OP ZOEK NAAR MENS EN MATERIËLE CULTUUR

Feestbundel aangeboden aan J.D. van der Waals
ter gelegenheid van zijn emeritaat

onder redactie van

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Voorwoord

"Feestbundel" is een merkwaardige betiteling van een cadeau voor iemand die afscheid neemt. Voor wie hem als docent en collega heeft leren kennen, is het eindje van de ambtelijke loopbaan van J.D. van der Waals geen reden zijn tot feest vieren. Toch is er reden om een feestbundel te melden. Het is een boek, dat aan zijn enige levens- en werkgenoot, de ar-
chaeoloog neeiget. Nu bestuurswerk en onderwijsstaken wegvallen, zal hij meer tijd hebben voor zijn onderwijs en zijn vak die hem het meeste boeit. Wij hopen als
collega's en vrienden daarbij steeds betrekken te kunnen blijven, zowel in Nederland als in Afrika.

De artikelen die in deze bundel zijn opgenomen, zijn geschreven door 'leerlingen' van Van der Waals. Het gaat om artikelen over archeologie en zich voor een belangrijk deel bezighouden met aspecten van zijn interessegebied. Enkele bijdragen hebben zelfs betrekking op onderzoek dat mede door hem werd geleid. Het idee van een boek ter gelegenheid van zijn emeritaat is van Van der Waals altijd een middel geweest om zijn onderzoek en opdracht te laten oplossen. Hij heeft bijzonder stimulerende en persoonlijk wijze op ons weten over te brngen. Deze bundel moet daarom in de eerste plaats als een dankbetuiging daarvoor worden opgevat.
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FROM SHIFTING CULTIVATION TO SHORT FALLOW CULTIVATION: LATE NEOLITHIC CULTURE CHANGE IN THE NETHERLANDS RECONSIDERED

1. INTRODUCTION

Diderik van der Waals has always been interested in the problems of the Beaker cultures. From 1955 to 1986 he published several articles on this subject, most of the times written in co-authorship with one of his colleagues. In Europe these publications are reckoned among the basic literature on Beaker cultures.

Within this context Van der Waals especially addressed the problems of (dis)continuity and the concept of culture (1976; 1984). In the original definition, the archaeological culture (Childe, 1929) is “assumed to be the concrete expression of the common social traditions that bind together a people” (Childe, 1950: 2; emphasis mine). Discontinuity of culture was therefore explained as ethnic discontinuity, i.e. migration of people.

Presently this interpretation is not accepted any longer because it is realized that the observed discontinuity is often deduced from only one aspect of archaeological cultures, especially from burial practices. Therefore continuity should be the starting point and a 'break' in culture traditions should rather be explained as "a profound transformation of culture within a given society" (Van der Waals, 1984: 4).

Despite the fact that none seriously opposes the above stated point of view, some of the traditional migration theories are hard to eradicate. One of the migrations that is still present in the back of the mind of many archaeologists, at any rate in the Netherlands, is the emergence of the Battle Axe (BA) cultures. This is due to several reasons, one of which is that it always has been considered one of the best documented discontinuities. Another reason is, that not a war or drought was supposed a cause for migration, but a lifestyle (nomadic pastoralism), something more difficult to refute. Finally sceptis over the newly offered explanations of TRB-BA transition certainly plays a part too: one should not throw away an old explanation before an acceptable new one is presented.

Especially the Dutch data on TRB and Beaker Cultures have attracted scientists, due to the fact that these data are well documented and therefore relatively accessible. Recently several authors, with different theoretical backgrounds, have studied the TRB-PFB transition in the Netherlands. IN this article I will summarize these studies

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and try to fill in that part of the variation that they leave unexplained. First however, I will re-state the traditional characterization of the TRB-BA transition.

2. TRADITIONAL CHARACTERIZATION OF THE TRB-BA TRANSITION

"....pastoral tribes armed, with battle-axes, but otherwise with little equipment of durable materials: for pastoralists, using largely leather and wood and dwelling in very temporary huts or in tents, would leave few remains on their settlements for the archaeologist to find" (Childe, 1950: 141).

