Appendices to chapter 2:

2.1 Fabric composition, firing process and performance studies: a review of literature

1 Paste composition and firing process.

1.1 INCLUSIONS

Iron concretions are formed in soils with a changing ground water table. Reduced iron in the ground water is oxidized, often around roots of plants or micro-organisms in the soil, when the ground water level is lowered and/or by oxygen supplied by these roots and organisms.

Argillaceous inclusions or ‘clay pellets’ are another frequently occurring type. Although Shepard (1964) was one of the first to mention the presence of ‘plastic’ (*i.e.*, argillaceous) inclusions, they have not received much attention since; only recently, Whitbread (1986) tried to develop criteria and definitions for these inclusions in the overall clay matrix. He distinguishes between:

a. argillaceous rock fragments;
b. ‘grog’ *i.e.* pottery temper;
c. clay pellets;
d. clay temper.

Type (a) inclusions are derived from detrital sediments composed of clay, mud and silt, which have been lithified. These inclusions have hard, sharp, and clear edges and are therefore very difficult to distinguish from type (b). Type (c) is defined as inclusions which may conceivably have been formed within a depositional environment of the clay, in which case they form a natural part of the raw material, contrary to type (d). The latter type of inclusions basically are, or can be, the same as type (c), but in this case they have been added on purpose by the potter. The distinction between natural or added clay pellets is virtually impossible to make, but it could be argued that this distinction is not so important as in both cases the effect on the properties of the final fabric is the same. Their visibility in the clay matrix of course also depends on the methods of preparation: if the clay is sieved or very thoroughly kneaded such inclusions might diminish or disappear to a large extent.

1.2 CLAY COMPOSITION AND FIRING PROCESS

Firstly, the specific composition of the paste used determines its firing ‘behaviour’, and, secondly, paste composition and firing methods together determine the qualities of the resulting fabric, i.e. its degree of vitrification which is virtually synonymous to hardness and strength (for definitions see Rye 1981, Shepard 1963, Stoltman 1991). During firing, several processes take place changing paste into ceramics: firstly dehydration, the loss of the crystal bound water, as well as the ‘interstitial’ (free) water, secondly, the disintegration of the clay’s mineral structure and the recrystallisation of the clay into different mineral forms, and thirdly, vitrification and melting. Vitrification refers to the process by which the clay particles turn into a fluid, glassy matter, forming bonds between particles and filling up pores around them, eventually resulting in complete melting and deformation of a fired product. Most of the interstitial water usually evaporates between 700 and 800 °C, although some of it remains up to higher temperatures (Rye 1981, Nicholson 1989, 130). Each group of clays has its own specific firing trajectory of chemical-physical changes and its own vitrification range. The crystals of illites and montmorillonites normally disintegrate at a higher temperature than kaoline, at circa 800-850 and 425-500 °C respectively. Recrystallisation of illites and montmorillonites takes place at circa 900 °C (Van der Plas 1983). Clearly, the specific trajectory of chemical and mineralogical changes is also dependent on the method of firing: as most changes take place gradually, the duration of the firing and the speed of heating up to the maximum temperature determine the intensity of recrystallisation and vitrification processes and this in turn determines the specific mineral structure of the fabric. The specific temperatures at which changes in the mineral structures occur for each mineral or composite are called phases. Differential thermal analysis (DTA), a technique developed in soil science, is based on measuring these phases as they are always accompanied by either using or giving off heat, and often by an increase or decrease in volume. DTA can therefore be used to asses firing temperatures of ceramics (see Smykatz-Klotz 1971, for DTA curves of most anorganic minerals).

Although these phases are fairly constant for each mineral, a composite material such as clay can, however, vary considerably in its specific trajectory (Smykatz-Klotz 1971, Heimann 1989); each clay composition will have its own specific melting point, which can only be established empirically. Vitrification of clay particles can start at different temperatures and is partly dependent on the particle size, but is always increasing with higher temperatures, ultimately leading to the complete melting of the clay. Of course, it is this very trait which potters have used throughout (pre)history. The Medieval industry in Limburg, the Netherlands, and the Eiffel region in Germany, for example, made use of very specific kaolinite clay-beds, the clays from which proved to be able to endure firing temperatures up to 1300 °C (Brongers 1985; Bruyn 1979).

The firing methods and paste composition also influence the resulting—apparent—porosity of the fired product: the porosity is usually at its highest when dehydration of the clay particles has been completed, between 700 and 800 °C. Above that temperature increasing vitrification will cause the pores between the particles to be filled up, which will reduce the porosity again. A limited degree of vitrification also adds substantially to the hardness and strength of pottery, due to the stronger bonds between particles in the matrix; the finer the clay particles the easier vitrification occurs. Although a certain degree of vitrification may be and often is of advantage, depending on the kind of properties wished for, too much of it causes damage to the pottery, resulting in misfired products.

The nonplastic minerals or elements in the clay also have specific temperatures of disintegration and/or recrystallisation. Well known is the recrystallisation of quartz at 573 °C, accompanied by a volume expansion. Other minerals, such as iron(oxides) or lime also undergo drastic chemical changes when heated. The dissociation of $CaCO_3$ is a much discussed phenomenon in archaeological literature, see below. Secondly, nonplastic inclusions in the clay or paste can act as fluxes, increasing the ease of vitrification and/or lowering the temperature at which vitrification begins. Important fluxing minerals are calcium oxides, salts, especially Na and K salts and, to a certain extent, metals, though the latter are more important in determining the colour of fired ware. The presence of calcite changes the degree and ease of vitrification, especially above 850 °C, and more so if the particles are small and well distributed throughout the paste, resulting in relatively strong and durable pottery at lower temperatures (Maniatis & Tite 1982). The presence of salts, like the ordinary Na, K, and Mg salts, are easily soluble and can cause the formation of scum layers on the surface, through the transportation to and evaporation on the surface of vessels, during drying (Franken 1974). Such a scum layer can become permanent during firing, but should not be confused with a slip. Salts can also act as fluxes since their melting temperatures are very low and they easily react with the silicates in the clay. This process is called 'eutectic' and is of course the principle behind glazing.

In non-industrial pottery production and firing, temperatures usually do not attain heights that cause intensive vitrification. However, the fluxes mentioned are often present in the clay and are sometimes added in the form of temper.

1.3 THE INFLUENCE OF TEMPER ON THE FIRING PROCESS.

The reactions of certain minerals and nonplastics that can be naturally present in the clay, as well as their acting as fluxes during firing have been discussed above. Most of these minerals and nonplastics can also be added in the form of temper, e.g. shell, calcite, quartz, etc.

Temper is on average much larger sized however and size does influence the specific reactions and the resulting properties. Analyses of shell tempered pottery from different periods and places haves made it clear that potters realised the influence of calcium on the firing trajectory, and through this on the strength and hardness of the pottery, see Braun, Maniatis & Tite (1982), Rye (1976), and Steponaitas (1983) for examples of probably conscious manipulations of fluxes. Temper consisting of calcareous material, especially calcium carbonates, was widely used in (pre)history as it reportedly makes cooking pots very strong, but it causes specific problems, not known for any other material: on heating, $CaCO_3$ dissociates into the unstable CaO en CO_2, at circa 600 °C or higher (the temperatures mentioned in the literature vary from 600-900 °C). When exposed to air, the CaO will rehydrate, causing damage through an accompanying increase in volume, called spalling. The use of salt water or clays containing salts is the best way to deal with the problem and was/is known to potters (Rye 1976, 1981); another method mentioned is to first burn the shell (Shepard 1963, Steponaitas 1983). It is not very well understood yet why adding salt or burning the shell works *(ibid.)*.

The clays from North-Holland often contain calcium(carbonates), salts and salt water diatoms. The influence of the latter on carbonate reactions has not yet been studied yet, as far as I know. Shell tempered ware is known from several periods and regions in Holland. Spalling can be noted sometimes, but on the whole the pottery is in good condition. Obviously, the prehistoric potters knew the secret, which could well be the use of 'salty' clays. More research on the subject seems called for instead of repeating the same inconclusive statements over and over as is presently the case (for example Braun 1983, Bronitsky 1986b, Steponaitas 1983).

The kind of temper is also of importance because of differential *rates of expansion* when heated. Most mineral (rock) temper has an expansion rate higher than that of clay. Mineral temper therefore tends to increase cracking, accompanied by an increase in the number of pores, due to expansion and subsequent shrinkage on cooling. Grog, calcites and organic materials are 'ideal' tempers from this point of view, as they do not increase in size more than the matrix (Rye 1976, Arnold 1985). However, in a recent study (Pinto *et al.* 1987) it was found that grog-tempered briquettes, especially those with larger sized particles, show rather heavy cracking after firing; the suggested explanation is that the grog particles do not shrink during firing, whereas the clay does. It is unclear why this would only happen with grog temper and not with, for example, shell or sand. Organic matter would be of advantage in this respect. It does not expand, although the production of CO_2 can have a similar effect when 'trapped' within the vessel wall, as was discussed above. Finally, the use of organic material will also substantially change the porosity of the fabrics by leaving a large number of cavities.

2 Performance studies, a review

In performance studies, measurements on porosity and mechanical stress resistance, including cracking, are the most frequently used indications for thermal and mechanical stress resistance respectively.

2.1 RESEARCH ON STRESS RESISTANCE:

Bronitsky (1986, 235) reviewed the methods of testing different kinds of strength, distinguishing resistance to a. tensile force (pulling along one axis), b. compressive force, c. shearing force ('twisting') and d. impact (a blow with a certain force). The latter, impact, is perhaps the most 'realistic' for the study of mechanical stress performance. Tensile strength measures have been applied in both mechanical and thermal stress resistance studies.

The few available studies show that the stress resistance differs when sherds are subjected to repeated cycles of stress, but up to now only few tests were carried out on *vessels*.

A Thermal Strength:

The strength degradation caused by repeated cycles of thermal shock appears to be greater when finer sized temper is used (see Steponaitas 1983, 1984; Rye 1981), but the initial strength of fine tempered fabrics is greater. Coarser ware in these test had a lower initial strength but also a lower rate of degradation. Steponaitas, for Moundville pottery, as well as Braun 1983, for Woodland period pottery, conclude that the increase in the use of shell temper and the higher percentages in both size and amount of it used for cooking pots present the outcome of technological experimentations to find optimal 'recipes'. Vessel wall-thickness decreased through time as well (Braun 1983).

Contrary results were reported by Bronitsky & Hamer (1986) under experimental conditions; the finer tempered test briquettes were all more thermal stress resistant than the coarse tempered ones; some of the latter group of test briquettes failed immediately in the thermal stress resistance tests. This failure does differ, however, for different kinds of temper: unburnt shell and sand temper performed much worse than burnt shell, which is the material, supposedly, tested by Steponaitas in Moundville sherds.

The contradiction is therefore more apparent than real. The two studies also agree in that higher amounts of temper seem to increase the TSR, as long as no coarse sand or coarse unburnt shell is used in high quantities, and that in general initial strength becomes greater with decreasing size of temper. The lower tensile strength values, found by Brongers for sand tempered briquettes as compared to untempered ones, could then be due to the size of the temper or to reactions between temper and clay.

The relationship between initial strength and temper size is due to the fact that finer temper has a higher resistance to initial cracking. Strength degradation however is closely linked with crack propagation: coarser grains of clay and temper make the resistance to crack propagation higher (Braun 123-4), as does a larger pore space (see below). Moreover, the kind of temper affects crack arrest in two important ways:

a. if the temper is aligned along the same axis as the clay particles, crack resistance is thought to be higher (Steponaitas 1984, 112). Clearly, shell and organic, fibrous matter are advantageous in this respect, more so than crushed pottery or mineral temper. The test results given by Bronitsky & Hamer (1986) point again to a contradiction: burnt shell suffered considerable strength degradation through thermal stress cycles; organic temper was not tested.

b. In the case of thermal stress, the thermal expansion rate of the temper material is a very important intermediating factor: if the rate is high, as for example for quartz, the above mentioned relations can be expected to alter considerably through cracking around the sand particles, and more so when the particle size is larger; this is probably the reason why the coarse tempered briquettes failed to withstand even one cycle of thermal stress (Bronitsky & Hamer 1986). Mineral temper is therefore an unsuitable material to apply for cooking pots, but it does increase vessel strength and mechanical resistance, especially when finer fractions are used (ibid, 96).

B Mechanical strength

The few data on mechanical stress resistance seem comparatively straightforward. In general, a thicker wall, a finer grade temper, and a low porosity make a stronger pot. This corresponds of course with the initial strength in thermal stress cycles. In impact and shatter tests the kind of temper is also of importance, burnt shell being three times as strong than either sand or unburnt shell (ibid, 94); in general the amount of temper is of less importance. Again, no test-results are available for organic tempered fabrics.

C Porosity:

The porosity is a property mainly resulting from the kind and amount of temper and the composition of the clay itself. Porosity is the result of a combination of pore size, pore distribution, the number of pores and their degree of interconnectedness. The main types of pore-patterns are called pocket porosity and channel porosity (Rye 1976, Reid 1984,64).

There are two kinds of porosity measurements:

– *apparent porosity* is the volume of air space that is accessible from the surfaces. It depends to a large extent on the interconnectedness of the individual pores.

– *true porosity* is the total of all micro/macro pores within a ceramic body (Shepard 1963, Steponaitas 1984, 99).

In archaeology, the percentage of apparent porosity (%AP) instead of the 'true' porosity is usually measured, as the former is a much easier and cheaper measurement than the latter. The pattern of the pores, especially the interconnection between them, is determining the %AP to a large extent. The relationship between apparent and true porosity percentages depends on the degree to which individual pores are connected and the total number of pores involved. According to Shepard (1963, 371) the difference between apparent and true porosity is rather low in pottery which has been fired at low temperatures. Both apparent or true porosity are distinguished from permeability: the readiness with which a body permits liquids or gasses to pass through it, that is from wall to wall (Bronitsky 1986, 225, Shepard 1963, 371). Permeability requires pores to be connected from wall to wall. The distinction between porosity and permeability is relevant mainly in terms of the functions of pots. Permeability is a property desirable for example in hot climates for water storage, but undesirable for cooking pots (Reid 1984,63, Shepard 1963).

In the first section of this appendix it was mentioned that each raw clay has its specific porosity curve relative to firing temperature. Porosities usually are highest after complete dehydration and at the start of the disintegration of the clay crystals, in most cases around 700-900 °C, but decreases through vitrification. Rapid heating tends to increase porosity through increased cracking and incomplete and inhomogeneous conversions of paste constituents (*Keramiek* 1973, 99; Shepard 1963, 23). Porosity increases also with increasing grain size, whereas the pore size is determined and increased by a coarser clay, as well as with coarser temper and by rapid firing (Maggetti & Kahr 1982, 28; Maniatis & Tite 1981; also Bronitsky 1986).

