The Funnel Beaker culture was derived from the local Mesolithic. The Funnel Beaker culture is equally well represented in the southern zone, and in the early phases the differences from the north are negligible in what can be compared at present, i.e., mainly pottery, the north, however, lacks certain pottery forms that are abundant in the south. In the south the Funnel Beaker culture is certainly just a development of various late Lengyel (Proto-Aeneolithic) cultural groups, there is no reason to assume that it was otherwise in the north. Wisłanśki (1983, fig.4) shows how the earliest Funnel Beaker manifestations are concentrated in regions previously occupied by various Lengyel-like Neolithic groups and points out that the Funnel Beaker culture draws upon earlier “Danubian” traditions both in pottery forms and in economy.

8. Funnel Beaker settlements are small, scattered, and often outside the microregions inhabited by the Linear Pottery and Brześć Kujawski farmers. They regularly appear on sandy soils and rarely exhibit long-term structures. Quite often, however, they are less than an hour’s walk from the earlier Neolithic sites. These characteristics, if properly generalized, apply equally to the Funnel Beaker culture of the southern zone. Settlements of this culture are certainly much smaller than those of the Linear Pottery, Stroke-Ornamented Ware, or Lengyel cultures [overlooking the palimpsest effect that Bogucki ignores]. As Rulf (1983, 1986) has shown, sites of the Funnel Beaker culture in Bohemia are more evenly distributed than those of the Linear Pottery and Stroke-Ornamented Ware cultures, which tend to cluster. They are mostly in new places: of those that could be located exactly, only 5% lie on the same spot as a Linear Pottery site and 13% on the same spot as a Stroke-Ornamented Ware site. That they are still quite close to the settlements of the earlier Neolithic cultures may be because the two earlier [Neolithic] cultures often occupied brown-earth regions while their Aeneolithic successors [Funnel Beaker, etc.] tended toward black earth (Rulf 1983:63, 66). The difference in soils may not be as pronounced as in the north, but one has to bear in mind that because of edaphic factors the possibility of choice was different in Kuyavia than in Bohemia. Nevertheless, the settlement patterns of the Funnel Beaker culture of the southern zone obviously underwent changes comparable to those in the north.

9. The long barrows of the northern zone are a logical consequence of the adoption of agriculture by Mesolithic groups. This thesis builds on the apparent absence of such barrows in the southern zone, but this is a mistake. Latdorf [Baalberge group] in eastern Germany has a long barrow, and similar mortuary structures have long been known in Moravia [Houšťová 1958], moreover, recent excavations have uncovered a group of unmistakable trapezoidal long barrows at the Bohemian site of Brézno [Plemenová 1980]. Radiocarbon dates show that they are at least as old as, if not older than, their northern relatives. Such finds are still few because, in the absence of boulders, they were easily erased by ploughing in a landscape intensively cultivated for the last millennium. Excavation of fairly large areas surrounding grave pits is required to locate the trenches that delimit the original long barrows, and such excavations are rarely done, especially when the grave pits contain almost no archaeological finds [except for the skeletons].

Thus the phenomena that Bogucki considers specific to the “North European Plain” seem to be parallel developments of both the southern and the northern zones of Central Europe. If the individual features are equally at home in the south [where any Mesolithic agent is excluded for obvious reasons], their appearance in the north can be attributed neither to the environment nor to Mesolithic peoples. They probably reflect the development from the Neolithic to the Aeneolithic type of agriculture that seems to have occurred all over Central Europe [cf. Neustupný 1967, 1985]. In my view it is difficult to argue that farmers coming to the northern zone failed to adapt. The Funnel Beaker culture groups are prosperous descendents of the Neolithic peoples. This is not to say that everything was identical in the two zones; in fact it could not have been. But in looking for local adaptations one presumably has to go into finer details which are still difficult to grasp.

The Mesolithic population might have survived in some regions, and it is the task of future research to ascertain what happened to them. Two clearly emerging examples of how the adoption of elements of farming cultures could be integrated into the Mesolithic way of life are the late Ertebölle culture [Schwabedissen 1980] and the local groups of the East Baltic area (e.g. Loze 1979). These examples seem to differ substantially from what Bogucki supposes for the northern zone of Central Europe. The partial adoption of agriculture by Mesolithic peoples took place over many centuries; it implied not only change in settlement patterns but also many changes in artifact assemblages. In no instance is there an overnight conversion of a Mesolithic culture group to the highly sophisticated plough [and] agriculture whose development in the southern zone took many centuries and was a logical response to difficulties arising within the Neolithic [i.e., Early Neolithic, according to Bogucki’s terminology] economy.

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Bogucki offers a number of interesting ideas and possible explanations for the introduction of the agrarian subsistence economy in northern Europe. His argument is very complex but plausible and rather convincing. I wonder,
however, how firm its foundations are. It is more a hypothesis than a synthesis. The basic data are to be found mainly in the author’s earlier publications on his research in the Brzesc Kujawski microregion, and therefore instead of “North European Plain” one should read “Polish Lowlands.” In other parts of northern Europe the processes will, as Bogucki remarks, have been different because of ecological and cultural diversity.

