The articulation of a "New neolithic"

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Appendix 1. A description of the pottery

Introduction
The variables which are used in the analysis of the pottery are introduced here to present an explanation of the terminology used and choices made. The first decision to be made in the description of pottery is the *unit of analysis*. Next, one needs to decide which variables are to be coded, and which are not. Finally, this appendix presents a reproduction of the code list.

Unit of analysis
Two research traditions in the description of pottery can be discerned on the basis of the unit of analysis. The first tradition is based on the description of a set of sherds thought to be the remnants of a single vessel. In this case, the pot is the unit of analysis, which means that all conclusions about quantitative or proportional characteristics of an assemblage are based on pots. The strong side of this approach is that it allows conclusions about the product of human behaviour, and not its remnants. A problem inherent to this approach is the never-ending argument between 'splitters' and 'lumpers'. There will never be total agreement between any two archaeologists about whether sherds are 'similar enough' to be classified as being from one pot.
The second tradition analyses each sherd separately. In this way, it is absolutely clear what the unit of analysis is. Problematic is the 'translation' of the sherd characteristics to pottery characteristics: can one, for example, be certain that the percentage of decorated body sherds equals the percentage of pots with body decoration? If not, how can the percentage of decorated pots be deduced from the percentage of sherds with body decoration?
The choice between these two traditions is not free, but is influenced by both the research history and the character of the archaeological remains of a specific period. As a rule, Middle Neolithic pottery from the Netherlands is described on the basis of sherds (see, for example, Glasbergen *et al*. 1967; Louwe Kooijmans 1980b and De Roever 1979), while the pottery of the Funnel Beaker Culture is described with the pot as a unit of analysis (see, for example, Bakker 1979 and Brindley 1986). These research traditions reflect the nature of the assemblages. On the one hand, Middle Neolithic pottery is known only from settlements. Its pottery is therefore heavily fragmented, and the reconstruction of pottery forms is a rarity. Moreover, the simple and/or rare decorative schemes prohibit a certain identification of individual vessels. On the other hand, Funnel Beaker pottery is mostly found in megalithic graves and the grave goods can often be reconstructed to a limited number of pots, as a result of both the slighter fragmentation and the singular *Tiefstich* decoration. To make feasible a comparison between different pottery studies, a conformation to the period-specific research tradition is preferred: in this study, to the Middle-Neolithic research tradition. To create a bridge between the two research traditions, the depicted pottery fragments from Brandwijk and Hazendonk, the two sites whose pottery finds its first description in this study, are accompanied by a description of their characteristics.

The variables
The list of variables used is reproduced below. Here, a description of the variables is presented to function as a bridge between this code list, the ideas behind it and the pottery descriptions in this study.

Temper. The amounts and types of temper used can be considered to reflect a choice between behavioural alternatives. This choice can be considered functional, and related to, for example, the size or function of the pot, the wall thickness, and absence or presence of decoration. It is also possible that the choice was cultural and determined by a tradition of potters, as perhaps suggested by the temporal and regional variations during the Middle Neolithic (see section 3.8.2). In order to study these behavioural alternatives, the description of the amount and type of temper is seen as central in the analysis of the pottery.
A system of reference sherds was used to determine the densities of temper in the sherd matrix. Six sherds with different densities of grit, grog and vegetable temper represented the boundaries between three classes of temper density. These classes are labelled: 'small quantity', 'medium quantity' and 'large quantity'. Such a description is comparable to density figures like those published by Orton, Tyers and Vince (1993, fig. A.4). The average size of the grit and grog temper particles was estimated in mm; the average size of the shreds of vegetable temper was not estimated: on the whole this was too difficult. In this study, temper with plant material is labelled 'organic temper'. Sand is not listed as a tempering agent, because it is often difficult to determine whether it was present as a natural component in the clay or was added as a tempering agent. Moreover, sand was only rarely observed in the studied pottery.
In contrast to Louwe Kooijmans (1980b, 141-143), I have not pursued a subdivision of the pottery on the basis of combinations of characteristics. The reason for this reserved-