The %AP is therefore likely to be influenced by the kind, the quantity, and the size of the natural or added nonplastic inclusions in the clay. The effects of these variables on the porosity of the clay are, however, by no means clear-cut; in the literature on the subject conflicting statements are found. It is both argued that porosity decreases and increases with increasing amounts of temper. For example Maggetti & Kahr (1982) and Shepard (1963) are arguing for the former, while Arnold (1982, 29), Brongers (1983), and Bronitsky (1986) are arguing for the latter. Steponaitas (1983) and Jacobs (1983) even found that the amount of temper has hardly any effect at all on the %AP:

– in the study of tertiary clays from Limburg the percentage increase in porosity was found to be related to the amount of sand temper, the kind of clay, and the firing temperature. Below circa 900 °C, temper does not greatly alter porosity compared with the untempered clays, but fired at 1050 °C porosity has increased by 15 % with 65 % temper added (Brongers 1983, 339 8-9).

– contrary tendencies were found by Jacobs (1983): if anything, increasing amounts of, again, sand-temper decrease porosity with increasing temperature, although the differences are very small and not significant. The lowest values were found for sand temper with a wide size range. Only one type of clay was used.

For the apparent contradictions, the following explanations are mentioned in the literature: more temper causes a lower porosity through better adherence and, depending on kind and firing temperature, better vitrification (*e.g.*, *Keramiek* 1973, Maniatis & Tite 1981); on the other hand it is argued that more temper causes more micro-cracks around the particles, therefore increasing porosity, dependent on the kind of clay and temper used (Jacobs 1983). A plastic clay, with a higher percentage shrinkage will cause a greater porosity than a lean clay. This explanation seems also to fit the different porosity curves for the various tertiary clays from Southern Limburg; the increase in porosity due to temper is clearly linked with the type of clay and its original porosity (Brongers 1986, table 5, 399), although the nature of the links is not clear.

Perhaps the conflicting results are also partly due to differences in the kind of temper and the particle size. Maggetti & Schwab (1982, 28-31) found a decrease in %AP with increasing size of the quartz temper and of the clay particles, but the main influence seems to be the clay, not the temper. Steponaitas (1983), however, found no correlation between the size of shell temper and the %AP, and neither did Brongers (1983), but in comparison the latter two discuss fractions which are considered 'coarse' by the former. Unfortunately, the only tests which involved different kinds and sizes of temper in a basic commercial clay (Bronitsky & Hamer 1986) did not include porosity measures. No %AP-measurements on organic temper were available. It is however reasonable to expect a higher porosity for organic temper with increasing amounts, regardless of size, as all of it will eventually leave cavities (Franken 1979). Reid's (1984) analysis of fibre tempered pottery from the Late Archaic shows that the permeability of the sherds is low, but (pocket) porosity high. He stated, that the kind of porosity produced by organic material depends on the length and width of the fibres, short fibres producing pocket porosity and longer fibres channel porosity.

In summary, the %AP is a complicated result of the interaction of many variables and cannot be predicted easily. The preliminary conclusions are that:

1. More temper, or increasing amounts of nonplastics in general, lead to a reduction in porosity at certain firing temperatures, except when organic, vegetable temper is used, but each specific composition of paste has its own trajectory. The clay itself is certainly an important and perhaps the major factor in this trajectory.
2. Different kinds of temper certainly have different effects on the resulting %AP. The effect of fluxing, *e.g.*, in the case of shell temper, is likely to lower the %AP through increased vitrification. On the other hand, organic matter—and, perhaps, coarse sand—will increase the %AP with increasing amounts, independent of temperature and/or clay.
3. The influence of particle size of nonplastics and clay is less clear, but it is suggested that coarser material is increasing the %AP.
4. The firing method is an important factor: heating a vessel quickly results in a higher porosity when firing temperatures are not above 800-900 °C.

2.2 A METHODOLOGICAL CRITIQUE

In conclusion, it can be stated that performance studies thus far are very limited in number and in their results. Although both ethnographical evidence and the few archaeological analyses done show the promise and importance of performance studies, the available data do not yet provide a firm empirical basis to the more theoretical arguments for strength increasing fabric compositions. As yet, only the supposed cause and effect relations between one or two variables of composition properties are tested. Not only is the influence of each of the individual—groups of—variables on the final stress resistance on the whole still poorly understood, their combined effects on basic properties of fabrics are practically unknown; the effects of a combination of a specific kind and size class of temper and ditto nonplastics can, or at least appear to, be reinforcing in some cases and opposing each other in others. Partly, the apparently contradictory results of performance tests must be due to differences in the total fabric composition: any kind of strength measurement or porosity represents in some way a measure of the total microstructure and texture of the fabric. There are, however, also methodological inconsistencies and problems of control over variables.

In the first place, there is no unambiguous definition of ‘fine’ and ‘coarse’, these definitions vary considerably from one study to next: ‘fine’ is in the study of Bronitsky & Hamer(1986) less than .5 mm and coarse more than 1 mm, whereas Steponaitas (1984) is using categories of an average of 2 mm for fine and 4 for coarse. In the porosity studies by Magetti & Kahr(1982) temper is defined as any nonplastic, with maximum sizes of 2 and 4 mm. Conclusions about the effect of particle size are therefore incomparable.

Secondly, measurements of the amount of temper are given as estimated volumes (Braun 1983; Steponaitas 1984) or as weight percentages (Brongers 1984; Bronitsky & Hamer 1986). The methods used can cause rather great differences in estimated amounts and/or real volume, especially when sand and shell are compared; they are also rather shockingly imprecise in some cases.

A third point of critique on the methods used in performance studies is that the composition of the clay itself is not or insufficiently taken into account. One studies the effects of either temper or clay composition. Especially when dealing with temper fractions of 1 mm and less, the amount of nonplastic particles in the clay should be incorporated in the tests, as there is no reason to discriminate between fine fractions of naturally or added nonplastics. This is especially true where both are the same, such as sand or calcareous matter. Now it often remains unclear which variables or which combinations of them are responsible for certain measured properties. In this respect, the study by Magetti & Kahr, 1982) on porosity is an improvement, but they did not measure stress resistance.

To continue, it is at present impossible to generalize data derived from one kind of temper to another. The few data shows clearly that stress resisting properties definitely vary with the kind of temper. Each specific tempering material, in combination with other factors, causes a specific (micro)structure and texture of the fabric, and this in turn probably influences its strength and durability; to make statements about effects of temper in general is impossible and incorrect. At the same time the influence of the kind of temper on various structural properties such as porosity is as yet not well understood either. One last point of criticism concerns the ways thermal stress is induced. Not only are the methods used by Bronitsky & Hamer (1986) and Steponaitas (1984) incomparable, both were in fact only measuring thermal shock rather than stress. Such extreme situations may well be unrealistic, the equivalent practice of a prehistoric cook would be to dump a cold pot with cold contents on a hot, blazing fire, but shock resistance might differ from durability under more practical, less extreme circumstances. As far as I know, no tests have been carried out with, for example, complete pots on a cooking fire.

2. Appendices to chapter 2

Table 2.2a-d Etnographic data on functional classifications and composition of household inventories, use lifes and breakfrequencies

Group	Function		N/ household	Use-life (years)
Fulani (Cameroon)[a]	Cooking			
		Small	4.4	2.7
		Medium	7.7	2.5
	Cooking/ Storage	2.3	10.2	
	Storage	3.1	12.5	
	Serving			
		Bowls	2.2	2.7
	Other	1.3	4.2	
Shipibo-Conibo (Peru)[b]	Cooking			
		Small olla	0.8	1.1
		Medium olla	1.7	0.9
		Large (beer) olla	1.21.4	
	Serving			
		Large (beer) jar	0.81.1	
		Food bowl	3.4	0.3
		Beer mug	1.4	0.2
		Shrania	0.1	n.d.
	Liquid transport			
		Small water jar	0.8 0.7	
		Medium water jar	2.0 0.8	
	Other			
		Kiln	0.5	1.0
San Mateo I. (Maya)[c]	Cooking			
		Small and medium	n.d. 0.4	
		Large	n.d.	1.5
	Liquid storage			
		Large	1.5	4.7
	Liquid transport		2.2	n.d.
	Other			
		Fiesta pots	3.0	n.d.
		Colanders	2.8	n.d.
	Other		24.6	n.d.
Kamba (Kenya)[d]	Cooking			
		Stew	1.0	1.5
		Porridge	2.0	3.5
		Maize & bean	1.0	1.5
	Liquid storage		1.5	3.0
	"Celebration"		1.5	12.0
Chanal (Maya)[e]	Cooking			
		Small jar	27.1	0.6
		Boiling pitcher	3.5 1.7	
		Griddle	4.2	0.5
		Frying bowl	0.7	2.8
		Large jar	3.8	3.7
	Beer mixing			
		Jar	0.3	12.5
		Bowl	0.9	20
	Serving			
		Bowl	1.1	2.2
		Bowl	3.9	2.6
		Small bowl	5.5	1.3
	Liquid transport			
		Water jar	6.5	2.3

Group	Function		N/ household	Use-life (years)
Chanal (Maya)[e]	Other			
		Colander	0.1	n.d.
		Atole colander	0.8	3.2
		Censor	2	5.8
		Candle holder	0.4	10+
		Flower pot	0.2	n.d.
Aguacatenango (Maya)[e]	Cooking			
		Small jar	10.5	0.6
		Boiling pitcher	34.1 0.6	
		Griddle	2.3	0.7
		Frying bowl	1.8	1.6
		Large jar	1.6	2.0
	Beer mixing			
		Jar	1.3	2.9
		Bowl	2.2	8.5
	Serving			
		Bowl	1.3	0.5+
		Bowl	8.8	0.9
		Small bowl	8.1	1.0
	Liquid transport			
		Water jar	7.8	1.2
	Other			
		Colander	1.9	1.3
		Atole colander	0.7	1.2
		Censor	1.2	1.7
		Candle holder	0.1	2.5
		Flower pot	0.2	3.0
Dangtalan (Kalinga)[f]	Cooking			
		"Average" rice	2.2	4.7
		"Average" vegetable/meat	4.2 4.0	
		Large rice	4.0	13.8
		Large vegetable/meat	13 1.4	
	Liquid storage		1.1	8.2
Dalupa (Kalinga)[f]	Cooking			
		"Average" rice	1.3	5.5
		"Average" vegetable/meat	3.5 4.5	
		Large rice	0.5	9
		Large vegetable/meat	n.d. 0.3	
	Liquid storage		2.0	7.2
Mantaro V. (Peru)[g]	Cooking			
		Small olla	0.8	2
		Medium olla	2.0	2
		Large olla	1.3	15
		Small chata	0.5	2
		Medium chata	0.6	2
		Large chata	0.2	1
		Tostadera	1.0	1
	Liquid transport			
		Small	0.4	6
		Medium	0.6	15
	Liquid storage			
		Small	0.1	5
		Medium	0.1	10
		Large	0.1	20

Group	Function		N/ household	Use-life (years)
Mantaro V. (Peru)[g]	Beer fermentation			
		Small	0.1	8
		Medium	0.4	12
Dogon (Mali)[h]	Cooking			
		Tegeri	3.9	2.4
		Joni	0.3	2
		Ninge dei	8.1	2.2
		Dei sire	9.1	2.8
		Pana dei	3.0	2.8
	Liquid storage			
		Water	17.1	4
		Water	7.6	3.7
		Beer	2.4	7.5
		Beer	0.3	6.5
	Other storage			
		Dei dam	2.3	9.9
		Dei pogo	4.9	9.7
	Serving			
		Ibonu ogono	0.6	3.5
	Liquid transport			
		Ogono du	0.4	4
	Other			
		Colander	0.6	4.5
		Ritual	0.4	11.1
		Mixed	1.8	3
		Mixed	0.4	3
Tuxtlas (Mexico)[i]	Cooking			
		Comal	2.0	0.2
		Cazuela	1.0	1.0
		Olla de frijol	1.0	1.0
		Olla de maiz	0.5	1.0
		Tostador	0.3	1.0
	Serving (and other)			
		Tecualan	2.0	0.4
Peul/Shongai (Mali)[j]	Cooking	n.d	1.6	
	Storage	n.d	2.8	
	Storage	n.d	2.5	
Bambara (Mali)[j]	Cooking	n.d	3.8	
	Storage	n.d	6.1	
Somono (Mali)[j]	Cooking	n.d	3.8	
	Storage	n.d	6.7	
Bobo (Mali)[j]	Cooking	n.d	3.3	
	Storage	n.d	7.5	
Dangtalan (Kalinga)[k]	Cooking			
		"Regular" rice	n.d	1.4
		"Regular" vegetable/meat	1.2 n.d	
		Large rice	n.d	17.8
		Large vegetable/meat	1.0 n.d	
	Large storage	n.d	4.2	

Tabel 2.2a Ceramic inventories and use life of pottery in several groups.
Source: Varien & Mills 1997.

[a] From David and Hennig (1972, Table 5), based on a sample of 15 households

[b] From DeBoer and Lathrap (1979, Table 4.3), based on a sample of 237 vessels in 18 households and (Table, 4.5), based on a sample of 262 vessels. Data include and update DeBoer (1974, Table 1), based on a sample of 120 vessels from seven households. Smaal cooking olla is used for preparing medicines; medium cooking olla is primary food cooking vessels.

[c] From Nelson (1981, Table 1) and Nelson (1991, Table 8.3). Reported categories are not fully comparable; hence, cooking pot frequencies per household are not subdivided by size categories.

[d] From Gill (1981, Figs. 17 and 18).

[e] From Deal (1983, Tables 1 and 22), based on a sample of 53 households at Chanal and 50 households at Aguatenango. Large cooking jar, atole colander, beer mixing jar and bowl, and sets and porcelana serving bowl are used for rituals.

[f] From Longacre (1985, Tables 13.1-13.3), using the 1979-1980 sample for the number of vessels per household. Figures based on a sample of 656 vessels from 49 households in Dangtalan and 389 vessels from 44 households in Dalupa.

[g] From Hagstrum (1989). Average houshold size is 5.7 persons. Based on data from 10 households at each of 20 villages. Ollas are used for cooking stews, soups and gruels, chatas are for rice cooking and for frying eggs or meat, and tostaderas are for roasting maize and other grains.