There are two basic problems: the reluctance to adopt agriculture of the indigenous foragers in the period during and after the Linear Pottery colonization (4400–4000 B.C. recalibrated C14) and the rather sudden transition around 3300 B.C. from foragers to farmers. The first problem is solved by the now generally accepted picture of late Mesolithic society as a complex of foraging communities with a successful low risk subsistence system, a high degree of territoriality, (quasi) permanent settlement, and strong seasonality in food procurement (Zvelebil 1986). Explanation of the change around 3300 B.C. is generally found in a crisis of the ecosystem and the loss of a staple (oysters, seals) and/or the introduction of plow agriculture, which was better suited to the sands of the North European Plain. (To avoid misunderstanding, I am suggesting not that the plow was “invented” for this reason but only that its availability made agriculture more readily acceptable.) There is no indication that the storage of food played a major role in these Late Mesolithic societies. Hazelnuts were indeed collected, but thick layers of shells have been found, especially in small special activity sites. Acorns would, incidentally, have been a more reliable and plausible storage food. I wonder, then, whether storage of food played a role around 3300 B.C.

I have firm objections to the suggestions about Mesolithic Neolithic contacts. Apart from Ertcholle, hardly any late Mesolithic assemblages from the period 4000–3000 B.C. are known from the North European Plain. No Mesolithic elements are visible in the flint inventories of the Early Neolithic sites (despite Newell 1972). Bogucki’s use of ethnographic analogy and his suggestion that there must have been change when foragers and farmers lived in close proximity is, in my opinion, an example of how not to use anthropology in archaeology. There is no such thing as an “ethnographic law” in this respect, and the range of organizational variation of prehistoric societies must be considered much wider than that of the (sub)recent sample of primitive societies (cf. Hodder 1982).

A second methodological point is the highly deductive line of reasoning, especially the fact that only one hypothesis is considered and only those data selected that support it. For example, the Linear Pottery culture is treated as completely different from the Late Mesolithic and the Lengyel as very similar to it, although both have large residential sites and also presumably many ephemeral ones. The idea that the Linear Pottery settlement pattern reflects a residentially mobile society and the Lengyel pattern a logistically mobile one seems to me untenable; it overstates minor differences that are not made explicit. The archaeozoological data do seem to indicate that the Linear Pottery culture in the lowlands relied predominantly on cattle raising, but the interpretation of Brzesc Kujawski and the other Linear Pottery sites (cf. Bogucki 1982:56, 84, 86) as a transhumant settlement of farmers of the loess zone must be considered hypothetical. The absence of house plans might have been caused by postexcavational disturbance. The relative importance of hunting in Lengyel settlements is restricted to Brzesc Kujawski and not found at other Polish Linear Pottery, Stroke-Ornamented pottery, or Lengyel sites (cf. Bogucki 1983). A similar economic diversity is known from other parts of Europe and throughout the Neolithic. Therefore I am critical of the idea that the exogenous agriculturists “acquired a better understanding of the lowland ecosystem” and needed many centuries to do so. The variation can be explained in a number of ways other than “better understanding” or staple food exchange. I wonder if it makes sense to say that the “Lengyel subsistence strategy mimicked the Mesolithic exploitation pattern.” The parallel of the “buffering behavior” of Late (?) Mesolithic and Lengyel seems to me of an academic order and of only very general value. It seems to me, then, that there are no convincing arguments for presenting Lengyel as very different from the Linear Pottery culture in its Mesolithic contacts or adaptation to the northern ecological zone. The major difference is more pronounced social stratification as reflected in the differentiation of grave goods.

The Funnel Beaker culture is a different story. Arguments for Mesolithic origins from the flint inventory and site locations and dimensions seem strong (and quite different from those for Lengyel!). This culture replaces the Lengyel, and the relationships of sites and regions in this phase can be applied to the preceding phases only with reservations because of the major economic changes that had taken place. The presumed semisedentary settlement system of the Late Mesolithic must be considered a prerequisite for the adoption of agriculture, but the process itself must have been triggered by external or internal cultural or ecological factors. We can only be astonished that it occurred simultaneously over a large area. Since ecological crises and/or population pressure over such a large area seem unlikely, the technological argument (plow agriculture) may be the strongest. This does not mean, however, that the other factors did not play a role or may not locally (oysters in Denmark, seals in Sweden) have been dominant. With the Funnel Beaker culture we see in fact a process of unification (especially prominent in later Beaker times, van der Waals 1984) in the course of which Lengyel and the presumed Late Mesolithic merge into one new “culture.” In view of this disappearance of the Lengyel, the lack of information on early Funnel Beaker houses, and the appearance of the Kuyavian long barrows, one can predict trapezoidal houses for the early Funnel Beaker occupation in Poland.