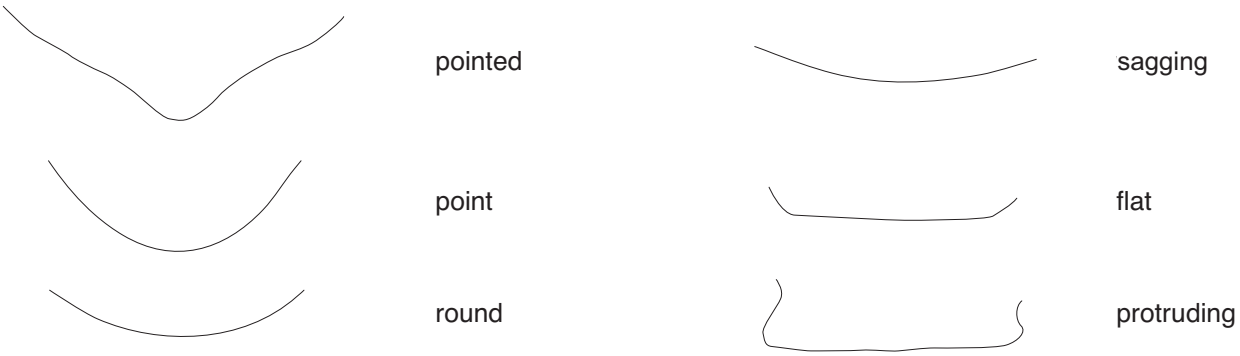

Fig. 1. Base form terminology. Drawing P. de Jong.

ness is that during the work on this study I found that there are no variables that show 100% correspondence. An example may clarify this. It could not be demonstrated that all pottery with vegetable temper was decorated (or vice versa), although there is in some assemblages a correspondence between the proportion of decorated sherds and the presence of vegetable temper. Thus it is inevitable that when subgroups are created on the basis of a combination of characteristics (in this example, the presence of decoration and vegetable temper), part of an assemblage falls outside the devised categories and is brought together in a residual category. This is a serious hindrance in the analysis of pottery characteristics: how is such a residual category to be included in the analysis?
For studying the functional relation between the types and amounts of temper on the one hand, and the other characteristics on the other hand, a diagram was produced in which the pottery assemblage is subdivided on the basis of its temper, and all quantitative characteristics are listed (see for example table 3.3). By means of this diagram, the variation within and between assemblages can be analysed. The correspondence between the various variables and the tempering agents can also be analysed by means of this diagram. The central role of temper is based on the possibility to determine this variable for all sherds, while all other variables are visible only on a limited proportion of the material. By means of this subdivision, no rest groups are created, while any other subdivision would result in rest groups that would be difficult to include in the analysis.

Weight. The comparison between the number and weight percentages of the different subsets reveals the relation between the types and amounts of temper on the one hand and the degree of fragmentation on the other. As in Louwe Kooijmans' description of the pottery from Het Vormer (1980b), the ceramic material from Brandwijk and Hazendonk was also weighed. This is, however, not common practice. De Roever did not publish any weights in her article on the Swifterbant pottery (1979), nor did Kampffmeyer's analysis of the pottery of Hüde I include the weight of the sherds (1991). As this study focuses on the technological and morphological characteristics of the Swifterbant pottery, differential fragmentation of the pottery is of secondary importance. Therefore, the sherds of the sampled sites were not weighed.

Wall thickness. The wall thickness was determined of all sherds of which both an inner and outer surface were intact. In the diagram, the relation between amounts and types of temper and average wall thickness can be identified.

Types of join. The relative importance of the different types of join can be seen as a technological characteristic with chronological implications (Ten Anscher *in prep*.; Louwe Kooijmans 1976a, *255-286*). The different types of join are depicted in the code list.

