of a few finds in closed contexts can be in relation to the major part of the material, consisting of single finds

(Klassen 1997). In the case of imported stone axes it is consequently not possible to be sure about their dating at all.

Even a cursory look at the dating of a few crucial artefacts of the EBK shows how unpropitious to the advance of research it is to work in a modern national framework, especially where relations between the EBK and central European neolithic cultures are concerned. There are indications that some of the EBK artefacts appear up to 500 years earlier in Schleswig-Holstein than in Denmark and Sweden. This mainly concerns Ertebølle pottery. These ceramics obviously owe their existence to influences from neolithic cultures and are regularly used to demonstrate EBK contacts with these. Taking the differences in dating into account it becomes clear that the appearance of these finds in Denmark and Sweden is due to contacts with the EBK in northern Germany and not with unknown neolithic cultures in unknown locations. This fact is very important for understanding the Mesolithic-Neolithic transition in Denmark and Sweden, but has been practically ignored up to now.

Only a few works by non-Scandinavian researchers take a wider geographical and cultural perspective into consideration. From the first phase of research, an investigation by Zvelebil and Rowley-Conwy (1986) has to be mentioned. These authors compared the Mesolithic-Neolithic transitions in different regions in order to be able to distinguish relevant parameters of super-regional importance. This is a very meaningful procedure, but the way in which Zvelebil and Rowley-Conwy chose their regions of study is open to criticism. They took only geographical and climatic factors into consideration and ended up with the Atlantic fringe from Portugal to Finland as the research area. In doing so they excluded the possibility of finding factors relevant for the understanding of the Mesolithic-Neolithic transition which were not ecological but cultural in nature and located outside their research area. The choice of research area in a study like that of Zvelebil and Rowley-Conwy should therefore comprise at least all those areas in which the appearance of the TBK (in its broader definition, i.e. including the North Alpine region) is connected with the transition from the Mesolithic to the Neolithic, as is the case in parts of northern Poland and southern Germany. This is especially important if we remind ourselves of the remark by Becker (1973), cited above, that the early TBK appears, in a related form, over wide areas of Europe, which indicates that the problem in question cannot be understood without a wider cultural perspective. Such a perspective has been adopted by the author and has resulted in the recognition of some factors of super-regional importance. Apart from the often-cited ceramics and stone battle-axes the first appearance of copper is of importance here. Just like stone battle-axes and ceramics, copper does not appear absolutely simultaneously, but is connected to the emergence of the different regional groups of the TBK. Obvious elements from the cultures where these copper finds originate, can be detected in the emerging TBK-groups. It seems fair to assume that the copper finds and the development of a semi-industrial metal production in south-eastern Europe was relevant to the emergence of the TBK complex and the Mesolithic-Neolithic transition in southern Scandinavia (Klassen 1996, 315ff; 1997).

Related results have been achieved by two works of the post-processual archaeology which also make use of a wider chronological and geographical interpretative framework (Thomas 1988; Hodder 1990). Both authors see the reasons for the Mesolithic-Neolithic transition in southern Scandinavia in the cultural and economical change of the central European Neolithic, but argue on purely theoretical grounds to a much higher degree than the present author. Most clear is the statement by Thomas (1988: 63), who argues that economy and magic got connected with each other at the beginning of the *Jungneolithikum* (in the southern German terminology) in central Europe. As the ideological part of this package was of special interest to the hunters, they had to take over food production too when they adopted the ideology. This theory explains both the sameness of material culture of the early TRB in wide parts of Europe and the minor importance of food production in early neolithic southern Scandinavia. The theory of the importance of metallurgy in south-eastern Europe for the Mesolithic-Neolithic transition is compatible with Thomas' approach. Early metallurgy was without doubt closely linked to the magical and ideological sphere, and the knowledge of this may very well have been part of the attraction of the earliest metallurgical products and have spread with them. For the time being, however, this theory resides almost completely built on hypotheses and demands much further research.