[h] From Bedaux (1987, Table 1, Column B), based on a sample of 1009 vessels from 16 households in four villages.

[i] From P. Arnold (1991, Table 23 and 27), based on a sample of 50 households from four villages, using median figures; mean used where the median is zero. Tecualanses are multi-purpose serving and eating vessels that are also used as lids and herb mixing bowls.

[j] From Mayor (1991, Fig. 17) based on a sample of 1069 vessels from 30 villages.

[k] Tani and Longacre (1992, Table 1), based on a sample of 284 vessels. These data used instead of Longacre's (1985) data from Dangtalan for analyses discussed here.

	Fulani		Gisiga	
Pottery Type	N	%	N	%
Bowls	33	105	8	140
Small cooking vessels	65	208	8	140
Medium cooking vessels	115	367	12	210
Cooking/ Storage vessels	34	109	12	210
Storage vessels	47	150	14	246
Miscellaneous	19	061	3	053
Total	313	1000	57	1000

	Average occurence in female space	Median age	Yearly supplement
Pottery type	(f)	(Md)	(f 2Md)
Bowls	2.19	2,7	0,41
Small cooking vessels	4.35	2,7	0,81
Medium cooking vessels	7.67	2,5	1,53
Cooking/ Storage vessels	2.28	10,2	0,11
Storage vessels	3.13	12,5	0,13
Miscellaneous	1.27	4,2	0,15
Total	20.89		3,14

Tabel 2.2b, c Household inventories and the median age and replacement rate of pottery types, among the Fulani and Gisiga, Cameroon.
Source: David & David-Hennig 1971.

Vessel Form	N0	Percent	Median Age in Years	N100	Percent	K= Percent N0 / Percent N100
Large olla	33	12.5	1.38	1,196	4.6	2.72
Medium olla	30	11.4	.88	1,704	6.6	1.73
Small olla	11	4.1	1.13	487	1.9	2.16
Large jar	19	7.2	1.13	841	3.2	2.25
Medium jar	39	14.8	.78	2,500	9.8	1.51
Small jar	27	10.3	.71	1,901	7.4	1.39
Beer mug	23	8.7	.24	4,792	18.7	.47
Food bowl	73	27.8	.31	11,774	46.1	.60
Mapú ëite	6	2.2	1.00	300	1.1	2.00
Shrania	1	.3	-	-	-	-
Totals	262	99.3		25,495	99.4	

Note: N100 represents 100 years of deposition of major Shipibo-Conibo vessel forms.

Tabel 2.2d Median age and accumulation rates of the main Shipibo-Conibo vessel functions.
Source: DeBoer & Lathrap 1979.

3. Appendices of primary data on fabric, form and use for chapter 5-8

Table 1. Uitgeest-Gr.D. sample 1 and additional cases. Database for chapter 5.

Feature	Findnumber	Vessel nr.	Profile part	Clay type	Scum	Ca-rich clay	Double surface	N. of inclusions	Type of inclusions	Quartz size in microns	N Quartz
73	07-01-004	7 .01	3	3	0	8	0	2	2	105	0
73	07-01-004	7 .02	3	2	0	0	0	0	0	210	2
73	07-01-004	7 .03	2	2	8	0	8	3	1	210	2
73	07-01-005	7 .05	3	2	1	1	0	2	2	105	0
71	07-02-009	7 .06	3	2	0	1	0	6	3	300	9
71	07-02-009	7 .07	2	2	0	0	0	1	2	105	0
81	08-04-033	8 .01	4	2	0	0	0	3	1	210	6
81	08-04-033	8 .02	2								
81	08-04-033	8 .03	2	3	0	0	0	0	0	210	1
81	08-04-032	8 .04	3	2	0	0	0	11	2	210	10
81	08-04-034	8 .05	3	3	8	0	0	7	3	150	7
0	08-05-008	8 .06	2	1	0	0	0	0	1	210	7
50	13-02-002	13 .01	2	3	8	1	0	1	2	210	3
141	14-04-054	14 .01	2	1	0	8	1	17	3	210	5
45	14-02-044	14 .05	3	2	0	9	0	12	3	150	2
46	14-04-001	14 .06	3	2	0	9	1	8	3	150	12
45	14-02-044	14 .07	2	2	9	9	0	4	1	150	2
41	14-03-013	14 .08	4	2	0	9	0	2	3	150	13
43	14-06-004	14 .09	4	2	8	9	8	3	1	210	18
44	14-02-042	14 .10	2	1	0	9	0	11	2	210	16
42	14-03-020	14 .11	2	3	0	1	8	1	2	150	4
44	14-01-068	14 .12	2	1	8	9	1	14	3	210	31
46	14-04-040	14 .13	2	3	0	9	1	6	2	210	16
53	14-04-037	14 .14	2	3	0	9	0	8	1	150	14
47	14-04-049	14 .15	2	2	0	0	0	1	3	300	20
51	16-03-021	16 .01	2	2	8	0	0	21	3	300	70
181	18-03-002	18 .01	2	1	8	0	0	13	3	210	114
181	18-03-002	18 .02	2	3	1	8	8	11	1	300	6
181	18-03-002	18 .03	2	1	1	1	8	16	1	300	16
181	18-03-002	18 .04	2	2	0	0	0	9	3	210	34
181	18-03-002	18 .05	3								
181	18-03-002	18 .06	3	2	0	0	9	0	0	150	10
181	18-03-002	18 .07	2	3	0	0	0	0	0	150	5
181	18-03-002	18 .08	2	2	8	0	0	8	2	210	87
181	18-03-002	18 .09	2	2	0	0	0	1	1	210	8
181	18-03-002	18 .10	3	3	1	1	0	17	1	210	165
181	18-03-002	18 .12	2	2	0	0	0	4	1	210	20
181	18-03-002	18 .13	4	3	0	9	0	8	1	300	38
181	18-03-002	18 .14	1	2	8	9	9	5	3	300	9
17	19-02-014	19 .02	3	1	0	1	0	10	2	105	0
32	19-02-030	19 .06	2	2	0	1	0	27	1	150	4
32	19-02-030	19 .07	2	3	0	1	0	8	2	150	3
33	19-03-002	19 .10	2	3	8	1	8	13	3	310	47
161	19-03-010	19 .13	2	1	0	8	0	4	1	150	3
19	19-04-176	19 .14	3	3	0	8	0	3	2	75	0
193	19-05-071	19 .15	3	1	0	0	1	20	3	210	36
20	19-06-081	19 .17	3	0	0	8	0	1	2	210	19
191	19-07-090	19 .18	2	2	0	0	0	11	3	300	12
63	19-06-080	19 .19	2	1	0	8	0	1	2	150	7

Feature	Findnumber	Vessel nr.	Profile part	Clay type	Scum	Ca-rich clay	Double surface	N. of inclusions	Type of inclusions	Quartz size in microns	N Quartz
16	19-02-005	19 .20	2	1	0	9	9	6	2	420	13
16	19-05-078	19 .21	2	1	8	0	1	9	3	150	7
34	19-04-137	19 .22	2	2	0	8	0	5	3	150	2
34	19-04-135	19 .23	2	3	1	8	1	18	3	210	2
36	19-06-086	19 .24	2	2	0	0	0	17	3	150	2
16	19-06-018	19 .25	2	1	0	9	9	5	2	600	36
,	19-00-023	19 .26									
36	19-04-031	19 .27	2	1	0	8	0	2	2	210	4
36	19-06-087	19 .28	2	1	0	1	0	0	0	210	8
34	19-04-137	19 .29	2	3	8	8	1	4	3	105	0
,	19-02-031	0									
,	19-02-051	0									
64	20-01-016	20 .01	3	1	0	0	9	11	3	210	8
48	20-02-017	20 .02	3	2	9	9	0	2	2	16	0
50	20-03-053	20 .03	3	2	0	0	0	1	2	150	10
50	20-03-053	20 .04	2	1	8	1	8	9	3	210	5
50	20-03-053	20 .05	4	1	9	9	9	17	1	150	3
1	20-04-002	20 .06	3	1	8	0	8	14	1	210	12
8	20-07-157	20 .07	3	1	8	9	9	21	1	105	0
3	20-07-157	20 .08	3	2	1	0	0	2	2	105	0
54	20-06-003	20 .10	2	1	0	0	0	0	0	0	4
201	20-06-160	20 .11	2	2	9	9	9	1	2	0	33
65	20-03-028	20 .12	2	2	1	8	0	7	1	210	96
,	20-04-062	0									
,	20-04-063	0									
57	21-05-010	21 .01	2	3	8	8	0	9	2	105	0
51	28-06-001	28 .01	3	2	9	9	9	9	1	150	3
51	30-12-003	30 .02	2	3	0	0	8	5	1	150	5
3	31-06-108	31 .01	3	2	0	0	8	12	3	150	21
60	31-05-033	31 .02	4	1	0	0	8	21	3	300	5
60	31-05-033	31 .03	2	1	0	0	8	22	1	210	41
311	31-06-086	31 .04	3	1	0	0	0	9	3	210	27
311	31-06-086	31 .05	3	3	8	8	8	12	2	300	76
311	31-06-086	31 .06	2	1	0	1	0	21	3	300	40
311	31-06-086	31 .07	2	2	8	8	0	5	3	300	42
311	31-08-086	31 .08	4	1	0	0	8	7	1	300	40
311	31-06-086	31 .09	2	3	0	1	0	0	0	150	4
311	31-06-086	31 .10	4	1	0	0	8	27	3	210	17
61	31-04-079	31 .12	2	1	0	0	0	6	3	75	0
11	31-02-032	31 .13	2	2	0	9	8	11	3	105	0
14	31-04-023	31 .14	3	1	0	1	0	19	3	150	20
11	31-02-035	31 .15	2	3	8	9	0	12	3	210	32
3	31-06-101	31 .18	2	1	0	1	8	1	2	300	6
311	31-06-086	31 .19	2	2	0	0	0	0	0	210	7
,		32 .01									
51	33-02-028	33 .01	3	1	0	0	8	11	1	16	0
51	33-02-016	33 .02	2	1	0	0	1	11	1	210	1
51	33-06-013	33 .03	3	1	8	0	0	20	3	210	1
51	33-06-010	33 .04	2	1	0	0	0	5	3	50	0
56	33-06-001	33 .05	3	1	0	0	0	36	3	210	5
58	33-05-001	33 .07	3	2	0	9	9	9	1	300	108
51	33-06-025	33 .08	2	2	0	0	0	4	3	150	18
,		33 .09									
50	34-06-064	34 .01	2	3	0	0	0	9	3	210	9

Feature	Findnumber	Vessel nr.	Profile part	Clay type	Scum	Ca-rich clay	Double surface	N. of inclusions	Type of inclusions	Quartz size in microns	N Quartz
50	34-06-065	34 .02	3	1	1	9	0	7	3	150	7
,		34 .03									
50	34-06-064	34 .04	2	3	0	0	0	1	1	210	8
,		34 .05									
50	34-06-091	34 .07	3	3	1	9	0	15	3	300	30
,		34 .10									
50	34-00-030	34 .12	3	1	1	0	0	15	1	300	12
192	35-03-049	35 .01	3	2	8	1	8	1	3	210	23
27	35-03-044	35 .03	3	1	1	1	8	11	3	150	7
27	35-03-044	35 .04	2	1	8	1	8	2	3	210	9
27	35-03-137	35 .05	3	0	0	0	0	12	3	150	6
27	35-03-137	35 .06	3	2	8	1	8	16	1	150	16
27	35-03-044	35 .07	3	2	0	1	8	0	0	150	6
27	15-03-442	35 .11	1	2	0	1	0	5	1	150	12
192	35-03-049	35 .14	2	2	0	1	8	8	3	210	1
55	35-03-033	35 .15	3	1	0	9	9	17	3	150	8
211	35-03-060	35 .16	3	1	0	0	1	15	3	150	29
22	35-08-052	35 .17	3	1	0	8	0	4	3	150	9
22	35-08-052	35 .18	2	3	8	1	0	3	2	150	14
21	35-07-019	35 .19	2	1	0	1	1	4	1	150	33
23	35-08-040	35 .20	3	1	0	0	0	0	1	150	5
23	35-08-040	35 .21	3	3	1	8	8	8	1	420	25
28	35-07-058	35 .22	3	1	0	0	8	7	1	210	101
28	35-07-008	35 .23	2	2	0	0	0	32	3	210	0
22	35-09-037	35 .24	3	2	0	8	0	14	1	16	0
28	35-07-008	35 .25	2	1	1	8	8	0	0	150	2
23	35-08-007	35 .27	3	1	8	9	9	14	3	150	11
22	35-08-052	35 .28	2	3	1	8	0	1	3	105	0
28	35-07-060	35 .29	2								
28	35-10-083	35 .30	9	3	2	28					
23	35-10-085	35 .31	3	1	8	8	0	3	1	420	20
271	35-05-120	35 .33	2	3	0	8	8	4	3	300	72
23	35-07-050	35 .36	2	1	0	0	0	18	1	210	4
331	35-03-151	35 .37	2	0	0	0	8	7	1	75	0
23	35-07-054	35 .38	2	1	0	0	0	25	1	150	5
22	35-08-052	35 .39	2	1	0	0	0	1	1	210	22
52	04-05-12A	99 .00	9	0	0	0	0			210	11
0	14-01-42B	99 .00	9	0	0	0	0			210	1
0	14-02-048	99 .00	9	0	0	0	0			300	9
45	14-04-02A	99 .00	9	0	0	0	0			210	2
45	14-04-02B	99 .00	9	0	0	0	0			210	10
0	14-01-42A	99 .00	9	0	0	0	0			300	18
45	14-04-01A	99 .00	9	0	0	0	0			150	4
45	14-04-01B	99 .00	9	0	0	0	0			210	17
51	16-05-017	99 .00	9	0	0	0	0			150	20
51	16-07-01A	99 .00	9	0	0	0	0			210	20
51	16-07-01B	99 .00	9	0	0	0	0			150	9
191	19-02-014	99 .00	2	0	0	0	0			150	16
0	20-00-005	99 .00	9	0	0	0	0			150	3
0	20-04-162	99 .00	9	0	0	0	0			150	0
0	31-4-79/2	99 .00	9	0	0	0	0			210	11
50	34-0-27/1	99 .00	9	0	0	0	0			150	1
50	34-0-29/2	99 .00	9	0	0	0	0			150	3
50	34-05-165	99 .00	9	0	0	0	0			210	11

