BRONZE AGE METAL AND AMBER IN THE NETHERLANDS (I)

J.J. BUTLER
Biologisch-Archaeologisch Instituut, Groningen, Nederland

ABSTRACT: A comprehensive study is offered of the Bronze Age finds of metalwork and amber in the Netherlands. Parts I and II concern the Early and Middle Bronze Age. Part I (this part) is a presentation, in the style of the *Inventaria Archaeologia*, of the more important associated finds, both richer graves and hoards. Part II will be concerned with the stray finds, their typology, distribution, origins and cultural context; followed by a concluding synthesis. Parts III and IV will deal in similar fashion with the Late Bronze Age.

KEYWORDS: Netherlands, Early and Middle Bronze Age, amber, bronze, tools, weapons, ornaments, hoards, graves.

1. GENERAL INTRODUCTION

As background for our presentation of the material, section 2 summarizes our present view of the comparative chronology of the Bronze Age in the Netherlands and neighbouring areas.

Section 3 describes a series of finds of Early and Middle Bronze Age amber necklaces, with a prefatory essay on their probable origins.

Section 4 details other richer grave finds and hoards of the Early and Middle Bronze Age. Many of these finds have been published previously (not infrequently by myself in the course of the last thirty-odd years); we have thought it useful to repeat the drawings and find data here for the sake of affording a convenient overview, to provide an update of the bibliography, and, where necessary a revision of interpretations in accordance with current views.

Here we use the term 'hoard' to describe two or more objects found together, without evidence that they belonged to a grave deposit. Single-object depositions, possibly belonging to the category *Einstückhort*, will be catalogued together with stray finds.

It may be noted that there are a number of objects in burial mounds which, though possibly deposited in connection with burial rites, were not themselves from a grave, or at least are not known to have been in a grave; such finds are therefore classified as hoards.

It should not be supposed that the hoards and richer graves of the Early and Middle Bronze Age provide a balanced picture of the regional production of metalwork in those phases. Quite the contrary: these finds contain few locally produced articles, and are mostly stocked with imports from diverse directions. This may have various causes:

1. In the Early Bronze Age the regional production of bronzes was, as far as the evidence goes, rather slight. There may even have been a preponderance of flint and other stone tools and weapons (i.e. axes and daggers) in use. It is difficult to document this because they were rarely deposited in graves and hoards; but, for example, finds of flint daggers (practically all stray finds) far outnumber finds of Early Bronze Age metal daggers.

2. The grave or hoard deposits containing personal possessions evidently belonged to individuals of higher social status, who, it can be presumed, would have required a wider range of weapons and ornaments than could be provided by local craftsmen; who in any case seem to have produced mostly axes.

3. In the case of some other hoards, we may be dealing with imports from other areas of discarded objects intended for recycling. Since there were no copper or tin ores to be found in the alluvial soils and subsoils of the Netherlands, all such metal had to come from a distance. There is no evidence for the Bronze Age importation of ingots. Imports were therefore in the form of finished objects, either for use or as scrap for re-melting. The Early Bronze Age hoard from Wageningen (Find No. 10) seems to contain objects of both sorts. A small hoard consisting of two mis-cast Scandinavian-type palstaves from the Emmerdennen seems to represent the import of founder's waste from Denmark or North Germany; some or all of the North Welsh palstaves in the Voorhout hoard (Find No. 14) may have the same significance, if from the opposite direction. Imports of this sort are likely to have been far more common than the record shows, as they would normally have disappeared into the melting pot.

In general, then, the typology and distribution of the stray finds (thus material for a subsequent volume) will

Fig. 1. Location of Find Nos 1-24 (Find No. 3, 'Drenthe', not mapped).

provide better insight into the character and extent of local bronze production. The hoards and richer graves are, rather, of special importance for the contacts they demonstrate with other regions, for the establishment of the chronology, and for the insight they provide into the way of life of the elites of the time.

Part III will deal with the richer Late Bronze Age finds similarly. In the cataloguing of the finds in Part I interpretation will be held to the minimum necessary, reserving more detailed comment for the concluding synthesis which will follow the cataloguing and study of the stray finds.

In general the work is based on the personal study of the objects and their documentation in the museums and other collections.

2. COMPARATIVE CHRONOLOGY (cf. table 1)

A detailed chronological framework for the prehistory of the Netherlands was created by Lanting & Mook (1977) on the basis of ^{14}C datings; for the Bronze Age consisting chiefly of grave monuments and settlement sites, with their associated pottery types and other finds. This structure is still valid, but has been improved at some points by newer datings, by the calibration in calendar years of the conventional ^{14}C scale, and by the application in other areas of dendrochronology.

A separate chronology of richer graves and hoards, datable by contacts especially with central, northern and western Europe (and occasionally farther afield) was built up by the present writer in various studies (see References). The relations between these two chronological structures is, necessarily, a theme to be discussed in the present work. Table 1 is offered in advance of the detailed discussion in order to provide a convenient frame of reference for the reader.

In this table we have not attempted to interpret fine detail, but rather to provide a broad orientation, generalized to a century-by-century scale.

Since comparative relative datings are not, for the most part, particularly controversial at the moment, we have taken the chief interest to be the comparison of datings by archaeological correlation with those obtained by recent work on dendrochronology and calibrated ^{14}C.

Phase names italicized in the table have dendro-datings placing the indicated phase in the indicated century. Those marked by a plus sign (+) have one or more calibrated ^{14}C datings centering in the century indicated. (Their statistical ranges spread, however, a century or more in either direction). The other placements in the table depend on archaeological correlations.

All ^{14}C dates utilized were calibrated with the Calibration Program of the Groningen Laboratory for Isotopic Research (C.I.O), available on computer diskette. Details will be given in a later section.

3. THE EARLY AND MIDDLE BRONZE AGE GRAVES AND HOARDS WITH AMBER NECKLACES

3.1. Introduction

In the province of Drenthe there is a noteworthy series of Early to Middle Bronze Age necklace finds. The necklaces consist predominantly of amber beads, occasionally supplemented by beads of faience, tin and sheet bronze (Exloërmond, Find No. 1), rock crystal (Emmerdennen, Find No. 2), and glass (Emmer–compascuum, Find No. 7). Altogether eight necklaces contain nearly 200 amber beads, more or less equally divided between the grave necklaces and the bog hoards.

The earliest of these necklaces is the well-known Exloërmond bog hoard (Find No. 1), which is more or less on the borderline between what is understood as Early and Middle Bronze Age in the Netherlands. In the Middle Bronze Age there are seven major necklace finds: four found in tumulus graves (two near Weerdinge, one from the Emmerdennen, one at Hijken) and three bog hoards (Emmercompascuum, Roswinkelerveen and 'Drenthe').

It is remarkable that all the major necklace finds of the Early and Middle Bronze Age are from the province of Drenthe, and have not occurred in the rest of the country. The largest amber bead finds in the other provinces are those from graves at Zwaagdijk, North

Table 1. Comparative chronology.

Century B.C.	Central Europe		North Europe	N.W. Germany	Netherlands		U.K., F.
XI	Ha A2	*MITTL. Uf.*	M IV	ZG. IV	Gasteren+	L.B.(1)	PENARD II: Ffynhonnau, B.f.IIb
XII	Ha A1		M III	ZG. III	Swalmen-H.	M.B.B/ L.B.	B.f. IIa
XIII	D	SPÄTE HG/- FRÜHE UF.	M II/III	ZG. III	Holset	M.B.B	PENARD I: APPLEBY: B.f.I; Rosnoën
XIV	C2	JÜNGERE Hg., Asenkofen	*M II*	ZG. II	Weerdinge+ Epe	M.B.B	B.m.II
XV	C1	MITTLERE Hg., Gög-genhofen	Løve	ZG.I	Voorhout	M.B.B	ACTON PK 2
XVI	B A2c	ÄLTERE HG., LOCHHAM *LANGQUAID*	M IB	Sögel-Wohlde	Sögel-Wohlde	M.B.A	ACTON PKI, TRÈBOUL, B.m.I
XVII	A2b	*LANGQUAID*		Sögel-Wohlde+	Sögel-Wohlde+	M.B.A	WESSEX 2+ (Camerton, Arreton)
XVIII	A2b	Langquaid+ Gemeinle-barn III+	M IA, Virring	Tinsdahl+		M.B.A	WESSEX 2+
XIX	A2a	*Leubingen*	L.N.C Pile		Emmen axes	E.B.	WESSEX 1+ Bush Bw., Willerby W.
XX	A1b	*Leubingen*				E.B.	WESSEX 1+ Migdale
XXI	A1a	Singen+, Nitra+			Wage-ningen (St. Wal-rick+)	E.B.	St. Adrien+

Holland (below, Find No. 24), with four small beads, and Mander in eastem Overijssel, with three beads (Find No. 15). And of these necklaces in Drenthe, five are from the *gemeente* Emmen, in the southeast corner of the province. The Exloërmond find, some 15 km to the north, and the Hijken grave find, some 30 km to the WNW, are outliers. The distribution of these finds is shown in figure 2.

Similar amber finds are not only absent in the rest of the Netherlands: they are also absent in the adjacent regions.

Denmark, Schleswig-Holstein and the Lüneburg region have a reasonable to large number of Early to Middle Bronze Age amber finds, as does South Germany; but in North Germany west of the Weser there is a near blank; nor do we have comparable finds in Belgium and northern France.

For Northwest Germany, Bergmann (1970: pp. 137-138, Liste 153, Karte 61) lists only four amber finds west of the Weser. But of these Ostrhauderfehn, Kr. Leer (his No. 23) is a Late Bronze Age bog hoard, and Aurich (his No. 24) is an undated stray find. That leaves only the two finds from Kr. Grafschaft Diepholz. Of these, Vorwohlde, Tumulus B, secondary female grave (Sprockhoff, 1930: pp. 197-202, Abb. 5-10) with 14 medium-sized to small beads, is certainly Middle Bronze Age; the other Grafschaft Diepholz find he lists is unpublished and we have no information as to its dating or context.

Not in Bergmann's list is a find just east of the Weser: near Bremen was found a necklace with numerous amber beads, in a Middle Bronze Age bog hoard (with *Radnadel*, wire spiral ornaments, etc.) from Schma-lenbeck, Kr. Osterholz (Brandt, n.d.: p. 152, No. E 91).

A recent find in the area between Elbe and Weser is a rich female grave in a tumulus at Wahnbek, Kr. Ammerland (Eckert, 1990), which yielded eight small discoid amber beads (none wider than 10 mm). The grave goods also included a burial with a double wheel-headed pin (similar to, but smaller than, the Weerdinge-Kamperesch je pins in our Find No. 4), a pair of ribbed bracelets, and sheet bronze tubes.

The closest amber-rich region is thus the Lüneburger Heide. In that area, Laux (1971: p. 48, with footnotes) knew of eight finds, containing a total of 92 amber beads. Our Drenthe group has approximately the same number of amber beads in grave finds, and roughly an equal number again in the bog hoards: a comparison which we should hardly expect, considering the fact that the Lüneburg region is in other respects infinitely richer than Drenthe.