In summary it may be said that the survey of the literature on the Mesolithic-Neolithic transition in the western Baltic of the last 30 years shows a changing and regionally differentiated picture. Remarkable is the separation of the German and Scandinavian research traditions in the 1970s, which led to very different strategies. The German contributions to the debate are purely descriptive and deal with far-reaching cultural relations of the southern Scandinavian late Mesolithic and early Neolithic. What is seen in Denmark and Sweden, on the contrary, is an intensive discussion that developed under influence of the Anglo-American theoretical archaeology in different, partly overlapping steps. Whereas the beginnings are marked by pure ecological determinism there is an opening towards socially based explanatory models in a second stage of research. The conception of history mirrored in this discussion is Scandinavo-centric, as the reasons for the Mesolithic-Neolithic transition are sought only within the boundaries of the modern states of Denmark and Sweden. In my eyes this is one of the main reasons for an advance in research that at best can be called moderate when the intensity of the debate is taken into consideration. Other reasons for the lack of progress are that the relationship between EBK and neolithic cultures further south and west has not been sufficiently investigated, and that the problem of the Mesolithic-Neolithic transition in general has been dealt with one-sidedly from either a mesolithic or a neolithic point of view. This led Danish and Swedish research into a blind alley and resulted in a breaking off of the discussion at the end of the 1980s. The latest move in research is thus almost completely dominated by works of the English post-processual archaeology. These contributions are, in contrast to the Scandinavian ones, based on a much wider chronological and cultural framework. The results of these investigations, however, have a hypothetical char-

acter with a severe reduction in the use of empirical source material. My own model is both in accordance with the English post-processual theories and much more based on empirical studies, but it is still quite one-sided because the basis of this model is an examination of only one category of finds.

From these remarks, some conclusions relating to future research in the Mesolithic-Neolithic transition may be drawn. One general demand is that work be orientated towards the whole distribution area of EBK and TBK. The meaningless approach of writing Stone-age cultural history within the boundaries of modern national states has to be dropped. It is necessary to consider a much wider geographical area than so far done in most works, in order to be able to judge the significance of super-regional influences in the western Baltic. The local conditions must of course be considered to the same degree as Tilley (1996:72f) claimed in a critical comment on Thomas' (1988) paper. This means that the relationship of the EBK to neolithic cultures in western, central and south-eastern Europe has to be investigated in detail. This work is presently being done by the author and involves attempts to find out both where imported finds such as shoe-last axes come from and when they were imported. For this purpose the material has been collected and compared with European finds from about 35 museums in Denmark, Sweden and Germany. Other objects of research are those parts of the locally produced material culture of the EBK that owe their existence to influences from other parts of Europe, such as ceramics and parts of the bone and antler industry. As with the imports, the attempt is made here to detect the origin and age of influences from neolithic cultures on the EBK in the western Baltic based on comparisons across a huge body of European material. A further aim is to draw a picture of the social structure of the late EBK because this information is fundamental to understanding the Mesolithic-Neolithic transition, especially if this transition is to be explained by social and/or ideological change.

As far as the local factors are concerned, most attention will be paid to regional differences between northern Germany on the one hand and Denmark and Sweden on the other. This is because these regional differences are especially mirrored in those artefacts that show far-reaching connections to neolithic cultures. For the same reasons, the traces of cereals and domesticated animals in the EBK will be investigated.

The work described above on the Mesolithic-Neolithic transition covers only one part of the problem, the late Mesolithic. The same procedure has to be applied to the early TBK, with the connections between the northern group and the other regional groups as a main issue. As the copper finds already have been looked at, ceramics and stone battle-axes will play a major role here.

When all these points listed above are considered, a major advance in research in the Mesolithic-Neolithic transition should be possible.

