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## BEAKER TYPES AND THEIR DISTRIBUTION IN THE NETHERLANDS\*

*Intrusive types, mutual influences and local evolutions*

(pls. ii–xviii; figs. 3–15)

The Beakers represent the ‘international’ element *par excellence* in Dutch prehistory. The various types reflect several routes of folk migration to and from the Netherlands. To place the Dutch Beakers in the framework of European prehistory is a fascinating problem. The higher sandy grounds of the Low Countries—adjacent to the ancient trade routes along the Atlantic coast, near the mouths of the rivers Rhine and Meuse and opposite to Great Britain—were an important area of settlement for the Late Neolithic peoples whose migrations can be traced by means of Beaker pottery.

Important contributions to the interpretation of the Dutch Beaker material have been made by British, Swedish, German and Belgian prehistorians.<sup>1</sup> Since the beginning of this century Dutch archaeologists have concentrated on the study of Neolithic sepulchral monuments and their construction, but relatively few of the Neolithic barrows excavated contained significant Beakers among their grave goods; most of the significant Beakers in the Dutch museums have been discovered by treasure-seekers who spoiled so many of the richest grave monuments. Thus our knowledge of the relationship between the different types of Beakers and the types of grave monuments is still inadequate.

The pottery itself and the associated grave goods therefore constitute the primary source of information for the study of the Beaker cultures. So far, however, no complete corpus of Dutch Beakers has been assembled, and only general, and partly incorrect, ideas about their distribution are to be found in the lite-

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\* For the reader of this paper the illustrations of Bursch, *OM Leiden*, n.s. xiv, 1933, and Stampfuss, *JKW*, 1929 will be useful. Other Beakers can be found in Van Giffen, *Bauart*, 1930, Van Giffen, *NDV* 1934–. . . . See *Abbreviated references*. — Previously published Dutch Beakers are quoted in notes. — In the text numbers between brackets refer to Beakers 1–53 on pls. ii–xviii. — The Dutch provinces mentioned in the text are indicated on fig. 8.

mentation, and technique—has led to special difficulties in the analysis of hybrid forms. Therefore it seems necessary to single out the basic types and to establish a typology on a sound basis as an indispensable preliminary to the study of origins and mutual relations of the different Beaker groups.

The following classification into two main groups is based on a characteristic difference in profile and in the placing of the ornamentation; thus the morphological characteristic is primary. It is only for the sub-divisions of the two main groups that the ornamentation and its development becomes decisive. This method of grouping was proposed by the first author, but has been amended and amplified by the second.

These two main groups among Dutch Beakers are:

- (1) The Beakers with a small but distinct protruding foot, and ornamentation limited to the upper part (*standvoetbekers*); and
- (2) The Beakers with a relatively broad, flat bottom (without protruding foot) and ornamentation not restricted to the upper part (*klokbekers*).

The first group appears to have its connections with the Central German *Schnurkeramik* (Corded Ware). It will be discussed here by W. Glasbergen. The second group belongs to the Bell Beaker family, and will be discussed subsequently by J. D. van der Waals.

The 'rusticated' or all-over finger-tip ornamented Giant Beakers (*potbekers*) and the pottery with barbed wire decoration<sup>2</sup> will not be dealt with in this paper.

#### (1) THE BEAKERS WITH PROTRUDING FOOT (fig. 3)

A considerable number of the Dutch Beakers are slender, S-profiled vessels with as their chief characteristics a distinct, squeezed-out small foot and the restriction of the ornamentation to the upper part of the vessel, between the rim and the greatest width. The lower part of the vessel is undecorated. The ornamentation consists of horizontal cord-impressed lines, grooves or herring-bone zones executed with a plain implement or spatula (in contrast to the dentated spatula of Bell Beaker pottery, *cf. infra*, p. 17). Frequently two of these types of decoration are found in combination on one Beaker. The rim is normally rounded, but occasionally flattened. The development of the ornament and the gradual disappearance of the protruding foot offer a chronometer.

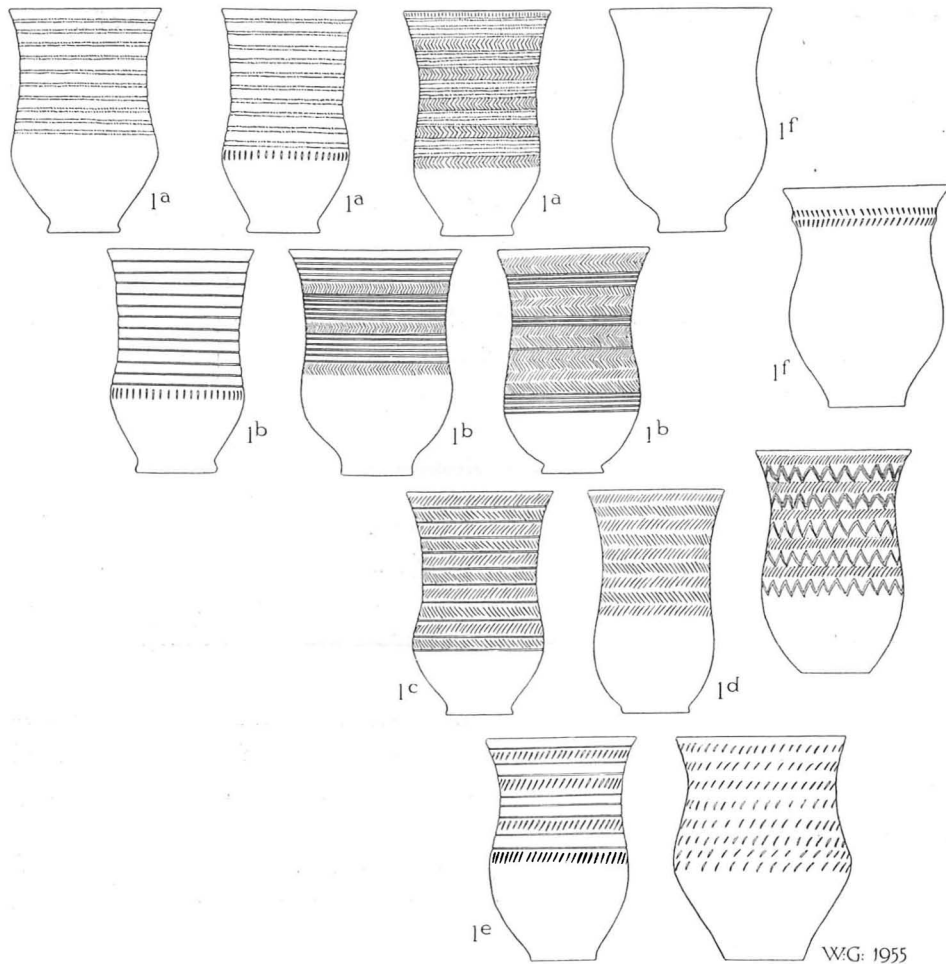


Fig. 3

According to the ornamentation six sub-groups can be distinguished (fig. 3): (1<sup>a</sup>) Beakers mainly decorated with horizontal cord-impressed lines, usually bordered below by a row of vertical impressions (1-9; fig. 4). The corded decoration often alternates with rows of square, rounded or triangular dots (2), or with herringbone zones impressed with a plain implement or spatula (8-9). In rare instances horizontal raised ridges occur on the decorated zone<sup>3</sup> and sometimes there is a decorated plastic band or cordon below the rim (2).

32 specimens are recorded,<sup>4</sup> 18 of which are from the Veluwe, the main focus of this sub-type. The other sites are scattered on the western periphery of the northern Dutch sandy grounds (*i.e.* in the north-west of the province of Drente and adjacent sand territories); in the northern part of the province of Noord-Holland and in the province of Overijssel.

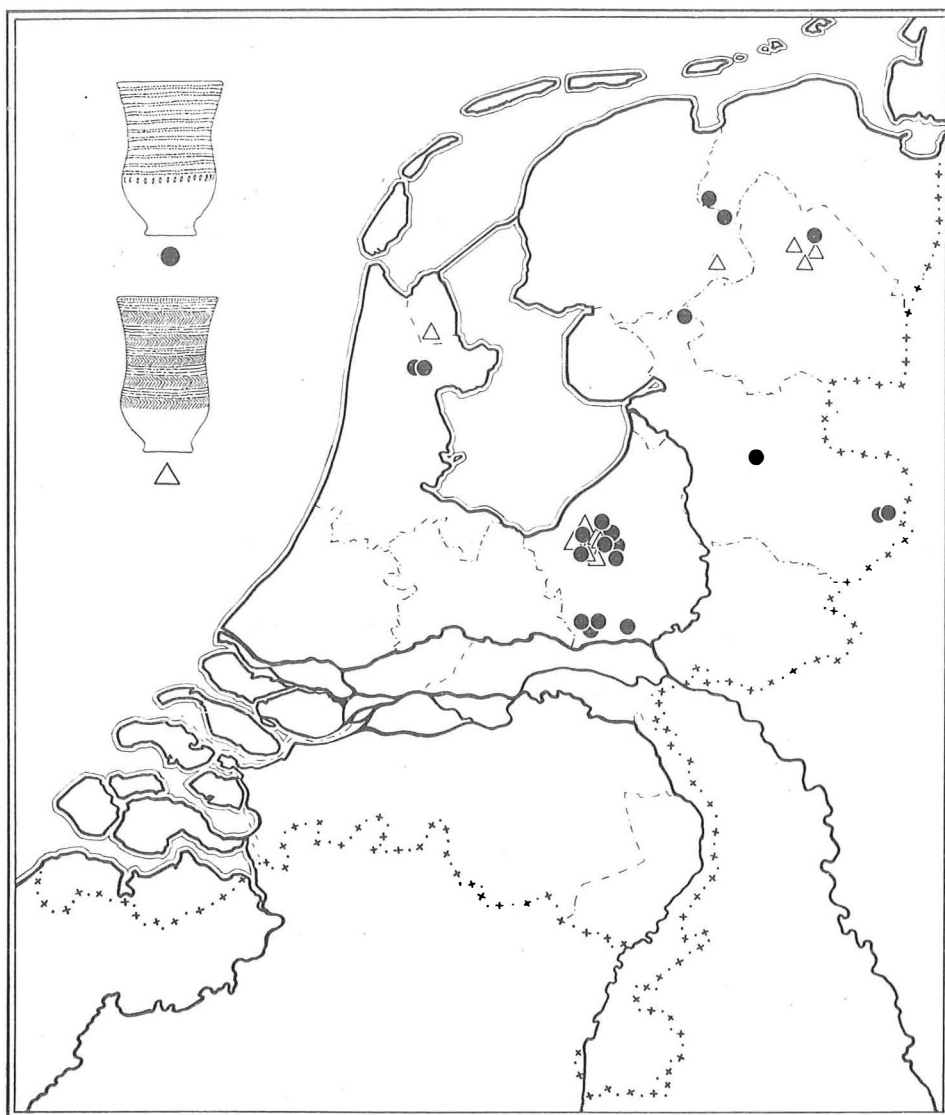


Fig. 4

$C^{14}$ -dates are available for two specimens from the southern Veluwe, *viz.* from Ede (GRO 330 :  $4195 \pm 120$ )<sup>5</sup> and Schaarsbergen (GRO 318 :  $4435 \pm 320$ ). On typological grounds these Beakers must be considered as early, and therefore it is acceptable that the sub-group in question made its appearance in the Netherlands towards the end of the third millennium, say about 2200 B.C.

(1<sup>b</sup>) Beakers decorated with horizontal grooves, or in groups of grooves alternating with herringbone zones (10-12; fig. 5). In some of these Beakers the

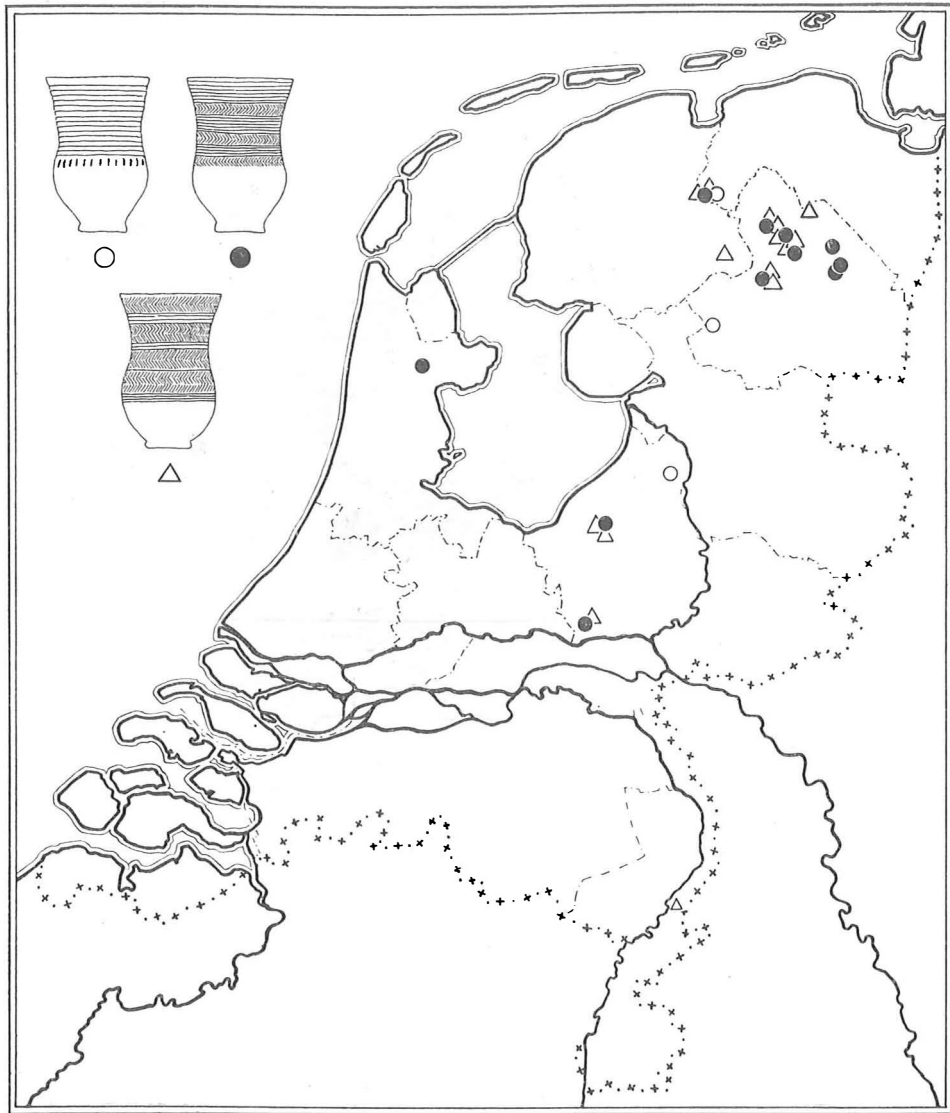


Fig. 5

replacement of the corded lines by grooves (10) is the only difference from sub-group 1<sup>a</sup>. More frequently, however, the herringbone pattern is strongly emphasized (11-12).

31 specimens are recorded.<sup>6</sup> 17 are known from north-west Drente and the adjacent sandy grounds, the focus of this sub-group. The other find-spots are on the Veluwe Limburg.