For Denmark and Schleswig-Holstein, a browse through the presently available volumes of Aner and Kersten (1973-1986) shows a considerable number of

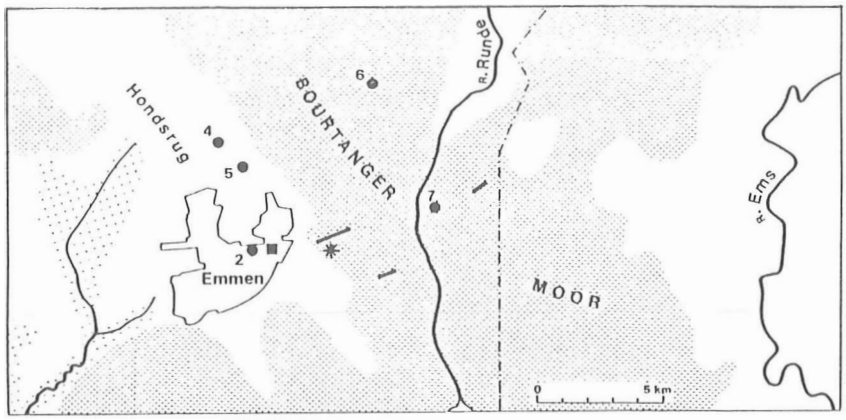


Fig. 2. Middle Bronze Age amber necklaces in and around Emmen (S.E. Drenthe). Legend: ● = amber necklace (find number as in catalogue); ■ = settlement Angelslo-Emmerhout; * = wooden 'temple' of Bargeroosterveld; ▬ = Middle Bronze Age trackway; fine stipling: raised bog; coarse stipling: fen peat. Adapted from Casparie (1984), with additions.

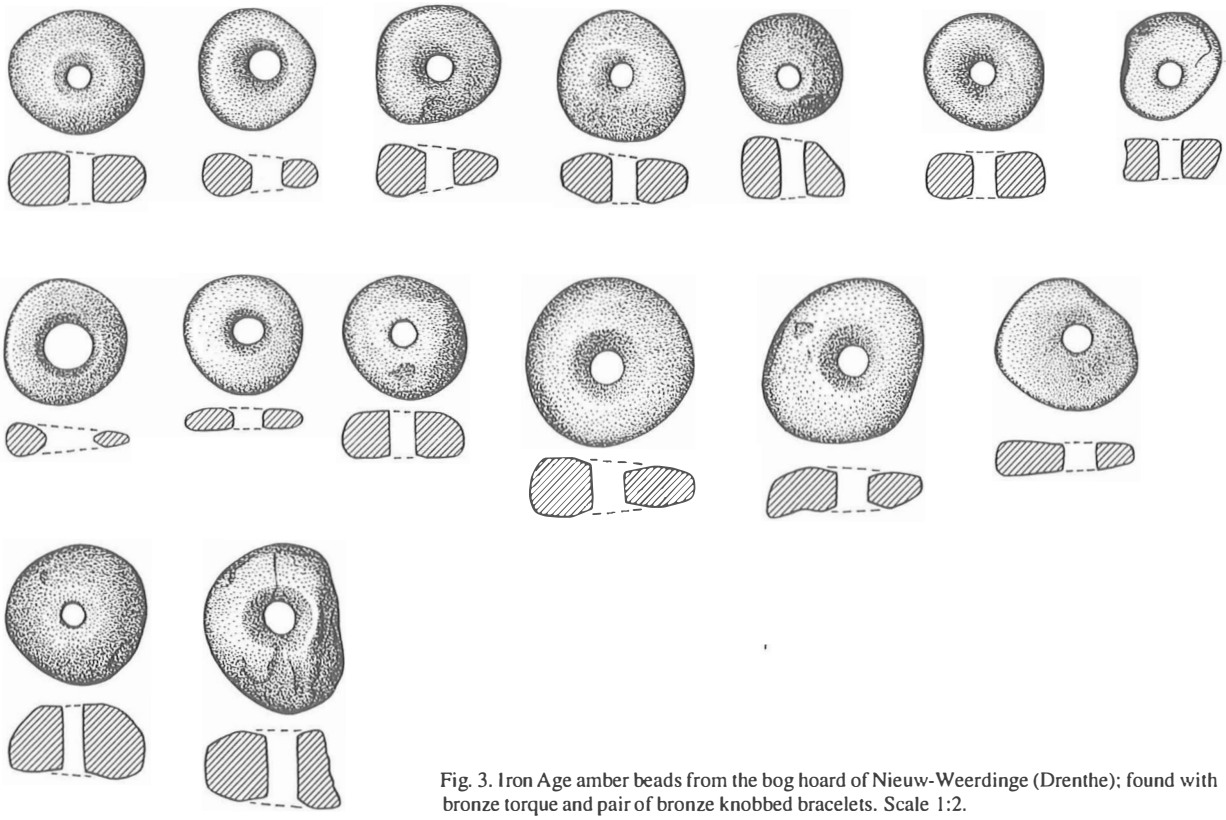


Fig. 3. Iron Age amber beads from the bog hoard of Nieuw-Weerdinge (Drenthe); found with bronze torque and pair of bronze knobbed bracelets. Scale 1:2.

amber finds in Periods I-III. Mostly the beads are rather small; it is remarkable how very few examples there are in these finds of the larger-sized beads such as occur in some of our Drenthe finds, and in other regions of Europe.

In this section, we present a catalogue of the major necklace finds. (Here we omit finds containing only one bead, or a small number of beads). A few finds with one or two amber beads are, however, described below (section 4) as part of other grave assemblages, i.e. at Elp, Mander, Hijken, Zwaagdijk and other sites.

The Southeast Drenthe group of amber necklace finds must be seen against the background provided by the unusual concentration of Bronze Age finds and sites in the neighbourhood of Emmen, at the southern end of the Drenthe sand ridge, the Hondsrug, facing the Bourtanger Moor to its east (cf. fig. 2). The Bronze Age settlement of Angelslo-Emmerhout, extensively excavated, with its numerous long houses and other timber buildings and its Middle and Late Bronze Age cemeteries, has not yet been published; but it seems, on the basis of ^{14}C datings, to have been occupied from the Early Bronze Age until the end of the Late Bronze Age (summary van der Waals & Butler, 1976; Lanting & Mook, 1977). Related thereto is surely the barrow cemetery and urnfield situated between the Emmerdennen and Angelslo excavated by Bursch, Tumulus 1 1 of which yielded the amber necklace described below (section 3.3, Find No. 2). Also from the Emmerdennen is a small bronze hoard referred to above consisting of two Scandinavian/North German palstaves, poor castings evidently representing scrap metal import.

Eastward from the Angelslo-Bargeroosterveld area, three Middle Bronze Age trackways in the bog have been identified by Casparie (1984; 1987), two at least of them apparently pointing to sources of bog iron, and yielding evidence for premature, as yet little understood Middle Bronze Age iron-working. Late Bronze Age activity is shown not only by the settlement and urnfields, but by the series of Bargeroosterveld bronze hoards (Butler, 1960).

We should mention at least *en passant* the Iron Age amber necklace, bronze torque and bracelets of the bog hoard of Nieuw-Weerdinge (Remouchamps, 1925). The amber beads in this hoard (fig. 3) are large and of flattened globular shape. Most have perforations with a diameter of c. 5.5 to 8 mm, thus rather larger than the perforations of c. 2 mm in the beads of the Drenthe Bronze Age finds here catalogued. Beads with the larger perforation were presumably intended to be 'strung' not on a string but on a metal neckring, as is the case with a number of Iron Age finds in the Netherlands and Northwest Germany (Butler, 1984-1985; Wilhelmi, 1979). Although there are no grave or hoard necklace finds from the Drenthe area, or elsewhere in the Netherlands, that can be dated to the Late Bronze Age, the practice of stringing one or more amber beads on a bronze neckring may already have begun in the Late Bronze Age: cf. the Northwest German Period V hoard from Holzhausen, Kr. Wildeshausen (Gandert, 1955). Beads with comparable perforations occur also in Late Bronze Age as well as Early Iron Age finds in Britain: i.e. in the hoards of Balmashanner (2 ex.; Beck & Shennan, 1991: p. 214, fig. 11.20), Potterne (1 ex.; Beck & Shennan, 1991: pp. 166-167, 218, fig. 11.24), and Holyhead (Ty Mawr, 5 ex.; Beck & Shennan, 1991: pp. 192, 217, fig. 11.23).

One of the Nieuw-Weerdinge beads has a still larger perforation (slightly oval, c. 11x13 mm, biconical in form), the reason for which is not obvious. At least one bead with very large perforation, such as has the exceptional specimen from the Nieuw-Weerdinge hoard, occurs in the Scottish Late Bronze Age hoard from Glentanar (Pearce, 1979: p. 125, fig. 1:5; Beck & Shennan, 1991: p. 215, fig. 11:21).

Recent research (van der Sanden, 1990) has shown that one of the bog bodies preserved in the Drents Museum, Assen, is of Bronze Age date. The body concerned was found in 1938, at Emmererfscheidenveen, *gemeente* Emmen. There is a recent ^{14}C determination (GrN-15459, 2980±35 BP; 2-sigma calibration range 1376-1100), which suggests a date in Middle Bronze B or at the transition Middle-Late Bronze Age, although on the basis of the pollen analysis (van Zeist, 1955) a Late Bronze Age date had been assigned. Possibly we have here the remains of an actual resident of the Angelslo-Emmerhout settlement. He/she (the sex is uncertain) is, then, the only Bronze Age bog body presently recognized in Europe. His or her state of preservation is far from ideal; but fragments of clothing preserved with the body have lent themselves to comparison with items of clothing from the contemporary Danish treetrunk coffin burials.

On present estimates, the numerous houses, grave mounds, urn burials and other settlement remains from the Bargeroosterveld area (van der Waals & Butler, 1976) need represent no more than the accumulated remains of a hamlet or a small number of farms, spread out over 700 years or more. Waterbolk (1985: pp. 57-58) has suggested that there must have been some sort of power centre in Southeast Drenthe which tended to attract prestige goods. The amber necklace finds provide support for this conception.

3.2. Origin of the amber

3.2.1. *The raw material*

Formerly one assumed that amber was always imported from the Danish-North German area; in recent years there has been increasing emphasis on the occurrence of raw amber at various places along the North Sea coasts, and inland along the elongated geological belt, extending as far as South Russia, in which 'Baltic' amber naturally occurs.

Brongers & Woltering (1978: pp. 104-107) emphasize the possibility of local procurement of raw amber: there are occurrences along the North Sea coast (especially

on the Dollard and the Frisian islands Rottum and Ameland) and in Tertiary sands and Quaternary moraine deposits in East Groningen. Whether the amber in geologically deep deposits would have been accessible to Bronze Age collectors is open to question. The seashore occurrences would, however, have been easy pickings; amber collecting is still possible on the beaches of the Frisian islands (Waterbolk & Waterbolk, 1991).

Whatever the source of the raw material, some amber beads at least were shaped in the Netherlands. This is suggested by the occurrence of amber beads of unusual forms in the Veluwe Bell Beaker group of the regional Late Neolithic (see section 3.2.2).

Local fabrication of amber beads in the Early Bronze Age has been attested at a Hilversum Culture site at Velsen-Stationsweg, North Holland (Vons, 1970; cited by Brongers & Woltering, 1978: footnote 236; for the ^{14}C dating of this site see ten Anscher, 1990: pp. 72-73, fig. 22: terminus ante quem: GrN-5972, 3410±35 BP; terminus post quem GrN-5973, 3450±35 BP; 2-sigma calibration range of average between the two: 1878-1684). Distinctive forms are not recognizable in this assemblage.

3.2.2. *The forms*

It is one thing to show that amber could have been found locally, and quite another to demonstrate that it actually was collected and worked in the region in the Bronze Age.