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#### REFERENCES

- Andersen, Søren H. 1973: Overgangen fra ældre til yngre stenalder i Sydsandinavien set fra en mesolitisk synsvinkel. In Simonsen & Stamsø Munch (eds.) *Bonde-Veidemann. Bofast-Ikke Bofast I Nordisk Forhistorie. Foredrag Og Diskusjoner Fra XIII. Arkeologmøte I Tromsø 1970*. Tromsø Museums Skrifter Vol. XIV, pp. 26-44.
- 1989: Fra jæger til bonde. Den ældste bondekultur i Danmark. In Andersen, J. & T. Bekker-Nielsen & O. Fenger (ed.): *Bondefrigørelse. Dansk Landbrug i fortid, nutid og fremtid*. Acta Jutlandica LXV:3. Naturvidenskabelig Serie 8, pp. 13-27.
- 1993: Bjørnsholm. A Stratified Køkkenmødding on the central Limfjord, North Jutland. *Journal of Danish Archaeology* 10, 1991, pp. 59-96.
- 1998: Ringkloster. Ertebølle trapers and wild boar hunters in eastern Jutland. A survey. *Journal of Danish Archaeology* 12, 1994-95, pp. 13-59.
- Becker, Carl Johan 1947: Mosefunde Lerkar Fra Yngre Stenalder. *Aarbøger for Nordisk Oldkyndighed og Historie* 1947, pp. 1-318.
- 1955: Stenalderbebyggelsen ved Store Valby I Vestsjælland. Problemer omkring Tragtbægerkulturens Ældste Og Yngste Fase. *Aarbøger for Nordisk Oldkyndighed og Historie* 1954, pp. 127-197.
- 1973: Problemer omkring overgangen fra fangstkulturer til bondekulturer i Sydsandinavien. In Simonsen & Stamsø Munch (eds.) *Bonde-Veidemann. Bofast-Ikke Bofast I Nordisk Forhistorie. Foredrag Og Diskusjoner Fra XIII. Arkeologmøte I Tromsø 1970*. Tromsø Museums Skrifter Vol. XIV, pp. 6-21.
- 1985: Comments on Transition to Farming in Northern Europe: The Danish Perspective. *Norwegian Archaeological Review* 18, 1985, pp. 124-126.
- Blankholm, Hans Peter 1984: Late Mesolithic Hunter-Gatherers and the Transition to Agriculture in southern Scandinavia. In Peter Rowley-Conwy & Marek Zvelebil & Hans Peter Blankholm (ed.): *Mesolithic Northwest Europe: Recent Trends*, pp. 155-162. Sheffield, University of Sheffield.
- Boserup, Ester 1965: *The Conditions of Agricultural Growth. The Economics of Agrarian Change Under Population Pressure*. London.
- Erny-Rodmann, Christiane & Eduard Gross-Klee & Jean Nicolas Haas & Stefanie Jacomet & Heinrich Zoller 1997: Früher 'human impact' und Ackerbau im Übergangsbereich Spätmesolithikum-Frühneolithikum im schweizerischen Mittelland. *Jahrbuch der Schweizerischen Gesellschaft für Ur- und Frühgeschichte* 80, 1997, pp. 27-56
- Fischer, Anders 1974: Introduktion af korn og kvæg i Sydsandinavien, en befolkningspres-model. *Kontaktstencil* 8, 1974, pp. 91-111.
- 1981: Handel med skolæstøkker og landbrugets indførelse i