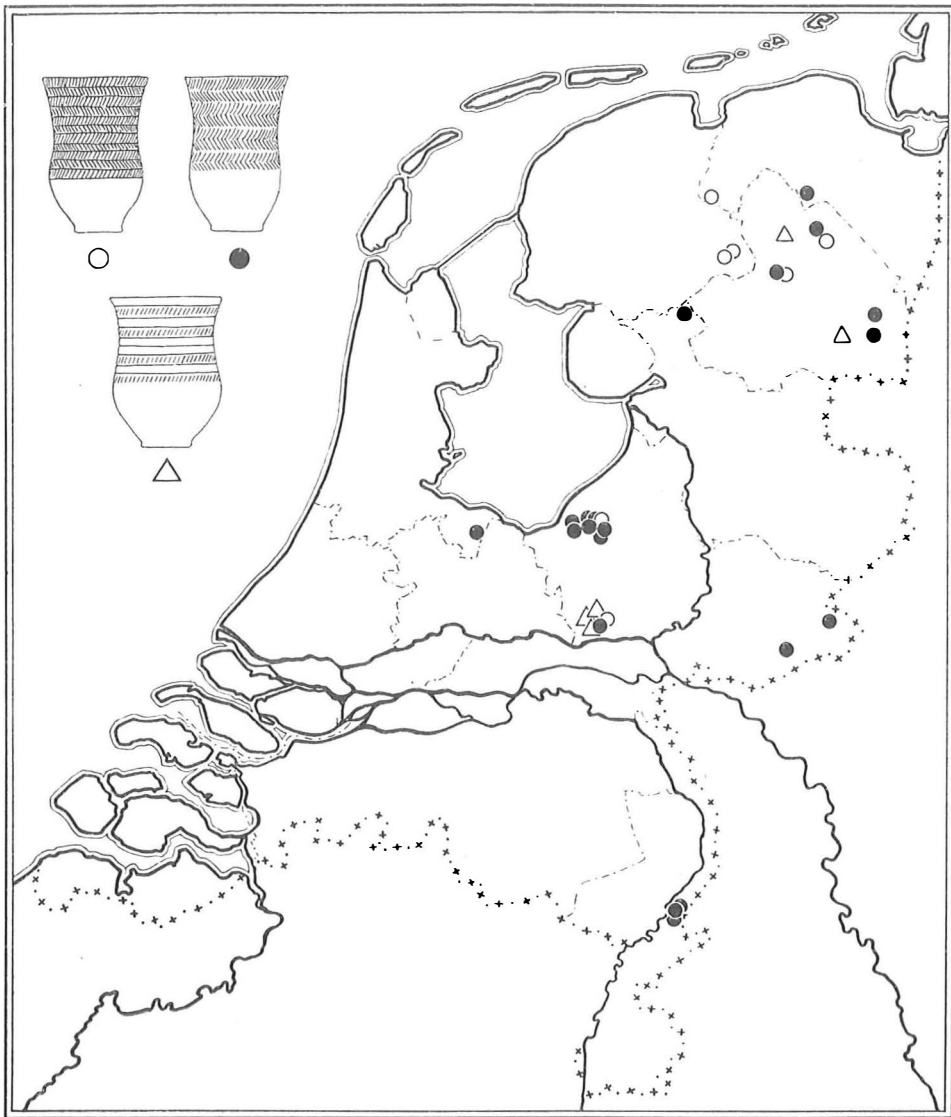


Fig. 6

(1<sup>c</sup>) Beakers decorated with alternately hatched zones with a plain implement or spatula, and bordered by grooves (13).

This rare sub-type (7 specimens) is the logical devolution of 1<sup>b</sup>. The distribution (fig. 6) is limited to the same regions.<sup>7</sup>

(1<sup>d</sup>) Beakers decorated with alternately hatched zones with a plain implement or spatula (14-16; fig. 6).

This group, the typological evolution of 1<sup>c</sup>, comprises 21 specimens.<sup>8</sup> A focus

can be recognized on the northern Veluwe. There are other finds from the southern Veluwe; northern Drente; but also from the Gooi region (Noord-Holland), the Achterhoek of Gelderland, and south-east Drente (in which areas sub-types 1<sup>a</sup>–1<sup>c</sup> do not occur) and from central Limburg.

(1<sup>e</sup>) Beakers decorated with zones hatched in one direction only, sometimes bordered by grooves (18–19; fig. 6).

The few Beakers (4 specimens) grouped in this sub-type are closely related to 1<sup>b</sup> and 1<sup>c</sup>.<sup>9</sup>

(1<sup>f</sup>) Undecorated Beakers and Beakers encircled below the rim by a horizontal plastic band or cordon which is decorated with dots or a herringbone pattern (20–21; fig. 7).

Some of these Beakers must be placed early in the sequence on the basis of their having a well-developed foot. The Beakers with cordons, especially, must belong to an early phase. About half of the specimens of sub-type 1<sup>f</sup> recorded have been found in the northern Netherlands.<sup>10</sup>

On various grounds—*e.g.* the associated finds, the grave types and the distribution—it can be assumed that the typological sequence 1<sup>a</sup>–1<sup>e</sup> offers a rough chronometer. Sub-type 1<sup>f</sup>, however, is in part very early, but goes on through the whole range of the sequence.

It is striking that in the course of the devolution the herringbone pattern—an originally secondary element—gradually becomes a predominating feature. Probably this is due to local evolution under the influence of the Bell Beaker culture.

*Associations.* Only a few remarks will be given here on the associated finds. The following significant objects have been found in direct association with Beakers of class 1:

- (a) Knives consisting of a long unretouched flint flake.
- (b) Small axes of flint or other stone.
- (c) Stone hammer-axes (rarely).<sup>11</sup>
- (d) A second pottery vessel, usually a smaller—undecorated—pot, once a debased amphora (rarely).<sup>12</sup>

The associated finds normally occur with sub-types 1<sup>a</sup> and 1<sup>b</sup>. In the course of the typological evolution associated finds gradually became scarcer. None are associated with stone wrist-guards, daggers of Grand Pressigny flint,<sup>13</sup> flint arrow-heads, amber beads or buttons, or metal objects.

A small number of debased amphorae belong with the typologically early sub-types 1<sup>a</sup> and 1<sup>b</sup>. Four of them have been found in north-west Drente, and only

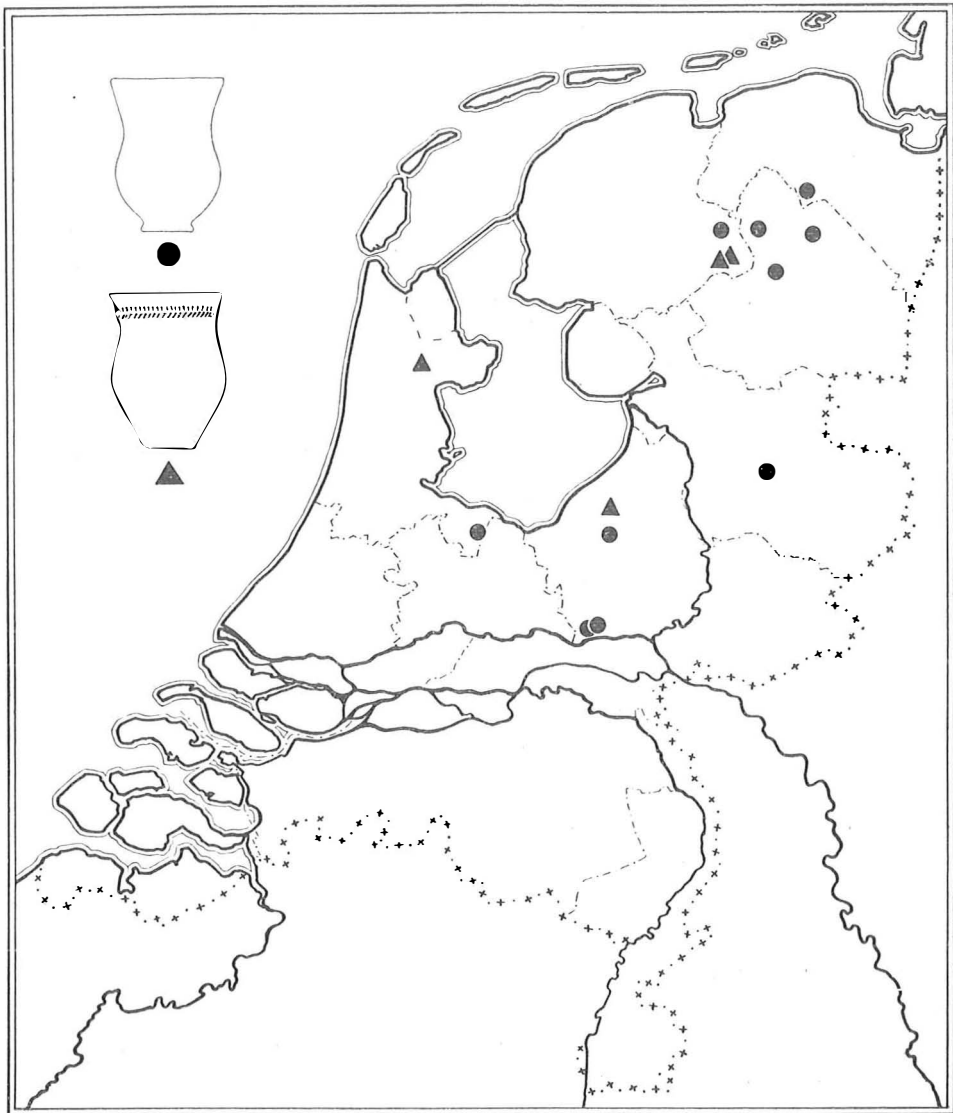


Fig. 7

one on the Veluwe (17). In one instance the amphora was directly associated with a Beaker of sub-type 1<sup>b</sup>.<sup>14</sup>

Usually the Beakers in question are found in single inhumation graves beneath sand barrows. Barrows are sometimes enclosed by a circular ditch.<sup>15</sup> A few instances of beehive-shaped graves are known.<sup>16</sup> Occasionally traces of a corpse silhouette lying on its side in a flexed position on the floor of a long sub-rectangular grave-pit have been found. Frequently the burial is closely surrounded by a



circular foundation trench<sup>17</sup> in which occasionally traces of closely spaced stakes have been observed.<sup>18</sup>

One settlement is known (at Zandwerven in Noord-Holland).<sup>19</sup>

*Distribution.* The distribution picture of sub-types 1<sup>a</sup>-1<sup>f</sup> is surprising. Sub-group 1<sup>a</sup> comprises an important part of the Corded Beakers (*tonwbeakers*) of Dutch prehistoric literature. (The other part consisted of the all-over corded Beakers which represent a branch of the Bell Beaker family showing strong influences of the Beakers with protruding foot; *cf. infra*, p. 28). Up till now it has generally been believed that Corded Beakers were of frequent occurrence in the northern Netherlands whereas only few specimens had been discovered on the Veluwe. Now the Veluwe turns out to have been the focal region of sub-group 1<sup>a</sup>, whereas it is fairly rare in the northern parts of the country which have been thoroughly investigated by Van Giffen (fig. 4).

Many typologically early specimens of sub-group 1<sup>b</sup>, however, are known in northern Drente (fig. 5). Possibly they are synchronous there with sub-type 1<sup>a</sup>, and represent an early evolution from sub-type 1<sup>a</sup> in this region.

The early types are mainly concentrated in a few circumscribed regions—the northern Veluwe, the southern Veluwe, the western periphery of the sandy grounds of the northern Netherlands—and there are only a few scattered finds in other parts of the country. On the Hondsrug, the sand ridge in eastern Drente, the early types are extremely rare. In this area the *hunebedden* people characterized by *Tiefstichkeramik* had settled long before the arrival of the Beaker invaders (fig. 8). The distribution picture suggests that during the early phase represented by sub-types 1<sup>a</sup> and 1<sup>b</sup> the main *hunebedden* region was avoided. The later types 1<sup>c</sup>-1<sup>e</sup>, and their derivatives, however, occasionally penetrated into this area; in the same phase the culture spread to other parts of the country, *e.g.* the Gooi region in Noord-Holland, the Achterhoek of Gelderland, and central Limburg.

It is striking that in the province of Overijssel only the early phase 1<sup>a</sup> is represented. Beakers with herringbone decoration are totally absent. In this area vessels with protruding foot and rich barbed wire ornamentation—a group also occurring on the other side of the German border, and in south-west Drente and on the eastern Veluwe—seem to represent a local evolution differing from the Veluwe and Drente with their adjacent sand territories.<sup>2</sup>

In the north of Noord-Holland, on the settlement site of Zandwerven, only the early types 1<sup>a</sup>, 1<sup>b</sup> and 1<sup>f</sup> are represented.

Beakers with protruding foot are recorded neither from the province of Noord-Brabant nor from southern or northern Limburg. The Beakers from central Limburg, concentrated in a restricted area around Swalmen near Roermond,



Fig. 8

show many unusual features due to the proximity of Bell Beaker people (*cf. infra*, p. 30). The ornamentation sometimes reaches below the greatest circumference (35), and in two instances there is even ornamentation inside the rim (36).

Bell Beaker influences are also perceptible in south-east Drente—perhaps alongside influences of the *Tiefstichkeramik*—as is shown by several hybrid Beakers, *e.g.* a specimen with vertical herringbone decoration (50). Several analogous examples of hybridization are also known from the Veluwe (51).<sup>20</sup>

It seems beyond all doubt that sub-type 1<sup>a</sup> of the Beakers with protruding

foot—and perhaps also sub-type 1<sup>b</sup>—represents the pottery of an intrusive people. Sub-types 1<sup>c</sup>–1<sup>e</sup> are the local devolution of the immigrant type(s) in their new homes. In the province of Overijssel a peculiar evolution from sub-type 1<sup>a</sup> took place.

Where is the origin of the Dutch Beakers with protruding foot to be sought? Sangmeister has discussed the distribution of this Beaker class—his *Westdeutsche Bechergruppe*—in Western Germany and the Netherlands.<sup>21</sup> There is undoubtedly a close affinity to the Central German *Schnurkeramik* culture, and it can be assumed that this latter culture represents the origin of sub-group 1<sup>a</sup> of the Dutch Beakers with protruding foot. In the territories west of this Central German cultural focus, however, the culture underwent further development, and was influenced by other cultures. One of the characteristic features, the amphora, practically disappeared during this process.

*Derivative and hybrid forms.* Mention has still to be made of a fairly restricted number of Beakers showing close affinities to the Beakers described but lacking the characteristic protruding foot. This has been observed only once for a specimen of sub-type 1<sup>a</sup>, and occasionally for Beakers of sub-type 1<sup>b</sup>. In groups 1<sup>c</sup>–1<sup>e</sup> in which the foot normally tends to be less protruding than in groups 1<sup>a</sup> and 1<sup>b</sup> examples without a foot at all are relatively more common. This, too, seems to corroborate the correctness of our typology.

In rare instances the decoration reaches below the greatest circumference of the vessel (35, 51). In these Beakers the influence of the Bell Beaker class to be described below is clearly to be seen. Herringbone zones impressed by means of a dentated spatula or comb (especially in sub-type 1<sup>d</sup> on the Veluwe) and even decoration inside the rim (36)<sup>20</sup> are other features equally pointing in the direction of the Bell Beakers.

Special mention has to be made of a group of hybrid Beakers ornamented with zigzag patterns (49, 52–53). Three specimens of this class, in which the protruding foot is normally lacking, were associated with stone hammer-axes and Grand Pressigny flint daggers (53).<sup>22</sup> In Drente these Beakers seem to occur especially on the margins of the distribution areas of the Beakers with protruding foot and the Bell Beakers. The hammer-axes and the Grand Pressigny daggers perhaps make possible a correlation between several Beaker classes. At Putten, on the northern Veluwe, a Veluwe Beaker (of the Bell Beaker phase 2<sup>1c</sup>, cf. *infra*, p. 24) belonged to a secondary interment in a barrow covering a primary burial accompanied by a Beaker with zigzag decoration. For one of the Beakers from Drente with zigzag decoration<sup>22a</sup> a C<sup>14</sup>-dating is available (GRO 946 : 3640 ± 50 years) suggesting that this class can be dated in the

17th century B.C. The stratified evidence at Putten suggests that the Bell Beakers of Veluwe type, 2<sup>1d-f</sup>, are generally later, and are to be dated in the 17th–16th centuries B.C. Some of the vessels with whipped cord decoration—sometimes with protruding foot, *cf. supra*, p. 14—can be explained as descendants of the Beakers with protruding foot. As with the Beakers just described the zigzag element plays an important part in the ornamentation.