Feature	Findnumber	Vessel nr.	Profile part	Clay type	Scum	Ca-rich clay	Double surface	N. of inclusions	Type of inclusions	Quartz size in microns	N Quartz
50	34-0-29/3	99 .00	9	0	0	0	0			105	0
50	34-0-30/1	99 .00	9	0	0	0	0			50	0
50	34-0-30/3	99 .00	9	0	0	0	0			75	0
50	34-0-3011	99 .00	9	0	0	0	0			150	1
50	34-0-3013	99 .00	9	0	0	0	0			210	13
50	34-0-29/6	99 .00	9	0	0	0	0			150	28
50	34-0-3014	99 .00	9	0	0	0	0			150	5
50	34-08-046	99 .00	9	0	0	0	0			210	1
50	34-0-27/2	99 .00	9	0	0	0	0			150	7
50	34-9-29/1	99 .00	9	0	0	0	0			150	7
50	34-0-30/5	99 .00	9	0	0	0	0			150	12
50	34-07-083	99 .00	9	0	0	0	0			210	12
50	34-09-004	99 .00	9	0	0	0	0			150	5
50	34-0-3010	99 .00	9	0	0	0	0			150	12
50	34-0-30/4	99 .00	9	0	0	0	0			150	4
50	34-0-30/6	99 .00	9	0	0	0	0			50	0
50	34-0-3017	99 .00	9	0	0	0	0			150	23
0	35-03-082	99 .00	9	0	0	0	0			210	99
0	35-10-009	99 .00	9	0	0	0	0			105	0
0	35-05-031	99 .00	9	0	0	0	0			150	6
0	35-05-036	99 .00	9	0	0	0	0			210	31
0	35-05-081	99 .00	9	0	0	0	0			300	101
0	35-05-102	99 .00	9	0	0	0	0			150	3
0	35-05-029	99 .00	9	0	0	0	0			300	4
27	35-3-44/3	99 .00	2	2	8	1	0	14	3	150	20
351	35-09-047	99 .00	9	0	0	0	0			150	8
271	35-7-74/1	99 .00	9	0	0	0	0			210	4
25	35-5-97/2	99 .00	9	0	0	0	0			150	5
22	35-7-13/3	99 .00	9	0	0	0	0			150	4
22	35-7-13/1	99 .00	2	0	0	9	0			150	16
22	35-7-13/2	99 .00	9	0	0	0	0			150	16
27	35-3-44/1	99 .00	9	2	8	0	0	18	3	150	13
28	35-09-029	99 .00	9	0	0	0	0			150	14
27	35-4-44/4	99 .00	1	0	9	9	9	0	1	150	25
23	35-10-068	99 .00	9	0	0	0	0			150	6
23	35-9-32/2	99 .00	9	0	0	0	0			150	32
23	35-08-046	99 .00	9	0	0	0	0			210	1
23	35-08-007	99 .00	9	0	0	0	0			210	4
23	35-9-32/2	99 .00	9	0	0	0	0			150	32
23	35-08-039	99 .00	9	0	0	0	0			210	9
52	36-00-006	99 .00	9	0	0	0	0			105	0
,	31-04-024	31 .11	9	0	0	0	0	0	0	150	4
271	35-05-120	35 .32	9	2	0	0	0	1	2	150	2

Table 2. Uitgeest-Gr.D. sample 1 and additional cases. Database for chapter 6.

Findnumber	Vessel nr.	%AD	vol%	fibre size	N. of fibres > 3mm	%AP	firing atmosphere
07-01-004	7.01	15	10.0	2	0		1
07-01-004	7.02	25	10.0	1	4		3
07-01-004	7.03	51	12.5	1	3		1
07-01-005	7.05	21	5.0	1	0	35.4	1
07-02-009	7.06	80	22.5	3	15	36.6	3
07-02-009	7.07	71	25.0	1	6	39.2	2
08-04-033	8.01	76	25.0	3	10		2
08-04-033	8.02						
08-04-033	8.03	63	22.5	1	10	41.8	3
08-04-032	8.04	44	15.0	1	3	34.8	1
08-04-034	8.05	50	15.0	1	5	33.8	1
08-05-008	8.06	26	10.0	1	3		4
13-02-002	8.13	43	15.0	1	6	39.5	3
14-04-054	14.01	40	15.0	1	6	35.3	4
14-02-044	14.05	27	10.0	1	2	34.8	3
14-04-001	14.06	51	15.0	1	6	33.6	4
14-02-044	14.07	19	2.5	1	0	35.3	1
14-03-013	14.08	8	2.5	1	0		4
14-06-004	14.09	44	10.0	1	5		4
14-02-042	14.10	32	10.0	1	6		4
14-03-020	14.11	52	15.0	1	0	31.6	4
14-01-068	14.12	39	10.0	1	0	38.6	4
14-04-040	14.13	61	20.0	1	10	36.9	4
14-04-037	14.14	26	10.0	1	3	35.7	4
14-04-049	14.15	9	2.5	1	0	32.9	4
16-03-021	16.01	32	5.0	1	0	34.5	3
18-03-002	18.01	26	12.5	1	2	35.4	5
18-03-002	18.02	76	22.5	1	5	44.4	5
18-03-002	18.03	68	20.0	1	9	39.1	5
18-03-002	18.04	15	5.0	1	4	39.8	4
18-03-002	18.05						
18-03-002	18.06	15	5.0	1	0	37.3	1
18-03-002	18.07	52	20.0	1	3		1
18-03-002	18.08	20	5.0	1	1		3
18-03-002	18.09	12	2.5	1	0	32.0	2
18-03-002	18.10	13	5.0	1	2	31.9	4
18-03-002	18.12	46	17.5	1	4		4
18-03-002	18.13	30	12.5	1	0	34.1	1
18-03-002	18.14	23	5.0	1	0		4
19-02-014	19.02	44	10.0	1	5	36.5	4
19-02-030	19.06	90	27.5	1	1	45.2	3
19-02-030	19.07	71	27.5	1	8	44.2	4
19-03-002	19.10	60	15.0	1	0	38.6	5
19-03-010	19.13	60	17.5	1	6	37.7	3
19-04-176	19.14	46	17.5	1	0	36.4	4
19-05-071	19.15	72	20.0	1	7	34.7	4
19-06-081	19.17	32	12.5	1	2		3
19-07-090	19.18	20	7.5	1	5	36.4	3
19-06-080	19.19	50	17.5	1	3	32.5	4
19-02-005	19.20	30	10.0	1	5	33.3	1
19-05-078	19.21	48	17.5	1	0		5
19-04-137	19.22	55	20.0	1	0	36.8	4

Findnumber	Vessel nr.	%AD	vol%	fibre size	N. of fibres > 3mm	%AP	firing atm.
19-04-135	19.23	54	17.5	1	0	36.1	4
19-06-086	19.24	45	10.0	1	0	34.7	4
19-06-018	19.25	58	20.0	1	3	33.3	1
19-00-023	19.26						
19-04-031	19.27	21	10.0	1	4	37.1	4
19-06-087	19.28	17	2.5	1	0	33.9	2
19-04-137	19.29	65	22.5	1	4		3
19-02-031	.00						
19-02-051	.00						
20-01-016	20.01	19	5.0	1	0	.	1
20-02-017	20.02	64	20.0	1	5	34.8	2
20-03-053	20.03	51	17.5	1	0	36.4	3
20-03-053	20.04	70	27.5	1	2	42.7	4
20-03-053	20.05	66	17.5	1	5	37.7	3
20-04-002	20.06	29	12.5	1	0	34.5	1
20-07-157	20.07	74	25.0	1	5	45.1	3
20-07-157	20.08	33	10.0	1	2		4
20-06-003	20.10	17	2.5	1	0		3
20-06-160	20.11	28	10.0	1	3		4
20-03-028	20.12	32	12.5	1	4		1
20-04-062	.00						
20-04-063	.00						
21-05-010	21.01	24	10.0	1	0	37.5	2
28-06-001	28.01	23	10.0	1	3	36.8	2
30-12-003	30.02	58	20.0	1	4	41.7	4
31-06-108	31.01	51	15.0	1	4	.	1
31-05-033	31.02	34	12.5	1	4	37.1	3
31-05-033	31.03	57	17.5	1	3	36.6	4
31-06-086	31.04	34	12.5	1	0	34.8	2
31-06-086	31.05	30	12.5	1	0	34.8	2
31-06-086	31.06	48	15.0	1	0	34.8	4
31-06-086	31.07	38	10.0	1	5	38.7	4
31-08-086	31.08	44	17.5	3	10	34.4	3
31-06-086	31.09	46	12.5	1	4	38.1	4
31-06-086	31.10	24	5.0	1	5		4
31-04-079	31.12	43	15.0	1	5	33.9	5
31-02-032	31.13	25	5.0	1	2	39.2	1
31-04-023	31.14	47	17.5	1	5	36.1	3
31-02-035	31.15	44	17.5	1	0	33.8	4
31-06-101	31.18	39	15.0	1	0		4
31-06-086	31.19	41	12.5	1	11		4
	32.01						
33-02-028	33.01	40	15.0	1	6		4
33-02-016	33.02	50	15.0	1	6		4
33-06-013	33.03	69	17.5	1	11		3
33-06-010	33.04	56	22.5	3	15		2
33-06-001	33.05	43	17.5	1	2		3
33-05-001	33.07	34	12.5	1	6	33.8	1
33-06-025	33.08	32	10.0	1	0		2
	33.09						
34-06-064	34.01	40	20.0	3	9	37.2	4
34-06-065	34.02	40	15.0	1	10	39.5	2
	34.03						
34-06-064	34.04	45	15.0	1	4	36.1	2

Findnumber	Vessel nr.	%AD	vol%	fibre size	N. of fibres > 3mm	%AP	firing atm.
	34.05						
34-06-091	34.07	62	22.5	1	12	40.2	3
	34.10						
34-00-030	34.12	56	15.0	1	10	38.6	3
35-03-049	35.01	55	17.5	1	7	32.7	4
35-03-044	35.03	54	17.5	1	4	38.3	4
35-03-044	35.04	66	17.5	1	4	35.6	4
35-03-137	35.05	28	10.0	1	0		4
35-03-137	35.06	43	12.5	1	3	35.6	5
35-03-044	35.07	34	12.5	1	4	36.1	4
15-03-442	35.11	52	15.0	1	5		4
35-03-049	35.14	29	12.5	1	6	29.7	4
35-03-033	35.15	28	10.0	1	8		1
35-03-060	35.16	25	10.0	1	4	31.6	4
35-08-052	35.17	42	15.0	1	4		3
35-08-052	35.18	39	15.0	1	1	34.1	4
35-07-019	35.19	38	12.5	1	0	35.4	5
35-08-040	35.20	78	20.0	1	5	35.1	2
35-08-040	35.21	79	20.0	1	14	44.4	5
35-07-058	35.22	23	7.5	1	4	35.9	5
35-07-008	35.23	54	17.5	3	9	32.9	2
35-09-037	35.24	77	25.0	3	10	40.3	2
35-07-008	35.25	33	10.0	1	3		3
35-08-007	35.27	13	2.5	1	0	32.8	1
35-08-052	35.28	75	22.5	3	11	38.9	4
35-07-060	35.29						
35-10-083	35.30	40	12.5	1	2		
35-10-085	35.31	76	20.0	1	2	34.0	3
35-05-120	35.33	80	22.5	1	5	41.2	4
35-07-050	35.36	55	15.0	1	6	35.8	3
35-03-151	35.37	69	17.5	1	3	42.1	4
35-07-054	35.38	14	2.5	1	1		1
35-08-052	35.39	40	15.0	1	4		2
35-06-041	35.40						
35-03-044	35.44						
35-05-022	35.52						
35-05-090	35.90						
35-05-099	35.99						
04-05-12A	99.00	16	2.5	1	0		0
14-01-42B	99.00	98	32.5	1	11		0
14-02-048	99.00	68	27.5	3	16		0
14-04-02A	99.00	41	20.0	3	4		0
14-04-02B	99.00	57	15.0	1	2		0
14-01-42A	99.00	24	22.5	2	0		0
14-04-01A	99.00	52	17.5	1	7		0
14-04-01B	99.00	28	10.0	1	1		0
16-05-017	99.00	5	2.5	2	0		0
16-07-01A	99.00	42	15.0	1	1		0
16-07-01B	99.00	65	40.0	2	0		0
19-02-014	99.00	33	12.5	1	4		0
20-00-005	99.00	44	15.0	1	0		0
20-04-162	99.00	80	25.0	1	5		0
31-4-79/2	99.00	71	25.0	3	13		0
34-0-27/1	99.00	41	17.5	1	6		0

Findnumber	Vessel nr.	%AD	vol%	fibre size	N. of fibres > 3mm	%AP	firing atm.
34-0-29/2	99.00	55	17.5	1	0		0
34-05-165	99.00	38	12.5	1	0		0
34-0-29/3	99.00	31	10.0	1	3		0
34-0-30/1	99.00	53	17.5	1	2		0
34-0-30/3	99.00	69	22.5	1	3		0
34-0-3011	99.00	47	10.0	1	4		0
34-0-3013	99.00	27	12.5	1	2		0
34-0-29/6	99.00	52	15.0	1	2		0
34-0-3014	99.00	38	10.0	1	0		0
34-08-046	99.00	45	10.0	1	3		0
34-0-27/2	99.00	37	15.0	1	3		0
34-9-29/1	99.00	56	20.0	1	5		0
34-0-30/5	99.00	65	15.0	1	4		0
34-07-083	99.00	74	25.0	1	12		0
34-09-004	99.00	13	2.5	1	2		0
34-0-3010	99.00	43	10.0	1	4		0
34-0-30/4	99.00	58	20.0	3	11		0
34-0-30/6	99.00	18	5.0	1	7		0
34-0-3017	99.00	70	25.0	1	4		0
35-03-082	99.00	36	10.0	1	4		0
35-10-009	99.00	21	7.5	1	2		0
35-05-031	99.00	72	27.5	1	5		0
35-05-036	99.00	72	27.5	3	16		0
35-05-081	99.00	35	10.0	1	3		0
35-05-102	99.00	60	17.5	1	11		0
35-05-029	99.00	56	12.5	1	6		0
35-3-44/3	99.00	48	15.0	1	5		4
35-09-047	99.00	28	7.5	1	2		0
35-7-74/1	99.00	60	17.5	1	7		0
35-5-97/2	99.00	36	12.5	1	4		0
35-7-13/3	99.00	44	15.0	1	3		0
35-7-13/1	99.00	74	22.5	1	6		3
35-7-13/2	99.00	35	17.5	1	3		0
35-3-44/1	99.00	55	17.5	1	2		3
35-09-029	99.00	47	15.0	1	3		0
35-4-44/4	99.00	43	15.0	1	4	33.1	4
35-10-068	99.00	49	22.5	3	10		0
35-9-32/2	99.00	49	17.5	1	10		0
35-08-046	99.00	40	12.5	1	6		0
35-08-007	99.00	16	2.5	1	2		0
35-9-32/2	99.00	49	15.0	1	10		0
35-08-039	99.00	87	27.5	1	10		0
36-00-006	99.00	77	27.5	3	6		0
31-04-024	31.11	42	15.0	1	3		0
35-05-120	35.32	65	17.5	1	0	39.3	3

Table 3. Schagen-M1. Database for chapter 5 and 6.