- Danmark. *Aarbøger for Nordisk Oldkyndighed og Historie* 1981, pp. 5-16.
- 1982: Trade in Danubian Shaft-Hole Axes and the Introduction of Neolithic Economy in Denmark. *Journal of Danish Archaeology* 1, 1982, pp. 7-12.
- Glob, Peter V. 1944: Studier over den jyske enkeltgravskultur. *Aarbøger for Nordisk Oldkyndighed og Historie* 1944, pp. 1-282.
- Gramsch, Bernhard 1966: Neue Ausgrabungen auf dem spätmesolithischen Siedlungsplatz "Buddelin" bei Lietzow, Kreis Rügen. *Ausgrabungen und Funde* 11, 1966, pp. 179-183.
- 1971a: Sondierungen auf dem steinzeitlichen Siedlungsplatz in der Augustenhofer Niederung bei Ralswiek, Kreis Rügen. *Jahrbuch Bodendenkmalpflege Mecklenburg* 1970, pp. 7-17.
- 1971b: Zum Problem des Übergangs vom Mesolithikum zum Neolithikum im Flachland zwischen Elbe und Oder. In Friederich Schlette (ed.): *Evolution und Revolution im alten Orient und in Europa. Das Neolithikum als historische Erscheinung*, pp. 127-144. Berlin, Akademie Verlag.
- 1976: Ausgrabungen auf spätmesolithischen Siedlungsplätzen der Insel Rügen. *Ausgrabungen und Funde* 21, 1976, pp. 40-42.
- Hodder, Ian 1990: *The Domestication of Europe. Structures and Contingency in Neolithic Societies*. Oxford, Blackwell.
- Hoika, Jürgen 1993: Grenzfragen oder: James Watt und die Neolithisierung. *Archäologische Informationen* 16/1, 1993, pp. 6-19.
- Horowitz, Jonathan 1973: Early Agriculture in southern Scandinavia: A New Model. *Norwegian Archaeological Review* 6, 1973, pp. 53-58.
- Jennbert, Kristina 1984: *Den produktiva gåvan. Tradition och innovation i Sydskandinavien för omkring 5000 år sedan*. Acta Archaeologica Lundensia, Series in 4, No. 16.
- 1986: Neolithisation - a Scanian Perspective. *Journal of Danish Archaeology* 4, 1985, pp. 196-197.
- 1988: Der Neolithisierungsprozeß in Südsandinavien. *Prähistorische Zeitschrift* 63, 1988, pp. 1-22.
- 1994: Getreide als Geschenk. Ertebøllekultur und frühneolithische Trichterbecherkultur. In Hoika, Jürgen & Jutta Meurers-Balke (eds.): *Beiträge zur frühen Trichterbecherkultur im westlichen Ostseegebiet. 1. Internationales Trichterbechersymposium in Schleswig vom 4. bis 7. März 1985*. Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein Band 1, pp. 155-164.
- 1997: Mentality and the social word. The Mesolithic/Neolithic Transition in southern Scandinavia. *Analecta Praehistoria Leidensia* 29, 1997, pp. 51-55.
- Jensen, Jørgen 1982: *The Prehistory of Denmark*. London, Methuen.
- Klassen, Lutz 1996: *Die Kupferfunde der Nordgruppe der Trichterbecherkultur*. Unveröffentlichte Dissertation. Freiburg.
- 1997: Die Kupferfunde der Nordgruppe der Trichterbecherkultur (Zusammenfassung). *Archäologische Informationen* 20/1, 1997, pp. 189-193.
- Larsson, Lars 1987: Some Aspects of the Cultural Relationship and Ecological Conditions during the Late Mesolithic and Early Neolithic. In Göran Burenhult et al. (ed.): *Theoretical Approaches to Artefacts, Settlement and Society. Studies in Honour of Mats P. Malmer*. BAR Int. Ser. 366, pp. 165-176.