The criteria employed here allow relatively little value to fragmentary Beakers and sherds. This part of our study has been based on specimens of which the whole profile is extant.

## (2) THE BELL BEAKERS (fig. 9)

A considerable number of Dutch Beakers belong to the Bell Beaker family. They are vessels with a comparatively broad, flat bottom (without protruding foot) and with ornamentation which is not restricted to the upper part.

The vagueness of this general definition is due to the diversity of forms, in contrast to the relative uniformity of the Beakers with protruding foot. Slender forms occur, but there are also 'Beakers' of which the width considerably exceeds the height of the vessel. The profiles are usually an elongated S-curve; but the forms are sometimes markedly carinated, and many vessels show an angular transition between shoulder and neck. In rare instances there is a single plastic band or cordon below the rim; one of the stages of development is characterized by a number of horizontal raised ridges between the decorated zones. The rims are rounded, flattened or internally bevelled; in a number of instances the interior of the rim is decorated.

As with the Beakers with protruding foot, the fabric is usually thin and without grits, or only slightly gritted; the surface is covered with a slip and shows a smooth burnish if still in good condition. The colour varies from buff to orange-brown, occasionally turning to grey.

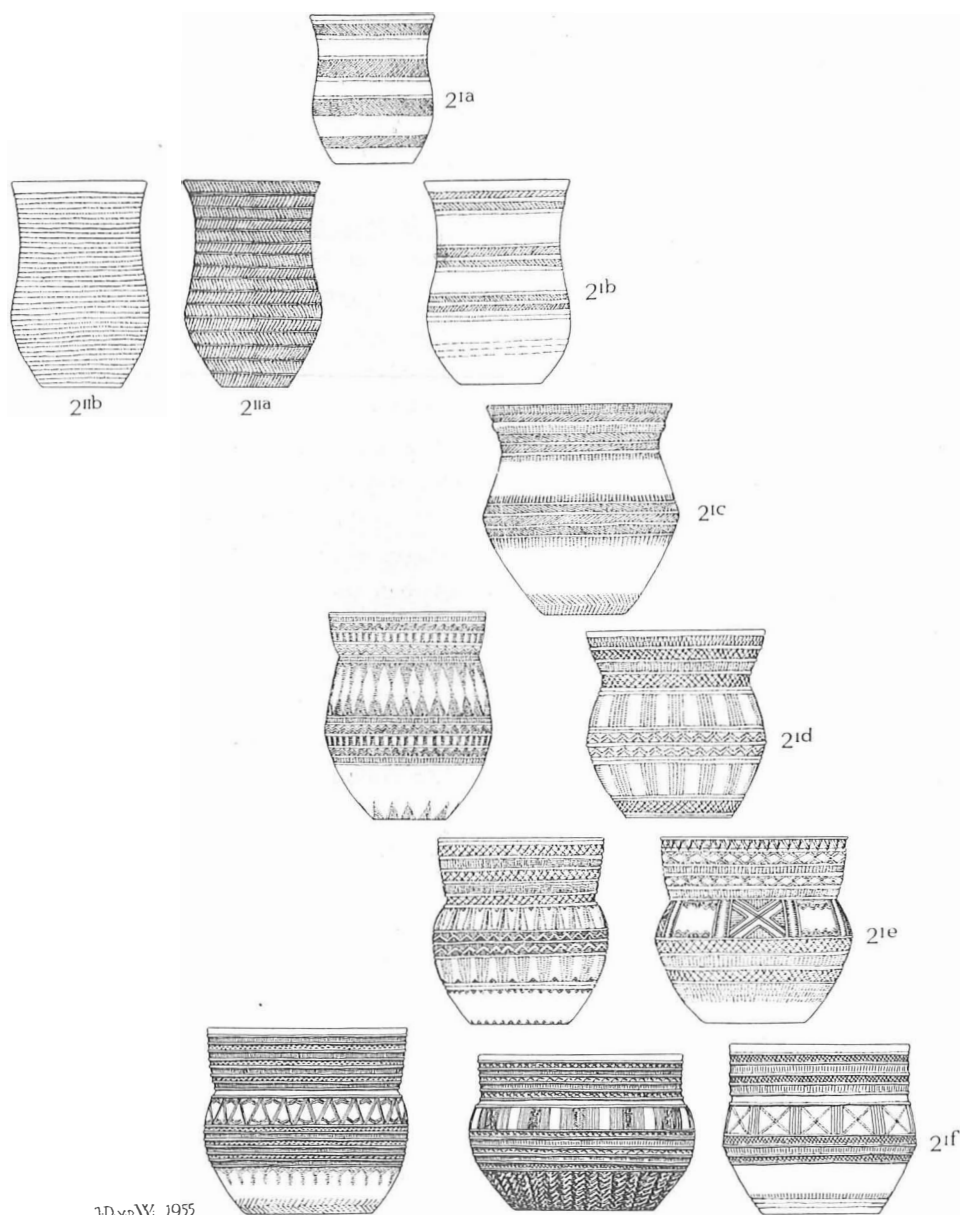
As a rule the decoration has been executed with a dentated implement or spatula (the *kerfspatel* of Van Giffen) which produces a neatly cogged impression varying in length from about 0.75 to 2 cm, or even more. The decoration is arranged in horizontal zones. Even the horizontal lines bordering the zones are made with the dentated spatula, and often with an accuracy almost suggesting the use of a cogwheel. In addition to the dentated spatula ornamentation we sometimes find in the later phases of development grooved lines and finger-tip ornamentation.

A number of Beakers belonging to the Bell Beaker family show a quite different technique of decoration which is clearly due to influence from the Beakers with protruding foot. Some have all-over decoration with cord-impressed lines, some-

times in combination with dentated spatula impressions; others have an all-over herringbone pattern made with a crudely dentated or plain spatula.

Finally, there are quite crude vessels imitating a number of Bell Beaker types in a debased style and technique.

The different groups of Bell Beakers to be dealt with reflect two trends of development. These trends are (fig. 9):<sup>23</sup>



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Fig. 9

- (2<sup>1</sup>) The true Bell Beaker series, mainly employing dentated spatula decoration.  
 (2<sup>11</sup>) The group borrowing the decorative techniques of the Beakers with protruding foot.

Both are derived from the first type to be described: the Bell Beakers of the 'pan-European' type.<sup>24</sup>

(2<sup>1</sup>) THE TRUE BELL BEAKER SERIES

(2<sup>1a</sup>) *The Bell Beakers of the 'pan-European' type* (fig. 10)<sup>24</sup>

The only complete Beaker of this type so far found in the Netherlands is quite representative (22). Its height just exceeds the greatest width. It shows the gentle well-balanced S-profile characteristic of the type, and the alternation of decorated and undecorated zones of approximately equal width. Also characteristic is the filling of the zones, with diagonal dentated spatula hatching, alternating in direction from one zone to the next. These zones are bordered by double horizontal dentated spatula lines. Sherds of two other vessels are recorded. On the first (31) the zones are bordered by corded lines and these also occur on the interior of the rim.<sup>25</sup> The other has cross-hatching of the decorated zones. Both phenomena occasionally appear on Beakers of this type abroad; the former will be of interest when dealing with the second trend of Bell Beaker development.

Of these three genuine examples of the type, the complete Beaker (22) and the fragment of a Beaker with cross-hatched zones were found near Emmen in south-eastern Drente, an important Bell Beaker centre in the northern Netherlands. The corded sherds (31) come from a site on the shore of Lake Uddel (Uddelermeer) on the Veluwe (Gelderland), another centre of primary importance in the Dutch Bell Beaker development.

Apart from these Beakers, there are three others decorated in a different technique. One is of the slender form sometimes met with in Beakers of pan-European type.<sup>26</sup> It has the typical finish of the Bell Beakers and also the characteristic alternation of the zones (23). The zones are filled by vertical impressions made with a comb or spatula with widely spaced elongated teeth, and are bordered by rows of tiny circles. The two others are local imitations of the primitive kind mentioned above; one<sup>27</sup> is of the low, broad form of some Beakers of pan-European type elsewhere,<sup>28</sup> and especially resembles specimens in Western Germany.<sup>29</sup>

The first (23) comes from north-eastern Drente, a second focus of Bell Beaker influence in the north of the country. The low, broad Beaker was found in the extreme south-eastern part of the province of Overijssel. The third example comes from eastern Friesland.



Fig. 10

Fragments have been found of six vessels which may belong either to the pan-European type, or to the next; the sherds do not allow a definite verdict. One of them is from the Veluwe, not far from Lake Uddel. The others have been found in the north; one near Emmen, and the other three in the other northern centre (two in north-eastern Drente, the third just across the border in the province of Groningen<sup>29a</sup>). One of the specimens from north-eastern Drente was found in a *hunebed*.<sup>30</sup>

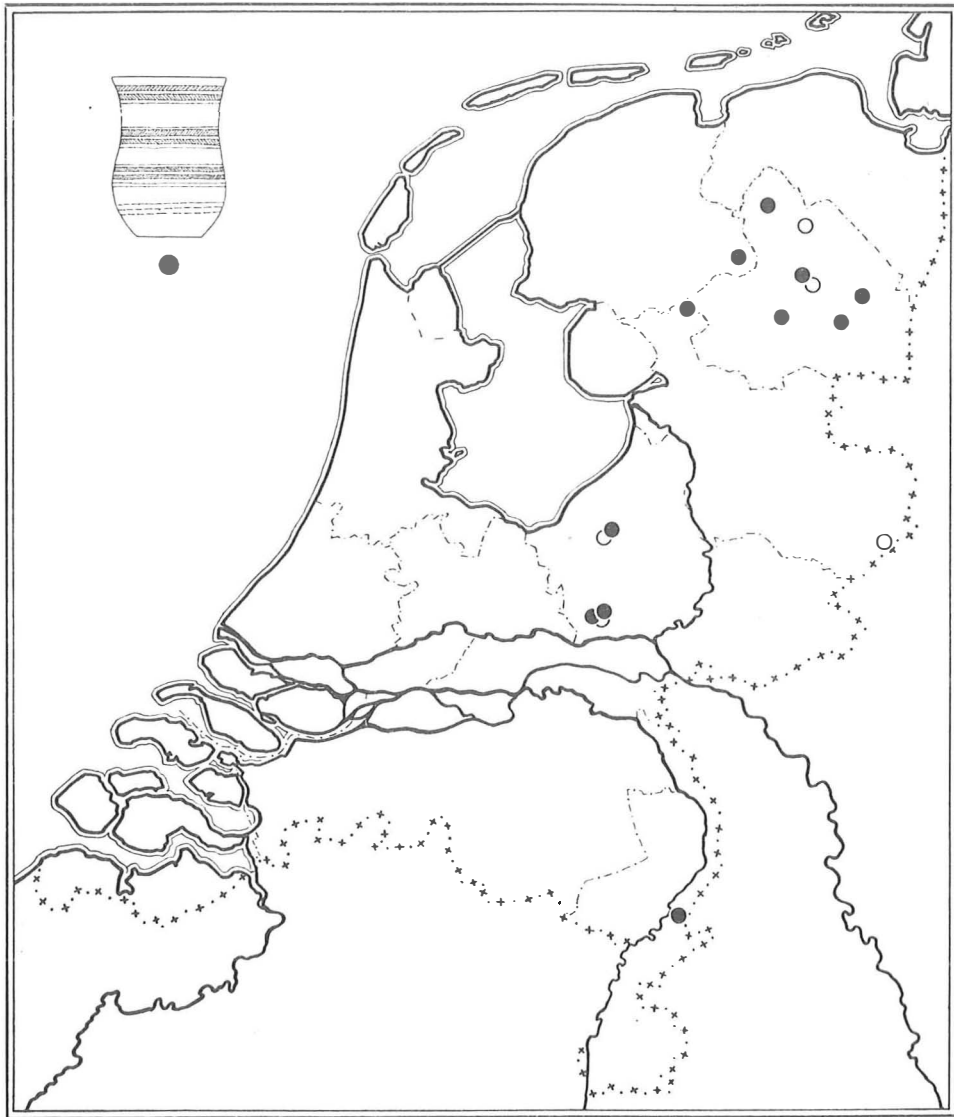


Fig. 11

(2<sup>1b</sup>) *Bell Beakers with incipient zone-contraction* (fig. 11)

The Beakers of this type are a direct derivation of the pan-European type. The form is essentially the same, but the few examples completely preserved suggest a tendency towards taller and slenderer forms. One specimen, from Odoorn in eastern Drente (24), is carinated<sup>31</sup> like some Beakers of the pan-European type and its derivatives in western and southern Europe.<sup>32</sup>



The elements of the decoration are the same, but now the zones begin to contract. Two types of contraction can be distinguished:

On some Beakers the decorated zones are in groups of two or three. In these cases the regular alternation on the surface of 'decorated'-'undecorated' is still present, though reduced in frequency (28).<sup>33</sup> Whether this variant is of typological or even of chronological importance is uncertain.

On some Beakers the decorated zones contract without however eliminating the undecorated zones lying in between; most of these are reduced in height. Some of the undecorated zones grow in height considerably, thus dividing the two or three concentrations of decorated zones (24, 26).

From Swalmen (Limburg; *cf.* p. 30) and Lake Uddel sherds are known with corded lines bordering the zones. Those from Lake Uddel were found together with the sherds of pan-European type mentioned above, which also have corded lines bordering the zones (31), besides having cord-impressed ornamentation on the interior of the rim. The latter decoration is lacking on the present sherds from Lake Uddel and Swalmen, as well as on two further specimens of the Beakers with incipient zone-contraction (24, 26). But one rim sherd of the type, from central Drente, has a decoration of horizontal dentated spatula lines on the interior of the rim. The five further examples of the type are wall sherds.

Altogether eleven true specimens of this typological stage are recorded in the Netherlands, whether complete or fragmentary. Six belong to the first contraction system, five to the second. Only three examples are known from the Veluwe: one<sup>34</sup> found together with the sherds of pan-European type near Lake Uddel (31), two not far from Ede on the south-western Veluwe (26).<sup>35</sup> One sherd is recorded from Limburg. The other seven examples were all found in the north of the country: five scattered all over Drente (24), two in the adjacent parts of eastern Friesland and northern Overijssel (28). In Drente one specimen was found in a *hunebed*.

Five local imitations are known to us (two from the Veluwe, not far from Lake Uddel, and near Ede; one from south-eastern Overijssel;<sup>36</sup> two from Drente<sup>37</sup>).

Some of the sherds mentioned under 2<sup>1a</sup> as not certainly belonging to that class may belong to vessels representing the second system of zone-contraction. The first system is recognizable even from small sherds.

(2<sup>1c</sup>) *Bell Beakers with contracted zones* (fig. 12)

The germ of the development exemplified by the Beakers of this stage is clearly present in the Beaker from Odoorn (24) of the foregoing stage.

The tendency towards bigger vessels, already apparent in the previous group,



Fig. 12

is even stronger now: most of the Beakers of the present group are robust pots. In particular they are wider. Nevertheless, the height still exceeds the width. The S-curve of the profile is more pronounced, but the junction between shoulder and neck is not as angular as in the Bell Beakers of Veluwe type.

The decoration consists of three contracted groups of zones, the placing of which is now related to the form of the vessel. The first group of zones is on the neck of the vessel; the second group encircles the vessel at its greatest width,

and the third is just above its base. The upper and middle groups are still simply groups of zones like the zones on the pan-European Beakers; in each group of zones the individual zones may or may not be separated by very narrow undecorated strips. The bottom group of zones, however, is reduced in importance. Two or three rows of vertical and oblique dentated spatula impressions, or a number of odd horizontal dentated spatula lines, are all that is left.