This quotation may serve as a summary of the prevailing opinion on the BA cultures in the 'sixties'. The BA nomads, searching pastures for their herds, spread all over Europe from the Pontic steppes, eradicating the TRB shifting cultivators in their wake. The argumentation for this ethnic discontinuity was almost the same everywhere. Most characteristic were those outlined by Sophus Müller in 1898 (cited in Malmer, 1962: 678)

1. The BA cultures are contemporaneous with the later part of the TRB culture and yet no signs of contact can be detected.
2. The areal distribution of both cultures is different and partly exclusive.
3. Graves and artifacts of the BA culture differ strongly from those of the TRB culture.

Other arguments that were considered to support the dichotomy include the following.

4. The introduction of the shafthole-axe was seen as a new element. Interpreted as a battle-axe, this artifact type served to illustrate the belligerent nature of the BA culture. Some even considered the tool an innovation in warfare. Therefore the BA people had:


5. The dispersed single graves of the BA people as opposed to the TRB collective megalithic burials pointed to the nomadic nature of the BA people.
6. The horse as domesticated animal was supposedly introduced by the BA culture, a further indication of their warlike disposition.
7. Houses of the BA culture were unknown, suggesting the nomadic nature of their lifestyle.
8. The types of landuse of the TRB and BA cultures were considered to be different (Waterbolk, 1954; Van Zeist, 1967). Palynological evidence seemed to indicate that the TRB and BB cultures practiced agriculture on small plots dispersed in the forest (Troels Smit's landnam). The BA culture however made large clearings in the forests (Iversen’s landnam), supposedly for cattle grazing.

Many of those arguments have lost their value due to the appearance of new data or new interpretations of old data. For example the study of (Casparie & Groenman-van Waateringe, 1983) showed that the Neolithic landnam were to a large extent an artifact
of archaeological sampling. The absence of houses as an indication for nomadism can be rejected as an over-simplistic ethnographic parallel. Moreover, TRB houses are hardly known either. Furthermore, at least in the Netherlands, the areal distribution of TRB/VL and PFB habitation traces is certainly not exclusive and artifacts of these archaeological cultures occur in the same sites (Bakker, 1982; Fokkens, 1984). The differences in burial practices, traditionally one of the most convincing arguments, become less extreme if one realizes that the building of megalithic monuments comes to a halt already at the end of the Drouwen phase of the TRB culture (Bakker, 1980). From then on the tradition of cremation and interments in flatgraves develops both in TRB and BA context (Bakker & Van der Waals, 1973). Finally there is no necessity at all to interpret the hammer-axe as a weapon. BA hammer-axes can be seen as direct descendants of the Middle Neolithic knobbed hammer-axes and the Early Neolithic chisels with a shaft hole, like the *durchlochten Rössener Breitkeile*, which were probably used as wood splitting tools (Van der Waals, 1966). There are no reasons why the TRB and BA hammer-axes should not be related to timber work as well, rather than to war. Therefore the term splitting axe would be more appropriate, though their function may have been social/ritual rather than technical.

Although the migration hypothesis cannot be supported any longer, evidence for a sweeping culture change in the Late Neolithic is abundant. Megalithic monuments are replaced by earthen barrows, a new pottery style is introduced, and several other innovations are adopted, of which the wheel and the ard are the most important.

3. ALTERNATIVE EXPLANATIONS OF LATE NEOLITHIC CULTURE CHANGE

Recently a few attempts have been made to analyse the TRB-PFB transition from different perspectives. In the following the more important ones will be discussed against the light of their theoretical background.

3.1. The analysis of style

3.1.1. Information exchange

Some years ago Wobst introduced the concept of information exchange (Wobst, 1977). Wobst is concerned with the effect and meaning of style. Style can be equated with:

"that part of the formal variability in material culture that can be related to the participation of artifacts in the processes of information exchange. Information exchange includes all those communications in which a message is emitted or in which a message is received" (Wobst, 1977: 321).

Unconsciously this concept is used by all archaeologists, for example when they analyse pottery style. Are aspects like form, decoration, even rim finishing and tempering not considered specific for a certain time and archaeological culture? Is
decoration not supposed to show immediately to which culture or ethnic group the pot belonged? However, in the traditional approach the maker of pots her(him)self is of little concern. The pots seem to be able to act on their own, they are even able to interbreed and 'hybridize'. In contrast Wobst emphasizes the fact that artifacts are products of their manufacturers, who, by means of form and decoration, transmit information. He shows that those messages can be of different nature and are directed at certain target groups that are distant enough to make the information necessary, but close enough to make them understandable (Fig. 1).
This model is used by Voss (1982) to study Western TRB social organization, his object of analysis being the decoration of TRB bowls, mainly from the Netherlands. Voss interprets the gradual decrease of decoration on TRB bowls as an indication that the tribal community becomes organized into smaller units. Therefore the emission of messages becomes useless: the members of the possible target group are too close to the potter. In this context, the emergence of highly decorated BA pottery is of considerable significance. It would mean that a new target group emerges to which it makes sense to emit messages, whereas in the Late Havelte phase this is apparently not necessary. Two conclusions are possible according to Voss:

"First it is possible that the PFB period represents a return to social traditions of the earlier TRB phases, when there was no standardized regional organisation, and when pottery styles functioned in the transmission of certain social messages. An alternative, and more probable explanation is that the re-emergence of pottery decoration represents increasing social participation in yet a larger regional network” (Voss, 1982: 97).

Although wrapped in impressive jargon this conclusion hardly explains anything about Late Neolithic change. One might call it in Flannery’s words a Micky Mouse statement (Flannery, 1972). In fact Voss’ approach, using only pottery (predominantly from graves) to study tribal emergence is rather naive. Especially the conclusion that the observed changes reflect developments in ‘regional networks’ seems to be unwarranted. In order to analyse regional patterns one should also turn to the settlement data which, at least in the Netherlands, are now emerging.

3.1.2. Symbolic and structural aspects

Material culture not only has functional aspects, but symbolic connotations as well. The symbolic and structural approach to archaeology is giving this very aspect prime attention. It is impossible to explicate the theory behind it in a few words, but at least the following principles can be mentioned.

People arrange the world around them according to basic structures that are present in a particular society (Hodder, 1982a). These structures are the result of principles of human thought, of which binary categorical oppositions are the most important. Categorical oppositions can be defined as two terms that are mutually exclusive but together form a unity (Kloos, 1981). Oppositions like man-woman, sky-earth, inside-outside, cold-warm are examples. These categorisations are visible in the way people organise particular aspects of their world. For example Bloch (1975: 216) shows how for the Merina, Malagasy rice cultivators, land is very important as a means of production. By endogamy, land is kept within the corporate group*. A strong dichotomy between insiders (havana) and outsiders (vahiny) is experienced. The purpose obviously is to keep the outsiders out of the land of the insiders (Bloch, 1975: 209). Hodder suggests that people, in the decoration and form of the artifacts that they produce, duplicate (and therefore affirm) or deny in a symbolic form such categorical oppositions as exist in their world (Hodder, 1982a).

From this perspective Hodder (1982b) studied the style of TRB and BA pottery in the Netherlands, whereas Tilley (1982, 1984) did the same in Sweden. Both authors pay
special attention to the way the decoration is arranged in bounded blocs of horizontal and vertical impressions. Looking at it in this manner, the decoration of early TRB pottery apparently shows a marked contrast between these two categories:

"The dendritic design organisation of TRB phases A to C is characterized by the drawing of boundaries and contrasts between different areas of the pot surface, and between horizontally and vertically organized decoration. A complex set of contrasts and oppositions is achieved" (Hodder, 1982b: 167). In phases D and E however these boundaries become frequently broken and 'cross references' occur between the bounded zones, while in the latest phases F and G decoration is virtually absent. The Scandinavian TRB pottery shows a similar development (Tilley, 1982). BA pottery apparently does not show the same dichotomy as the earlier TRB pottery. BA pots are decorated with frequently repeated bands of identical ornaments, but these are not considered to express distinct bounded blocs on different areas of the pot surface (Hodder, 1982b; Tilley, 1984). In early TRB society therefore, people acknowledge by means of pottery decoration the social categories that exist in their society. The decrease of contrasts in the decoration of later TRB and PFB pottery thus indicates a denial of those earlier social categories and the emergence of "a new pattern of social relationships" (Hodder, 1982b: 171). In more concrete terms this implies the transformation of earlier well-defined social units into more flexible individual groups, a transformation that is visible in the change from collective tombs to individual, more dispersed, barrows of the PFB culture as well.

The validity of this conclusion depends on whether one agrees with the method followed by Voss, Hodder, and Tilley. The measurement of design structures of course suggests objectivity, but it remains based on subjective definitions of concepts like 'openness' or 'boundedness'. For example one could argue that PFB decoration of herringbones bordered by cord-impressed lines constitute bounded zones as well. Moreover, the above conclusion, as well as the one formulated by Voss, is rather generalized and does not explain why the observed transition should occur at all.