Vessel nr.	Clay type Fe	Secondary inclusion	Type of inclusion	Size of in microns	Quartz, size	%AD	vol% >3 mm	fibres	%AP
21.01	2	0	2	2	50	68	17.5	5	48.0
21.02	3	1	2	2	16	68	15.0	0	41.9
22.04	1	1	1	2	50	80	22.5	4	36.8
27.01	2	1	1	1	600	7	0.0	6	26.1
27.05	2	1	2	1	16	40	32.5	13	38.9
27.06	3	1	2	2	16	26	10.0	0	99.9
30.01	9	9			999			0	99.9
31.01	2	0	1	2	210	32	12.5	5	99.9
31.02	2	1	1	2	16	4	0.0	0	99.9
31.03	3	0	0	1	16	40	15.0	7	99.9
31.04	9	9			999			3	99.9
35.01	2	1	2	2	50	10	2.5	3	37.4
76.01	9	0			999			2	99.9
78.01	2	1	2	1	50	42	10.0	11	37.8
78.02	2	2	2	2	50	44	10.à	0	99.9
79.01	2	1	2	1	50	30	10.à	0	36.1
79.02	2	1	1	2	210	36	10.0	7	99.9
79.03	2	1	1	2	50	57	17.5	4	99.9
79.04	2	1	3	2	105	10	2.5	4	99.9
79.06	2	0	1	1	150	27	7.5	0	41.4
79.07	9	9			999			4	99.9
79.08	2	1	1	1	16	60	17.5	3	41.7
79.09	2	1	1	1	16	83	25.0	3	99.9
79.10	2	1	1	1	16	47	10.0	0	34.2
107.01	9	9			999			6	99.9
115.01	1	1	2	2	50	19	2.5		99.9
115.02	1	2	1	2	50	48	12.5		38.4
115.03	3	1	1	1	16	24	10.0	0	99.9
120.01	2	0	2	1	16	32	10.0	1	35.0
120.02	3	1	1	1	16	41	12.5	8	36.7
127.01	2	0	2	1	105	40	12.5	8	99.9
127.02	2	0	2	1	105	30	10.0	6	99.9
135.01	1	2	1	2	16	45	12.5	0	38.1
135.02	1	2	1	1	16	32	12.5	4	99.9
142.01	3	1	2	2	16	30	7.5	2	40.6
142.03	1	2	2	2	16	36	12.5	4	99.9
143.01	2	0	0	1	50	45	15.0	7	99.9
143.02	2	1	3	2	16	11	5.0	2	31.1
143.03	2	1	3	1	50	51	12.5	6	39.8
143.04	2	1	3	2	50	35	10.0	.	37.6
143.05	2	1	2	2	50	42	10.0	0	45.0
143.06	2	1	2	2	50	33	7.5	11	37.3
143.07	3	0	2	2	75	33	7.5	13	36.4
143.08	3	0	2	1	50	40	15.0	2	99.9
147.01	1	2	1	2	16	18	2.5	0	99.9
147.02	2	1	0	1	425	39	10.0	12	99.9
147.03	1	2	2	1	16	25	7.5	6	99.9
148.01	2	0	3	1	50	56	15.0	11	39.6
153.01	1	2	1	2	50	27	7.5		39.6
153.02	2	2	1	1	16	31	10.0		99.9
153.03	9	9			999			8	99.9
154.01	2	0	1	2	50	30	10.0	12	40.5
154.02	2	0	1	1	75	22	10.0	0	35.8

Vessel nr.	Clay type Fe	Secondary inclusion	Type of inclusion	Size of in microns	Quartz. size	%AD	vol% >3 mm	fibres	%AP
154.03	2	0	1	2	50			4	99.9
155.02	2	1	2	1	16	27	10.0	5	35.5
155.03	1	2	2	2	50	85	22.5	4	32.0
155.05	2	9	2	2	50	22	5.0	7	99.9
155.06	2	2	2	2	50	40	12.5	3	43.6
155.07	9	9			999				99.9
155.08	9	9			999			2	99.9
157.01	2	2	3	2	50	37	12.5	0	35.0
157.02	9	9	0	1	50	0	0.0	0	99.9
157.03	1	2	2	1	210	18	5.0	4	99.9
157.04	1	2	1	2	50	9	2.5		35.9
157.06	2	0	2	2	50	35	12.5	5	99.9
157.07	2	2	2	1	300	29	7.5	0	99.9
157.08	2	2	3	1	50	12	2.5	10	99.9
157.09	2	1	2	1	105	63	17.5	0	99.9
157.10	1	2	2	2	210	46	15.0		36.2
157.11	2	0	2	2	50	25	7.5		99.9
159.01	1	2	2	1	75	34	10.0		99.9
159.02	9	9			999			0	99.9
159.03	1	2	2	2	75	31	7.5	0	99.9
185.01	2	1	2	1	16	41	10.0	4	99.9
194.01	2	2	2	2	50	24	5.0	1	46.1
194.02	1	2	2	2	16	35	12.5	4	99.9
194.03	1	2	1	2	50	20	5.0	6	99.9
194.04	1	2	2	1	50	38	15.0	12	99.9
212.01	1	2	1	2	16	12	2.5	3	28.2
222.01	3	2	0	1	16	65	20.0	0	99.9
222.02	2	2	2	1	16	57	17.5	12	99.9
223.01	2	1	2	2	16	20	5.0	0	40.5
223.02	2	1	1	2	16	29	10.0	5	36.4
223.03	3	1	3	2	16	24	7.5		36.5
223.04	3	1	2	1	16	36	7.5	11	42.6
223.05	1	2	0	1	16	7	0.0	0	99.9
223.06	2	1	3	2	16	41	12.5	12	43.0
223.07	3	1	0	1	300	24	20.0	8	42.8
223.09	2	1	2	2	16	33	2.5	5	44.3
223.10	2	1	3	1	16	14	2.5	0	36.8
223.11	2	1	2	2	16	29	7.5	0	41.4
240.01	3	1	2	1	150	75	25	4	39.8
240.02	3	2	2	2	16	36	12.5	4	44.0
240.03	2	2	2	2	16	51	15.0	0	39.5
240.04	2	1	2	1	16	40	10.0	9	39.7
240.06	3	1	3	2	16	58	15.0	3	41.7
240.07	2	2	2	1	16	38	10.0	15	37.1
258.01	9	9			999			11	99.9
259.01	2	1	3	2	50	26	12.5	2	99.9
259.02	9	9			999			8	99.9
314.01	1	2	1	2	0	35	10.0		42.3
314.02	3	2	2	2	0	53	17.5		38.1
325.02	1	2	2	1	50	21	5.0	2	35.8
340.01	1	2	1	2	16	73	17.5	16	40.9
341.02	2	2	2	2	16	40	10.0	6	41.7
342.01	1	2	2	2	50	34	12.5	7	37.4
345.01	3	2	1	2	75	20	7.5	0	41.3
345.01	2	1	2	2	210	46	20.0	4	37.7

Table 4. Uitgeest-Gr.D. sample 1. Database for chapter 8.

Table 4.1. Size variables and pottery groups.

Vessel nr.	Feature	Feature cat.	Profile part	Rd	Gd	Bd	H1	H2	Htot	Pottery group			H2 roughened	Rim type	Hand-les
										A	B	B reclass.			
7.01	73	6	3	122	186	83	78	120	198	4	4	5	1	1	1
7.02	73	6	3	318	330	115	74	200	274	3.2	3.1	4.1	1	2	0
7.03	73	6	2	134	202	999	135	999		4	4	5	0	1	0
7.05	73	6	3	152	158	85	50	85	135	1.2	1.1	1.1	0	1	1
7.06	71	6	3	318	352	105	120	305	425	3.2	3.2	4.2	1	2	0
7.07	71	6	2	208	306	999	105	999		3.1	3.2	3.2	1	1	0
8.01	81	6	4	999	999	105	999	999		9	9	9	1	9	9
8.02	81	6	2	300	326	999	93	999		3.1	3.1	3.1	1	2	0
8.03	81	6	3	312	300	130	90	220	310	3.1	3.1	3.1	1	2	0
8.04	81	6	3	154	160	48	30	105	135	1.1	1.1	1.1	0	1	0
8.05	81	6	3	114	122	52	40	60	100	1.2	1.2	1.2	0	1	1
8.06	999	7	3	135	160	80	55	125	180	1.1	1.2	1.2	1	2	0
13.01	50	5	2	280	310	999	110	999		3.1	3.2	3.2	1	1	0
14.01	141	6	2	300	309	999	100	140		3.1	3.1	3.1	1	2	0
14.05	45	3	3	285	300	120	55	225	280	3.1	3.1	3.1	1	2	0
14.06	46	3	3	235	250	90	70	160	230	2.1	2.1	2.1	0	1	0
14.07	45	3	2	305	323	999	47	999		3.1	3.1	3.1	0	1	0
14.08	41	3	4	999	115	70	999	115		1	1	1	1	9	9
14.09	43	3	4	999	999	180	999	999		9	9	9	1	9	9
14.10	44	3	2	340	380	999	90	999		3.2	3.1	4.1	1	2	0
14.11	42	2	1	320	999	999	999	999		9	9	9	1	2	0
14.12	44	4	2	240	355	999	72	999		3.2	3.1	4.1	1	2	0
14.13	46	3	2	210	226	999	65	999		2	2.1	2.1	1	2	0
14.14	53	3	1	180	999	999	999	999		9	9	9	1	1	0
14.15	47	3	2	210	245	999	60	999		2	2.1	2.1	0	2	0
16.01	51	5	2	320	384	999	105	999		3.2	3.1	4.1	1	2	0
18.01	181	6	2	300	340	999	70	999		3.2	3.1	4.1	1	2	0
18.02	181	6	2	260	306	999	80	999		3.1	3.1	3.1	1	2	0
18.03	181	6	2	260	280	999	65	145		2.1	2.1	3.1	1	2	0
18.04	181	6	2	210	214	999	80	999		2	2.2	2.2	9	1	1
18.05	181	6	3	214	238	80	55	140	195	2.1	2.1	2.1	1	1	1
18.06	181	6	3	160	180	50	35	115	150	1.1	1.1	1.1	0	1	0
18.07	181	6	3	294	318	90	75	215	290	3.1	3.1	3.1	0	1	0
18.08	181	6	2	110	118	999	30	999		1	1.1	1.1	0	1	0
18.09	181	6	3	150	156	80	35	95	130	1.1	1.1	1.1	1	1	0
18.10	181	6	3	134	224	90	120	170	280	4	4	5	0	1	0
18.12	181	6	2	248	266	999	80	999		2	2.1	3.1	0	2	0
18.13	181	6	4	999	999	114	999	999		9	9	9	0	9	9
18.14	181	6	1	288	999	999	999	999		3.1	3	3	9	2	0
19.02	17	2	3	284	308	120	67	223	290	3.1	3.1	3.1	1	1	0
19.06	32	1	2	280	312	999	85	999		3.1	3.1	3.1	1	1	0
19.07	32	1	2	280	310	999	85	999		3.1	3.1	3.1	1	1	0
19.10	33	1	2	180	256	999	85	999		2	2.2	3.2	1	1	1
19.13	161	1	2	210	226	999	75	999		2	2.2	2.2	0	2	0
19.14	19	1	3	256	288	90	65	195	260	2.1	2.1	3.1	0	2	0
19.15	193	1	3	304	318	105	70	190	260	3.1	3.1	3.1	1	2	0
19.17	20	3	3	94	110	72	35	55	90	1.2	1.2	1.2	0	1	0
19.18	191	6	2	260	268	999	64	999		2	2.1	3.1	0	1	0
19.19	63	1	2	240	260	999	85	999		2	2.2	3.2	0	2	0