The vertically placed impressions constitute a new element; they are also found bordering the upper two groups of zones. In one case these vertical impressions occur on the interior of the rim as well (37).<sup>38</sup> One Beaker which in form is a counterpart of the Bell Beakers of pan-European type and those with incipient zone-contraction, appears to be covered all over with this simple ornamentation (29). It suggests that verticalism was introduced in the decoration of Dutch Bell Beakers at an early stage, maybe under the influence of Bohemian Beakers (*cf. infra*, p. 36).

In the pure and typologically early form, only three specimens of the type are known: two from Drente—one from north-east Drente; one from the Emmen region (37)—and one from the Veluwe (38).

Other Beakers, however, have the same form and scheme of decoration, but show different ornamental elements. Here the zones are no longer hatched in alternating directions according to the classic pattern of the pan-European type, but they contain vertical impressions, cross-hatching and zigzag-lines, all impressed with the dentated spatula. These elements frequently occur on Bell Beakers of the Veluwe type to be described hereafter. As all specimens of this sub-class have been found on the Veluwe, they may be considered as the more evolved examples of their typological stage, 2<sup>1c</sup>, in part contemporary with the Bell Beakers of Veluwe type.

(2<sup>1d-f</sup>) *The Bell Beakers of Veluwe type* (fig. 12)

This is the Beaker class discussed by Abercromby under the name 'Batavian type'.<sup>39</sup> As it is exclusively characteristic of the Veluwe Bursch's name 'Veluwe type' is to be preferred.<sup>40</sup> Whilst the early examples are related to the Beakers with contracted zones in form and in decoration, the class comprises both the zenith and the decline of the true Bell Beaker series. It is the richest class of Dutch Bell Beakers, offering a variety in form and especially in decoration. Without dealing in full with the different groups and local varieties, we will indicate three stages of development, and the degeneration.<sup>41</sup>

The chief characteristic of this complex class is the angular transition between neck and shoulder.

*Form.* The height of the typologically early vessels of the class (fig. 9, 2<sup>1d</sup>) still exceeds the width, as with the Beakers with contracted zones. The profile is essentially the same pronounced S-shape, but the upper curve of the S has become angular. The neck is still flaring. The lip of the rim occasionally is flattened (fig. 9, 2<sup>1d</sup>; 42).

In the next stage (fig. 9, 2<sup>1c</sup>), however, the width equals or even slightly exceeds the height. The neck is relatively higher and often less flaring, tending towards a cylindrical form. The rim usually has an internal bevel.

In the third stage (fig. 9, 2<sup>1f</sup>) the dominance of width over height is pronounced, and the neck is cylindrical. The internal bevel of the rim is the rule. With the cylindrical neck the distinction between shoulder and neck becomes weaker. This relaxation continues, tending to produce eventually rather bowl-shaped vessels. In this degenerate stage vessels belonging to the Veluwe class sometimes acquire alien elements such as a pronounced foot or a slender barrel form.<sup>42</sup>

*Decoration.* The groups of contracted zones encircling the neck and the greatest width, and the debased decoration near the base, remind us of the foregoing stage. However, the zones now often vary slightly in height, and those of the neck often outnumber those that are found encircling the vessel at its greatest width. Tiny undecorated strips still separate the zones. The patterns filling the zones are those already noted on the Veluwe examples of the Beakers with zone-contraction: vertical hatching, cross-hatching, and multiple or single zigzag-lines. Sometimes several motives interchange in one zone. These new decorative elements, and the metopes to be dealt with below, are possibly of Bohemian origin (*cf.* p. 36).

In each of the evolutionary stages of the Veluwe class we meet with Beakers that do not develop further the decorative scheme already presented by the Beakers with zone-contraction. By their form, however, they are marked out as Veluwe Beakers (40).<sup>43</sup>

The addition of the decoration on the hitherto plain shoulder is, however, the most conspicuous new element to be found on many Beakers of the Veluwe type. The verticalism of this ornamentation contrasts with the horizontalism of the contracted zones above and below it.

For this vertical decoration two systems are employed from the beginning. In the first system the shoulder has the character of a frieze with continuously repeated motives such as blank rhombs embedded in filled-in triangles, or upright filled-in triangles alternating with pendent blank triangles (41, 42). In the second system the frieze is divided into metopes (43). Often these are separated by sets of vertical lines (39, 45). They are alternately plain or decorated by diagonally crossing bands or lines and multiple horizontal zigzag-lines. On a

number of Beakers the same vertical decoration is found covering the hitherto undecorated lower part of the vessel (39).

The stages distinguished in the development of the form can be correlated with the development of decoration.

In the first stage,  $2^{1d}$ , the decoration is of a purely dentated spatula character. The spatula impressions are regular and clear (42).

In the second stage,  $2^{1e}$ , the narrow plain bands separating the decorated zones sometimes tend to stand out in relief, especially on the upper part. But they do not yet interfere with the decoration of the zones.

In the third stage,  $2^{1f}$ , these bands often become raised ridges giving a plastic character to the decoration and reducing the zones lying in between (44, 46). These degenerate in fact to narrow strips with quite careless dentated spatula impressions which sometimes are replaced by grooved lines. However, the vertical decoration of the shoulder and the lower part of the vessel is still fully developed (44), save for the Beakers that have continuous multiple zigzag-lines covering the shoulder in disregard of the function of the normal vertical decoration at that place. In another group of Beakers belonging to this stage, the plastic element in the decoration is even reinforced by all-over finger-tip decoration on the lower part of the vessel (46). This strange element shows the influence of a pottery class not to be dealt with in the present paper, the *potbakers*, as has been demonstrated by Van Giffen.<sup>44</sup> Other Beakers of this stage, however, show hardly any plastic elements at all. If not by the form, these Beakers are characterized by the more careless decoration (45). Notwithstanding some degenerate tendencies already present in this stage, the plastic element lends a character of its own to most of these Beakers.

In the final stage the decorated zones between the ridges can even disappear totally and in what is left of the original patterns the dentated spatula can hardly be recognized. Such Beakers represent the end of the true Bell Beaker series.<sup>45</sup>

It should be stressed that several of the stages indicated represent significant moments in a continuous development rather than well-defined groups or even types. In a single Beaker one element is often more advanced than the others. Stage  $2^{1c}$ —the typological bridge between the intrusive pan-European type,  $2^{1a}$ , and the Veluwe Beakers,  $2^{1d-f}$ —constitutes a rare group which is far from homogeneous in consequence of its ephemeral character. In our opinion it would be unwise to try to freeze into a rigid typology the living and versatile process which is reflected by the Dutch Bell Beaker development.

*Distribution.* Over 80 complete Beakers of the Veluwe type and a great number of fragments are recorded. Beakers representing the pure form of the first stage,  $2^{1d}$ , are extremely rare (42); most specimens reflect the stages  $2^{1e-f}$ .

Most of these Beakers originate from the Veluwe. They are found in some restricted areas, the most important of which is the north-western part of the Veluwe with Lake Uddel as its focus. The Beakers of this area represent all stages of the development. In fact, it is there that the sequence can best be studied. Apart from Beakers of the other types already mentioned, such Beakers as (38-44) and (46) are from this area. A second important centre is the region of Ede-Bennekom in the south-western part of the Veluwe, where Beakers of stage 2<sup>I</sup>f predominate.<sup>46</sup> Other Beakers, often of less pure character, are found at different sites all over the Veluwe.

Outside the Veluwe a centre of some importance can be located near Nijmegen in the south-eastern part of Gelderland and in the adjacent northern part of Limburg. It is the link between the Veluwe and the Lower Rhine region in Germany where comparable Beakers are recorded as far south as Neuwied. It also may have been the centre from whence came a single representative recorded from central Limburg.

In the province of Noord-Holland, in the Hilversum region, an offshoot of the Veluwe type is found on the extreme western higher sand ridges.<sup>47</sup>

In the north only three examples of the class are recorded, in the north-eastern part of Drente (two from one tumulus).

Mention should be made of a bowl-shaped vessel with a decoration in three zones below the rim and with finger-tip ornamentation on the lower part. It was found in a tumulus in the northern part of Noord-Brabant. It bears resemblance to the Beakers of the Veluwe class, and it can be tentatively correlated with stage 2<sup>I</sup>f.<sup>48</sup> A second bowl-shaped vessel, which has no plastic decoration, shows more elaborate ornamentation. The elements of its decoration, likewise arranged in zones, are closely related to those of the Beaker (41). This vessel stands on five feet. It was found in a tumulus in north-eastern Drente.<sup>49</sup> One similar vessel, on four feet, was found near Rhenen, on the extreme southern part of the Utrecht sand ridge.

#### (2<sup>II</sup>) BELL BEAKERS BORROWING THE DECORATIVE TECHNIQUES OF THE BEAKERS WITH PROTRUDING FOOT

The three types of Bell Beakers borrowing the decorative techniques of the Beakers with protruding foot cannot be fitted into a typological scheme of development. Therefore, the indications employed (2<sup>IIa</sup>, 2<sup>IIb</sup> and 2<sup>IIc</sup>) should not be regarded as indicating a sequence or a relative chronology. The Beakers concerned are the products of mainly synchronous and parallel development.

The forms of most of the Beakers are essentially those represented by the Bell Beakers with incipient zone-contraction, 2<sup>Ib</sup> (*e.g.* 26-29).

*(2<sup>11a</sup>) Beakers combining dentated spatula with cord-impressed decoration (fig. 13)*

The fragmentary Beaker of pan-European type from Lake Uddel (31), with its cord-impressed lines bordering the zones and the inside of the rim, is apparently the forerunner of the Beakers of this kind. The latter have the same zones with dentated spatula hatching bordered by cord-lines, but the undecorated zones lying in between have shrunk. On some Beakers (30) they are eliminated altogether,<sup>50</sup> for the decorated zones, increased in number, directly adjoin each other. In other instances the decorated zones have not increased in number, but the bordering cord-lines are multiplied, leaving but very narrow undecorated bands in between (32).<sup>51</sup> It is not only the cord-line that shows the influence of the Beakers with protruding foot: it is the whole of the decorative scheme that suggests a close relation to the Beakers of type 1<sup>a</sup> (compare 8 with 32). A Beaker from the Wieringermeerpolder (Noord-Holland) can be taken as a proof of this relationship.<sup>52</sup> Form and all-over decoration point to the Bell Beaker class, and the decoration is according to the 2<sup>11a</sup> scheme. But the zones of this Beaker are hatched with a plain implement, as the herringbone zones on certain Beakers of type 1<sup>a</sup> (*e.g.* 8-9).

All Beakers of type 2<sup>11a</sup> have cord-impressed decoration on the interior of the rim, sometimes forming an elaborate pattern (30), and sometimes the upper rim is nicked. Apart from the dentated spatula, the decoration from rim to base, and the ornamentation of the interior of the rim, the form also reflects the Bell Beaker tradition. The gentle S-profile prevails in slender as well as in more globular vessels.

Five examples are known from the Netherlands. Two were found in the province of Limburg (*e.g.* 30),<sup>53</sup> and three are from the Veluwe (*e.g.* 32).<sup>54</sup> Of these, two were found in one tumulus, with a Beaker belonging to the next type, 2<sup>11b</sup>. Further examples are known from the adjacent part of Belgium<sup>55</sup> and from Western Germany, but the type appears to be rare.

In view of the relation of this type to type 1<sup>a</sup> of the Beakers with protruding foot, characteristic of the Veluwe, its absence in Drente is not astonishing.

*(2<sup>11b</sup>) Bell Beakers with all-over cord ornamentation (fig. 13)*

Beakers of this type occur in a variety of forms. The gentle S-profile is present (27),<sup>56</sup> but carinated forms also occur (25).<sup>57</sup> Typologically some strongly carinated Beakers<sup>58</sup> may be the latest. The few specimens from the northern Netherlands are small vessels.<sup>59</sup> In the province of Limburg bottle-shaped Beakers occur, in which the greatest width of the lower part exceeds the width of the mouth (33-34). This form occurs among Bell Beakers abroad, notably in Britain.<sup>60</sup>



Fig. 13

The decoration consists of horizontal cord-impressed lines covering the whole wall surface from rim to base. There is a predilection for thin cord. In the province of Limburg the cord impressions sometimes take the shape described by Mariën as '*vannerie fine*'.<sup>61</sup> The different decorative techniques do not suggest distinction between different groups as they occur on the same forms and side by side, e.g. at Swalmen (33, 34). Most of the Beakers of this type have cord-impressed lines on the interior of the rim as well.

23 Beakers of this type are known from the Netherlands. Five, all of the



small form indicated above, are found scattered over the province of Drente and the adjacent part of northern Overijssel. Six vessels of different forms have been found in Gelderland, one in the extreme eastern part of that province (27), five on the Veluwe (*e.g.* 25). One of these was found with two examples of the foregoing type, 2<sup>11a</sup>, in one tumulus.<sup>54</sup> Twelve examples are known from Limburg (*e.g.* 33–34); most of these represent the bottle-shape, one the carinated form.<sup>58</sup>

In the Netherlands Beakers of this type have been a serious obstacle to a better understanding of the Beaker problem. They have generally been described as *touwbekers* belonging to the Corded Ware group (*cf.* p. 14). The arguments for grouping them with the Bell Beakers are:

- (1) Appearance: form, all-over decoration, decoration of the interior of the rim.
- (2) Associations: amber beads, Beakers of type 2<sup>11a</sup>.<sup>62</sup>
- (3) Distribution: extends to France and Britain, where practically no representatives of group 1, the Corded Ware Beakers, have been found.

(2<sup>11c</sup>) *Bell Beakers decorated in zones with a plain spatula* (fig. 13)

These Beakers occur in different forms. The gentle S-profile is met with as well as the bottle shape and the carinated form. Two specimens have flaring walls without contraction between body and neck (*e.g.* 48), a profile not uncommon in Bell Beakers in Western Germany.<sup>63</sup> One Beaker is of globular shape, with only a small flaring neck.<sup>64</sup> The decoration consists of diagonal or vertical impressions made with a plain spatula. Generally the spatula seems to have been dentated in a crude and primitive way (*e.g.* 48).<sup>65</sup> The impressions are arranged more or less carefully in horizontal zones, but these zones are never bordered by lines. Sometimes the interior of the rim is also decorated.<sup>64</sup>

Seven vessels of the type are recorded, all but two fairly well preserved. Two have been found in south-eastern Noord-Brabant. One is known from the province of Utrecht, and one from the Achterhoek of Gelderland, found with a Beaker of type 2<sup>11b</sup> (27).<sup>66</sup> The two examples with flaring walls were found in south-eastern Drente (48).

A C<sup>14</sup>-date is available for one of the specimens from south-eastern Noord-Brabant (GRO 381 : 3965 ± 150).