3.2. Burial practices

3.2.1. Formal disposal areas

Apart from pottery, burial practices lately have received much attention as well. In his famous thesis on mortuary practices, Saxe (1970) tests his hypothesis 8, that corporate groups:

"....will maintain formal disposal areas for the exclusive disposal of their dead, and conversely. By formal disposal we mean a permanently specialized, bounded territorial area such as a 'cemetery', etc." (Saxe, 1970: 119).

Studies like those of Bloch (1975) and Goldstein (1981) have supported this hypothesis. Archaeologists conceive megalithic tombs as clear examples of such formal disposal areas and therefore as 'territorial markers', symbolizing, or claiming rights on ancestral land (Chapman, 1981; Renfrew, 1976). In contrast informal disposal areas, usually simply defined as the opposite of formal disposal areas, are considered to indicate less stress on the critical resources. From this perspective the transition in burial from megalithic tombs to relatively small and dispersed barrows
and flatgraves is interpreted as a shift from formal to informal disposal areas (Chapman, 1981). This is thought to indicate a diminishing of stress on critical resources, notably on land, towards the end of the Neolithic (Chapman, 1981; Fokkens, 1984; Van der Waals, 1984).

Although I used the concept of formal disposal areas in this way myself (Fokkens 1984), I am no longer convinced of its usefulness. Since most barrows are still visible today, they must have been taken care for even in prehistoric times. The fact that Late Neolithic barrows were often re-used in later periods, and in many cases form the core of an urnfield some thousand years later, also indicates that they must have remained visible and be respected as a specialized (formal) burial area. Flatgraves appear of course less conspicuous today, but often clusters are found, which implies that at least during the period of occupation of a site they may have constituted a cemetery, and should be defined as formal disposal areas as well. Therefore I believe that the conclusion that Late Neolithic change in burial ritual indicates a diminishing stress on critical resources is no longer valid.

Another point can be made. The tombs on Madagascar studied by BLoch (1971), one of Chapman's important sources, belong to the Merina, rice cultivators to whom land is a very important means of production. In Merina society, land is owned by tomb groups. The tombs symbolize the rights of these corporate groups on ancestral land (Bloch, 1971). In contrast the Zafimaniry, Malagasy shifting cultivators, practice inconspicuous individual burial in the forest. To them land is relatively unimportant because there is plenty of it, if only enough labor force is available to convert the forest into arable land (Bloch, 1975). No one seems to have noticed that in Neolithic Europe the very shifting cultivators practised formal disposal in the form of megalithic tombs. Yet there are no signs that -in absolute terms- there was a shortage of potential arable land. The Neolithic tombs therefore cannot be explained as a means to claim rights on land alone. They must have been important as a central place for ritual, possibly for social gatherings, and a marker of the territory of the tomb group as well.

3.2.2. From collective to individual burial

Following the arguments presented above, both megalithic tombs and earthen barrows are considered to symbolize, as a localized monument, the (traditional) territory of a group of people. In my opinion the megaliths represent clan-like groups consisting of several lineages. The fact that often two (sometimes even more) tombs are situated near to each other, may indicate that the tomb groups were organized into moieties or comparable subgroups, that formed the basis for the territorial structure. During the period 2700 to 2400 B.C. the tribal organisation must have been fairly stable within its central area. In the Netherlands this comprises the general region with boulderclay as a substrate, especially Eastern Drenthe (Hondsrug), where the building materials for the hunebedden could be found. However the higher sandy areas of the Veluwe and Overijssel were occupied as well, though not as dense as the central area (8 sites/500 sq.km compared to 60 sites/500 sq.km; Bakker, 1979: Fig. 2). The tombs symbolize the organization of TRB society, but at the same time they also can be seen
as a means to maintain its structure through ritual and tradition. They may have been more important to the living than to the dead.

In this context the transition to burial in earthen barrows as a predominant way of interment, is an important event. It implies that the hunebedden lost their meaning as structuring elements in TRB society, to be replaced by individual rather than group oriented forms of burial. The clan-structure disappears, and the household units, formerly organized into tomb groups, now become focused on smaller territories as 'barrow groups'. Basically people still lived in their old territories, but without being part of the strict social structure of the tomb groups.