Vessel nr.	Feature	Feature cat.	Profile part	Rd	Gd	Bd	H1	H2	Htot	Pottery group			H2 roughened	Rim type	Hand-les
										A	B	B reclass.			
19.20	16	1	2	225	258	999	70	999		2	2.1	3.1	0	1	1
19.21	16	1	2	220	256	999	85	999		2	2.2	3.2	9	1	1
19.22	34	1	2	230	286	999	95	999		2	2.2	3.2	0	1	0
19.23	34	1	2	280	306	999	85	999		3.1	3.1	3.1	1	2	0
19.24	36	2	2	200	208	999	55	999		2	2.1	2.1	0	1	0
19.25	16	1	2	180	270	999	110	999		4	4	5	9	1	0
19.26	0	7	3	280	290	130	60	170	230	2.1	2.1	3.1	1	2	0
19.27	36	2	2	318	340	999	90	999		3.2	3.1	4.1	1	2	0
19.28	36	2	2	225	275	999	65	999		2	2.1	3.1	0	1	0
19.29	34	1	2	270	314	999	80	999		3.1	3.1	3.1	0	1	0
19.31	34	1	2	242	306	999	90	999		3.1	3.2	3.2	0	2	0
19.51	16	1	1	130	999	999	999	999		4	4	5	9	1	0
20.01	64	1	3	112	128	44	37	95	132	1.1	1.1	1.1	0	1	0
20.02	48	1	3	210	246	108	75	120	195	2.2	2.2	2.2	1	1	0
20.03	50	5	3	240	284	130	100	150	250	2.2	2.2	3.2	0	1	0
20.04	50	5	2	210	240	999	65	999		2	2.1	2.1	1	1	0
20.05	50	5	4	999	999	108	999	999		9	9	9	1	9	9
20.06	1	1	3	228	258	70	80	150	230	2.2	2.2	3.2	0	1	0
20.07	8	4	4	999	999	130	999	999		9	9	9	0	9	9
20.08	3	3	3	222	252	84	73	162	235	2.1	2.1	3.1	1	2	0
20.10	54	3	2	210	216	999	85	999		2	2.2	2.2	9	1	1
20.11	201	6	2	130	200	999	105	999		4	4	5	9	1	1
20.12	65	1	2	170	218	75	75	999		2	2.2	2.2	1	1	0
20.62	50	5	2	282	308	999	75	999		3.1	3.1	3.1	0	1	0
20.63	50	5	2	205	245	999	65	999		2	2.1	2.1	0	1	0
21.01	57	5	2	222	255	999	72	999		2	2.1	3.1	0	2	0
28.01	51	5	3	108	130	70	50	75	125	1.2	1.2	1.2	0	2	0
30.02	51	5	2	270	330	999	85	999		3.2	3.1	4.1	1	1	0
31.01	3	3	3	126	135	50	30	90	120	1.1	1.1	1.1	0	1	0
31.02	60	1	4	999	999	130	999	999		3.2	3	3	1	9	9
31.03	60	1	2	300	310	999	90	999		3.1	3.1	3.1	1	2	0
31.04	311	6	3	120	135	72	53	65	118	1.2	1.2	1.2	1	1	0
31.05	311	6	3	135	133	80	55	80	135	1.2	1.2	1.2	0	1	0
31.06	311	6	2	270	268	999	65	999		2	2.1	3.1	9	1	0
31.07	311	6	2	250	330	999	100	999		3.2	3.2	4.2	1	1	0
31.08	311	6	4	999	999	120	999	999		3.2	3	3	1	9	9
31.09	311	6	2	285	420	999	280	999		3.2	3.2	4.2	9	2	0
31.10	311	6	4	999	999	159	999	999		9	9	9	1	9	9
31.12	61	1	2	280	322	999	90	999		3.1	3.1	3.1	1	2	0
31.13	11	4	2	150	184	999	50	999		1	1.1	1.1	0	1	0
31.14	14	1	3	296	314	152	65	195	260	3.1	3.1	3.1	1	2	0
31.15	11	4	2	142	318	999	120	999		3.1	3.2	3.2	0	1	1
31.18	3	3	2	250	300	999	65	999		3.1	3.1	3.1	1	2	0
31.19	311	6	2	210	250	999	90	999		2	2.2	2.2	1	1	0
32.01	51	5	2	120	208	999	125	999		4	4	5	0	1	0
33.01	51	5	2	280	286	999	70	999		2.1	2.1	3.1	0	2	0
33.02	51	5	2	272	298	999	70	999		3.1	3.1	3.1	1	2	0
33.03	51	5	3	110	120	80	50	65	115	1.2	1.2	1.2	0	2	0
33.04	51	5	2	310	320	999	90	999		3.1	3.1	3.1	1	2	0
33.05	56	1	3	225	260	100	70	140	210	2.1	2.1	3.1	1	1	0
33.07	58	5	3	170	260	90	130	190	320	4	4	5	0	1	0
33.08	51	5	2	190	210	999	65	999		2	2.2	2.2	0	1	0
33.09	58	5	2	280	296	999	70	999		3.1	3.1	3.1	0	1	1

Vessel nr.	Feature	Feature cat.	Profile part	Rd	Gd	Bd	H1	H2	Htot	Pottery group			H2 roughened	Rim type	Handles
										A	B	B reclass.			
34.01	50	5	2	360	360	999	105	999		3.2	3.1	4.1	0	1	0
34.02	50	5	2	360	390	999	110	999		3.2	3.1	4.1	1	2	0
34.03	50	5	3	95	118	45	40	62	102	1.2	1.2	1.2	0	1	1
34.04	50	5	2	210	268	999	100	999		2	2.2	3.2	0	1	0
34.05	50	5	2	290	280	999	100	999		2	2.2	3.2	0	2	0
34.07	50	5	2	298	350	999	80	999		3.2	3.1	4.1	1	1	0
34.10	50	5	2	260	315	999	110	999		3.1	3.2	3.2	0	2	0
34.12	50	5	3	250	280	105	75	185	260	2.1	2.1	3.1	1	2	0
35.01	192	1	3	230	265	100	75	150	225	2.1	2.1	3.1	1	2	0
35.03	27	1	3	270	300	120	70	200	270	3.1	3.1	3.1	1	2	0
35.04	27	1	2	270	304	999	90	999		3.1	3.1	3.1	1	2	0
35.05	27	1	3	232	272	118	100	160	260	2.2	2.2	3.2	1	2	0
35.06	27	1	3	240	280	54	75	165	240	2.1	2.1	3.1	1	2	0
35.07	27	1	3	252	310	120	120	180	300	3.1	3.2	3.2	1	1	0
35.11	27	1	2	282	295	999	70	999		3.1	3.1	3.1	9	2	0
35.14	192	1	2	300	352	999	80	999		3.2	3.1	4.1	0	2	0
35.15	55	1	3	115	120	55	37	60	97	1.2	1.1	1.1	0	1	0
35.16	211	1	3	116	136	56	42	76	118	1.2	1.2	1.2	1	1	0
35.17	22	1	3	280	330	106	85	200	285	3.2	3.1	4.1	1	1	0
35.18	22	1	2	276	335	999	110	999		3.2	3.2	4.2	0	2	0
35.19	21	1	2	322	402	999	135	999		3.2	3.2	4.2	0	1	0
35.20	23	2	3	116	190	160	120	125	245	4	4	5	0	1	1
35.21	23	2	3	256	288	130	80	230	310	2.1	2.1	3.1	1	2	0
35.22	28	1	3	138	235	100	140	155	295	4	4	5	1	1	1
25.23	28	1	2	180	194	999	70	999		2	2.2	2.2	1	2	1
35.24	22	1	3	136	150	65	47	75	122	1.2	1.2	1.2	1	1	0
35.25	28	1	2	146	152	999	55	999		1	1.2	1.2	0	1	0
35.27	23	2	3	150	175	48	45	120	165	1.1	1.1	1.1	0	1	0
35.28	22	1	2	195	217	999	55	999		2	2.1	2.1	0	1	0
35.29	28	1	3	204	222	80	75	135	210	2.2	2.2	2.2	1	1	0
35.30	28	1	2	130	235	999	95	999		4	4	5	0	1	0
35.31	23	2	3	280	295	105	75	165	240	3.1	3.1	3.1	1	1	0
35.33	271	1	2	358	362	999	75	999		3.2	3.1	4.1	1	1	0
35.36	23	2	2	240	250	999	65	999		2	2.1	2.1	1	1	0
35.37	331	1	2	300	360	999	120	999		3.2	3.2	4.2	1	1	0
35.38	23	2	4	999	175	55	0	100		1	1	1	0	9	9
35.39	22	1	2	290	320	999	85	999		3.1	3.1	3.1	0	1	0
35.40	30	3	2	230	250	999	80	999		2	2.2	2.2	0	1	0
35.44	27	1	2	260	276	999	84	999		2	2.1	3.1	0	1	0
35.52	251	1	2	140	214	999	120	999		4	4	5	9	1	1
35.90	27	1	2	150	160	999	45	999		1	1.1	1.1	0	1	0
35.99	999	7	2	120	136	999	40	999		1	1.1	1.1	0	1	0
75.01	999	7	3	170	195	75	75	110	185	2.2	2.2	2.2	0	1	1
75.02	999	7	3	105	215	85	110	140	250	4	4	5	1	1	1
75.03	999	7	3	135	140	80	35	55	90	1.2	1.1	1.1	0	1	1

Table 4.2. Index variables, surface treatment and residues.

Vessel nr.	Pottery group B	Gd:Rd	H1:Rd	H1:Gd	H1:Htot	Rd:Htot	Gd:Htot	Surface treatment		Soot	Chars	B1	Pigment
								H1	H1+H2				
7.01	4.0	1.53	.64	.42	.39	.62	.94	1.2	4.2	1	1	0	0
7.02	3.1	1.04	.23	.22	.27	1.16	1.20	2.0	2.0	0	0	8	0
7.03	4.0	1.51	1.01	.67	.	.	.	1.2	4.2	8	0	0	0
7.05	1.1	1.04	.33	.32	.37	1.13	1.17	1.1	4.1	1	0	0	0
7.06	3.2	1.11	.38	.34	.28	.75	.83	2.0	2.0	0	1	0	1
7.07	3.2	1.47	.51	.34	.	.	.	2.0	2.0	1	1	0	0
8.01	9.0	.	.	.	.	.	.	9.0	9.0	0	0	0	1
8.02	3.1	1.09	.31	.29	.	.	.	2.0	2.0	0	1	0	0
8.03	3.1	.96	.29	.30	.29	1.01	.97	2.0	2.0	1	1	0	0
8.04	1.1	1.04	.20	.19	.22	1.14	1.19	1.1	4.1	0	0	0	0
8.05	1.2	1.07	.35	.33	.40	1.14	1.22	1.1	4.1	0	1	1	0
8.06	1.2	1.19	.41	.34	.31	.75	.89	3.0	3.0	1	0	1	0
13.01	3.2	1.11	.39	.36	.	.	.	2.0	2.0	0	0	0	0
14.01	3.1	1.03	.33	.32	.	.	.	2.0	2.0	0	0	0	8
14.05	3.1	1.05	.19	.18	.20	1.02	1.07	1.2	1.3	1	1	0	0
14.06	2.1	1.06	.24	.28	.30	1.02	1.09	2.0	5.0	1	0	0	0
14.07	3.1	1.06	.15	.15	.	.	.	1.1	4.1	0	0	0	0
14.08	1.0	.	.	.	.	.	.	9.0	9.0	0	0	0	0
14.09	9.0	.	.	.	.	.	.	9.0	9.0	0	1	0	8
14.10	3.1	1.12	.27	.24	.	.	.	1.2	1.3	0	0	0	0
14.11	9.0	.	.00	.	.	.	.	1.2	9.0	0	0	0	0
14.12	3.1	1.48	.30	.20	.	.	.	2.0	2.0	0	0	0	0
14.13	2.1	1.08	.31	.29	.	.	.	2.0	2.0	1	1	0	0
14.14	9.0	.	.00	.	.	.	.	1.1	9.0	0	0	0	0
14.15	2.1	1.17	.29	.25	.	.	.	2.0	5.0	1	1	0	0
16.01	3.1	1.20	.33	.27	.	.	.	2.0	2.0	1	1	0	0
18.01	3.1	1.13	.23	.21	.	.	.	2.0	2.0	0	0	0	0
18.02	3.1	1.18	.31	.26	.	.	.	9.0	9.0	0	0	0	0
18.03	2.1	1.08	.25	.23	.	.	.	2.0	2.0	0	0	0	0
18.04	2.2	1.02	.38	.37	.	.	.	2.0	9.0	0	0	0	0
18.05	2.1	1.11	.26	.23	.28	1.10	1.22	1.1	1.1	0	0	0	0
18.06	1.1	1.13	.22	.19	.23	1.07	1.20	1.1	4.1	0	0	0	0
18.07	3.1	1.08	.26	.24	.26	1.01	1.10	1.2	4.2	8	1	0	0
18.08	1.1	1.07	.27	.25	.	.	.	1.2	4.2	0	0	0	0
18.09	1.1	1.04	.23	.22	.27	1.15	1.20	1.1	4.1	1	1	0	0
18.10	4.0	1.67	.90	.54	.43	.48	.80	1.1	4.1	0	0	8	0
18.12	2.1	1.07	.32	.30	.	.	.	1.2	4.2	0	0	0	0
18.13	9.0	.	.	.	.	.	.	9.0	9.0	0	0	0	0
18.14	3.0	.	.	.	.	.	.	2.0	9.0	0	0	0	0
19.02	3.1	1.09	.24	.22	.23	.98	1.06	3.0	3.0	0	0	0	0
19.06	3.1	1.11	.30	.27	.	.	.	9.0	9.0	0	0	0	0
19.07	3.1	1.11	.30	.27	.	.	.	2.0	2.0	1	1	0	0
19.10	2.2	1.42	.47	.33	.	.	.	1.1	1.1	0	0	0	0
19.13	2.2	1.08	.36	.33	.	.	.	2.0	5.0	0	0	0	0
19.14	2.1	1.13	.25	.23	.25	.99	1.11	2.0	5.0	1	1	0	0
19.15	3.1	1.05	.23	.22	.27	1.17	1.22	2.0	2.0	0	1	0	0
19.17	1.2	1.17	.37	.32	.39	1.04	1.22	2.0	5.0	1	0	0	0
19.18	2.1	1.03	.25	.24	.	.	.	1.2	5.0	0	0	0	0
19.19	2.2	1.08	.35	.33	.	.	.	2.0	5.0	1	0	0	8
19.20	2.1	1.15	.31	.27	.	.	.	1.1	4.1	0	0	0	0
19.21	2.2	1.16	.39	.33	.	.	.	1.1	1.1	1	0	0	0
19.22	2.2	1.24	.41	.33	.	.	.	1.2	4.2	0	8	0	0