For a better understanding of the affiliations of the Bell Beakers of group 2<sup>11</sup> we should take note of the Beakers found during the excavation of a number of round barrows near Swalmen in central Limburg. Results of these important excavations have not yet been published. Some 13 Beakers were discovered, complete or in fragments, including (14, 33–36). Their coherence as a group

is shown by such peculiarities as the nicked lip of the rim (*cf. e.g.* 14, 34 and 35), found elsewhere on Beakers of type 2<sup>IIa</sup>, and the firmly pronounced S-line of the profile. They show the hybridization of Bell Beaker elements with features of the Beakers with protruding foot. Stray sherds from one of the tumuli represent stage 2<sup>IIb</sup> of the true Bell Beaker series, but with cord-impressed lines bordering the zones. On the other hand there are three specimens of Beakers with protruding foot. One is of type 1<sup>b</sup>, but the decoration covers nearly the whole surface of the wall. Two are of type 1<sup>d</sup> (*e.g.* 14). The others clearly show hybridization. Seven Beakers are of type 2<sup>IIb</sup> with corded decoration over the entire surface, including vessels with true corded lines and others with the 'vannerie fine' technique (*vide supra*, p. 29) (*e.g.* 33 and 34). Two Beakers are more difficult to classify (35–36). In form they are related to the all-over corded Beakers just mentioned. Decoration on the interior of the rim of both vessels also points to the Bell Beakers as does the cross-hatching on one of them (35). However, the decoration of (36), limited to the upper part, resembles the herringbone pattern of type 1<sup>d</sup> of the Beakers with protruding foot. On vessel (35), too, the impressed decoration is limited to the upper part, but below it is a grooved zigzag-line. Such zigzag-lines are characteristic of the hybrids of the Beakers with protruding foot described already (*vide supra*, p. 16) (*e.g.* 51–53).

Elements of decoration (cord-lines, herringbone zones, zigzag bands) and shapes (*cf. e.g.* 26–29, 53) suggest a possible correlation between certain stages of our two main groups 1 and 2: Beakers with protruding foot of types 1<sup>b</sup> and 1<sup>d</sup>—hybrid zigzag-line Beakers—the Beakers (35) and (36)—Bell Beakers of type 2<sup>IIc</sup>—Bell Beakers of type 2<sup>IIb</sup>—Bell Beakers of type 2<sup>IIb</sup>. Daggers of Grand Pressigny flint appear to be associated all but one<sup>13</sup> with Beakers of the 2<sup>II</sup> series<sup>67</sup> and with hybrid zigzag Beakers.<sup>68</sup> This association suggests a chronological horizon and supports the correlation just proposed.<sup>69</sup> But at least some of the Beakers of type 2<sup>IIb</sup> and 2<sup>IIa</sup> may be of an earlier date: the corded decoration suggests coexistence with Beakers with protruding foot of type 1<sup>a</sup>, whereas analogies of form point to coexistence with Bell Beakers of stage 2<sup>IIb</sup> (*cf.* the Beaker from the Wieringermeerpolder, p. 28).<sup>52</sup>

#### BELL BEAKER ASSOCIATIONS

In comparing associated finds of the different Bell Beaker stages and types, it must be kept in mind that the Beakers of types 2<sup>IIa</sup> and 2<sup>IIb</sup> are rare, and that for the greater part they are stray finds. On the other hand the numerous Beakers of the Veluwe class, 2<sup>IIa-f</sup>, and most of the Beakers of group 2<sup>II</sup> have been found in graves. Therefore, objects found with Beakers of types 2<sup>IIa</sup> and 2<sup>IIb</sup>, and not occurring with Beakers of the Veluwe class, 2<sup>IIa-f</sup>, or with Beakers of group 2<sup>II</sup>

are significant, but not objects found only with Bell Beakers of the Veluwe class.

In part the associated objects represent characteristic Bell Beaker equipment, such as:

- (a) Copper tanged knife-daggers, twice with Beakers of stage  $2^{1b}$  (24, 26).
- (b) Wrist-guards of stone. Broad and curved, with four perforations, once with a Beaker of stage  $2^{1b}$  (26). Narrow and flat, with two perforations (more common), with all types of the true Bell Beaker series (*e.g.* 40; and with 29).
- (c) Amber buttons with V-shaped perforation of the base, with a specimen of stage  $2^{1c}$ , and with Beakers of the Veluwe class,  $2^{1d-f}$  (*e.g.* 39).<sup>70</sup>
- (d) Amber beads, with a Beaker of stage  $2^{1b}$  (24), Beakers of the Veluwe class,  $2^{1d-f}$  (*e.g.* 39), and twice with Beakers of type  $2^{11b}$ .<sup>71</sup>
- (e) Penannular amber pendants of rectangular cross-section, with Beakers of the Veluwe class.<sup>72</sup>
- (f) Triangular flint arrowheads, mostly barbed-and-tanged, with Beakers of the true Bell Beaker series (*e.g.* 26, 39), and once with a Beaker of type  $2^{11a}$  (30).
- (g) A second vessel of the same type. Sometimes with Beakers of the Veluwe class.<sup>46</sup>
- (h) Objects of gold: two tiny rectangular strips of sheet gold, the ends bent over to penannular form and perforated, with a Beaker of type  $2^{1b}$  (24); a neck ornament of hammered gold with oar-shaped ends showing repoussé linear decoration, probably associated with a Bell Beaker of the Veluwe class, stage  $2^{1f}$ .<sup>73</sup>

Thus objects typical of the Bell Beaker civilization are associated only with Beakers of our true Bell Beaker series. Amber beads are found with these and also with Beakers of type  $2^{11b}$ .

Other objects found with Bell Beakers are:

- (i) Stone hammer-axes, once with a Beaker of type  $2^{11b}$ , and once with a Beaker of the Veluwe class.<sup>74</sup>
- (k) Grand Pressigny daggers; four specimens were found in association with Bell Beakers: one with type  $2^{11a}$  (30), two with type  $2^{11b}$  (25)<sup>67</sup> and one with type  $2^{11c}$  (*vide supra*, p. 31).

One uncommonly rich grave group deserves special mention. The Beaker with incipient zone-contraction,  $2^{1b}$ , from Odoorn (24) was found by Van Giffen in the primary grave beneath a sand barrow.<sup>30</sup> The associated grave goods comprised a long copper knife-dagger with rounded point, a copper awl with diamond-shaped central thickening, a spiral bracelet of thick round copper wire with pointed ends, the two tiny rectangular strips of sheet gold with bent over and

perforated ends mentioned above, and two amber beads. These finds led Van Giffen to connect this Beaker with the Atlantic trade and with Brittany in particular.

Save for the Beakers and sherds representing the pan-European type, 2<sup>1a</sup>, and its imitations—about which reliable evidence is lacking—Bell Beakers of all types and stages have been found accompanying central interments under sand barrows. Most of these barrows originally were encircled at their foot by an open ditch. The barrows covering Beakers of the Veluwe class, 2<sup>1d-f</sup>, usually have few structural features. It is not possible to indicate general characteristics which make it possible to distinguish between barrows of Beaker groups 1 and 2.

With Bell Beaker barrows, the grave pit dug into the old surface before the erection of the tumulus is often extremely shallow. Sometimes there is no grave pit at all, and the corpse has been placed upon the old surface. Small beehive-shaped wooden constructions are not found covering graves with Bell Beakers, save possibly for the barrow containing (24). Intermediate or peripheral circular foundation trenches, sometimes with traces of closely spaced upright stakes, are found sporadically under barrows covering vessels of both trends of Bell Beaker development.<sup>75</sup>

However, Bell Beakers are not exclusively found under barrows. One vessel imitating a Beaker of type 2<sup>1b</sup> probably comes from a flat grave. Sherds of three vessels are recorded from *hunebedden* in Drente.<sup>76</sup> They represent the stages 2<sup>1a</sup> and 2<sup>1b</sup> of the true Bell Beaker series (*vide supra*, pp. 20, 22).

Sherds of Veluwe class Beakers often occur as stray finds on the surface. Whether these indicate settlement sites, or possibly flat graves, is not known. The sherds of the pan-European type found under the tumulus near Lake Uddel (p. 19) may have had some relation to the *hunebedden* settlement in the immediate vicinity.

## CONCLUSIONS

The majority of the Dutch Beakers belong to two families: (1) the *Beakers with protruding foot*, and (2) the *Bell Beaker family*.

*Group (1)*. Sub-type 1<sup>a</sup> of the Beakers with protruding foot constitutes the earliest Beaker type in the Netherlands. It is derived from the Central German Corded Ware (*Schnurkeramik*). The devolution 1<sup>b</sup>–1<sup>c</sup> took place in Western Germany and the Netherlands. Local differences are partly due to Bell Beaker influence. Herringbone decoration, appearing at an early stage, gradually becomes a predominant feature and reflects influence of the Bell Beaker sub-type 2<sup>1b</sup>. The protruding foot gradually disappears<sup>76a</sup> and the decoration sometimes



and 1500 B.C. Sub-types  $1^{a-b}$  and  $2^{1a-b}$  represent intrusive elements of expansive cultures. The expansive period of the Bell Beaker culture, sub-types  $2^{1a-b}$ , lies between 2000 and 1800 B.C. We believe that late  $1^a$  and  $2^{1a/b}$  partly overlap and that  $2^{11a-b}$  originate in this phase.

Fig. 14 shows a tentative chronology of sub-types and stages of both Beaker groups.

In two instances a copper tanged dagger is associated with a Bell Beaker of sub-type  $2^{1b}$  (24, 26). These metal objects cannot be adduced as a hint for a late dating as was done previously: in the Netherlands they accompany Beakers of the expansive pan-European Bell Beaker class. During the later, locally developed stages of the true Bell Beaker series, valuable traded articles are much scarcer.

*Distribution.* It is striking that certain restricted areas on the Veluwe attracted both Beaker groups. In the Lake Uddel region on the northern Veluwe and in the Ede region on the south-western Veluwe, nearly all types of both cultures occur. Other regions of the Veluwe, on the other hand, are practically without Beaker finds. Presumably this was conditioned by soil types.<sup>78</sup> It should be possible to find on the Veluwe the stratigraphical contacts which could test the Beaker typology presented in this paper.

The earliest Beakers with protruding foot, sub-type  $1^a$ , are not found in the main *hunebedden* region, in south-east Drente. The cultural frontier lies in the central part of eastern Drente, where Neolithic barrows are virtually absent. But the early Bell Beaker centres in north-east and south-east Drente overlap the *hunebedden* distribution. As in Denmark, the first Bell Beaker immigrants especially sought contact with the megalithic civilization.<sup>79</sup>

The early Bell Beaker centres in Drente may represent two colonies along the Atlantic trade route. They have not yet been influenced by Beakers with cord-impressed decoration: the early Bell Beakers here have no cord-lines bordering the zones. The Bell Beaker development in Drente comprises only the first three stages of the true Bell Beaker series. But the Veluwe and Limburg belong to a greater area extending up the Rhine, where early Bell Beakers with cord-lines bordering the zones and decorating the interior of the rim are not uncommon. This is apparently due to influence of Corded Ware, *e.g.* sub-type  $1^a$  on the Veluwe. Here the group of Bell Beakers borrowing the decorative techniques of the Beakers with protruding foot,  $2^{11}$ , resulted. Well-represented on the Veluwe, and even numerous in Limburg, the Beakers of this group extend as far as the region of Koblenz.<sup>80</sup> The types  $2^{11b}$  and  $2^{11c}$  also occur in Drente; their relative rareness and the absence of type  $2^{11a}$ , however, suggest that they are not locally developed there, but represent an offshoot from the south.<sup>30</sup>

The true Bell Beaker series broke off in Drente about 1700 B.C.; from then onwards practically no Bell Beakers seem to exist in that province and the adjacent districts. Probably about the same time the Bell Beakers of group  $2^{11b}$  came to an end in the south. But the true Bell Beaker series apparently found its continuation on the Veluwe: here we meet the later examples of the Beakers with zone-contraction,  $2^{1c}$ , the earliest specimens of which are known from Drente (*e.g.* 37). Subsequently, the Beakers of the Veluwe class developed,  $2^{1d-f}$ . This last flourishing and the decline of the Bell Beaker tradition preceded the beginning of the actual Bronze Age in the Netherlands (Montelius II), and the invasion of the Hilversum culture from England.<sup>81</sup> The Hilversum urns perhaps brought back to Holland the cord-impressed decoration inside the rim that the all-over corded Bell Beakers,  $2^{11b}$ , had introduced to Britain (*cf. infra*).

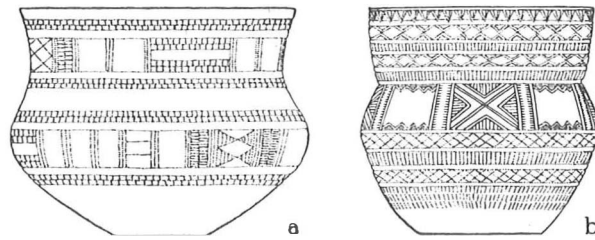


Fig. 15

*Relations with Central Europe.* According to some authors the Beakers of the Veluwe class represent a late, *i.e.* Early Bronze Age, Bell Beaker revival in the Netherlands, due to influences from Central Germany.<sup>82</sup> Analogies existing between the Saxo-Thuringian Bell Beaker group and the Beakers of the Veluwe class (broad form, metope decoration), and considerable lowering of the dating of the Dutch Beakers led to this supposition.

Contacts are obvious, but in our opinion we should rather think of mainly parallel development of the two Bell Beaker groups, as is testified by the continuous line of development running through the Dutch Bell Beakers, and by the different adaptation of the metope decoration. On the Central German Beakers, the metopes are generally found decorating the enlarged central zone of the groups of zones which encircle the neck and the widest part of the vessel (fig. 15<sup>a</sup>).<sup>83</sup> On Dutch Beakers, however, the metopes almost invariably form part of the vertical decoration bridging the shoulder of the vessel (fig. 15<sup>b</sup>). In both groups, the metopes as such probably derive from Bohemia. The existence of contacts between the Veluwe and Bohemia is actually shown by a Beaker found at Harskamp on the central part of the Veluwe (47). The zigzag-line at the base, the many zones almost covering the whole wall surface, and the filling of the zones, by means of a fine dentated spatula, with vertical and

wavy horizontal impressions proclaim the Bohemian origin of this Beaker. It was found in the primary grave of a barrow, beneath a secondary grave containing a Beaker of our  $z^{1c}$  stage.

Comparable influences may be responsible for the new elements entering the decoration of Dutch Bell Beakers in the course of the  $z^{1c}$  and in the beginning of the  $z^{1d}$  stages. The importance of these stages therefore lies in the contacts they reflect between the Atlantic and the Central European Bell Beaker traditions.

*The crossing of the North Sea.* In Great Britain, the phenomenon of zone-contraction also offers a key for a new approach to the Beaker problem. Influxes from the Low Countries are obvious. In Scotland and northern England Bell Beakers with zone-contraction and Beakers with the first bridging of the plain zones show direct relationship to the types  $z^{1b}$  and  $z^{1c}$  of the Dutch true Bell Beaker series. Can it be fortuitous that in the same parts of Great Britain all-over corded Beakers with ornamentation inside the rim—direct analogies to our type  $z^{11b}$ —are represented?<sup>84</sup>

The crossing of the North Sea by Beaker elements from the central Netherlands took place in stages  $z^{1b/c}/z^{11b}$  of the Dutch Bell Beaker evolution. The invaders from overseas first looked for thinly populated, remote parts of the British Isles. There a local evolution started, and later the culture spread over large areas. Abercromby's A-Beakers and the Dutch Bell Beakers of Veluwe type—phases  $z^{1d-f}$  of the true Bell Beaker series—constitute local evolutions.

Amsterdam/Groningen, December 1955.