4. FROM LONG FALLOW TO SHORT FALLOW AGRICULTURE

The above sketched characterization of the TRB-PFB transition is not new. Though its formulation may be different, it is actually the same conclusion as was reached by the other studies discussed above. Still, apart from the the rather general concept of 'legitimation crisis' (Tilley, 1984), no specific explanations have been presented yet. In a general sense some authors have pointed to agricultural innovations as one of the important aspects of Late Neolithic culture change (Champion et al., 1984; Sherrat, 1981). The precise mechanisms, however, remained undefined. In a previous article I suggested that the introduction of the plough may have been one of the most important factors (Fokkens, 1984) and I still hold to that opinion. In the following I would like to expand on this, and try to formulate a coherent model of culture change. First, I will discuss the implications of the introduction of the plough, second the reason why this intensification of production may have occurred at all in the Neolithic.

4.1. Long fallow agriculture

"Since the Neolithic, extensive areas of forest land have been farmed each year under conditions of shifting cultivation (which can be defined minimally as any continuing agricultural system in which impermanent clearings are cropped for shorter periods in years than they are fallowed)" (Conklin, 1963: 1).

Most scholars agree about the differences between agriculture with and without the use of a plough, the latter most of the times referred to as shifting cultivation or long fallow agriculture. In a long fallow system new plots are reclaimed from the forest each year. Larger trees often are ringbarked long before, lower trees and bushes are cut. Fire is set to clear the plot further. Apart from fencing not much is done to maintain the garden until the period of harvest; for tillage hoe and digging stick are used. A plot may be exploited for one or a few years, but eventually it is abandoned and left fallow to regain fertility. Depending on the length of the fallow period, the forest vegetation regenerates more or less, thus building up the humus content of the soil. After the fallow period a plot will be used again since clearing a fallowed plot is easier than reclaiming prime forest (Conklin, 1969). The time that elapses between use-fallow-use has been termed the 'landcropping cycle' (Carlstein, 1982). Since new plots are opened
every year, the travel distance to the gardens may become so long that the decision is made to shift settlement nearer to the gardens. The new settlement may be located at or near an old living spot, completing the residence cycle (Carlstein, 1982).

When space-time conditions change, e.g. because the fallow periods are shortened and therefore also the landcropping (and residence) cycles, several things will happen with respect to the soil conditions. First, the humus-content of the soil will diminish (relatively) if the forest vegetation is not allowed to regenerate. Second, when large trees are absent the increased amount of light will stimulate the growth of weeds and grasses, as to the effect that they form a tight cover. These are hard to remove by hoeing and burning, and it is at this point that the plough becomes necessary as a tillage instrument (Boserup, 1965).

4.2. Short fallow agriculture

Once the plough is adopted in the agricultural system, the fallow periods will be kept short. This prevents deep root-systems, that would make ploughing difficult, to develop again (Carlstein, 1982). Additionally tree stumps etc. will have to be removed from the fields. The plots therefore get a more permanent character as arable. Additionally, the use of an ard as tillage tool probably implies a change to sowing in seed drills, which has several advantages. It raises the yield (Steensberg, 1979), makes weeding possible and harvesting easier. However, ploughing and weeding take a considerable energy input, probably more than is gained by the higher output per man-hour. Besides, the introduction of draught animals, considered a necessary pre-condition for the use of even a Neolithic plough (Boserup, 1965), make many adjustments necessary within the household units. Time and people have to be freed to take care of them, some means of cattle stalling will become necessary, fodder for the winter-period may have to be collected and stored, pastures are needed, etc. In general, higher demands will be made from the local environment than before.

Social repercussions will have resulted as well. For example the labor division between the sexes may have changed. Taking care of cattle, and ploughing may have been the new male tasks, but a time consuming activity like weeding is often part of the workload of women. The necessity of combining labor forces in order to handle these new tasks, may have induced the people to start living in extended families. Moreover a sense of private ownership of the means of production like land and draught animals, may have been introduced by the extra energy investment in working the land, ownership of and grazing rights for cattle, etc. Gilman (1981) used this aspect of the introduction of the plough in the explanation of the origin of Bronze Age stratification. Although I agree with the critique on this model (cf. Comments on the article in Current Anthropology 22; Champion et al., 1984), I still believe that the increased sense of ownership basically is a sound hypothesis, and one of the main causes for the eventual re-organization of TRB tribal society.
5. INTRODUCTION OF THE PLOUGH, WHY?