Vessel nr.	Pottery group B	Gd:Rd	H1:Rd	H1:Gd	H1:Htot	Rd:Htot	Gd:Htot	Surface treatment		Soot	Chars	B1	Pigment
								H1	H1+H2				
19.23	3.1	1.09	.30	.28	.	.	.	1.1	1.1	1	1	0	0
19.24	2.1	1.04	.28	.26	.	.	.	2.0	5.0	1	8	0	0
19.25	4.0	1.50	.64	.41	.	.	.	1.1	6.0	0	0	0	0
19.26	2.1	1.04	.21	.21	.26	1.22	1.26	1.2	1.3	1	0	0	0
19.27	3.1	1.07	.28	.27	.	.	.	2.0	2.0	1	0	0	0
19.28	2.1	1.22	.29	.24	.	.	.	1.1	4.1	0	0	0	0
19.29	3.1	1.16	.30	.26	.	.	.	1.2	9.0	8	8	0	0
19.31	3.2	1.26	.37	.29	.	.	.	1.1	4.1	0	0	0	0
19.51	4.0	.	.00	.	.	.	.	1.2	9.0	0	0	0	0
20.01	1.1	1.14	.33	.29	.28	.85	.97	1.1	4.1	0	0	0	0
20.02	2.2	1.17	.36	.31	.39	1.08	1.26	2.0	2.0	1	0	0	0
20.03	2.2	1.18	.44	.37	.42	.96	1.14	1.1	1.1	1	0	0	0
20.04	2.1	1.14	.31	.27	.	.	.	1.2	1.3	0	1	0	0
20.05	9.0	.	.	.	.	.	.	9.0	9.0	0	1	0	0
20.06	2.2	1.13	.35	.31	.35	.99	1.12	1.1	4.1	0	0	0	0
20.07	9.0	.	.	.	.	.	.	9.0	9.0	1	1	0	0
20.08	2.1	1.14	.33	.29	.31	.95	1.07	1.2	1.3	1	0	0	0
20.10	2.2	1.03	.41	.39	.	.	.	2.0	9.0	1	0	0	0
20.11	4.0	1.54	.81	.53	.	.	.	2.0	9.0	0	0	1	0
20.12	2.2	1.28	.44	.34	.	.	.	1.2	1.3	0	0	0	0
20.62	3.1	1.09	.27	.24	.	.	.	1.1	9.0	0	0	0	0
20.63	2.1	1.20	.32	.27	.	.	.	1.2	4.2	0	0	0	0
21.01	2.1	1.15	.32	.28	.	.	.	1.2	5.0	1	0	0	0
28.01	1.2	1.20	.46	.39	.40	.86	1.04	3.0	6.0	1	1	0	0
30.02	3.1	1.22	.32	.26	.	.	.	1.2	1.3	1	1	0	1
31.01	1.1	1.07	.24	.22	.25	1.05	1.13	1.1	4.1	0	0	0	0
31.02	3.0	.	.	.	.	.	.	9.0	9.0	8	1	8	0
31.03	3.1	1.03	.30	.29	.	.	.	2.0	2.0	0	1	0	0
31.04	1.2	1.13	.44	.39	.45	1.02	1.14	1.2	1.3	1	1	0	0
31.05	1.2	.99	.41	.41	.41	1.00	.99	2.0	5.0	1	0	0	0
31.06	2.1	.99	.24	.24	.	.	.	1.1	9.0	0	0	0	0
31.07	3.2	1.32	.40	.30	.	.	.	2.0	2.0	0	0	0	0
31.08	3.0	.	.	.	.	.	.	9.0	9.0	0	8	0	0
31.09	3.2	1.47	.98	.67	.	.	.	2.0	9.0	0	0	0	0
31.10	9.0	.	.	.	.	.	.	9.0	9.0	0	0	0	0
31.12	3.1	1.15	.32	.28	.	.	.	2.0	2.0	1	1	0	0
31.13	1.1	1.23	.33	.27	.	.	.	1.1	4.1	1	8	0	0
31.14	3.1	1.06	.22	.21	.25	1.14	1.21	3.0	3.0	0	0	0	1
31.15	3.2	2.24	.85	.38	.	.	.	1.1	6.0	1	8	8	0
31.18	3.1	1.20	.26	.22	.	.	.	1.2	1.3	1	0	0	0
31.19	2.2	1.19	.43	.36	.	.	.	2.0	2.0	1	0	0	0
32.01	4.0	1.73	1.04	.60	.	.	.	2.0	2.0	0	0	0	0
33.01	2.1	1.02	.25	.25	.	.	.	3.0	9.0	1	0	0	0
33.02	3.1	1.10	.26	.24	.	.	.	3.0	3.0	0	0	0	0
33.03	1.2	1.09	.46	.42	.44	.96	1.04	2.0	5.0	1	1	0	0
33.04	3.1	1.03	.29	.28	.	.	.	1.2	1.3	1	0	0	0
33.05	2.1	1.16	.31	.27	.33	1.07	1.24	9.0	9.0	1	0	0	0
33.07	4.0	1.53	.77	.50	.41	.53	.81	1.1	4.1	0	0	0	0
33.08	2.2	1.11	.34	.31	.	.	.	2.0	5.0	1	8	0	0
33.09	3.1	1.06	.25	.24	.	.	.	1.1	4.1	0	0	0	0
34.01	3.1	1.00	.29	.29	.	.	.	2.0	5.0	0	0	0	1
34.02	3.1	1.08	.31	.28	.	.	.	1.2	1.3	1	8	0	0
34.03	1.2	1.24	.42	.34	.39	.93	1.16	1.2	4.2	1	8	0	0
34.04	2.2	1.28	.48	.37	.	.	.	1.2	5.0	1	1	0	8

Vessel nr.	Pottery group B	Gd:Rd	H1:Rd	H1:Gd	H1:Htot	Rd:Htot	Gd:Htot	Surface treatment H1	Surface treatment H1+H2	Soot	Chars	B1	Pigment
34.05	2.2	.97	.35	.36	.	.	.	2.0	9.0	0	0	0	0
34.07	3.1	1.17	.27	.23	.	.	.	1.2	1.3	0	0	0	0
34.10	3.2	1.21	.42	.35	.00	.	.	2.0	5.0	0	0	0	0
34.12	2.1	1.12	.30	.27	.29	.96	1.08	1.2	1.3	0	0	0	0
35.01	2.1	1.15	.33	.28	.33	1.02	1.18	2.0	2.0	1	8	0	0
35.03	3.1	1.11	.26	.23	.26	1.00	1.11	1.2	1.3	8	0	0	0
35.04	3.1	1.13	.33	.30	.	.	.	2.0	2.0	1	1	0	0
35.05	2.2	1.17	.43	.37	.39	.89	1.05	2.0	2.0	1	0	0	1
35.06	2.1	1.17	.31	.27	.31	1.00	1.17	2.0	2.0	1	1	0	0
35.07	3.2	1.23	.48	.39	.40	.84	1.03	2.0	2.0	0	0	0	0
35.11	3.1	1.05	.25	.00	.	.	.	9.0	9.0	0	0	0	0
35.14	3.1	1.17	.27	.23	.	.	.	2.0	9.0	0	0	0	0
35.15	1.1	1.04	.32	.31	.38	1.19	1.24	1.2	4.2	0	0	0	0
35.16	1.2	1.17	.36	.31	.36	.98	1.15	3.0	3.0	1	0	0	0
35.17	3.1	1.18	.30	.26	.30	.98	1.16	3.0	6.0	0	0	0	0
35.18	3.2	1.21	.40	.33	.	.	.	3.0	6.0	0	0	0	0
35.19	3.2	1.25	.42	.34	.	.	.	1.2	4.2	0	0	0	0
35.20	4.0	1.64	1.03	.63	.49	.47	.78	2.0	5.0	1	0	1	0
35.21	2.1	1.13	.31	.28	.26	.83	.93	2.0	2.0	0	1	0	0
35.22	4.0	1.70	1.01	.60	.48	.47	.80	2.0	2.0	0	0	0	0
35.23	2.2	1.08	.39	.36	.	.	.	3.0	3.0	1	0	0	0
35.24	1.2	1.10	.35	.31	.39	1.12	1.23	2.0	2.0	1	0	0	0
35.25	1.2	1.04	.38	.36	.	.	.	2.0	5.0	1	1	0	0
35.27	1.1	1.17	.30	.26	.27	.91	1.06	1.1	4.1	0	0	0	0
35.28	2.1	1.11	.28	.25	.	.	.	2.0	5.0	8	1	0	0
35.29	2.2	1.09	.37	.34	.36	.97	1.06	9.0	9.0	0	0	0	0
35.30	4.0	1.81	.79	.40	.	.	.	2.0	9.0	1	0	0	0
35.31	3.1	1.05	.27	.25	.31	1.17	1.23	2.0	2.0	1	0	0	0
35.33	3.1	1.01	.21	.21	.	.	.	1.2	1.3	1	1	0	0
35.36	2.1	1.04	.27	.26	.	.	.	2.0	2.0	1	0	0	0
35.37	3.2	1.20	.40	.33	.	.	.	1.1	1.1	8	8	0	0
35.38	1.0	.	.	.	.	.	.	9.0	9.0	0	0	0	0
35.39	3.1	1.10	.24	.27	.	.	.	2.0	9.0	0	0	0	0
35.40	2.2	1.09	.35	.32	.	.	.	3.0	3.0	1	1	0	0
35.44	2.1	1.06	.32	.30	.	.	.	2.0	5.0	0	0	0	0
35.52	4.0	1.53	.86	.56	.	.	.	9.0	9.0	0	0	0	0
35.90	1.1	1.07	.30	.28	.	.	.	9.0	9.0	0	0	0	0
35.99	1.1	1.13	.33	.29	.	.	.	1.1	4.1	0	0	0	0
75.01	2.2	1.15	.44	.39	.41	.92	1.05	1.1	4.1	1	1	0	0
75.02	4.0	2.05	1.05	.51	.44	.42	.86	1.1	1.1	0	0	0	0
75.03	1.1	1.04	.26	.25	.39	1.50	1.56	3.0	6.0	1	0	0	0

Table 5. Schagen-M1. Database for chapter 8.

Table 5.1. Size variables and pottery groups.

Vessel nr.	Cluster nr.	Profile part	Rd	Gd	Bd	H1	H2	Htot	Wall thickn.	Rim type	Handles	Mode of constr.	Pottery group	
													A	B
21.01	3	3	136	140	80	45	60	105	5	1	0	2	1.2	1.1
21.02	3	2	230	246	999	55	999	999	0	1	0	2	2.0	2.1
22.04	8	3	230	216	70	35	120	155	9	1	0	2	2.1	2.1
27.01	27	4	999	999	999	999	999	999	7	9	9	2	9.0	9.0
27.05	27	3	999	999	999	999	999	999	11	1	0	2	9.0	9.0
27.06	27	2	999	999	999	999	999	999	9	1	0	9	9.0	9.0
30.01	17	2	65	162	999	100	999	999	6	1	0	1	5.0	5.0
31.01	11	3	220	999	85	999	999	132	10	1	0	2	2.0	2.0
31.02	11	3	195	198	52	25	95	120	6	1	0	2	2.1	2.1
31.03	11	3	120	190	90	130	125	255	9	1	0	1	5.0	5.0
31.04	11	4	999	999	105	999	999	999	10	9	9	3	9.0	9.0
35.01	17	2	350	450	999	130	999	999	9	2	0	1	4.0	4.2
76.01	17	2	170	196	999	40	999	999	6	1	0	2	2.0	2.1
78.01	7	4	999	264	90	999	165	999	7	9	9	2	3.0	3.0
78.02	7	3	130	142	80	35	77	112	8	1	0	1	1.1	1.1
79.01	7	3	235	285	130	80	175	255	9	1	0	1	3.1	3.1
79.02	7	2	240	250	999	60	999	999	8	1	0	1	2.0	2.1
79.03	7	4	999	220	15	999	150	999	8	9	9	2	5.0	5.0
79.04	7	3	110	138	90	50	75	125	6	1	0	2	1.2	1.2
79.06	7	4	999	230	100	999	130	999	9	9	9	3	2.0	2.0
79.07	7	3	95	999	45	999	999	50	9	1	0	1	1.0	1.0
79.08	7	3	230	256	100	65	140	205	7	1	1	2	3.1	3.1
79.09	7	4	999	230	110	999	180	999	8	9	9	2	5.0	5.0
79.10	7	3	160	175	75	55	95	150	7	2	0	1	2.2	2.2
107.01	17	3	120	999	60	999	999	60	7	1	0	1	1.0	1.0
115.01	2	4	999	999	999	999	999	999	0	9	9	1	9.0	9.0
115.02	2	3	190	188	80	45	135	180	9	2	0	1	2.1	2.1
115.03	2	2	220	210	999	40	999	999	6	1	1	3	2.0	2.1
120.01	2	2	235	310	999	70	999	999	8	2	0	3	3.0	3.1
120.02	2	4	999	999	130	999	999	999	10	9	9	3	3.0	3.0
127.01	17	2	275	276	999	80	999	999	9	2	0	1	3.0	3.1
127.02	17	2	400	420	999	110	999	999	9	2	0	1	4.0	4.1
135.01	17	2	300	390	999	105	999	999	9	2	0	9	4.0	4.2
135.02	17	2	200	228	999	55	999	999	7	1	1	1	2.0	2.1
142.01	5	2	330	374	999	125	999	999	10	2	0	1	4.0	4.2
142.03	5	2	350	400	999	110	999	999	8	2	0	1	4.0	4.1
143.01	5	3	140	134	65	50	65	115	9	2	0	1	1.2	1.2
143.02	5	3	185	197	95	50	140	195	7	2	0	1	2.1	2.1
143.03	5	3	170	225	80	90	130	220	8	1	1	1	2.2	2.2
143.04	5	3	115	166	72	75	110	185	6	1	1	1	5.2	5.0
143.05	5	2	135	180	999	105	999	999	10	1	0	1	2.0	2.2
143.06	5	3	215	244	95	70	110	180	8	1	0	1	2.2	2.1
143.07	5	2	130	210	999	90	999	999	9	1	0	3	5.0	5.0
143.08	5	5	999	999	999	999	999	999	99	1	0	2	1.0	1.0
147.01	147	2	300	300	999	75	999	999	7	1	0	2	3.0	3.1
147.02	147	2	260	330	999	65	999	999	8	1	0	2	3.0	3.1
147.03	147	2	240	240	999	55	999	999	7	1	0	2	2.0	2.1
148.01	7	2	290	364	999	85	999	999	12	1	0	2	4.0	4.1
153.01	17	3	380	430	130	120	345	465	9	2	0	3	4.1	4.1
153.02	17	2	280	290	999	75	999	999	7	2	0	3	3.0	3.1
153.0317	2	140	264	999	135	999	999	0	1	0	1	5.0	5.0	
154.01	6	3	190	215	105	80	120	200	8	1	1	1	2.2	2.2