- Larsson, Mats 1987: Neolithisation in Scania - A Funnel Beaker Perspective. *Journal of Danish Archaeology* 5, 1986, pp. 244-247.
- Madsen, Torsten 1987: Where did all the Hunters go? An Assessment of an Epoch-Making Episode in Danish Prehistory. *Journal of Danish Archaeology* 5, 1986, pp. 229-239.
- 1988: Da jæger blev bonde. Om forklaring af kulturforandringer i arkæologien. In Torsten Madsen (ed.), *Bag Møsegårdens maske. Kultur og samfund i fortid og nutid*, pp. 111-119. Århus, Århus University Press.
- Mahler, Ditlev 1981: Hunter's Storage - Farmer's Birth. *Kontaktstencil* 19, 1981, pp. 51-62.
- Mahler, Ditlev & Carsten Paludan-Müller & Stefan Stummann Hansen: Køkkenmøddinger og stendysser: fra fødeindsamling til fødeproduktion. In Ditlev Mahler & Carsten Paludan-Müller & Stefan Stummann Hansen: *Om arkæologi. Forskning, formidling, forvaltning - for hvem?*, pp. 58-83. København, Hans Reitzel.
- Meiklejohn, Christopher & Marek Zvelebil 1991: Health Status Of European Populations At The Agricultural Transition And The Implications For The Adoption Of Farming. In Helen Bush & Marek Zvelebil (ed.): *Health In Past Societies. Biocultural interpretations of human skeletal remains in archaeological contexts*. BAR Int. Ser. 567.
- Nielsen, Poul Otto 1987: The Beginning of the Neolithic - Assimilation or Complex Change? *Journal of Danish Archaeology* 5, 1986, pp. 240-243.
- Paludan-Müller, Carsten 1974: Mesolitiske og neolitiske subsistensstrategier. *Kontaktstencil* 8, 1974, pp. 61-90.
- 1978: High Atlantic Food Gathering in Northwestern Zealand, Ecological Conditions and Spatial Representation. In Kristian Kristiansen (ed.): *New Directions in Scandinavian Archaeology* vol. 1, pp. 120-157.
- Pedersen, Lisbeth 1982: Neolitiseringsprocessen i Danmarks Stenalder - ældre og nyere opfattelser. *Kontaktstencil* 21, 1982, pp. 141-155.
- Persson, Per 1979: Övergängen Från Mesolitikum Till Neolitikum Ur En Marxistisk Synsvinkel. *Kontaktstencil* 16, 1979, pp. 130-144.
- Price T. Douglas & Anne Brigitte Gebauer: The Final Frontier: Foragers to Farmers in southern Scandinavia. In T. Douglas Price & Anne Brigitte Gebauer (ed.): *Transitions to Agriculture in Prehistory*. Monographs in World Archaeology 4, pp. 97-116.
- Rowley-Conwy, Peter 1984: The Laziness of the Short-Distance Hunter: The Origin of Agriculture in western Denmark. *Journal of Anthropological Archaeology* 3, 1984, pp. 300-324.
- 1986: The Origin of Agriculture in Denmark: A Review of some Theories. *Journal Danish Archaeology* 4, 1985, pp. 188-195.
- Rudebeck, Elisabeth 1997: Heroes and tragic figures in the transition to the Mesolithic. Exploring images of human beings in archaeological texts. *Journal of European Archaeology* 4, 1996, pp. 55-87.
- Salomonsson, Bengt 1973: Nya fynd från det äldste neolitikum