The above mentioned generalized aspects of change do not explain why the plough was introduced at all in the European Neolithic. Many scholars, with Boserup as the best known exponent, have thought population pressure the main incentive for intensification of agricultural production as it occurred in the Late Neolithic. Others have pointed out that Boserup (1965) developed her theory for present day conditions, where population growth is much more rapid and evident than in prehistory. Boserup, however, is well aware of this fact and her description of prehistoric conditions appears realistic enough (1965: 56-59). Nevertheless, a slightly growing population alone could not explain the necessity for intensification in the Late Neolithic. In the Netherlands sufficient land must have been available to enlarge the areas under cultivation (Fig. 2). At least, this may be true in our present (etic) manner of thinking. The Neolithic inhabitants of the Low Countries may have had a completely different perception of space.

First it is clear that the 'TRB people' experienced the river Rhine as the southernmost limit of their world, and the marine and perimarine areas as the western border (Bakker, 1982). Generally speaking, their distribution was determined by the extent of the glacial deposits. Of course only in that region the material for building the hunebedden could be found, but since the Veluwe, where large boulders are absent, was inhabited as well, their availability could not have constituted the only locational conditions. Bakker (1982) suggested that an (economic and social) adaptation to the glacial landscape, vegetation and soil conditions may have played a role. The riverine and coastal areas with their clay soils, relatively sparse vegetation, less building materials, other hunting conditions and different game, etc., may have been considered inattractive to live in. In that sense the limits of the 'inhabitable areas' were reached, and population growth had to be absorbed within the already occupied areas.

At the the end of the Drouwen phase D, the phase to which most sherds can be attributed (Bakker, 1982) and the building of hunebedden comes to a halt, the resources of potential arable land probably were still a long way from depletion. However, because the entire area was occupied and for the largest part divided into tomb group territories, in the perception of the people there may have been not so much space for fission anymore. The land had become environmentally circumscribed in the sense of Carneiro (1970). Within this framework the introduction of the plough may become understandable as a means to intensify production, without having to postulate an absolute necessity of it.

6. LATE NEOLITHIC CULTURE CHANGE RECONSIDERED

In the previous paragraphs a generalized model of Late Neolithic culture change in the Netherlands has been outlined. I will summarize this model below, stressing that it describes gradual developments and processes rather than clear cause-and-effect sequences.
Fig. 2. Palaeogeographic reconstruction of the Netherlands in the period around 2100 C¹⁴-years B.C. (after W.H. Zagwijn et al., 1985. Atlas van Nederland. deel 13, Geologie).
The TRB culture can be described as a tribal organization of farmers/hunters practising shifting cultivation, probably supplemented by hunting. TRB society is organized into clan-like groups focused on megalithic tombs as a central place for burial, ritual etc. As such, these symbolize the rights of the members of 'tomb groups' to exploit distinct parts of the forest. This characterization is valid for the Drouwen phase of the TRB culture in the Netherlands (comparable to the Scandinavian MN I-III), the period that new hunebedden are still being erected. At the end of this phase the sandy soils north of the river Rhine are all occupied. Since extention beyond that area was impossible, population growth would have to be taken care of within the already settled regions, eventually causing circumscription of land. This resulted in a shortening of the landcropping cycles until the adoption of the ard, having already proved its value elsewhere, became an economical investment.

The shift to plough agriculture evoked many changes, most notably a heavier emphasis on the domestic mode of production. An increased sense of private ownership originated from the added energy investment in the soil and the need to own and raise draught animals. This caused the household units to become more sedentary, while expressing the rights on 'their' territory by burying their dead on the land that he or she had worked during lifetime. The hunebedden became superfluous as a structuring element in TRB society, and only those domestic groups living near them or 'laggards' went on to use them for burial. This development is clearly paradoxical. An innovation, originally adopted in order to maintain the existing structure, eventually caused the very structure to dissolve.

Along with the new mode of production, a new type of pottery was added to the local forms. TRB pottery lost its decoration, and instead PFB decoration and style took over the function of information exchange. The fact that the corded ware (of which PFB pottery is a branch) has a European distribution, in my opinion precludes the fact that it represents an archaeological culture in the sense of Childe (1929). Rather it symbolizes membership of a culture group (Clarke, 1978). This also explains the standardized form and uniform development into BB pottery, both of the beaker and of the beaker assemblage as a whole. TRB pottery in its general form and type of decoration may have had the same symbolic value, recognizable to outsiders as 'pottery of the forest people'. The information expressed by the local variations in decoration will have been recognizable only for insiders. It is therefore not surprising to find corded ware ('pottery of the plough/cattle possessing people'), together with undecorated or sparsely decorated pottery of TRB or VI culture in settlement sites, but as 'pure' PFB in burials.