One might suppose that if amber was imported into the Netherlands the form of the beads and pendants would tend to be the same as those found in other regions, but if the material were found and worked locally, the forms developed might also be local. A third possibility, of course, is that amber might have been imported as raw lumps, and locally worked into necklace components. In the Netherlands, Late Neolithic, Veluwe Bell Beaker finds, such as the cushion-shaped V-bored button from Vaassen, Gelderland and the crescentic bead or pendant from Nieuw-Millingen, Gelderland (Brongers & Woltering, 1978: p. 105 Afb. 61), the H-shaped V-bored button from Beers-Gassel, North Brabant (Verwers, 1990: pp. 30-31, Afb. 16), and the horseshoe-shaped pendants from Houtdorper Veld, Gelderland (Bursch, 1933: Taf. VI:39,40), occasionally contain amber beads and buttons of forms unknown elsewhere. This is not, however, the case in the known finds of the Early and Middle Bronze Age.

Little can, of course, be said of beads which are perforated but otherwise left in raw, unworked shapes. Most of our amber beads have, however, been shaped. Simple globular, lens-shaped or biconical forms predominate. Often the beads are not symmetrical; sometimes they can even be called 'lop-sided', to use the expression employed by Harding (1984: pp. 57-60, 68-104, 311-313) with respect to the similar Mycenaean beads.

In the Early Bronze Age Exloërmond hoard (Find No. 1) and two of the Middle Bronze Age finds (Roswinkelerveen hoard, Find No. 6, Weerdinge-Paaschberg grave, Find No. 5) are elongated, tubular beads. These have parallels not only in Denmark, Germany, Poland and South England, but also as far afield as Mycenaean Greece (see below, under Find No. 1).

A square-sectioned bead in the Weerdinge grave (Find No. 4) has at least two parallels in southern Germany, as well as in Denmark and in a grave find in Greece (see below under Find No. 4).

Beads with two perforations in the centre, like a button, occur in the finds from Exloërmond, Emmerdennen (Find No. 2) and 'Drenthe' (Find No. 3). They are matched in a Mycenaean find from Spathes (see below, under Find No. 2).

A bead in the Roswinkelerveen hoard (Find No. 6: No. 5) has both a lengthwise and a cross-wise perforation. This unusual feature is matched on a bead in a Jutland Period II male inhumation grave at Hjerpsted (Aner & Kersten VI: p. 18, No. 2916).

Especially characteristic for the Dutch Middle Bronze Age finds are the beads of the form usually described as 'flattened biconical', i.e. of hexagonal section. This form seems to be very rare in Denmark. It is not even mentioned in the summary of Danish Bronze Age amber types by Becker (1954); and in the available eight volumes of Aner and Kersten we have found only one possible (damaged) specimen. It is, however, current in MBA contexts in areas such as the Lüneburger Heide, Mecklenburg, Silesia, Thuringia, and in tumulus Bronze Age contexts in Hessen, Alsace and South Germany (for references see under Find No. 2). Farther afield, it occurs in at least half a dozen finds in the Greek Bronze Age; and not only in the Peloponese (Mycenae, Kakovatos) but also as far afield as Crete and Cyprus. The dates vary from LHI/LMI to LHIII.

Such 'hexagonals' are not common in Britain, as the survey of Beck and Shennan (1991) has clearly shown. Their shapes 9A and 9B (their fig. 4.1) are here concerned. 9A is represented by only one Early Bronze Age find and one 'probably Late Bronze Age'; 9B, with six finds (1 EBA, 1 MBA, 4 LBA, according to the authors) is described as 'predominantly a Late Bronze Age type'. Possibly relevant is the amber necklace hoard from Sustead, Norfolk (Beck & Shennan, 1991: pp. 101, 173, 207, figs 11.3, 11.14:1); the find-spot attribution is according to these authors open to question. The British authors assign 46 of the 54 beads in this hoard to their Type 9B. They date it hesitantly to the Late Bronze Age, by analogy with British and Irish finds of that period. Unfortunately their illustration does not serve to permit judgment as to whether its resemblance is indeed to the Late Bronze Age finds cited, or whether it could be brought into connection with our Continental Middle Bronze Age finds. Admittedly, the largest beads in the Sustead find are larger than is customary in the Middle Bronze Age on the Continent. In view of all the question-marks,

evaluation of this find must await its fuller publication.

Of special interest in this connection, however, is the '9A' flattened-biconical bead from Colchester, Essex, which was found stuck to a Middle Bronze Age shield-pattern palstave (Davies, 1968; Beck & Shennan, 1991: pp. 99, 152-153, fig. 11.3:8). There is no reason to label this bead as belonging to a 'Wessex type' (Davies, 1968); but it would be quite at home among the Middle Bronze Age 'hexagonals' on the Continent (as indeed recognized already by Schmidt & Burgess, 1981: p. 121). The Colchester palstave is not an Acton Park product; it belongs, rather, to the variety which the present writer once (1963a: p. 53) termed 'East Anglian'. With reference to this specimen, Schmidt & Burgess (1981: p. 125) have created a 'Type Colchester'. We would date it not in the Acton Park phase, but rather in the succeeding Taunton phase; which indeed would make it contemporary with the Drenthe Middle Bronze B amber necklaces.

A 'hexagonal' bead similar to the specimen from Colchester is the largest of the four beads (assigned to Type 9E, Beck & Shennan, 1991: p. 178; Ashbee et al., 1989: pp. 46-47, figs 43-44, p. 65), found (along with Deverel-Rimbury pottery, and much else of interest) at the bottom of the Wilsford shaft, thus in Wessex near Stonehenge. The Wilsford deposit is well dated by ^{14}C (average of four OxA dates: conventional 3251±29 BP; 2-sigma calibration range 1515-1400 BC; Housley & Hedges, 1989: pp. 68-70). Both the Colchester and Wilsford specimens are likely to be imports from the Continent, given the admitted rarity of the form in Early and Middle Bronze Age Britain and its Continental abundance.

The rich Lüneburger Heide find from Fallingbostel (Laux, 1976: No. 81, Taf. 55B) shows that the hexagonals were already current in the Sögel-Wohlde phase; in the Netherlands they do not appear in the Early Bronze Age Exloërmond hoard, but are present in the Middle Bronze Age finds of Weerdinge-Paaschberg (Find No. 5), Emmerdennen (Find No. 2), Roswinkelderveen (Find No. 6) and Hijken (Find No. 9).

Amber pendants, with a peripheral perforation, have been found in the Exloërmond and Emmerdennen hoards and also, for example, in the Spathes-Olympos find already mentioned, and in the Janneby peat hoard (below under Find No. 1).

Three finds in the Netherlands (Exloërmond, Emmerdennen, 'Drenthe') contain beads (or pendants?) with one central perforation and another at the edge. These recall, and hypothetically may be in some way derived from, the ring-pendants common in eastern and northern Europe (cf., for example, Gimbutas, 1965: pp. 35-39); although the ring-pendants admittedly have usually a larger central perforation. And in fact the two examples in the hoard from 'Drenthe' do have central perforations slightly larger than the peripheral holes. Gimbutas regards the ring-pendants, whether of amber or other materials, as being characteristic for "the earlier part of the Early Bronze Age". But a recently excavated amber specimen from a grave of the Unterwölbling group in Austria, from the Franzenhausen I cemetery (*Grab Verfärbung* 595: Neugebauer-Maresch & Neugebauer, 1988-1989: pp. 110-111, Taf. 4) is associated with a bulb-headed pin with diagonal perforation. This pin type is typical for the last phase of the Early Bronze Age, and should be contemporary with later Wessex (Camerton), and thus with the Exloërmond hoard.

That the amber beads from the Early and Middle Bronze Age necklaces in Drenthe are – despite the possibilities that have been shown to exist for the local procurement of raw amber – nevertheless all of forms which are widespread in Europe, tends, in my opinion, to weigh against the idea that they were all or for the greater part shaped locally.

If they were not shaped locally, where were they shaped? Not, as far as the evidence goes, in Denmark ... though we should bear in mind the arguments of Shennan (1982; cf Beck & Shennan, 1991: pp. 109-112, 141) that the Middle Bronze Age Danes preferred to export their amber southward (presumably in exchange for metals) rather than keep it at home, where it was too easily obtainable to have much value as prestige goods. Since there are no claims for natural amber sources in Central Europe, we must continue to assume (as is traditional, and is reaffirmed by most recent commentators) that most, if not all, of the Central European Early and Middle Bronze Age amber was obtained via exchange networks from the Baltic and/or North Sea coastal areas. Since much the same types of beads occur from the North European plain to southern Greece, we may suppose that there were one or more centres in (broadly speaking) the Middle European area in which the types were produced and from which they were disseminated.

The Weser route must, in particular, have been an important north-south highway by which amber and metals were exchanged between Denmark and Schleswig-Holstein, the Lüneburger Heide region, Hessen, and other regions of the Central European *Hügelgrabkultur* (see below under Find No. 2).

It is therefore worth while to consider hypothetically, as an alternative to direct import from Jutland, on the one hand, or local acquisition and manufacture on the other hand, that the amber in the Drenthe graves and hoards came indirectly, via the Middle European circuit. We shall see when we consider the bronzes that, although there was some Middle Bronze Age metalwork that arrived in the Netherlands from the South Scandinavian culture area, there was much more that came from the Central European area. It would not be surprising if amber necklaces came along with the bronzes.

Some widespread Bronze Age amber forms are not (so far, at least) represented in the Drenthe finds. Among these are the V-bored buttons, which are widespread in the Late Neolithic and in the Early Bronze Age, and which are well represented at least in Denmark and Wessex. It is also noteworthy that the amber spacer plates which in their simpler and more

complex varieties have played such an important part in discussions over the relations between South Germany, Mycenae, and Wessex, have not, so far at least, been found in the Netherlands.

In some other areas, amber beads are often associated in necklaces with 'beads' of coiled bronze wire. Such finds have not occurred in Drenthe; but there is one example of a single coiled-wire bead associated with four amber beads, in a grave find at Mander in Twente (eastern Overijssel) (Find No. 15).

No consensus now exists on the possible origins of the beads of other, exotic materials occasionally associated with the amber in Drenthe: the faience and tin beads from Exloërmond, the rock crystal bead from the Emmerdennen, the glass beads from Emmercompascuum. As there is no reason to suppose that tin or rock crystal were locally available in southern Drenthe, or that faience or glass were locally manufacture in that area, it is certain that the Drenthe necklace finds contain elements which must have been imported from a considerable distance. The stereotyped provenance attributions of former days – faience from Egypt via Mycenae and Wessex; tin from Cornwall – are no longer accepted; but it cannot be said that satisfactory substitutes have been demonstrated. Such comments as we are able to make are included in the discussion below of the individual finds concerned.

3.3. The catalogue of the graves and hoards with amber necklaces (Find Nos 1-9)

FIND NO. 1. EXLOËRMOND, *GEMEENTE* ODOORN, DRENTHE: BOG HOARD WITH AMBER, TIN, FAIENCE, BRONZE (fig. 4)

Map reference: Sheet 17 East (Beilen).

Site: Peat bog near Exloërmond (no more detailed information available).