Form variables. As a rule, the fragmentation of the material inhibits a precise description of form characteristics other than base forms. The various base forms which occur in Middle Neolithic pottery are depicted in fig. 1 to ensure a standardised terminology. This is necessary because various authors have used the same term *round base* for different base forms (compare Louwe Kooijmans 1974, fig 4a; 1980b, fig. 14.2a and De Roever 1979, fig 5.17). Apart from *Tupfenleist* rims, no rim forms were coded because a test study of the Brandwijk pottery suggested that no significant information could be derived from such an analysis. Form characteristics of the body sections are not included in the list of variables, but can be deduced from the illustrated body sherds.

INDIVIDUAL NUMBER

TEMPER
- grit (quantity + particle size)
- grog (quantity + particle size)
- organic (quantity)

WEIGHT (.1 g)

WALL THICKNESS (mm)

JOINS

H = 

N = 

Z = 

BASE FORM
1 pointed
2 point
3 round
4 wobbly
5 flat
6 protruding foot
7 hollow

SURFACE
P polished
G smoothened
R roughened
B *Besenstrich*
S smeared
H uneven

RIM DECORATION LOCATION
0 no rim
1 inside
2 top
3 outside
4 1+2
5 1+3
6 2+3
7 1+2+3
8 no decoration
9 uncertain

RIM DECORATION PATTERN
0 no rim
1 parallel, single
2 parallel, double
3 parallel, multiple
8 not decorated (888)
9 uncertain

RIM DECORATION TECHNIQUE
0 no rim
1 fingertip/nail
2 spatula
3 thumb
7 *Tupfenleist*
8 not decorated (888)
9 uncertain

BODY DECORATION LOCATION
0 not decorated
1 shoulder
2 body
3 profile
9 uncertain

BODY DECORATION PATTERN
0 not decorated
1 parallel, single
2 parallel, double
3 parallel, more
4 at an angle to each other, single
5 at an angle to each other, double
6 fields
7 random
9 uncertain

BODY DECORATION TECHNIQUE
0 not decorated
1 fingertip/nail, single
2 fingertip/nail, paired
3 hollow instrument
4 (other) spatula
5 groove lines
9 uncertain

Code list for pottery description.

Surface treatment. The description of the surface treatment excludes some types of surface finish included by other authors (see below in the section on body decoration). Here, six categories are distinguished: polished, smoothed, roughened, *Besenstrich*, smeared and uneven. The surface treatment of the remainder of the sherds is labelled 'uncertain', and is not included in the various tables.

Rim decoration. This variable describes decoration on the inside, top or outside of the rim. Incisions or fingertip/nail impressions on the top of the rim may have been purely decorative, but may also have been functional, since they prevented the rim from cracking during drying and firing. In this case, one should of course not speak of decoration. In this study, they are treated as morphological features of the pottery, alongside certain decorative elements.

Body decoration. The technique of decoration can be analysed on all decorated sherds, while the location and pattern of body decoration can only be determined on the larger sherds. The few observations of the location and pattern of decoration are mentioned in the text and not included in the various tables since the small numbers prevent an analysis of the relation between these and the other variables.

Here, two types of decoration technique are distinguished. The first type of impressions is applied by nails or fingertips, either as paired or single impressions. The second type of impression is made with by an instrument: either a small hollow instrument, like a bird's bone or a reed (in this study: 'hollow spatula'), or a blunt spatula ('spatula'). In earlier studies, impressions by small spatulas have been called *pin pricks* (Louwe Kooijmans 1976a, 257). As the difference between pin pricks and spatula impressions is gradual, this distinction is not sustained here, though the presence of pin pricks is mentioned in the lists of individual pots.
In this study, body decoration includes some types of decoration, that do not appear in some other studies. First, De Roever's category of 'intentional roughening of the surface' (1979, 17) is here described as thumb impressions. Secondly, Louwe Kooijmans places groove lines (his terminology: 'channelled' or in Dutch: *cannelures*) alongside *Besenstrich* with the surface finishing-techniques (1980b, 142). I decided to follow a different course in order to be able to describe the surface treatment of the groove lines and thumb impressions as well. This is a practical consideration, not an interpretation of these characteristics as decorative rather than functional.