- i Skåne. In Simonsen & Stamsø Munch (eds.) *Bonde-Veidemann. Bofast-Ikke Bofast I Nordisk Forhistorie. Foredrag Og Diskusjoner Fra XIII. Arkeologmøte I Tromsø 1970*. Tromsø Museums Skrifter Vol. XIV, pp. 21-26.
- Schwabedissen, Hermann 1958a: Die Ausgrabungen im Satruper Moor. Zur Frage nach Ursprung und frühester Entwicklung des nordischen Neolithikums. *Offa* 1957/58, pp. 5-28.
- 1958b: Untersuchung Mesolithisch-Neolithischer Moorsiedlungen in Schleswig-Holstein. In Werner Krämer (ed.): *Neue Ausgrabungen in Deutschland*, pp. 26-42. Berlin, Gebr. Mann Verlag.
- 1967: Ein Horizontierter "Breitkeil" Aus Satrup Und Die Mannigfaltigen Kulturverbindungen Des Beginnenden Neolithikums Im Norden Und Nordwesten. *Palaeohistoria* XII, 1966, pp. 409-468.
- 1969: Der Übergang vom Mesolithikum zum Neolithikum in Schleswig-Holstein. In *Führer zu den vor- und frühgeschichtlichen Denkmälern* Band 9, Schleswig-Haithabu-Sylt, pp. 9-26.
- 1972: Rosenhof (Ostholstein), ein Ellerbek-Wohnplatz am einstigen Ostseeufer. *Archäologisches Korrespondenzblatt* 2, 1972, pp. 1-8.
- 1979: Zum Beginn des Neolithikums im nordwestlichen Deutschland. In: Heinz Schirinig (ed.): *Großsteingräber in Niedersachsen*, pp. 203-222. Hildesheim, Lax.
- 1981: Ertebølle-Ellerbek - Mesolithikum oder Neolithikum? *Veröffentlichungen des Museums für Ur- und Frühgeschichte Potsdam* 14/15, 1981, pp. 129-142.
- 1994: Die Ellerbek-Kultur in Schleswig-Holstein und das Vordringen des Neolithikums über die Elbe. In Hoika, Jürgen & Jutta Meurers-Balke (eds.): *Beiträge zur frühen Trichterbecherkultur im westlichen Ostseegebiet. 1. Internationales Trichterbechersymposium in Schleswig vom 4. bis 7. März 1985*. Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein Band 1, pp. 361-401.
- Skaarup, Jørgen 1973: *Hesselø-Sølager. Jagdstationen der südskanavischen Trichterbecherkultur*. Arkæologiske Studier I.
- Solberg, B. 1989: The Neolithic Transition In southern Scandinavia: Internal Development Or Migration? *Oxford Journal of Archaeology* 8(3), 1989, pp. 261-296.
- Stürup, Bjørn 1973: Overgangen mellem mesolitisk og neolitisk kultur i Danmark. In Simonsen & Stamsø Munch (eds.) *Bonde-Veidemann. Bofast-Ikke Bofast I Nordisk Forhistorie. Foredrag Og Diskusjoner Fra XIII. Arkeologmøte I Tromsø 1970*. Tromsø Museums Skrifter Vol. XIV, pp. 44-53.
- Tauber, Henrik 1971: Danske Kulstof-14 Dateringer Af Arkæologiske Prøver III. *Aarbøger for Nordisk Oldkyndighed og Historie* 1970, pp. 120-142.
- Thomas, Julian 1988: Neolithic explanations revisited: the Mesolithic-Neolithic Transition in Britain and South Scandinavia. *Proceedings of the Prehistoric Society* 54, 1988, pp. 59-66.
- 1991: *Rethinking the Neolithic*. Cambridge, Cambridge University Press.
- Thorpe, I.J. 1998: *The Origins of Agriculture In Europe*. London/ New York, Routledge.
- Thrane, Henrik 1997: Penultima Thule: The Bronze Age in the western Baltic Region as an Analogy to the Irish Bronze Age. In Waddell, J. & E. Shee Twohig: *Ireland In The Bronze Age. Proceedings of The Dublin Conference, April 1995*, pp.149-157. Dublin, Stationary Office.
- Tilley, Christoffer 1996: An ethnography of the Neolithic. Early prehistoric societies in southern Scandinavia. Cambridge, Cambridge University Press.
- Troels-Smith, Jørgen 1953: Ertebøllekultur-Bondekultur. Resultater Af De Sidste 10 Aars Undersøgelser I Aamosen, Vestsjælland. *Aarbøger for Nordisk Oldkyndighed og Historie* 1953, pp. 5-62.
- 1960: Ertebøllekulturens Fangstfolk og Bønder. *Nationalmuseets Arbejdsmark* 1960, pp. 95-119.
- 1967: The Ertebølle Culture And Its Background. *Palaeohistoria* XII, 1966, pp. 505-525.
- Vang-Petersen, Peter 1982: Jægerfolket på Vedbæksbopladserne. Kulturudviklingen i Kongemose- og Ertebølletid. *Nationalmuseets Arbejdsmark* 1982, pp. 179-189.
- Zvelebil, Marek & Peter Rowley-Conwy, The Transition to Farming in Northern Europe. A Hunter-Gatherer Perspective. *Norwegian Archaeological Review* 17, 1984, pp. 104-128.
- 1986: Foragers and Farmers in Atlantic Europe. In: Marek Zvelebil (ed.): *Hunters in transition. Mesolithic societies in temperate Eurasia and their transition to farming*, pp. 67-93. Cambridge, Cambridge University Press.