Vessel nr.	Cluster nr.	Profile part	Rd	Gd	Bd	H1	H2	Htot	Wall thickn.	Rim type	Hand-les	Mode of constr.	Pottery group A	B
154.026	3	105	170	95	70	150	220	12	1	1	1	5.1	5.0	
154.03	6	3	246	265	95	145	60	205	8	1	0	2	3,1	3.1
155.02	6	2	250	295	999	999	80	999	5	1	1	2	3,0	3.1
155.03	6	3	160	150	75	75	35	110	6	2	0	1	1,1	1.1
155.05	6	4	999	999	999	999	999	999	0	9	9	2	9,0	9.0
155.06	6	3	140	230	115	170	115	285	7	1	1	2	5,0	5.0
155.07	6	3	74	86	50	50	38	88	6	1	0	3	1,2	1.2
155.08	6	4	999	999	90	999	999	999	5	9	9	3	9,0	9.0
157.01	17	3	175	190	95	105	60	165	8	1	0	2	2,2	2.2
157.02	17	3	120	152	70	75	45	120	6	1	0	1	1,2	1.2
157.03	17	2	150	138	999	999	35	999	8	1	0	9	1,0	1.1
157.04	17	2	210	220	999	999	57	999	6	2	0	1	2,0	2.1
157.06	17	1	300	999	999	999	999	999	99	1	0	1	9,0	9.0
157.07	17	1	999	999	999	999	999	999	99	1	0	2	9,0	9.0
157.08	17	1	999	999	999	999	999	999	99	1	0	2	9,0	9.0
157.09	17	2	200	210	999	999	70	999	7	1	0	1	2,0	2.2
157.10	17	3	290	315	110	215	75	290	7	1	0	1	3,1	3.1
157.11	17	2	270	308	999	999	105	999	9	2	0	1	3,0	3.2
159.01	17	3	380	380	120	280	60	340	8	1	0	1	4,1	4.1
159.02	17	3	70	98	60	60	45	105	5	1	0	1	1,2	1.2
159.03	17	2	170	190	999	999	50	999	6	1	0	1	2,0	2.1
185.01	185	3	130	112	65	75	35	110	8	1	0	1	1,1	1.1
194.01	18	3	120	244	120	80	160	240	7	1	1	3	5,0	5.0
194.02	18	2	288	325	999	999	110	999	7	2	0	3	3,0	3.2
194.03	18	2	290	340	999	999	95	999	11	2	0	1	3,0	3.1
194.04	18	2	130	124	999	999	40	999	7	1	0	1	1,0	1.1
212.01	1	3	250	270	100	169	55	224	7	1	1	2	3,1	3.1
222.01	4	3	135	138	110	75	60	135	9	1	0	1	1,2	1.2
222.02	4	2	190	200	999	999	63	999	7	1	0	3	2,0	2.1
223.01	4	3	190	210	95	110	80	190	7	1	0	1	2,2	2.2
223.02	4	3	130	210	100	135	95	230	8	1	1	1	5,0	5.0
223.03	4	3	310	410	170	270	160	430	10	1	0	3	4,2	4.2
223.04	4	3	999	999	999	999	999	999	9	1	0	1	2,0	2.0
223.05	4	2	230	230	999	135	75	999	9	1	0	3	2,0	2.1
223.06	4	3	300	410	125	300	150	450	8	1	0	2	4,1	4.2
223.07	4	2	360	999	999	999	999	999	10	2	0	3	4,0	4.0
223.09	4	2	200	220	999	999	70	999	9	1	0	3	2,0	2.2
223.10	4	3	120	210	95	190	125	315	8	1	0	2	5,0	5.0
223.11	4	3	230	380	160	265	165	430	8	1	0	2	5,0	5.0
240.01	18	2	150	220	999	999	115	999	10	1	0	2	5,0	5.0
240.02	18	2	210	250	999	999	70	999	0	1	1	2	2,0	2.1
240.03	18	2	245	270	999	999	75	999	8	1	0	2	3,0	3.1
240.04	18	4	999	999	53	999	999	999	5	9	9	2	1,0	1.0
240.06	18	4	999	999	85	999	999	999	6	9	9	2	9,0	9.0
240.07	18	2	170	200	999	999	40	999	5	1	0	2	2,0	2.1
258.01	13	3	65	95	45	53	37	90	5	1	0	2	1,2	1.2
259.01	18	2	280	336	999	999	140	999	10	1	0	1	3,0	3.2
259.02	18	2	280	308	999	999	95	999	0	2	0	1	3.0	3.1
314.01	16	3	330	345	85	265	90	355	8	1	0	3	4.1	4.1
314.02	16	2	280	310	999	999	95	999	5	2	0	3	3.0	3.1
325.02	16	3	285	300	100	190	95	285	7	2	0	3	3.1	3.1
340.01	16	2	320	355	999	999	85	999	8	2	0	3	4.0	4.1
341.02	16	2	280	335	999	999	75	999	8	2	0	3	3.0	3.1
342.01	16	3	305	330	135	205	100	305	8	1	0	3	3.1	3.1
344.01	16	3	256	305	90	220	86	306	7	2	0	3	3.1	3.1
345.01	16	2	410	500	999	999	100	999	7	1	0	3	4.0	4.1

Table 5.2. Index variables, surface treatment and residues..

Vessel nr.	Pottery group B	Gd:Rd	H1:Rd	Gd:Htot	H1:Htot	Besmeten' surface treatment			Residues			
						H2	H1+H2	H1	Soot	Chars	B1	Pigment
21.01	1.1	1.03	.33	1.33	.43	0	4	1	9	9	0	0
21.02	2.1	1.07	.24	.	.	0	9	1	9	9	0	0
22.04	2.1	.94	.15	1.39	.23	0	4	1	1	1	0	0
27.01	9.0	.	.	.	.	0	9	9	9	9	0	0
27.05	9.0	.	.	.	.	0	9	9	9	9	0	0
27.06	9.0	.	.	.	.	1	2	2	9	9	0	0
30.01	5.0	2.49	1.54	.	.	9	9	9	9	9	1	0
31.01	2.0	.	.	1.67	.	0	4	1	9	9	0	0
31.02	2.1	1.02	.13	1.65	.21	0	4	1	9	9	0	0
31.03	5.0	1.58	1.08	.75	.51	0	5	2	9	1	0	0
31.04	9.0	.	.	.	.	1	9	9	1	1	0	1
35.01	4.2	1.29	.37	.	.	0	6	3	9	9	0	0
76.01	2.1	1.15	.24	.	.	0	9	1	9	9	0	0
78.01	3.0	.	.	.	.	0	9	9	9	9	0	0
78.02	1.1	1.09	.27	1.27	.31	0	5	2	1	9	0	0
79.01	3.1	1.21	.34	1.12	.31	1	2	2	1	1	0	1
79.02	2.1	1.04	.25	.	.	1	2	2	1	9	0	0
79.03	5.0	.	.	.	.	1	1	1	9	9	1	0
79.04	1.2	1.26	.46	1.10	.40	0	4	1	1	9	0	0
79.06	2.0	.	.	.	.	1	2	2	1	9	0	0
79.07	1.0	.00	.	1.90	.	9	9	9	9	9	0	0
79.08	3.1	1.11	.28	1.25	.32	1	1	1	9	9	0	0
79.09	5.0	.	.	.	.	1	1	1	9	9	8	0
79.10	2.2	1.09	.34	1.17	.37	1	2	2	1	1	0	1
107.01	1.0	.00	.	2.00	.	0	6	3	9	9	0	0
115.01	9.0	.	.	.	.	1	1	1	1	9	0	0
115.02	2.1	.99	.24	1.04	.25	0	6	3	1	1	1	0
115.03	2.1	.96	.18	.	.	1	1	1	9	9	0	1
120.01	3.1	1.32	.30	.	.	1	1	1	1	9	0	0
120.02	3.0	.	.	.	.	1	9	9	9	1	0	1
127.01	3.1	1.00	.29	.	.	1	2	2	1	1	0	0
127.02	4.1	1.05	.28	.	.	0	9	2	1	1	0	0
135.01	4.2	1.30	.35	.	.	9	9	2	9	9	0	0
135.02	2.1	1.14	.28	.	.	1	2	2	1	9	0	0
142.01	4.2	1.13	.38	.	.	1	2	2	9	9	0	0
142.03	4.1	1.14	.31	.	.	9	9	2	1	1	0	0
143.01	1.2	.96	.36	1.17	.44	0	5	2	1	1	0	0
143.02	2.1	1.07	.27	1.01	.26	1	3	3	9	9	0	1
143.03	2.2	1.32	.53	1.02	.41	1	9	9	9	9	0	0
143.04	5.0	1.44	.65	.90	.41	0	4	1	9	9	0	1
143.05	2.2	1.33	.78	.	.	1	2	2	9	9	1	8
143.06	2.1	1.14	.33	1.36	.39	1	2	2	9	9	0	0
143.07	5.0	1.62	.69	.	.	1	1	1	9	9	1	0
143.08	1.0	.	.	.	.	0	1	1	9	9	0	0
147.01	3.1	1.00	.25	.	.	9	9	9	9	9	0	0
147.02	3.1	1.27	.25	.	.	0	4	1	9	9	0	0
147.03	2.1	1.00	.23	.	.	0	4	1	1	9	0	0
148.01	4.1	1.26	.29	.	.	0	4	1	1	1	0	0
153.01	4.1	1.13	.32	.93	.26	1	2	2	9	1	0	0
153.02	3.1	1.04	.27	.	.	0	9	2	9	9	0	0
153.03	5.0	1.89	.96	.	.	9	9	9	9	9	0	0
154.01	2.2	1.13	.42	1.08	.40	0	5	2	9	9	8	0
154.02	5.0	1.62	.67	.77	.32	0	5	2	9	9	0	0

						Besmeten' surface treatment				Residues		
Vessel nr. B	Pottery group	Gd:Rd	H1:Rd	Gd:Htot	H1:Htot H2	H1+H2	H1		Soot	Chars	B1	Pigment
154.03	3.1	1.08	.24	1.29	.29	0	4	1	9	9	0	0
155.02	3.1	1.18	.32	.	.	1	1	1	9	9	0	0
155.03	1.1	.94	.22	1.36	.32	1	1	1	1	1	0	0
155.05	9.0	.	.	.	.	1	1	1	9	9	1	0
155.06	5.0	1.64	.82	.81	.40	0	9	9	9	9	1	0
155.07	1.2	1.16	.51	.98	.43	0	5	2	9	9	0	0
155.08	9.0	.	.	.	.	1	9	9	1	1	0	1
157.01	2.2	1.09	.34	1.15	.36	0	5	2	9	9	0	0
157.02	1.2	1.27	.38	1.27	.38	0	9	9	9	9	0	0
157.03	1.1	.92	.23	.	.	9	9	9	9	9	0	0
157.04	2.1	1.05	.27	.	.	9	9	3	9	1	0	0
157.06	9.0	.	.	.	.	9	9	9	9	9	0	0
157.07	9.0	.	.	.	.	9	9	9	9	9	0	0
157.08	9.0	.	.	.	.	9	9	1	9	9	0	0
157.09	2.2	1.05	.35	.	.	1	2	2	9	9	0	0
157.10	3.1	1.09	.26	1.09	.26	0	4	1	9	1	0	0
157.11	3.2	1.14	.39	.	.	0	5	2	9	1	0	0
159.01	4.1	1.00	.16	1.12	.18	1	2	2	9	9	0	0
159.02	1.2	1.40	.64	.93	.43	0	5	2	1	9	1	0
159.03	2.1	1.12	.29	.	.	9	9	3	1	9	0	0
185.01	1.1	.86	.27	1.02	.32	0	6	3	1	9	0	1
194.01	5.0	2.03	1.33	1.02	.67	0	5	2	9	9	0	0
194.02	3.2	1.13	.38	.	.	1	2	2	9	9	0	0
194.03	3.1	1.17	.33	.	.	9	9	3	9	9	0	0
194.04	1.1	.95	.31	.	.	9	9	9	9	9	0	0
212.01	3.1	1.08	.22	1.21	.25	0	4	1	9	9	0	0
222.01	1.2	1.02	.44	1.02	.44	0	6	3	1	1	0	1
222.02	2.1	1.05	.33	.	.	1	2	2	1	1	0	0
223.01	2.2	1.11	.42	1.11	.42	0	5	2	1	1	0	0
223.02	5.0	1.62	.73	.91	.41	1	2	2	1	9	0	0
223.03	4.2	1.32	.52	.95	.37	1	2	2	1	1	0	8
223.04	2.0	.	.	.	.	1	2	2	9	9	0	0
223.05	2.1	1.00	.33	.	.	1	1	1	1	1	0	0
223.06	4.2	1.37	.50	.91	.33	0	4	1	9	1	0	1
223.07	4.0	.	.	.	.	0	4	1	9	9	0	0
223.09	2.2	1.10	.35	.	.	9	9	3	1	1	0	0
223.10	5.0	1.75	1.04	.67	.40	0	4	1	1	9	0	0
223.11	5.0	1.65	.72	.88	.38	1	1	1	1	1	0	0
240.01	5.0	1.47	.77	.	.	9	9	1	9	9	0	0
240.02	2.1	1.19	.33	.	.	9	9	1	9	9	0	0
240.03	3.1	1.10	.31	.	.	9	9	9	1	9	0	0
240.04	1.0	.	.	.	.	0	9	9	9	9	0	0
240.06	9.0	.	.	.	.	9	9	9	9	9	0	0
240.07	2.1	1.18	.24	.	.	0	4	1	9	9	0	0
258.01	1.2	1.46	.57	1.06	.41	0	9	9	1	9	0	0
259.01	3.2	1.20	.50	.	.	1	3	3	1	9	0	0
259.02	3.1	1.10	.34	.	.	9	9	2	9	9	0	0
314.01	4.1	1.05	.27	.97	.25	1	2	2	9	9	0	0
314.02	3.1	1.11	.34	.	.	9	9	9	9	9	0	0
325.02	3.1	1.05	.33	1.05	.33	1	2	2	1	1	0	0
340.01	4.1	1.11	.27	.	.	0	9	9	9	9	0	0
341.02	3.1	1.20	.27	.	.	1	2	2	9	1	0	0
342.01	3.1	1.08	.33	1.08	.33	1	2	2	9	9	0	0
344.01	3.1	1.19	.34	1.00	.28	1	2	2	9	9	0	0
345.01	4.1	1.22	.24	.	.	0	9	9	9	9	0	0

Colofon

Graphic design: H.A. de Lorm
Copy editing: dr. A. Voorrips
Photography: J. Pauptit
Drawings: J. Hulst
Figure editing: P. De Jong
Printing: Oriëntaliste, Leuven, Belgium

Curriculum vitae

Aniek Abbink (1946) begon in 1973, na werkzaam te zijn geweest in de gezondheidssector, met de studie sociale geografie. In 1976 werd daarin het kandidaatsexamen behaald en in 1984 studeerde ze af in de culturele prehistorie aan de Universiteit van Amsterdam. Tijdens de studie vervulde ze diverse assistentschappen en bestuursfuncties. Ze was intensief betrokken bij het Assendelver Polder Project van 1978-1981 bij de voorbereidingen, de uitvoering en uitwerking van opgravingen, als site supervisor. Van 1981-1984 werkte ze part-time bij de Rijksdienst voor het Oudheidkundig Onderzoek ten behoeve van de vondstverwerking van de opgraving te Uitgeest-Groot Dorregeest en startte in 1984 als onderzoekster tevens het hier gepresenteerde promotie-onderzoek. In oktober 1985 trad ze in dienst van de toenmalige Interfaculteit der Aardrijkskunde en Prehistorie van de Universiteit Leiden, als universitair docent. Naast het promotie-onderzoek voert ze sedert 1987, als projectleider voor de IJzertijd-bewoning, archeologisch onderzoek uit in het reconstructiegebied Midden-Delfland.