References: (a) *Museumverslag Assen*, 1881, 3, No. 2; (b) Beck & Stone, 1936: pp. 221, 243, Pl. 66, fig. 1:1; (c) van Giffen, 1944a: p. 452, fig. 43; (d) Glasbergen, 1957: pp. 1-2, Pl. I; (e) de Laet & Glasbergen, 1959: p. 125; (f) Butler, 1969: p. 55, fig. 20 (2nded. 1979, p. 56, fig. 27); (g) van Heemskerk Düker & Felix, 1942: Pl. 113; (h) Waterbolk, 1977: pp. 42-43, Pl. 42; (i) Clarke, Cowie & Foxon, 1985: pp. 148, fig. 4.82, p. 313, No. 172.

Description of site: None available.

Circumstances of find: Found in April 1881, under 2 meters of peat, by a peat workman, Johan Leutscher of Exloërmond.

Preservation: Drents Museum (formerly Provinciaal Museum van Drenthe); purchased from finder 1 May 1881; inventoried under 1881/V.1.

Description of the objects:

1. *Amber beads and pendants* (14 ex.): one bead is yellow, the others light brown. One bead is barrel-shaped; others are disc-shaped to ovoid. Their cross-section is generally oval to rounded-biconical. Several beads are markedly asymmetrical in section. The perforations are cylindrical or nearly cylindrical. Two pendants are trapeze-shaped; two are more or less rectangular.

N.B. Recently published photographs of this find show 13 of the amber objects; the missing bead is unaccounted for.

2. *Tin beads* (25 ex.): six long, roughly segmented; others short and irregular in shape.

3. *Faience beads* (4 ex.): colour greenish blue (one more bluish than the others). Three have three segments; one has four segments.

4. *Bronze, roughly cylindrical bead (clasp?).* Made from approximately rectangular strip of sheet bronze (originally c. 12x5 mm). Along one shorter edge are three rough perforations, with burrs. The opposite short edge is irregular.

Parallels and connections: References: Harding, 1984: pp. 87-104, 311-313; Clarke et al., 1985; Bouzek, 1985; Becker, 1954. *The amber beads:* Harding, 1984: pp. 58-60, 68-87; Aner & Kersten, 1973-1986; Waterbolk & Waterbolk, 1991; Hachmann, 1957b; Milojčič, 1955; Gerloff, 1975.

1. The *tubular amber beads* (cf. also Roswinkelerveen hoard, Find No. 6, and Weerdinge-Paaschberg grave, Find No. 5) have a number of parallels in Denmark and Schleswig-Holstein (Aner & Kersten, 1973-1986: Nos. 466C, 2535, 2688, 2756, 3540A, 3602D, 3789B, 3919B; Röschmann, 1963: Taf. 80). Find No. 3789B is of 'Sögel-Wohlde' date; others are of Period II and even (No. 3540A) from Period III.

Tubular beads occur also in Wessex Culture finds, such as Upton Lovell G.2e (Gerloff, 1975: No. 272, Pl. 53A), Wimborne St. Giles G.8 (Gerloff, 1975: No. 281, Pl. 52E = Oakley Down; Hachmann, 1957b: Abb. 2:5), Wilsford G.50a (Gerloff, 1975: p. 258 App. 7 No. 2 = Hachmann 'Lake' Abb. 12: 13-36).

The tubular beads are also present at least occasionally in the Central European Early Bronze Age (Burk, Kr. Bautzen: Coblenz, 1986: *Grab* 13: p. 75: Abb. 16:14) and in the Tumulus Bronze Age; Wels-Weyrauch (1978) illustrates some examples from Hessen: Giessen (Wels-Weyrauch, 1978: Taf. 93B), Frankfurt-Berkersheim (Wels-Weyrauch, 1978: Taf. 98A), Urberach Häsengebirge (Wels-Weyrauch, 1978: Taf. 98B).

Beads of this form are apparently not widespread in Mycenaean Greece, but occur in some numbers in the grave find from the Spathes cemetery, Olympos, dated LH IIIB/C, 13th or 12th century (Demakopolou, 1988: p. 137 No. 86 colour photo).

The trapeze-shaped pendants, with single perforation at the narrow end, have a whole series of close analogies (no less than eight examples) in a single rich grave of the Armorican Early Bronze Age, found with other beads and pendants in the central chamber of the large tumulus at Kernonen en Plouvorn, Finistère (Briard, 1970; 1984: p. 139, fig. 85:1-4, 8-11). Neither Briard nor du Gardin (1986: p. 553) could cite further amber examples in France; though there is a similarly shaped pendant in greenstone from the tumulus of Carnoët (Briard, 1984: p. 130, fig. 86). But there is an amber bead of similar form, although damaged, in the Wessex grave group of Wilsford G.7, Wiltshire (Annable & Simpson, 1964: pp. 44, 98, No. 150). This Wilsford grave is according to Gerloff (1975) a female grave of her Wilsford series; but its spherical gold bead has been cited by Barfield (1991: pp. 103-105) as related to, and presumably contemporary with, the gold-bound amber bead from the Swiss settlement site at Zurich-Mozartstrasse; and presumed to stem from the Reinecke A2/16th century level there.

A single amber pendant of similar form, but more finely shaped and well-polished, was found at Hauwert, *gemeente* Wervershoof (between Hoorn and Medemblik, North Holland: Sheet 14E, Alkmaar, c. 136.86/525.80) and is now in the Westfries Museum, Hoorn (fig. 4, inset). The bead was a surface find in disturbed ground (where it could not have been long, considering its excellent state of preservation); possibly Early Bronze Age, but also medieval finds are from the same terrain (information from T. van der Walle-van der Woude).

2. *The segmented faience beads:* Whether the faience beads of the European Early Bronze Age are imports from the eastern Mediterranean region, or plausibly of local manufacture in eastern and western Europe, cannot profitably be considered in this context. It is, no doubt, sensible to regard the beads found in the Low Countries as imports from the British/Armorican sphere, at least until proven otherwise.

The concentration of segmented faience beads in Wessex (according to Gerloff, 1975: pp. 223-225, occurring chiefly in female graves of her Aldbourne group, which she dates mainly to Wessex II, uncertainly extending into the Middle Bronze Age), and to a lesser extent in Brittany (Briard, 1984: pp. 140-142), have led to the assumption that the Exloërmond beads are imports from the English Channel littoral area; the tin beads would point in the same direction; as would possibly the grooved ogival dagger, probably of British type (three rivets) from Schuilingsoord (see under Dating below). The one segmented faience bead found in Denmark (Fjallerslev, North Jutland: Becker, 1954) has also been regarded as Wessex-derived.

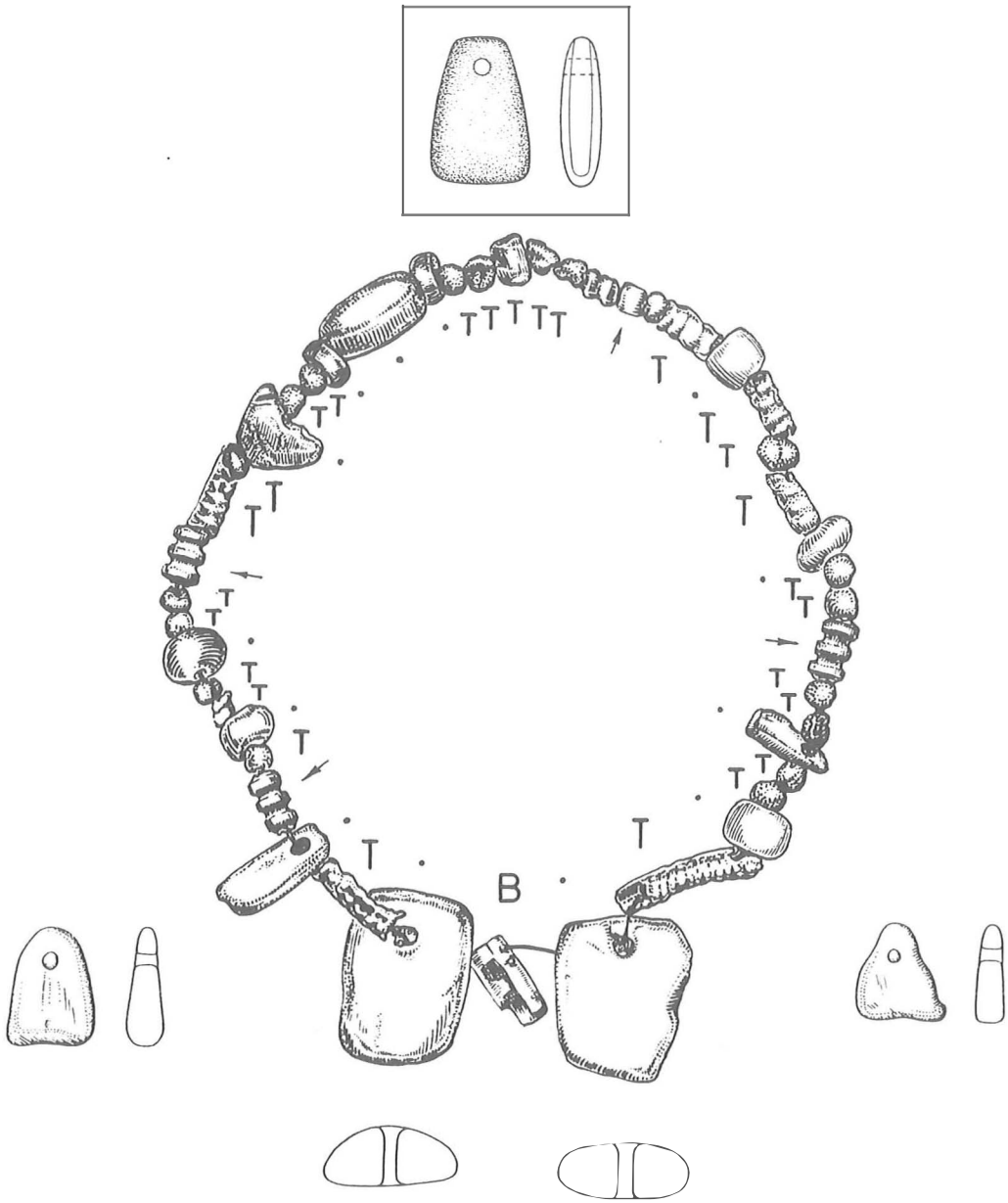


Fig. 4. Find No. 1. Exloërmond (Drenthe). Amber (dots), faience (arrows), tin (T), bronze (B). After Glasbergen (drawing P.C.A. van der Kamp). Inset: amber bead from Hauwert (North Holland). Scale 1:1.

The only other faience bead known in the Netherlands is from a settlement site of the Hilversum culture at Vogelenzang, South Holland. It was found on the excavation dump, along with amber beads (van Heeringen, 1978: p. 288, quoting Mrs. de Raaf, the wife of the finder; see also Groenman-van Waateringe, 1966b: ten Anscher, 1990: pp. 72-73, 77; note the revised ^{14}C date, GrN-14692 3470±60 BP, 2-sigma calibration range 1958-1642).

The faience bead is barrel-shaped and ribbed (length 1.45 cm; thickness 0.5 cm; perforation 0.33-0.4 mm, according to van Heeringen); it resembles specimens from a barrow on Carn Greis, Boscrejan, St. Just in Penwith, Cornwall (Hencken, 1932: p. 74, fig. 21; photo in Ashbee, 1960: Pl. 18:3). The barrel-shaped beads presumably go with the segmented faience beads and Cornish Urn pottery from the same barrow, though the accounts of the find are somewhat confused.