## BEAKERS 1-53, ON PLATES II-XVIII\*

1. *Marum*, municipality of Marum (Groningen), tumulus 4. Height 18.8 cm. Groningen 1955/V 1. (p. 8)
2. *Eext*, municipality of Anloo (Drente), the 'Ketenberg'. Height 16 cm. Groningen (B.A.I.) 1927/IX 5. (p. 8)  
Van Giffen, *Bauart*, 1930, pp. 45-50, 128-30, pl. 37, 5.
3. *Bakkeveen*, municipality of Opsterland (Friesland), from a barrow. Height 17.8 cm. Groningen (B.A.I.) 1938/XI 4. (p. 8)
4. Northern Veluwe (Gelderland). Height 13 cm. Enschede 258. (p. 8)
5. Northern Veluwe (Gelderland). Height 14 cm. Enschede 261. (p. 8)
6. *Speulde*, municipality of Ermeloo (Gelderland). Height 19.8 cm. Groningen (B.A.I.) 1934/VIII 425. (p. 8)
7. Quadenoord near *Renkum* (Gelderland), from a barrow. Height 19.4 cm. Leiden e 1936/1. 47. (p. 8)
8. *Staverden*, municipality of Ermeloo (Gelderland), from a barrow (probably from the same barrow as 17). Height 21.05 cm. Leiden e 1935/7. 3. (pp. 8, 28)
9. *Balloo*, municipality of Rolde (Drente). Height 24.8 cm. Assen 1937/XI 5. (pp. 8, 28)
10. *Zeijen*, municipality of Vries (Drente), the 'Jodenbergje'. Height 21.1 cm. Assen 1934/I 10. (pp. 9-10)  
Van Giffen, *NDV* 1936, pp. 98-101, fig. 7, 10; 8, 9; *NDV* 1938, pp. 92-95, fig. 1, 10.
11. *Zeijen*, municipality of Vries (Drente), Noordsche Veld, tumulus III. Height 18.8 cm. Assen 1925/IX 8. (pp. 9-10)  
Stampfuss, *JKW*, 1929, pp. 59, 181, pl. v, 1; Van Giffen, *Bauart*, 1930, pp. 130-34, pl. 93, 15.
12. *Balloo*, municipality of Rolde (Drente), probably from a destroyed barrow. Height 18.1 cm. Assen 1934/II 2. (pp. 9-10)  
Van Giffen, *NDV* 1936, pp. 94-97, fig. 6, 2.
13. *Eext*, municipality of Anloo (Drente), tumulus c. Height 17.4 cm. Assen 1955/XII 2. (p. 11)
14. *Swalmen* (Limburg), tumulus 8. Height 22.9 cm. Leiden l 1937/8. 12. (pp. 11, 30-31)
15. *Ermeloo*, municipality of Ermeloo (Gelderland). Height 17.5 cm. Groningen (B.A.I.) 1934/VIII 427. (p. 11)
16. Quadenoord near *Renkum* (Gelderland), from a barrow. Height 20.7 cm. Leiden e 1936/1. 45. (p. 11)
17. *Staverden*, municipality of Ermeloo (Gelderland), from a barrow (probably from the same barrow as 8). Height 29.7 cm. Leiden e 1935/7. 4. (p. 13)

\* In selecting Beakers for illustration characteristic, unpublished and beautiful, complete specimens have been preferred.

Assen = *Provinciaal Museum van Drenthe*, at Assen.

Barneveld = *Museum 'Nairac'*, at Barneveld.

Enschede = Kortlang Collection, in the collection *Oudheidkamer „Twente"*, at Enschede.

Groningen = *Museum van Oudheden voor Provincie en Stad Groningen*, at Groningen.

Groningen (B.A.I.) = *Biologisch-Archaeologisch Instituut van de Rijksuniversiteit Groningen*, at Groningen.

Leeuwarden = *Fries Museum*, at Leeuwarden.

Leiden = *Rijksmuseum van Oudheden*, at Leiden.

18. *Sleen*, municipality of Sleen (Drente), from a flat grave. Height 18.6 cm. Assen 1935/XI 10. (p. 12)  
Van Giffen, *NDV* 1937, pp. 74-77, fig. 6, 10.
19. *Ginkel Heath*, municipality of Ede (Gelderland), 'found at the centre of a circular bank'. Height 19 cm. Leiden e 1936/1. 76. (p. 12)
20. *Langedijk*, municipality of Ooststellingwerf (Friesland), tumulus III. Height 20.7 cm. Leeuwarden 1928/VI 14 (224/38). (p. 12)  
Van Giffen, *Bauart*, 1930, pp. 134-35, pl. 99, 14; 100.
21. *Donkerbroek*, municipality of Ooststellingwerf (Friesland), from a destroyed barrow or a flat grave. Height 18.8 cm. Groningen (B.A.I.) 1950/XII 9. (p. 12)
22. *Emmerzand*, municipality of Emmen (Drente). Height 11.6 cm. Assen 1899/IV 2. (pp. 19, 32)  
Åberg, *NKM*, 1918, p. 193, fig. 294; Stampfuss, *JKW*, 1929, pp. 77, 184, pl. vi, 9;  
Van Giffen, *Bauart*, 1930, pl. 118, 19.
23. *Oudemolen*, municipality of Vries (Drente), found near a barrow. Height 14.1 cm. Assen 1934/VI 5. (p. 19)
24. *Odoorn*, municipality of Odoorn (Drente), from a barrow. Height 19 cm. Assen 1929/IX 4. (pp. 21-22, 32-33, 35)  
Van Giffen, *Bauart*, 1930, pp. 166-75, pl. 115, 4; 116, 4; *NDV* 1947, pp. 79-126, fig. 7, 4; 8, 4.
25. *Emst*, municipality of Epe (Gelderland), from a barrow. Height 20.5 cm. Leiden e 1911/8. 3. (pp. 28, 30, 32)  
Holwerda & Evelein, *OM Leiden* v, 1911, p. 19, fig. 21; Holwerda, *PZ* iv, 1912 pp. 369-70, pl. 32, 2; Åberg, *SN*, 1916, pp. 49, 51, fig. 18; Åberg, *NKM*, 1918, p. 192, fig. 298; Stampfuss, *JKW*, 1929, pp. 86, 186, pl. x, 7.
26. *Ginkel*, municipality of Ede (Gelderland), from a barrow. Height 21.1 cm. Leiden e 1936/1. 1. (pp. 22, 27, 31-32, 35)  
Van Giffen, *Bauart*, 1930, p. 170, pl. 119.
27. *Mallem*, municipality of Eibergen (Gelderland). Height 22 cm. Leiden e 1927/7. 1. Bursch, *OM Leiden*, n.s. xiv, 1933, p. 92, pl. i, 7. (pp. 27-28, 30-31)
28. *De Eeze*, municipality of Steenwijkerwold (Overijssel), tumulus IV. Groningen (B.A.I.) 1918/VII 46. (pp. 22, 27, 31)  
Van Giffen, *Bauart*, 1930, pp. 137-39, pl. 105, 46; 118, 18.
29. *Holten*, municipality of Holten (Overijssel), tumulus 4. Height circa 22 cm. Deventer 1930/VIII 10. (pp. 24, 27, 31-32)
30. *Koningslust*, near Helden (Limburg), from a barrow. Height 18.8 cm. Leiden l 1942/7. 1a. (p. 28)  
Mariën, *Oud-België*, 1952, p. 141, fig. 133.
31. *Uddelermeer*, municipality of Apeldoorn (Gelderland), tumulus D. Leiden e 1911/9. 13. (pp. 19, 22, 28)  
Holwerda, *OM Leiden* v, 1911, p. 8, fig. 11b; Åberg, *SN*, 1916, pp. 48/49, 53/54, fig. 22b.
32. *Kootwijk*, municipality of Barneveld (Gelderland). Leiden K.W. 18. (p. 28)  
Holwerda, *NVB*, 1907, p. 54, pl. i, 15; Åberg, *SN*, 1916, pp. 42, 51, fig. 16;  
Bursch, *OM Leiden*, n.s. xiv, 1933, p. 88, pl. iv, 12.
33. *Swalmen* (Limburg), tumulus 6. Height 21.1 cm. Leiden l 1937/8. 10. (pp. 28-31)
34. *Swalmen* (Limburg), tumulus 3. Height 18 cm. Leiden l 1937/8. 3. (pp. 28-31)
35. *Swalmen* (Limburg), tumulus 6. Height 21.7 cm. Leiden l 1937/8. 11. (pp. 15-16, 30-31)
36. *Swalmen* (Limburg), tumulus 8. Height 16.1 cm. Leiden l 1937/8. 16. (pp. 15-16, 30-31)

37. *Emmen*, municipality of Emmen (Drente), tumulus IX. Height 19.9 cm. Leiden c 1932/11. 3. (pp. 24, 36)  
Bursch, *OM Leiden*, n.s. xvii, 1936, p. 64, fig. 46, 4.
38. Heath near *Staverden* (Gelderland). Height 17 cm. Leiden e 1940/1. 55. (pp. 24, 27)
39. *Uddelermeer* (Gelderland), from a flat grave. Height 14 cm. Leiden e 1929/3. 20.  
Bursch, *OM Leiden*, n.s. xiv, 1933, pp. 85-86, pl. iii, 6. (pp. 25-27, 32)
40. *Speulderveld* (Gelderland). Height 18.5 cm. Barneveld 1929. 1<sup>a</sup>. (pp. 25, 27)
41. *Speulde*, municipality of Ermeloo (Gelderland). Height 15.2 cm. Leiden e 1940/1. 58.  
(pp. 25, 27)
42. *Voorthuizen*, municipality of Barneveld (Gelderland), the 'Zeven Bergjes', from a barrow. Height 20.9 cm. Barneveld 1952. 3. (pp. 25-27)
43. Near the *Uddelermeer* (Gelderland). Height 19.4 cm. Leiden e 1929/3. 5.  
Bursch, *OM Leiden*, n.s. xiv, 1933, p. 83, pl. ii, 1. (pp. 25, 27)
44. *Groevenbeekse Heide*, between Ermeloo and Putten (Gelderland). Height 20 cm.  
Leiden e 1949/3. 3. (pp. 26-27)
45. Probably from the Veluwe (Gelderland). Height 14.3 cm. Groningen (B.A.I.) 1935/XII 2.  
(pp. 25-26)
46. Between the *Uddelermeer* and Apeldoorn, municipality of Apeldoorn (Gelderland).  
Height 14 cm. Barneveld (loan from Leiden) e 1920/8. 3. (pp. 26-27)  
Stampfuss, *JKW*, 1929, pp. 170, 184, pl. ix, 5.
47. *Harskamp* near Otterlo (Gelderland), from a barrow. Height 17.8 cm. Groningen  
(B.A.I.) 1935/XII 1. (p. 36)
48. *Bargeroosterveld*, municipality of Emmen (Drente), from a barrow. Height 11.4 cm.  
Leiden c 1937/12. 3. (p. 30)
49. *Sleen*, municipality of Sleen (Drente), from a flat grave. Height 10.2 cm. Assen  
1935/XI 9. (p. 16)  
Van Giffen, *NDV* 1937, pp. 74-77, fig. 6, 9.
50. *Emmen*, municipality of Emmen (Drente), tumulus VII. Height 24.8 cm. Leiden  
c 1932/11. 1. (p. 15)  
Bursch, *OM Leiden*, n.s. xvii, 1936, pp. 61-63, fig. 46, 3.
51. Oostereng near *Bemekom*, municipality of Ede (Gelderland), tumulus 22. Height  
19.3 cm. Leiden e 1930/9. 1. (pp. 15-16, 31)  
Bursch, *OM Leiden*, n.s. xiv, 1933, pp. 55-57, pl. i, 6.
52. *Staverdensche Heide*, municipality of Ermeloo (Gelderland), from a flat grave? Height  
21.6 cm. Leiden e 1936/11.10. (pp. 16, 31)
53. *Eext*, municipality of Anloo (Drente), from a barrow. Height 22.3 cm. Assen 1936/  
VIII 1<sup>a</sup>. (pp. 16, 31)  
Van Giffen, *NDV* 1939, pp. 124-26, fig. 5, 1a.

#### FIGURES 3-15

3. Group 1, the Beakers with protruding foot: the typological devolution 1<sup>a</sup>-1<sup>f</sup>.
4. The distribution of the Beakers with protruding foot of sub-type 1<sup>a</sup>.
5. The distribution of the Beakers with protruding foot of sub-type 1<sup>b</sup>.
6. The distribution of the Beakers with protruding foot of sub-types 1<sup>c</sup>, 1<sup>d</sup> and 1<sup>e</sup>.
7. The distribution of the Beakers with protruding foot of sub-type 1<sup>f</sup>.
8. The distribution of the *hunebedden* and of the sites with *Tiefstichkeramik* outside Drente.
9. Group 2, the Bell Beakers: the true Bell Beaker series (2<sup>1</sup>), from the Beakers of pan-European type (2<sup>1a</sup>), by way of the pan-European Beakers with incipient zone-contraction (2<sup>1b</sup>), the Bell Beakers with zone-contraction (2<sup>1c</sup>) to the Bell Beakers of Veluwe type (2<sup>1d-f</sup>); and the Bell Beakers borrowing the decorative techniques of the Beakers with protruding foot (2<sup>11</sup>).

10. The distribution of the Bell Beakers of the pan-European type, 2<sup>Ia</sup>, and the local imitations.
11. The distribution of the Bell Beakers with incipient zone-contraction, 2<sup>Ib</sup>, and the local imitations.
12. The distribution of stages 2<sup>Ic-f</sup> of the true Bell Beaker series: the development of the Veluwe type.
13. The distribution of group 2<sup>II</sup>, the Bell Beakers borrowing the decorative techniques of the Beakers with protruding foot: 2<sup>IIa</sup>, the Beakers combining dentated spatula with cord-impressed decoration; 2<sup>IIb</sup>, Bell Beakers with all-over cord ornamentation, and 2<sup>IIc</sup>, Bell Beakers decorated in zones with an (almost) plain spatula.
14. Tentative chronology of sub-types and stages of the Dutch Beaker groups 1 and 2.
15. The adaptation of the metope in the decoration of Bell Beakers of the Saxonian-Thuringian group (a) (after Del Castillo, *CVC*, 1928, pl. clxxv), and in the decoration of Bell Beakers of the Veluwe class (b).

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- BH* *Brabants Heem, Tweemaandelijks Tijdschrift voor Brabantse Heem- en Oudheidkunde.*
- BMRAH* *Bulletin des Musées Royaux d'Art et d'Histoire, Parc du Cinquantenaire, Bruxelles.*

<i>Gelre</i>	<i>Gelre, Vereeniging tot beoefening van Geldersche Geschiedenis, Oudheidkunde en Recht. Bijdragen en Mededeelingen.</i>
<i>NDV</i>	<i>Nieuwe Drentsche Volksalmanak.</i>
<i>OM Leiden</i>	<i>Oudheidkundige Mededeelingen van het Rijksmuseum van Oudheden te Leiden.</i>
<i>OM Leiden, n.s.</i>	<i>Oudheidkundige Mededeelingen uit het Rijksmuseum van Oudheden te Leiden (Nuntii ex Museo Antiquario Leidensi). Nieuwe Reeks.</i>
<i>PSSAIN</i>	<i>Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek in Nederland. Proceedings of the State Service for Archaeological Investigations in the Netherlands.</i>
<i>PZ</i>	<i>Praehistorische Zeitschrift.</i>
<i>WH</i>	<i>Westerheem, Orgaan van de Archaeologische Werkgemeenschap voor Westelijk Nederland.</i>

## NOTES

<sup>1</sup> See *Abbreviated references.*

<sup>2</sup> A study of the Dutch pottery with barbed wire decoration was published after the present paper had been completed (P. J. R. Modderman, *PSSAIN* vi, 1955, pp. 32-43). The reader will be aware that in our opinion (p. 14) the early specimens of this class of pottery could be placed somewhat earlier than is proposed by Modderman, *i.e.* contemporary with our 1<sup>b</sup>, 2<sup>1b</sup> and 2<sup>11b</sup> Beakers (*cf.* p. 31). The occurrence of cord impressions on the interior of the rim (two examples cited by Modderman, other examples recorded by us) also argues for such a dating (*cf.* p. 29).

<sup>3</sup> Two specimens from Oldenzaal, Overijssel (*cf.* Holwerda, *NVB*, 1907, pl. i, 10; Åberg, *SN*, 1916, fig. 14; Åberg, *NKM*, 1918, fig. 242; Stampfuss, *JKW*, 1929, pl. iii, 24-25; Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 1-2).