The developments described above were fully crystallized in the Middle Bronze Age. In that period large farms with stables (e.g. type Elp; Waterbolk, 1965) demonstrate that animal husbandry had become an established aspect of agriculture. The riverine and coastal regions, with their grazing areas and potential arable (on the higher levees and dunes) were favoured for farming as well. Farmhouses were rebuilt over and over again on the same site, roads came into existence, and small open spaces gradually
developed into larger heather fields. The transformation of the natural landscape into a cultural landscape had started, and de-tribalization and affirmation of the individual were under way.

NOTES

1. In this article the following abbreviations have been used to indicate archaeological cultures: TRB = *Trechterbeker* (Funnel Beaker) culture. Without specification the TRB Westgroup (Bakker, 1979 for definitions) is implied.

VL = Vlaardingen culture. Related to both Western-TRB and southern (Michelsberg) groups (Van Regteren Altena et al., 1962 and Louwe Kooijmans, 1974; 1976 for definitions).

BA = Battle Axe cultures, also referred to as Corded Ware or Single Grave cultures. This term is used to indicate the culture group in general. When the specific Dutch branch is meant, the term PFB = Protuding Foot Beaker (Dutch: *Standvoetbeker*) is used. BB = Bell Beaker (Dutch: *Klokbeker*). For definitions of the Beaker cultures see Van der Waals & Glasbergen (1955) and Lanting & Van der Waals (1976).

2. The following arguments for the interpretation of the TRB-BA transition as ethnic discontinuity are adopted mainly from Malmer (1972), who gave a clear historical overview. It should be clear that Malmer himself strongly opposed ethnic discontinuity in this respect.

3. In Europe as a whole, the wheel and the ard are introduced somewhat earlier, as is demonstrated by the well known traces under South Street long barrow. However, Van der Waals (1964) demonstrated that in the Netherlands the wheel occurs for the first time in PFB-context. The ard-marks occur predominantly under Late Neolithic and Bronze Age barrows. They were encountered in VL-context (at Velzen) and in possible TRB-context (at Groningen) as well. Therefore the introduction of the ard in the Netherlands can be dated to the end of the Middle Neolithic, somewhere around 2500 C°-years B.C.

4. A corporate group is a group with certain rights, properties and functions (Kloos, 1981).

5. When using the term plough, I am referring to the tool in a general sense. When referring to the Neolithic plough proper, I will use the term ard. Although the ard is not a plough in the sense that it turns the sods, the general remarks pertaining to plough agriculture are considered to be of relevance for ard using agriculture as well.

6. The relation between VL and PFB is documented in many sites (Louwe Kooijmans, 1974: fig. 5) and 'contact' between of both groups is more or less accepted. A continuous development from Hazendonk to Vlaardingen culture is not yet established, which may be partly due to the geological post-depositional conditions, such as eroded sites, or to thick sediment covers preventing them from being detected (Louwe Kooijmans, 1974).

7. At this place I want to thank P. van der Velde (Archeologisch Centrum, Leiden University) for his comments and the last part of the final sentence. A.L. van Gijn (I.P.L.) pointed out some inconsistencies in an initial draft and corrected my English. H.A. de Lorm (I.P.L.) executed the drawings.

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2. LOCATION OF THE SITE

Kollhorn (commonly known as the small town situated on the Netherlands) is a small town immediately west of Kollhorn. In 1644, the Waardpolder in the north and the Waardpolder in the east were drained in front of Kollhorn. The Waardpolder in the north was drained in 1690, while the Waardpolder in the east was drained in 1823. The town of Kollhorn was drained in 1644, while the Waardpolder in the north and the Waardpolder in the east were drained in 1823.

3. HISTORY OF THE SITE

3.1. Discovery

In the year 1923 ten-Leeuw discovered a number of artifacts from the site of Kollhorn. During the leveling, the top of the course was removed, and the soil was partially removed. A short time later, the course was surrounded by water, and the water was filled with the removed soil. Since then the top of the course has been drained and cultivated several times, and the site has been left to dry. The different character of the soil and the discovery of the artifacts have yielded artifacts from the surface.

In March 1973, they were restored for the State Service for Archaeological Exploration.