It is interesting to compare the Polish sequence with that of the westernmost part of the North European Plain, the Netherlands, where Linear Pottery colonists on the loess soils came rather close to the presumably
rich coastal habitats, now buried beneath ten or more meters of sediments. We can presume Ertebølle-like communities there, but their remains have not yet been found. Stray flint arrowheads and adzes point to incidental use of the sands up to 100 km from the loess zone. Ephemeral "locations" indicate a home range of up to 30 km from the loess. Interactions with [as yet hardly traced] very late Mesolithic foragers are documented at only one site. This pattern was intensified and extended in the subsequent Rossen phase (4000–3500 B.C.). Around 3300 B.C., semiagrarian communities with Mesolithic roots [judging from flint inventory and site characteristics] appear in the coastal zone. The processes underlying them are, however, hidden in the black box of the period 4000–3300 in the region between the loess and the coast. We are now trying to open that box. It seems that no earlier than this phase, that is, about eight centuries after the end of the Linear Pottery, presumably agrarian settlements, linked by exchange of mined flint from the Rijckholt mines in the south, appeared in the Meuse Valley. In spite of the marked differences in material culture, an indigenous development, as opposed to colonization, must be seriously considered. Locally, especially in the wet coastal environments, semiagrarian communities persisted up to the Late Neolithic Vlaardingen culture. This very compressed summary of Dutch developments may illustrate the parallels as well as the regional differences in comparison with Kuyavia.

I hope that these remarks will be considered constructive. They will, perhaps, be judged the typical reaction of a cautious, data-bound European prehistorian, but I am afraid of overinterpretation of the magnificent Brzeski Kujawski data and of overgeneralization. We need studies like Bogucki's as inspiration for further research and as a source of new research goals. They show what factors might have played a role and how they might have interacted. We must be careful, however, about telling better stories than the data allow.

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The concern of this paper in a nutshell is the relationship between hunter-gatherers and early farmers in north-central Europe. The issue of forager-farmer interaction is a particularly active area of enquiry in European prehistory at the moment, and Bogucki's contribution is a useful addition to these studies. Bogucki reviews the current perspectives on first farmers in this area, pointing out the differences between exogenous groups such as the Linear Pottery and Lengyel cultures and the indigenous Mesolithic groups. In this context he distinguishes the Funnel Beaker as the first indigenous agrarian communities in the North European Plain. The summary of the major characteristics of these assemblages is useful and provides a background for the theoretical elaboration concerned with the relationships between these units and exchange between farmers and foragers.

Much of the discussion in the paper focuses on the Polish data with which Bogucki is most familiar. Bogucki argues that indigenous and exogenous groups in this area utilized the environment in different ways. As he notes, although domesticates appear to have been introduced by colonists, the successful long-term farming strategies are developed by indigenous hunter-gatherers over a period of 1,000 years or more. The prehistory of early farming in Poland is, however, a rather complicated base from which to attempt to unravel the relationships between foragers, colonists, and hunters becoming farmers. The Mesolithic is known almost exclusively from scatters of lithic material, containing very little information on subsistence or settlement pattern. There are very few data on which to base comparative statements. Further, the presence of both Danubian and Funnel Beaker in the same general area may obfuscate rather than clarify the nature of the relationship between groups. Although Bogucki's view of interaction and change in this area is intriguing, it might be significantly enhanced by both more detailed comparison with areas to the north lacking Danubian Neolithic cultures and the incorporation of more substantial information on the nature of hunter-gatherer adaptations at the threshold of farming in northern Europe.

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Bogucki's article is most welcome. His synthesis (based in part on his own fieldwork) considers the appearance of farming in considerable detail, and it achieves its stated aim of providing alternatives to the view that indigenous foragers either became "Danubian clones" or were simply shouldered out of the way of the march of cultural evolution.

Bogucki distinguishes between two major cultural trajectories: an exogenous one, comprising the more mobile cattle-herding Linear Pottery culture, and the later mixed-farming Lengyel, with large villages with longhouses [possibly with a hiatus in between at the time of the Stroke-Ornamented Ware culture], and an indigenous one, running from an increasingly territorial late Mesolithic, continuing alongside the Linear Pottery [little or no interaction] and Lengyel [more interaction], and ultimately developing into the early Funnel Beaker culture towards the end of the Lengyel. My comments are directed towards the indigenous trajectory.

Bogucki needs a somewhat substantial Mesolithic for the Lengyel to interact with. Because, as in so many areas of Europe, the evidence is very poor, much of the argument for such a Mesolithic is based on a contrast between the loess lands, on the one hand, and the North European Plain, on the other. The Plain is said to be much more favourable for foragers than the loess, a point I would question. It may be [as Bogucki argues] that both the Ertebølle and the Plain Mesolithic were variants of a logistic strategy, but the availability of coastal resources to the former meant that the two were fundamentally different in kind. I would suspect that the Plain and the