<sup>4</sup> Twelve specimens published: Langedijk, Friesland (Van Giffen, *Bauart*, 1930, pl. 43, 8-9), Eext, Drente (Van Giffen, *Bauart*, 1930, pl. 118, 9; *NDV* 1944, fig. 16, N8), Oldenzaal, Overijssel (see note 3), Vredenheim, Drente (Van Giffen, *NDV* 1942, fig. 19, 2), Eext, Drente (Van Giffen, *Bauart*, 1930, pl. 37, 5; 118, 7), De Eeze, Overijssel (Van Giffen, *Bauart*, 1930, pl. 108, 69; 118, 8), Ede, Gelderland (Modderman, *PSSAIN* v, 1954, fig. 18, pl. xi, 1), Uddelermeer, Gelderland (Holwerda, *OM Leiden* v, 1911, fig. 8; Holwerda, *PZ* iv, 1912, pl. 35, 2; Åberg, *SN*, 1916, fig. 19; Åberg, *NKM*, 1918, fig. 241; Stampfuss, *JKW*, 1929, pl. v, 14), Garderen, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, fig. 74, 7), Wieringermeerpolder, Noord-Holland (Van der Waals, *WH* iv, 1955, pl. xi), Zandwerven, Noord-Holland (Van Giffen, *Bauart*, 1930, pl. 117, d and 5a-c & 8).

<sup>5</sup> Modderman, *PSSAIN* v, 1954, fig. 18, pl. xi, 1.

<sup>6</sup> Eleven specimens published: Havelte, Drente (Van Giffen, *NDV* 1951, fig. 12, 9), Zeijen, Drente (Van Giffen, *NDV* 1936, fig. 7, 10; 8, 9; 1938, fig. 1, 10), Balloo, Drente (Van Giffen, *NDV* 1936, fig. 6, 2 and 34a), Zeijen, Drente (Van Giffen, *Bauart*, 1930, pl. 93, 15; 118, 3; Stampfuss, *JKW*, 1929, pl. v, 1), Rhee, Drente (Van Giffen, *NDV* 1938, fig. 4, 50), Hooghalen, Drente (Holwerda, *NVB*, 1907, pl. i, 17; Åberg, *SN*, 1916, fig. 15; Åberg, *NKM*, 1918, fig. 243; Stampfuss, *JKW*, 1929, pl. v, 3-4; Van Giffen, *Bauart*, 1930, pl. 118, 1), Heerde, Gelderland (Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 32, 2), Bennekom, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 5), Zandwerven, Noord-Holland (Van Giffen, *Bauart*, 1930, pl. 117, e).

<sup>7</sup> Two specimens published: Venekoten, Friesland (Bursch, *OM Leiden*, n.s. xvii, 1936, fig. 46, 1, wrongly described here as found in the grave beneath a barrow at Marum, Groningen), Hooghalen, Drente (Stampfuss, *JKW*, 1929, pl. v, 10).

<sup>8</sup> Nine specimens published: Onnen, Groningen (Van Giffen, *Bauart*, 1930, pl. 90,

39; 118, 2), Hooghalen, Drente (Stampfuss, *JKW*, 1929, pl. v, 7), Weerdinge, Drente (Van Giffen, *NDV* 1936, fig. 15, 2), De Eeze, Overijssel (Van Giffen, *Bauart*, 1930, pl. 104, 106; 118, 5), Winterswijk, Gelderland (Stampfuss, *JKW*, 1929, pl. i, 10; Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 4), Ermelose Heide, Gelderland (Modderman, *PSSAIN* v, 1954, fig. 5, pl. viii, 2, two specimens; fig. 7, to the right), Laren, Noord-Holland (Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 39, 5).

<sup>9</sup> Two specimens published: Sleen, Drente (Van Giffen, *NDV* 1937, fig. 6, 10), Rhee, Drente (Van Giffen, *NDV* 1938, fig. 4, 65a).

<sup>10</sup> Nine specimens published: Langedijk, Friesland (Van Giffen, *Bauart*, 1930, pl. 99, 14), Onnen, Groningen (Van Giffen, *Bauart*, 1930, pl. 90, 40), between Anloo and Gasteren, Drente (Stampfuss, *JKW*, 1929, pl. v, 11), Hooghalen, Drente (Holwerda, *NVB*, 1907, pl. 1, 18, Stampfuss, *JKW*, 1929, pl. v, 8), Bennekom, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iv, 2 and 18), Uddelermeer, Gelderland (Holwerda, *OM Leiden* iii, 1909, fig. xi, 1b), Laren, Noord-Holland (Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 39, 3), Zandwerven, Noord-Holland (Van Giffen, *Bauart*, 1930, pl. 117, 5).

<sup>11</sup> Sub-type 1<sup>a</sup>: Eext, Drente (Van Giffen, *Bauart*, 1930, pl. 37, 8), Ede, Gelderland (Modderman, *PSSAIN* v, 1954, fig. 18, pl. x, 2; xi, 1), Uddelermeer, Gelderland (Holwerda, *OM Leiden* v, 1911, fig. 8; Holwerda, *PZ* iv, 1912, pl. 35, 2; Åberg, *SN*, 1916, fig. 19; Åberg, *NKM*, 1918, fig. 241).

Sub-type 1<sup>b</sup>: Balloo, Drente (Van Giffen, *NDV* 1936, fig. 6, 2a and 34).

Sub-type 1<sup>d</sup>: De Eeze, Overijssel (Van Giffen, *Bauart*, 1930, pl. 104, 104), Laren, Noord-Holland (Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 39, 4).

<sup>12</sup> Sub-type 1<sup>b</sup>: Zeijen, Drente (Stampfuss, *JKW*, 1929, pl. v, 2; Van Giffen, *Bauart*, 1930, pl. 93, 15a), Zeijen, Drente (Van Giffen, *NDV* 1936, fig. 7, 9; 8, 10; 1938, fig. 1, 9).

Sub-type 1<sup>d</sup>: Onnen, Groningen (Van Giffen, *Bauart*, 1930, pl. 90, 40), Ermelose Heide, Gelderland (Modderman, *PSSAIN* v, 1954, fig. 5, pl. viii, 2, two specimens; fig. 7, two specimens).

Sub-type 1<sup>f</sup>: Bennekom, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iv, 18).

<sup>13</sup> Only once a Grand Pressigny dagger was associated with a debased Beaker of sub-type 1<sup>d</sup>: De Eeze, Overijssel (Van Giffen, *Bauart*, 1930, pl. 104, 107).

<sup>14</sup> Zeijen, Drente (Van Giffen, *NDV* 1936, fig. 7, 9; 8, 10; 1938, fig. 1, 9).

<sup>15</sup> Langedijk, Friesland (Van Giffen, *Bauart*, 1930, pl. 43), Uddelermeer, Gelderland? (Holwerda, *OM Leiden* v, 1911, fig. 4), Zeijen, Drente (Van Giffen, *NDV* 1936, fig. 7; 1938, fig. 1), Zeijen, Drente (Van Giffen, *Bauart*, 1930, pl. 93).

<sup>16</sup> De Eeze, Overijssel? (Van Giffen, *Bauart*, 1930, pl. 108), Onnen, Groningen (Van Giffen, *Bauart*, 1930, pl. 90).

<sup>17</sup> Eext, Drente (Van Giffen, *Bauart*, 1930, pl. 37), De Eeze, Overijssel? (Van Giffen, *Bauart*, 1930, pl. 108), Heerde, Gelderland (Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 31, 1), Weerdinge, Drente (Van Giffen, *NDV* 1936, fig. 15), Ermelose Heide, Gelderland (Modderman, *PSSAIN* v, 1954, pl. xxxiv), Bennekom, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, fig. 51), Laren, Noord-Holland (Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 36, 5).

<sup>18</sup> Eext, Drente (Van Giffen, *Bauart*, 1930, pl. 37), Heerde, Gelderland? (Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 31, 1).

<sup>19</sup> Van Giffen, *Bauart*, 1930, p. 160, pl. 117.

<sup>20</sup> Cf. e.g. Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 13 (found near Lake Uddel, Gelderland; with decoration on the interior of the rim).

<sup>21</sup> Sangmeister, *GB*, 1951, pp. 64–67. As the majority of the Beakers of type 1<sup>a</sup> were unpublished, Sangmeister especially stressed the herringbone element in Dutch Beakers.

<sup>22</sup> Eext, Drente (Van Giffen, *NDV* 1939, fig. 5, 1a–d), Eext, Drente (Stampfuss, *JKW*, 1929, pl. v, 5; Van Giffen, *Bauart*, 1930, pl. 118, 12). Although these hybrid Beakers at first sight resemble the Beakers with protruding foot, their associations argue

for a closer relation to the Bell Beakers borrowing the decorative techniques of the Beakers with protruding foot. Cf. p. 31. A specimen from Lake Uddel, Gelderland, has been published by Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 11. Cf. also Struve, *ESH*, 1955, pl. 17, 7. Struve determined that this group is distributed over northern Germany (*o.c.*, pl. 35, pp. 135-41).

<sup>22a</sup> Eext, Drente (Stampfuss, *JKW*, 1929, pl. v, 5; Van Giffen, *Bauart*, 1930, pl. 118, 12).

<sup>23</sup> The grouping given here has not been influenced by modern literature. Its correctness is also argued by the fact that Sangmeister, *GB*, 1951, in principle came to the same classification.

<sup>24</sup> Childe, *Danube*, 1929, pp. 188-89.

<sup>25</sup> Uddelermeer, Gelderland (Holwerda, *OM Leiden* v, 1911, fig. 11<sup>b</sup>; Åberg, *SN*, 1916, fig. 22<sup>b</sup>).

<sup>26</sup> Del Castillo, *CVC*, 1928, pls. lxi, cii.

<sup>27</sup> Losser, Overijssel (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iv, 3).

<sup>28</sup> Del Castillo, *CVC*, 1928, pl. cv.

<sup>29</sup> Stampfuss, *JKW*, 1929, pl. x, 19; Sangmeister, *GB*, 1951, pl. i, 7 and 9.

<sup>29a</sup> Harenermolen, Groningen (Van Giffen, *PZ* xv, 1924, pl. ii, 6; Van Giffen, *Bauart*, 1930, pl. 33, 6).

<sup>30</sup> Tinaarloot, Drente (Van Giffen, *NDV* 1944, fig. 5, 45). Re-examination of this sherd, after the present paper had been sent to the printer, proved that it has a cord-line bordering the zone. This should be kept in mind when reading the conclusions; cf. *infra*, p. 35.

<sup>31</sup> Van Giffen, *Bauart*, 1930, pl. 115, 4; 116, 4; *NDV* 1947, fig. 7, 4; 8, 4; cf. also Mariën, *L'Antiquité Classique* xviii, 1949 (*Archéologie* 1949), pp. 408-9.

<sup>32</sup> Cf. Del Castillo, *CVC*, 1928, pls. lviii; xcvi; cxix.

<sup>33</sup> De Eeze, Overijssel (Van Giffen, *Bauart*, 1930, pls. 105, 46; 118, 18).

<sup>34</sup> Uddelermeer, Gelderland (Holwerda, *OM Leiden* v, 1911, fig. 11<sup>c</sup>; Åberg, *SN*, 1916, fig. 22<sup>c</sup>).

<sup>35</sup> Ede, Gelderland (Van Giffen, *Bauart*, 1930, pl. 119; Van Giffen, *Gelre* xl, 1937, fig. 2, 9).

<sup>36</sup> Zuid-Esmarke, Overijssel (Stampfuss, *JKW*, 1929, pl. xii, 9; Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iv, 1).

<sup>37</sup> Elp, Drente (Van Giffen, *NDV* 1934, fig. 4, 23).

<sup>38</sup> Emmen, Drente (Bursch, *OM Leiden*, n.s. xvii, 1936, fig. 46, 4).

<sup>39</sup> Abercromby, 1912, p. 13.

<sup>40</sup> Bursch, *OM Leiden*, n.s. xiv, 1933, pp. 102-5.

<sup>41</sup> The majority of the Dutch Bell Beakers published so far belong to the Veluwe type, stages 2<sup>1d-f</sup> of the true Bell Beaker series. See especially Abercromby, 1912, pl. iii, 48-53; Stampfuss, *JKW*, 1929, pl. ix and Bursch, *OM Leiden*, n.s. xiv, 1933, fig. 74, pls. ii-iii. The published specimens of every stage have not been quoted separately in the following discussion.

<sup>42</sup> e.g. Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iii, 12, 13, 15, 17, fig. 74, 4.

<sup>43</sup> e.g. Bursch, *OM Leiden*, n.s. xiv, 1933, pl. ii, 7; iii, 3, 15.

<sup>44</sup> Van Giffen, *Gelre* xl, 1937, p. 6. Cf. also W. Kersten, *Germania* 22, 1938, p. 72.

<sup>45</sup> Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iii, 17.

<sup>46</sup> Van Giffen, *Gelre* xl, 1937, fig. 5 and Van Giffen, *Gelre* liv, 1954, fig. 6a.

<sup>47</sup> Remouchamps, *OM Leiden*, n.s. ix, 1928, fig. 35, 3.

<sup>48</sup> Schayk, Noord-Brabant (Van Giffen, *BH* i, 1949, p. 69, fig. 3a). Only two specimens of Veluwe Beakers are known from the province of Noord-Brabant, viz. from Oss (Bursch, *OM Leiden*, n.s. xviii, 1937, fig. 1) and Best (W. J. A. Willems, *Een bijdrage tot de kennis der vóór-Romeinsche urnenvelden in Nederland*, Maastricht, 1935, fig. 16, 70).

<sup>49</sup> Een, Drente (Van Giffen, *NDV* 1946, fig. 8).

<sup>50</sup> Koningslust, Limburg (Mariën, *Oud-België*, 1952, fig. 133).

<sup>51</sup> Kootwijk, Gelderland (Holwerda, *NVB*, 1907, pl. i, 15; Åberg, *SN*, 1916, fig. 16; Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iv, 12). Only the upper part of this Beaker has been preserved. It has been incorrectly restored, and so far it represented the only Dutch example of a 'Blumentopfbecher' (*sic!*).

<sup>52</sup> Braat, *OM Leiden*, n.s. xiii, 1932, fig. 19; Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 3; Van der Waals, *WH* iv, 1955, pl. xiv.

<sup>53</sup> Elsloo, Limburg (H. J. & G. A. J. Beckers, *Voorgeschiedenis van Zuid-Limburg*, 1940, fig. 48).

<sup>54</sup> Hoenderlo, Gelderland (Bursch, *OM Leiden*, n.s. xxi, 1940, fig. 9).

<sup>55</sup> Mariën, *BMRAH* 20, 1948, figs. 19; 21; 23; *Oud-België*, 1952, fig. 134, 2.

<sup>56</sup> Mallem, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 7).

<sup>57</sup> Emst, Gelderland (Holwerda & Evelein, *OM Leiden* v, 1911, fig. 21; Holwerda, *PZ* iv, 1912, pl. 32, 2; Åberg, *SN*, 1916, fig. 18; Åberg, *NKM*, 1918, fig. 298; Stampfuss, *JKW*, 1929, pl. x, 7).

<sup>58</sup> Garderen, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 14), De Hamert, Limburg (Holwerda, *Das Gräberfeld von „de Hamert“*, *Well bei Venlo*, fig. 26; Stampfuss, *JKW*, 1929, pl. x, 4; Mariën, *Oud-België*, 1952, fig. 126).

<sup>59</sup> Borger, Drente (Holwerda, *NVB*, 1907, pl. i, 11; Abercromby, 1912, pl. i, 9; Åberg, *SN*, 1916, fig. 17; Åberg, *NKM*, 1918, fig. 299; Van Giffen, *Bauart*, 1930, pl. 118, 10); Nieuw-Roden, Drente (Van Giffen, *NDV* 1935, fig. 10, 1); Aalden, Drente (Van Giffen, *NDV* 1940, fig. 27, 3).