3. *The tin beads:* A segmented tin bead from Sutton Veney, Wiltshire, was illustrated by Colt-Hoare (1810-1821, reprint 1975: p. 103, Pl. XII). According to Annable & Simpson (1964: Nos 464-466) the tin bead, now lost, was found together with a bronze awl and bone V-bored buttons in a primary grave in a disc barrow.

Dating: Especially the faience beads suggest contemporaneity with Wessex II (Burgess Phase VII: Arreton, etc.). In local terms, this would be contemporary with an early part of the Sögel-Wohlde phase. The disc-barrow association of the Sutton Veney segmented tin bead would be consistent therewith.

The amber beads are presumably earlier than those of the other

necklace graves and hoards in Drenthe, as the characteristic large disc and flattened-biconical forms are not present in the Exloërmond find. The trapeze-shaped amber pendants are datable by reference to the Armorican Tumulus grave of Kernonen-Plouvorn, with its eight examples. This lavishly furnished warrior's grave contained, alongside typically Armorican Early Bronze Age furniture as well as various links with Wessex (cf. Gerloff, 1975: esp. p. 97), a wheel-headed pin of the earliest Central European variety (Type Speyer; Kubach, 1977: pp. 133-142, esp. p. 134, No. 130-7), which begins in the Lochham (Early Tumulus) phase; a related pin is in the Sögel-Wohlde period-hoard of Wildeshausen, Kr. Oldenburg in Northwest Germany (see under Find No. 12).

The three-riveted grooved ogival dagger from Annertol, Schuilingsoord, *gemeente* Zuidlaren, Tum. III, grave of Period 2, is perhaps also a Wessex export of the same phase; but has a conventional ^{14}C date of 3450±45 (GrN-6753C; Butler, Lanting & van der Waals, 1972: pp. 230-231; 2-sigma calibration range 1886-1684), which antedates the Wessex II ^{14}C dates presently available (cf. section 1.1), as does the calibrated date for Vogelenzang with the segmented faience bead (1958-1642).

Further comments: The British-type (though atypically large) basal-looped spearhead also found in the peat at Exloërmond (Butler, 1963a: p. 99, fig. 28b, p. 109, No. 4) should belong chronologically to Burgess Group IX rather than to Group VII, and would thus have no connection with the hoard.

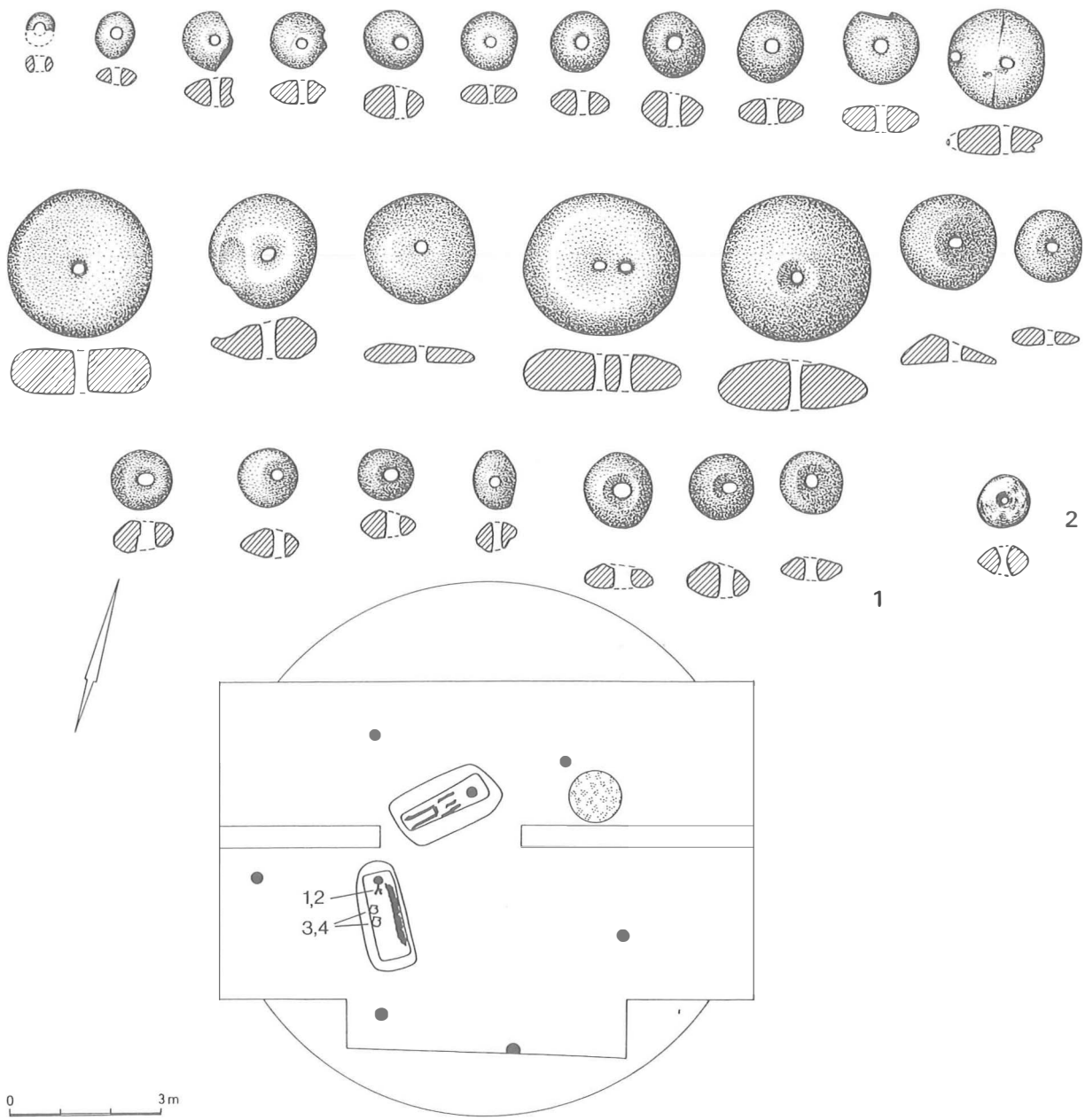
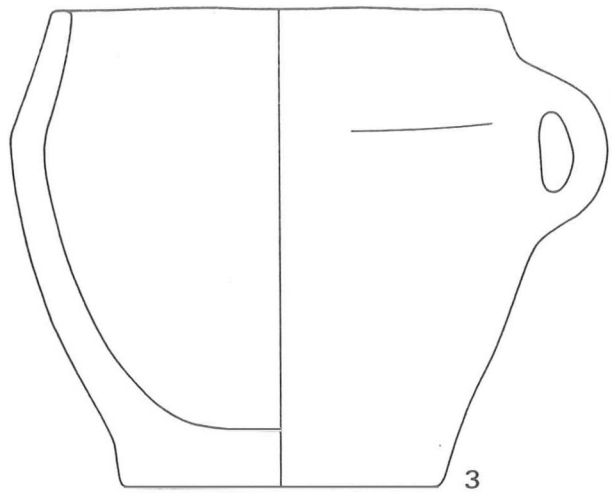
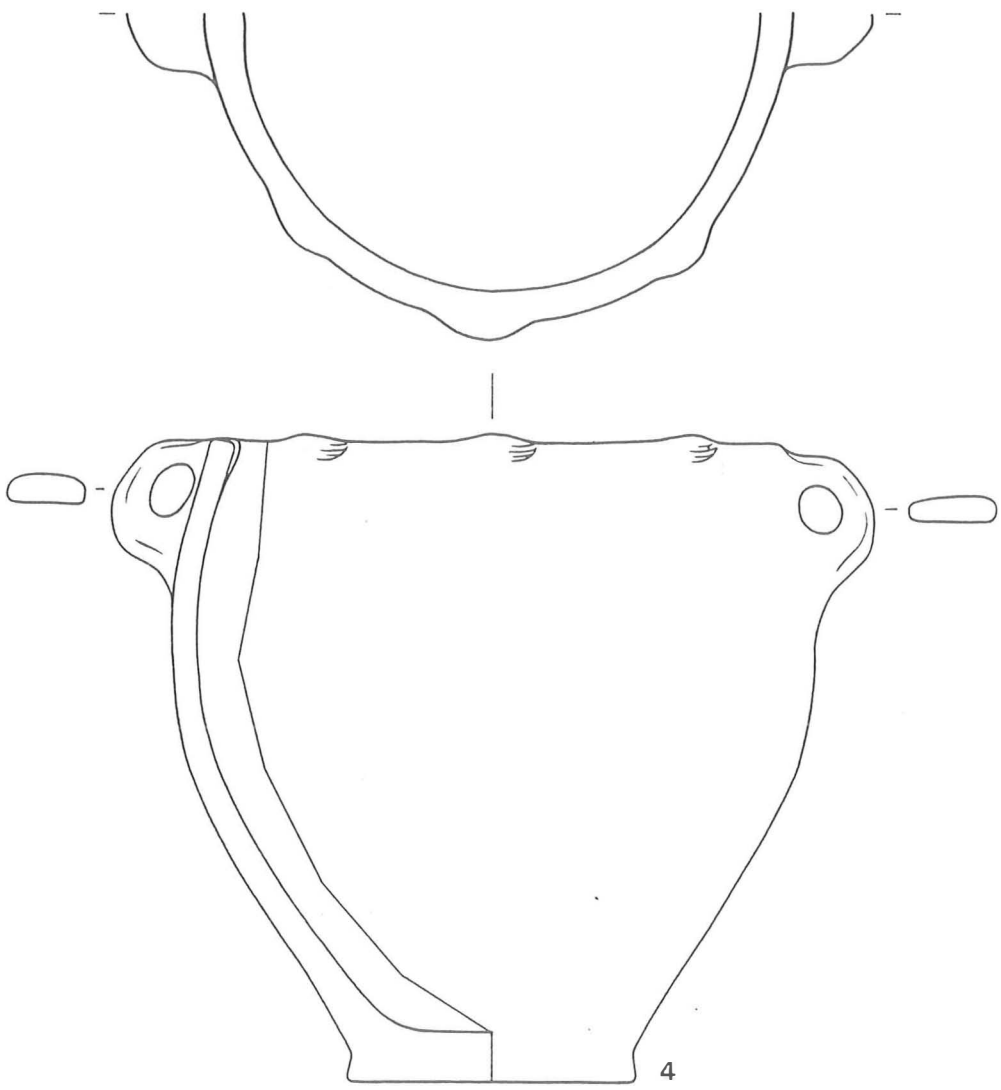


Fig. 5. Find No. 2. Emmerdennen (Drenthe), Tumulus 11 of Bursch. 1. All amber; 2. Rock crystal; 3-4. Pottery. Scale 1:2. Tumulus plan re-drawn after Bursch.



3



4

FIND NO. 2. EMMERDENNEN, *GEMEENTE* EMMEN, DRENTHE: GRAVE IN TUMULUS 11 OF BURSCH (fig. 5)

Map reference: Sheet 17 East (Emmen), 258.35/533.95.

Site: A cemetery of twelve tumuli situated immediately south of the Emmen wood, excavated by F.C. Bursch in 1932 for the Rijksmuseum van Oudheden (R.M.O.), Leiden. Adjoins the Angelsloo-Emmerhout sites excavated by B.A.I. Groningen in the 1960's, with tumuli, urnfield and numerous houseplans (van der Waals & Butler, 1976; full publication by P.B. Kooi in preparation).

References: (a) Bursch, 1936: pp. 64-66, Afb. 46: 5,6 (pots), Afb. 47: 2 (necklace); (b) Glasbergen, 1954: pp. 29-30; (c) Butler, 1969: Pl. 9-11 (2nd ed. 1979: figs 32, 45); (d) Lohof, 1991 (II): pp. 47-48, No. 109-0.

Description of site: Bursch's Tumulus 11, excavated in 1932, was a small sod-built mound (diam. 7.5 m), built of inverted sods. It was surrounded by a circle of six very widely spaced postholes. There was also a round pit in the line of the circumference of the timber circle, which Bursch interpreted as the trace of a post that had been removed. That is not, however, likely, as the lines connecting opposite postholes of the circle of six crossed each other in a single point in the centre of the mound, according to Gerritsen's principle (van der Veen & Lanting, 1989: pp. 193-194, 234, fig. 2). A central grave was not found, but the mound contained two more or less tangential coffin graves, each with traces of skeletal silhouettes. One of these graves contained two pottery vessels and a necklace, plus fragments of bronze and flint splinters, here described.

This grave pit is described briefly by Bursch (1936: p. 65) as having been c. 50 cm deep and lined with sods. Within the traces of the coffin, poorly preserved remains of the skull and possibly of the left arm were observed; the necklace was 'around the neck' in Bursch's interpretation, but did not actually lie neatly in the position in which Bursch illustrated it (in his own words, "ook al lagen in de kuil zelf de kralen jammerlijk dooreen" [even if the beads lay in the pit itself in regrettable disarray]). (That one amber bead has a double perforation hardly seems an adequate basis for the reconstruction by Bursch (his Afb. 47); also, one must note that two of the beads have double perforation!).

The two pots were at the west side of the body. (In the second coffin grave, no grave goods were preserved; there were only traces of an extended skeleton).

Preservation: R.M.O., inventoried under 1932/11.10-15.

Description of the objects:

1. *Pottery vessel*, pear-shaped with concave shoulder; two vertical strap-shaped loops bridging neck; the rim has been pressed flat; from it extend outwards six small D-shaped lugs, spaced regularly between the handles. Stand-ring, slightly expanded at base. Of coarse ware, with fine granitic grits. Height c. 17.0-17.5 cm; rim diameter c. 17 cm. Inv. No. 10.

2. *Pottery vessel* of similar shape, but with more pronounced hollow neck. Single D-shaped loop of round section. Cylindrical stand-ring. Height 12.5 cm; rim diameter c. 11.6 cm. Inv. No. 11.

3. 26 *amber beads* (originally 31 ex.), mostly lenticular to biconical. Several beads are markedly asymmetrical in section. The perforations are cylindrical or nearly cylindrical. The beads vary greatly in diameter. Most are in the size class 17 to 23 mm, but two are smaller (9, 14 mm), some are somewhat larger (2x22 mm, 23 mm, 28 mm, 29 mm, 33 mm, 34 mm); the three largest beads are 44-46 mm.

One of the large-sized beads has a pair of perforations in the centre, as in a button; one medium-sized bead has one central and one peripheral perforation. Inv. No. 12.

4. *Bead of rock crystal;* biconical, with biconical perforation: diameter 1.9 cm; thickness 0.9 cm. Inv. No. 13.

5. *Bronze fragments*, including a small *annular ring:* diameter 1.6 cm; thickness 0.9 mm. Inv. No. 14.

6. *Flint splinters*. Inv. No. 15.

Parallels and connections: The pots fall under the general heading of *Kümmerkeramik* (Sprockhoff, 1941: pp. 12-31); there is no survey for the Netherlands. Generally similar concave-necked pots, but rather variable in details, are not uncommon in Denmark and Schleswig-Holstein (Aner & Kersten, 1973-1986, passim). The rock crystal bead has no parallels in the Netherlands. Similarly formed beads of carnelian from the Caucasus area are illustrated by Gimbutas (1965: p. 90, fig. 47). Rock crystal beads and more elaborate rock crystal work are well represented in Mycenaean shaft graves (e.g. Grave O, Mylonas, 1972).

I. *The amber beads*:

The *bead or pendant with one central and one peripheral perforation* has parallels in the Netherlands in the grave find from Weerdinge-Kampereschje (Find No. 4) and the amber hoard from 'Drenthe' (see Find No. 3).

The *bead or button with two central perforations* has an approximate parallel in a grave in the Olympos-Spathes cemetery in Greece (Demakopoulou, 1988: p. 137, No. 86, attributed to LHIIIB or LHIIIC); cf. above, under Find No. 1, for tubular beads in the same grave.

The *flattened-biconical (hexagonal) beads* are, as suggested above (section 3.2.2 and Find Nos 2, 5, 6, 8), the most characteristic Middle Bronze Age amber bead form in the Netherlands.

Although not apparently well represented either in Denmark or Britain (for the rare exceptions, see above, section 3.2.2), numerous examples can be cited from the Central European Tumulus Culture and areas influenced by it, from the Lüneburger Heide to Central and South Germany and Weiningen in Switzerland.

Some examples:

Lüneburger Heide: Fallingbostel, Kr. Fallingbostel: rich female grave of the Sögel-Wohlde phase (Laux, 1976: No. 81 Taf. 55B); Rettmer, Kr. Lüneburg (Laux, 1976: No. 56, Taf. 55A).

Silesia: Kruszyniec (Juppendorf), *Grab* 1 and 2 (Tackenberg, 1927; Gimbutas, 1965: p. 289, fig. 195; Gedl, 1983: p. 56, No. 190). Dated by Gedl to *jüngere Vorlausitz* = late Period II = late Tumulus.

Mecklenburg: the use of the 'hexagonal' bead form attains its climax in Mecklenburg in Period III, where graduated necklaces, containing often finely worked beads, were worn and deposited which consisted entirely or nearly entirely of beads of this form. No less than three such necklaces were found in the Friedrichsruhe cemetery alone (brief summary: Schubart, 1972: p. 45, with further references). Local workmanship is presumed; the material is believed to be import from Denmark or the Pomeranian coastal area. A Mecklenburg-type amber necklace was found in a Tumulus Bronze Age grave in Thüringen, at Schwarza, Kr. Suhl (Tum. 2, *Grab* 13: Feustel, 1958: pp. 18-19, Taf. XII, XVI). Another necklace of Mecklenburg type is from Klein-Kiesow, Kr. Greifswald in Pomerania (34 beads: Kersten, 1958: p. 31, Taf. 26, 310a; photo Keiling, 1987: p. 20, Taf. 35). The necklace from Offenbach, Hessen (Kubach, 1973: Taf. 110F), with 42 beads graduated in size, mostly hexagonal, seems to be of the same character. The date of this find is possibly Middle Tumulus, but perhaps later. The necklace containing in total 286 amber beads, similar in character but with smaller beads, from Henfenfeld I, Grave 11, Mittelfranken (Hennig, 1970: pp. 125-126, Taf. 58), is Late Tumulus/Early Urnfield in date. These finds are presumably due to exchanges with the Mecklenburg area. Such amber finds, presumably traded up the Weser from Mecklenburg, apparently started finding their way south during the Middle Bronze Age; that they occur in Mecklenburg itself only in Period III is presumably due to local depositional practice which has resulted in a dearth of Period II graves in that area.

Thüringen: Schwarza, Kr. Suhl, Thüringen (Feustel, 1958: pp. 69-70, Pl. XII, XVI).

Hessen: Darmstadt-Arheiligen, Baierseich, Hg. 3, *Grab* 3 (Richter, 1970: No. 303, Pl. 76A); Darmstadt-Bessunger Wald (Richter, 1970: No. 316 etc., Taf. 77A); Haitz, Kr. Gelnhausen, Hg. 1, secondary 2 (Richter, 1970: No. 132, Pl. 79B); Oderding (Hachmann, 1957b: p. 25, Kat.No. 45, Abb. 6: 21-25; esp. 26); Wixhausen, *Grab* 9 (Richter, 1970: No. 208, 270, Taf. 74E.

Bayern: Rottenried, Gem. Gilching, Ldkr. Starnberg, *Grab* 7 (Hachmann, ,1957b: Kat.No. 46, Abb. 6: 21-25, esp. 26); Sulzbach-Langenbuchenberg, Ldkr. Obernburg, *Grab* in Hg. (Hachmann, 1957b: Kat.No. 18, Abb. 8: 16-19; cf. Gerloff, 1975: p. 262, No. 43).

Württemberg: Upflamör-Lautrieb (Hachmann, 1957b: Kat. 39, Abb. 11: 14-25, esp. No. 114; cf. Gerloff, 1975: p. 261, No. 28).

Switzerland:

Weiningen, Canton Zürich: Hardwald, grave in Tumulus 5. Part

of amber necklace (9 more or less disc-shaped beads, 94 small cylindrical amber beads, plus one of blue glass); handled pot, pair of decorated bronze bracelets. Earlier Tumulus phase, Stufe Weiningen (Keller-Tarnuzzer, 1952: pp. 68-70, Taf. VII:2; Oosterwalder, 1971: p. 87, Taf. 5:7-11).

France:

Bas-Rhin, Alsace (Fôret de Haguenau): Appenwihr, Tumulus V, Grave 3 (du Gardin, 1986: p. 550, fig. 2:1; p. 569, with further references). Multiple examples in a necklace of 27 amber beads, plus sheet bronze tubes, in rich female grave. Middle Bronze Age. Oberstritten (du Gardin, 1986: p. 548, fig. 1:16; p. 571; spacer plate p. 555 fig. 5:9). Single example illustrated. In necklace with 67 other beads and two spacer plates (one of which has complex borings).

Champagne: Gravon, Marne (du Gardin, 1986: p. 548 fig. 1:19; pp. 549, 571; Mordant, 1966). One bead (3.0x1.0 cm), in flat grave with inhumation; attributed to Late Bronze Age.

In the Mycenaean world, specimens belonging to the 'hexagonal' category are not common, but are present in at least half a dozen finds, to judge from published drawings in which the flattened-biconical form is clearly indicated: Mycenae, Shaft Grave O (Hachmann, 1957b: Kat.No. 10, Abb. 12: 1-8, esp. No. 5; after Milojčič, 1955: pp. 316-319, Abb. 1:5 top; Demakopoulou, 1988: p. 256, No. 280, with colour photo and further references); Mycenae, Kalkani cemetery, Tomb 518 (Wace, 1932: p. 86, fig. 34; Demakopoulou, 1988: p. 257, No. 281), attributed to LHI or LHII; Nauplion (Harding & Hughes-Brock, 1974: p. 164, fig. 6:3-4); and farther afield at Arvi, Crete (with LMIA sword: Harding & Hughes-Brock, 1974: fig. 6:9); Ialysos, Rhodos (LHIIIC?, Harding & Hughes-Brock, 1974: fig. 6:15); Enkomi, Cyprus (from? Tomb66, LCIIIA-B, Harding & Hughes-Brock, 1974: p. 169, fig. 6:21). Finally, we may mention the two 'hexagonals' found, together with three other amber beads and much rich cargo, in the remarkable XIV Century shipwreck of Ulu Burum, off the southern coast of Anatolia, roughly between Rhodos and Cyprus (Bass, 1987: pp. 698, 722; photograph of the beads in the German version, 1989: p. 93).

Whether and to what extent exchanges from the Mecklenburg area might have been responsible for the occurrence of the 'hexagonals' in smaller numbers in such far-flung areas as Mycenaean Greece, Alsace, the Netherlands and even southern England, could perhaps be clarified by detailed study. The possible role of Mecklenburg in this network system has, it seems, been rather neglected in the international literature.