<sup>60</sup> H. J. Case & J. R. Kirk, *Oxoniensia* xvi, 1951, pl. ix, B.

<sup>61</sup> Mariën, *BMRAH* 20, 1948, p. 25.

<sup>62</sup> *Cf.* notes 53-54.

<sup>63</sup> Stampfuss, *JKW*, 1929, pl. vii, 20-21.

<sup>64</sup> Soesterberg, Utrecht (Bursch, *OM Leiden*, n.s. xv, 1934, fig. 35, to the right).

<sup>65</sup> Mallem, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 8), Soesterberg, Utrecht (Bursch, *OM Leiden*, n.s. xv, 1934, fig. 35, to the right).

<sup>66</sup> Mallem, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 8).

<sup>67</sup> Garderen, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. i, 14, fig. 70), Emst, Gelderland (Holwerda & Evelein, *OM Leiden* v, 1911, fig. 21; Holwerda, *PZ* iv, 1912, pl. 32, 2).

<sup>68</sup> Eext, Drente (Van Giffen, *NDV* 1939, fig. 5, d).

<sup>69</sup> Stampfuss, *JKW*, 1929, pp. 86/87; Struve, *ESH*, 1955, p. 58.

<sup>70</sup> Uddelermeer, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pls. iii, 6 and vi, 33-36), Bennekom, Gelderland (Van Giffen, *Gelre* xl, 1937, fig. 2, 7; 5, 7).

<sup>71</sup> Garderen, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, fig. 70 & pl. i, 14), Aalden, Drente (Van Giffen, *NDV* 1940, fig. 27, 3).

<sup>72</sup> Uddelermeer, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, pl. iii, 3 and vi, 39-40).

<sup>73</sup> Bennekom, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, fig. 75). This find will be republished before long in *Palaeohistoria*.

<sup>74</sup> Uddelermeer, Gelderland (Holwerda, *OM Leiden* v, 1911, fig. 12; Holwerda, *PZ* iv, 1912, fig. 5; Åberg, *SN*, 1916, fig. 21), Garderen, Gelderland (Bursch, *OM Leiden*, n.s. xiv, 1933, fig. 70 and pl. i, 14).

<sup>75</sup> Aalden, Drente (Van Giffen, *NDV* 1940, fig. 27), Bennekom, Gelderland (Van Giffen, *Gelre* liv, 1954, pl. ii), Eext, Drente (Van Giffen, *NDV* 1939, fig. 5).

<sup>76</sup> *e.g.* Tinaarloot, Drente (Van Giffen, *NDV* 1944, fig. 5, 45).

<sup>76a</sup> The protruding foot has already been described as an early feature of the Corded Ware group by P. V. Glob and K. W. Struve; *cf.* Struve, *ESH*, 1955, pp. 42-43, 45, 53.

<sup>77</sup> The phenomenon of zone-contraction has been employed already as one of the criteria of classification of the Bell Beakers of the *Mittelrheingruppe* by E. Sangmeister, *GB*, 1951, pp. 22-24. *Cf.* also Struve, *ESH*, 1955, p. 54.



- <sup>78</sup> Modderman, *Gelre* liv, 1954, pp. 7-8.  
<sup>79</sup> C. J. Becker, *Aarbyger* 1936, p. 197; J. Brøndsted, *Danmarks Oldtid*, i, Stenalderen, København, 1938, pp. 279, 361. Cf. also Childe, *Dawn*, 1927, pp. 275-6.  
<sup>80</sup> Sangmeister, *GB*, 1951, p. 19, Karte 1.  
<sup>81</sup> Glasbergen, *Palaeohistoria* iii, 1954, pp. 89-137, 168-70.  
<sup>82</sup> Sangmeister, *GB*, 1951, pp. 27-28, was the most recent defender of this thesis.  
<sup>83</sup> e.g. Del Castillo, *CVC*, 1928, pls. clxxiii-iv.  
<sup>84</sup> e.g. Abercromby, 1912, pl. xvi, 195, 201.

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I



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PLATE III



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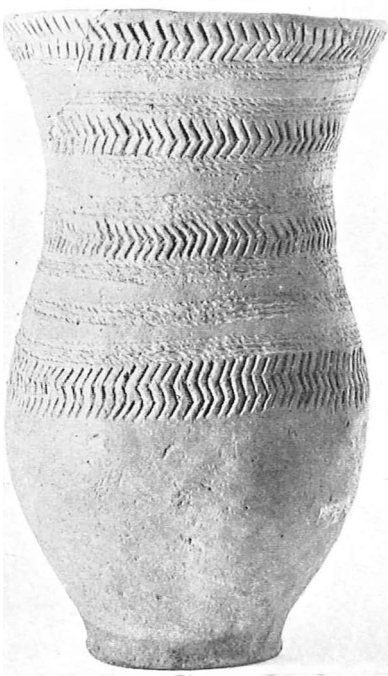
6



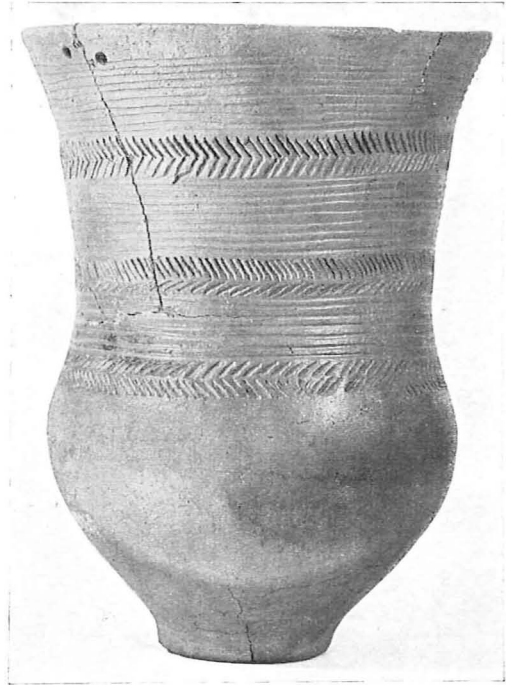
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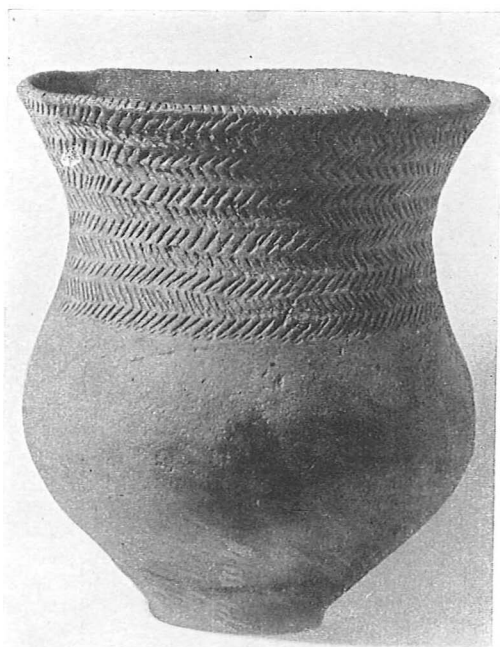


12

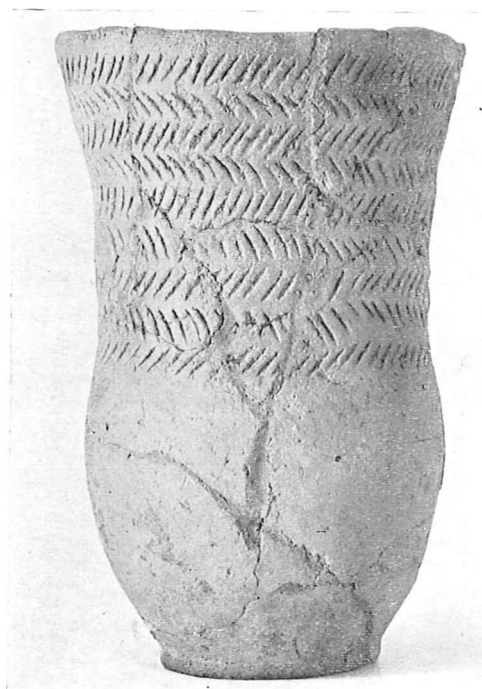
PLATE V



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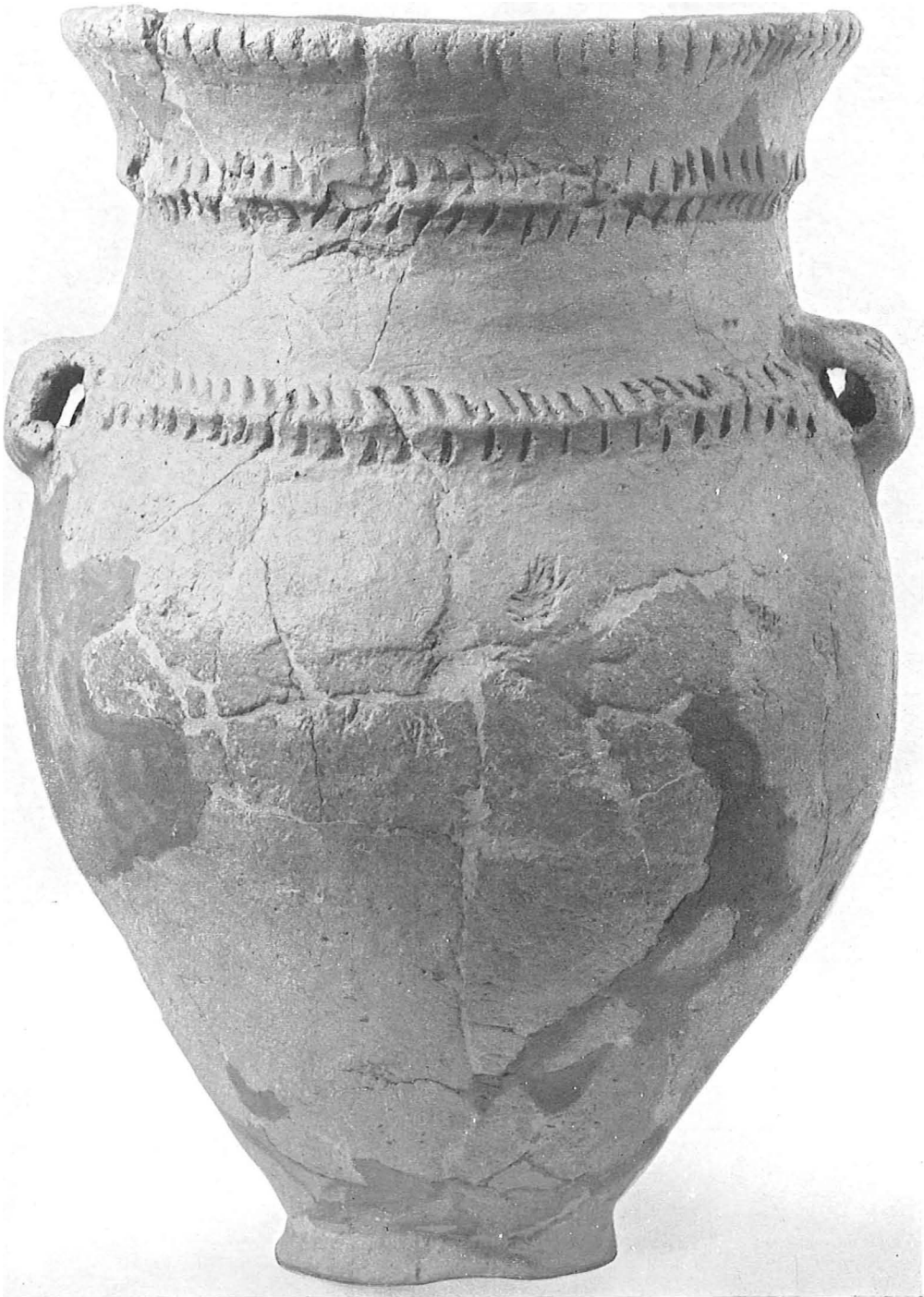




PLATE VII



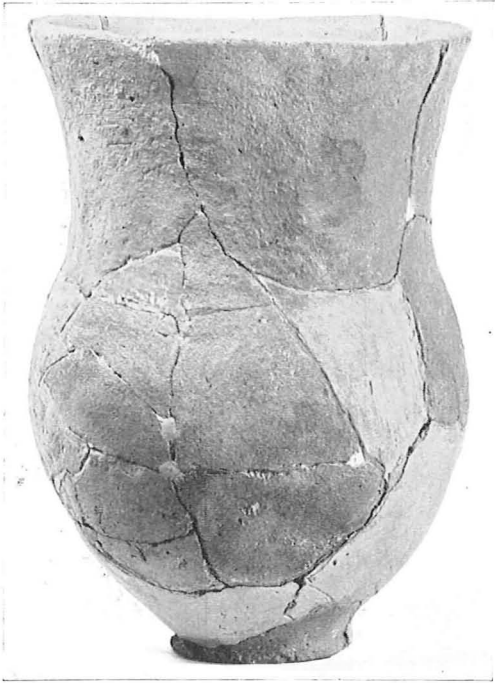
18



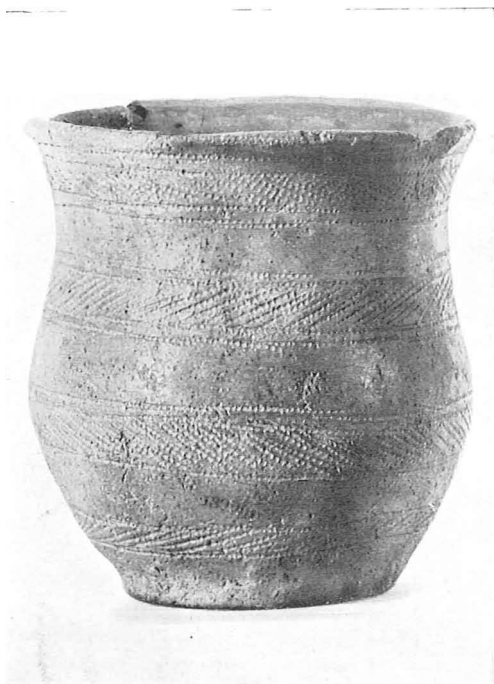
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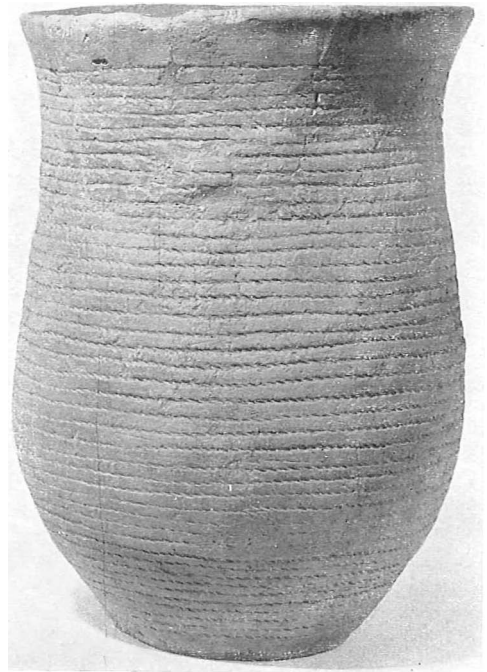
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PLATE IX



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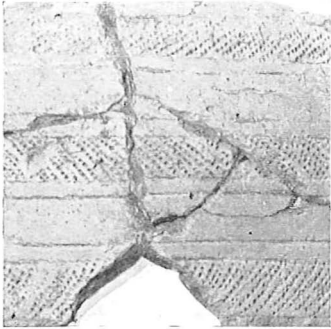
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PLATE XI



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PLATE XIII



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