From this list, which is certainly far from complete, it seems clear that beads of the flattened-biconical form occur at least occasionally in the Sögel-Wohlde/Early Tumulus phase (Fallingbostel, Weiningen), becoming common and widespread in Northern Period II/the Middle and Later Tumulus Bronze Age and Northern Period III/Hallstatt A times; and appearing at least occasionally in the Mediterranean area from LHI to LH III times.

Dating: The Glasbergen Type 3 post circle indicates a date in Middle Bronze B (cf. Lanting & Mook, 1977: pp. 113-114).

The *amber necklace* is entirely compatible with this dating.

FIND NO. 3. 'DRENTHE'. NO FURTHER PROVENANCE DETAILS: PRESUMABLE HOARD (fig. 6)

A group of nine amber beads of Middle Bronze Age character in the Drents Museum, Assen, now (re?)inventoried under the number 1988/V.2, has somehow lost its provenance details. The fine state of preservation indicates that we have to do with a bog find.

All the beads are lens-shaped to flattened-biconical. Two of the beads have a peripheral as well as a central perforation; see above, Exloërmond (Find No. 1), Weerdinge-Paaschberg (Find No. 5 below), Olympos-Spathes, Greece (Demakopoulu, 1988: p. 137, No. 86, attributed to LHIIIB or LHIIIC).

Description of the beads:

1. Lens-shaped: 2.8x2.7 cm; thickness 0.9 cm.

2-5. Lopsided, discoid to flattened-biconical. The perforation of all four beads is worn oval. 2: 3.5x3.2 cm; max. thickness 1.9 cm; perforation .4x0.8 cm. 3: 3.5x3.2 cm; max. thickness 1.1 cm; perforation 0.5x0.7 cm; 4: 4.0x3.1 cm; max. thickness 2.8 cm; perforation 0.4x.6 cm; 5: 3.6x3.4 cm; max. thickness 1.6 cm; perforation .4x.7 cm.

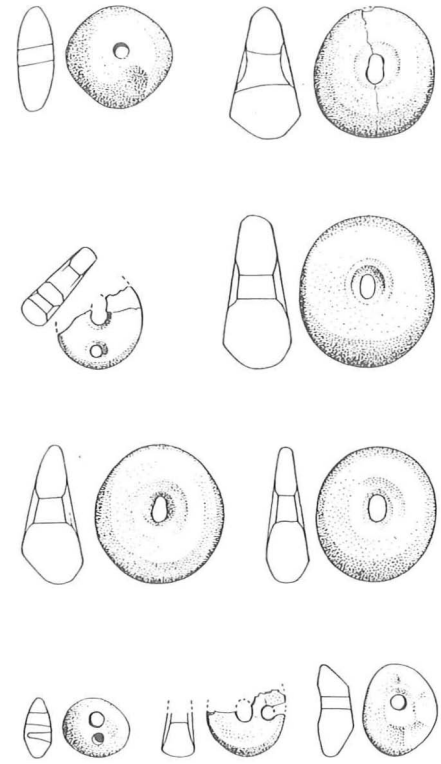


Fig. 6. Find No. 3. 'Drenthe' (no exact provenance). All amber. Scale 1:2.

6. Spindle-whorl-shaped; sides faintly faceted. 2.4x2.0 cm; thickness 1.0 cm; perforation .4 cm.

7-8. Discoidal, with two perforations (one central, one peripheral). 7: ?x2.2 cm; thickness 0.8 cm; perforations 4 and 3 mm. 8: ?x2.2 cm; thickness 0.9 cm; perforations .4 and .35 cm.

9. Flattened-biconical; one eccentric perforation, a second 'perforation' does not penetrate entirely through the bead. 1.7x1.6cm; thickness 0.7 cm; perforation .4 cm.

Dating: The bead types are those occurring in the other Middle Bronze B graves and hoards.

FIND NO. 4. WEERDINGE, *GEMEENTE* EMMEN, DRENTHE: SECONDARY GRAVE IN KAMPERESCHJE TUMULUS 2 (fig. 7)

Map reference: Sheet 17 East (Emmen), 256.52/538.75.

Site: Tumulus 2 is the northernmost but one of an elongated group of tumuli on the Kampereschje, just north of the village of Weerdinge.

Documentation: Original excavation drawings and excavation photographs (B.A.I. *Album* 1926: no. 1-14) in Biologisch-Archaeologisch Instituut, Groningen.

References: (a) *Museumverslag Assen* 1926, 12 (under No. 15); (b) van Giffen, 1927 (II): pp. 305-306, fig. 18 (excavation plan only); (c) van Giffen, 1930: pp. 76-80, Abb. 66-7; (d) Glasbergen, 1954 (II): pp. 22-23, fig. 48a, 48b:7; 27 (under Drenthe No. 1); (e) de Laet, 1958: p. 117; (f) de Laet & Glasbergen, 1959: p. 124, fig. 50 (photo); (g) Butler, 1969: pp. 114-116, fig. 51, Pl. 12 (2nd ed. 1979: p. 63, fig. 31, pp. 122-124, fig. 83); (h) Lohof, 1991 (II): p. 45, No. 102-0.

Description of the site: The tumulus (diameter c. 12 m) was built of heathsods on a podsolized surface, with a central NW-SE rectangular inhumation grave (partially disturbed; no grave goods found). A

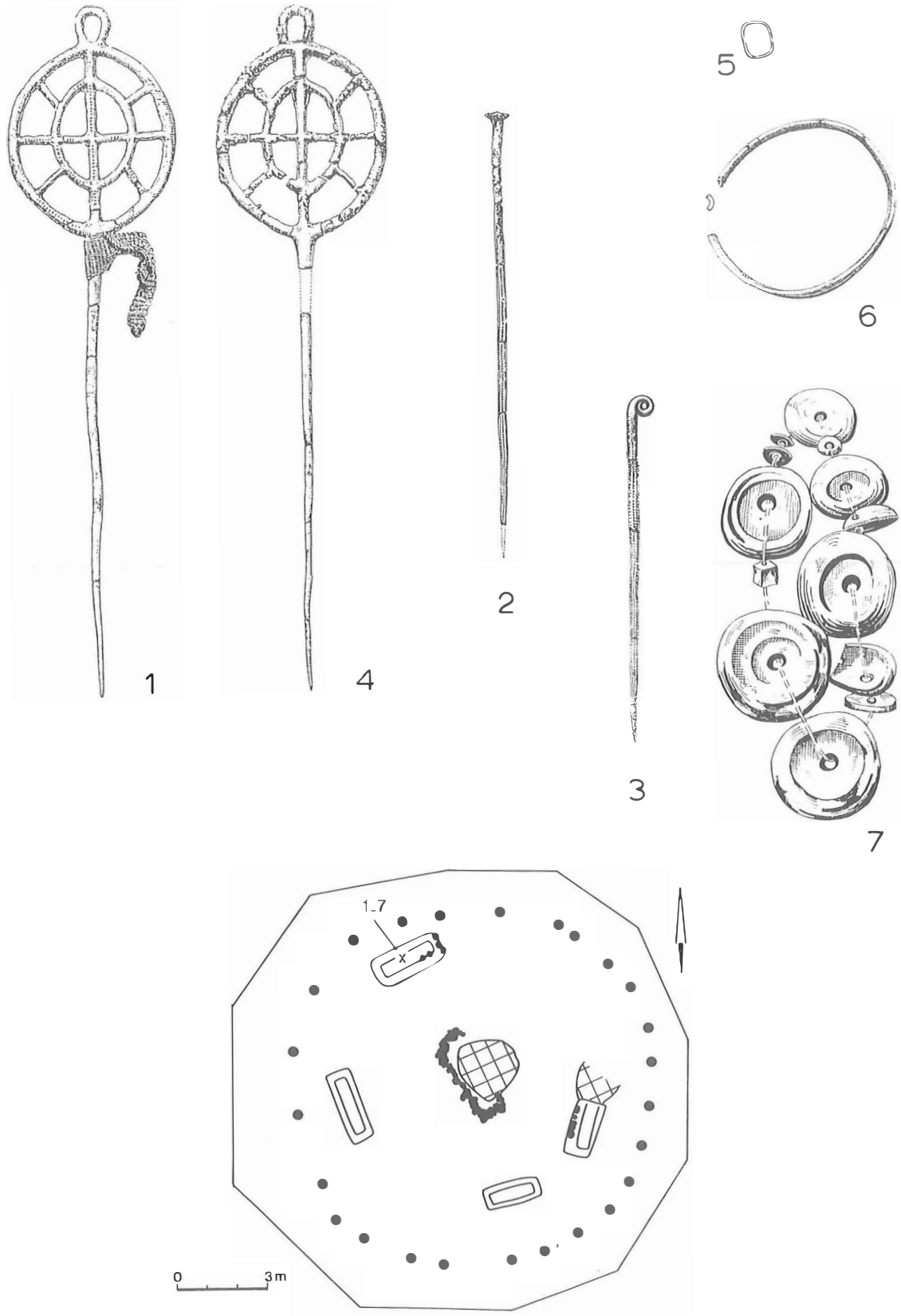


Fig. 7. Find No. 4. Weerdinge, Kampereschje (Drenthe), Tumulus 2, secondary grave. 1. Bronze with textile; 2-6. Bronze; 7. Amber. Scale 1:2. Plan adapted from van Giffen.

partial packing of stones served presumably to steady a treetrunk coffin. It was surrounded by a single, widely spaced post circle (Glasbergen Type 3) of which 25 post-holes were recorded. Probably another 5 went unnoticed. Inserted in the mound were four secondary, tangentially placed coffin inhumation graves (on the NNW, SE, S and W sides respectively). Grave goods were recovered only from the NNW grave.

Circumstances of find: Excavated February-March 1926 by A.E. van Giffen, for B.A.I., Groningen.

Preservation: Inventoried in Drents Museum, Assen, under 1926/III.1-18 (the amber beads, collectively No. 7 below, appear to have been lost or mislaid).

Description of the objects: All of the objects lay in a group along the north edge of the coffin trace, approximately in the middle lengthwise. The bronzes are patinated dark green, with patches of pale green to almost white. All are corroded and broken.

1. *Pin with oval double-wheel head*: four inner spokes, eight outer; loop of horseshoe shape at top of wheel. Cast in two-piece mould. Nicking on face of wheel. Length 23 cm; width 5.6 cm (cf. No. 4 below). Piece of *woven textile*, 1.2 cm wide, is wrapped around the neck of the pin.

2. *Pin with small horizontal disc head*: the upper part of the shaft is decorated with incised transverse ribs; the lower part with longitudinal grooves containing pointillé. L. 23 cm; W. 5.6 cm.

3. *Pin with rolled head*: the shaft is ornamented with longitudinal grooves containing pointillé.

4. *Pin with double wheel head*: identical with No. 1 above, but without nicking. Surface more corroded. Fragment of shaft missing. W. 5.6 cm.

5. *Ring*, annular, of rounded-rectangular shape, of thin bronze wire. Too small to be a finger-ring (unless for a child).

6. *Bracelet*, penannular, of C section; the longitudinal groove is on the outer side.

7. *Amber beads*, 13 ex., of varied form and size. These are unfortunately at present not available for examination. We noted some years ago, when ten of the thirteen beads were present in the Museum, that the colours varied from dark red translucent to blackish and nearly opaque. The perforations were round or worn to an oval shape.

For the forms, we can only rely on the 1:1 drawings made by Postema for the original van Giffen publication; these are somewhat coarse (made for strong reduction in accordance with van Giffen's publication practice), but can be presumed to be reasonably accurate: 4 large discoidal beads, the shadow renderings on the drawings indicate that the faces of the beads were somewhat hollowed, diameters: 3.1 to 4 cm; 2 similar but smaller beads, 2.4 and 2.6 cm, one of these with hollow face; 1 medium-sized disc bead; 1 medium-sized lentoid bead with peripheral perforation, one face is strongly convex, the other less so; 1 bead, originally oval-shaped, with two eccentric perforations; part of the bead is broken off; 3 small D-shaped beads; 1 small spherical bead; 1 small squarish bead.

Parallels and connections:

The *wheelheaded pins*: *Doppelradnadeln* vom Typ Unterbimbach (Kubach, 1977: pp. 166-179, Nos 255-310; Distribution map Taf. 92A). Kubach (1977: p. 178) expressly assigns the Weerdinge pins an origin in the area of Fulda in eastern Hessen. A recent find, geographically intermediate between the Middle Rhine region and Drenthe, is the dredge find from Xanten, Kr. Wesel (Weber, 1992: pp. 30-32, Abb. 11).

The *disc- or nail-headed pin* (No. 2) is unusual outside the Netherlands (but cf. Wünnenberg, Kr. Büren, Westfalen, Hügel b: Südholz, 1964: pp. 55-56, 104, No. 241, Taf. 12:2). A similarly decorated example is from Hijken (Tum. 5, No. 19; see below, Find No. 8; another was associated with a 'barbed wire'- decorated Hilversum Urn at Nistelrode, *gemeente* Vorstenbosch, North Brabant (Modderman, 1959; Butler, 1969: p. 46, fig. 13).

The *amber beads*: The squarish amber bead has a parallel (but more elongated) in a grave find datable to the *jüngere Hügelgräber* (also containing hexagonal amber beads, and wheel-headed pins of the circular variant of Kubach's Type Unterbimbach) at Sulzbach-Langenbuchenberg, Ldkr. Obernberg, Bavaria (Hachmann, 1957b: Kat.No. 18, Abb. 8:10; Gerloff, 1975: p. 262, No. 43); with wheel-headed pins, 'hexagonal' amber beads, etc.; and another at Winterlingen, Zollern-Alb-Kreis in Baden-Württemberg (Pirling et al., 1980: Taf. 59M). Somewhat similar elongated squarish-sectioned beads occur also in Denmark (e.g. Uldal, Krsp. Skrydstrup: Aner & Kersten, 1973-1986: VI, No. 3540A, grave assigned Period III). A short square-sectioned bead is also present in the Spathes-Olympos grave of LH III B-C (Demakopolou, 1988: p. 137, No. 86), already cited above in section 3.2.2 and in the discussion of Find Nos 1-3).

Dating: The timber circle (here a *terminus post quem*) is, according to Lanting & Mook (1977: pp. 101 ff.) characteristic for their Netherlands Middle Bronze B (conventional ^{14}C datings in the range c. 3300-3000/2950 BP, 2-sigma calibration range c. 1500-1100 BC).

The wheel-headed pins of Type Unterbimbach are claimed by Kubach (1977: pp. 173-174) as a *Leitform* of his *jüngere Hügelgräberbronzezeit, Stufe Traisbach*. A number of similar pins occurring in the Lüneburger Heide region are grouped by Laux (1976: pp. 18-22) among his *doppelseitig profilierte Radnadeln mit Speicherschema C (Doppelradnadeln)*; especially those *mit tropfenförmigen Ösen* (among his Nos 17-30; Taf. 44B) are attributed by him to his *Stufe Fuhrhop = Deutsch-Evern früh = Bergen-Bleckmar = späte Hügelgräber-frühe Urnenfelderzeit* (traditionally Reinecke D). Why these pins should appear in the Lüneburg region a stage later than they do in Hessen is unexplained.

The nail-headed pin has shaft decoration like to that occurring on some South German pins with swollen, perforated neck of the Central European Earlier Tumulus/Sögel-Wohlde phase, but the wheel-headed pins in this same Weerdinge grave would exclude so early a dating.

At present it seems best to adhere to the Kubach dating for this Weerdinge grave, but to keep in mind the possibility of some retardation. Central European *jüngere Hügelgräber* would in local terms fall within Middle Bronze B.

Interpretation: This Weerdinge-Kampereschje grave is by local standards an exceptionally rich female burial. The presence of so many pins, including the pair of wheel-headed pins otherwise unmatched in this region, suggest Central European Tumulus Bronze Age costume practice. The grave itself, however, conforms to local 'Elp Culture' burial customs in Middle Bronze B 'family tumuli' with timber circles. An inter-regional marriage, of a local male with with a female from Hessen, would be a plausible scenario.

FIND NO. 5. WEERDINGE, *GEMEENTE* EMMEN, DRENTHE: SECONDARY GRAVE IN TUMULUS 2 ('DE PAASCHBERG') (fig. 8)

Map reference: Sheet 17 East (Emmen), 257.66/537.25.

Site: Secondary, peripheral NS treetrunk coffin grave, in sod-built tumulus with timber circle.

Documentation: B.A.I., Groningen.

References: (a) the 1934 excavation: van Giffen, 1936: pp. 112-117, Afb. 15 right; (b) the 1941 excavation: *Museumverslag Assen* 1941: Nos 22-24; van Giffen, 1943: pp. 94-97, Afb. 1-3; (c) Glasbergen, 1954 (II): pp. 24, 34 (under Drenthe No. 29); (d) Lohof, 1991 (II): pp. 44-45, No. 101-1).

Description of site: two-period tumulus, the earlier with sod structure. The primary central treetrunk coffin grave (NW-SE) contained only traces of a shadow skeleton.

It lay within a semi-circular post setting, approximately the half of a post circle, with a diameter of c. 10.5 m. Some of the missing posts may have been destroyed by the insertion of a ring of seven peripheral secondary treetrunk coffin graves, some of which partially cut through the ends of others. One of these peripheral graves, on the west side, contained as grave goods the pair of simple bracelets (one on each side) and the amber necklace (below, Excavation find Nos 1941/IIII.1-3). Another peripheral grave, on the south side, contained a bronze pin with disc head and slight central boss, a simple annular bronze finger ring, and a single potsherd (excavation find-numbers 1934/IV.6-8).

Preservation: Drents Museum, Assen, under 1934/IV.5-8, 1941/III.1-3.

Circumstances of find: Excavated 1941 by A.E. van Giffen for B.A.I. Groningen. The southwest quadrant of this mound had been excavated by van Giffen previously, in 1934; in the excavation of 1941 the other three quadrants were excavated. The grave with the

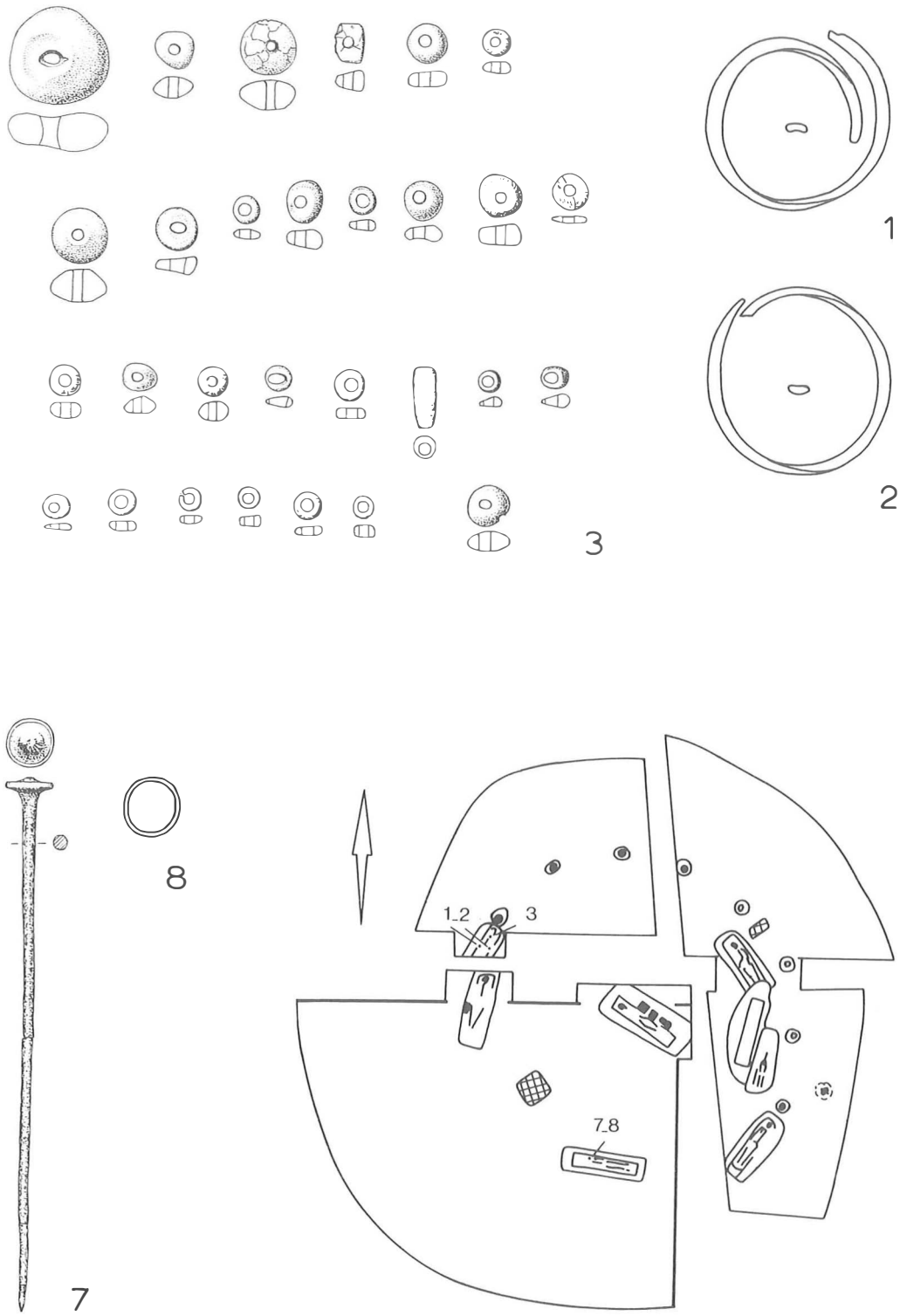


Fig. 8. (1-3) Find No. 5. Weerdinge, Tumulus 2 'de Paaschberg' (Drenthe), secondary grave. Nos 7-8 from different grave. 1,2,7,8. Bronze; 3. All amber. Plan adapted from van Giffen.

amber necklace (below) was found in the west side of the tumulus, largely under the baulk separating the NW and SW quadrants.

Description of the objects:

1. *Bracelet*, simple bronze band of sub-triangular section: diameter 4.8 cm; width 0.6 cm; thickness 0.26 cm.

2. *Bracelet*, as No. 1: diameter 4.4 cm; width 0.4 cm; thickness 0.2 cm.

3. Necklace of 29 *amber beads*: colour dull brown, opaque. The forms include: 1 large, slightly irregular flattened bead, with rounded edges. The faces are slightly hollowed. Central perforation, worn to oval shape. Diameter c. 3.0 cm maximum; thickness c. 1.2 cm; perforation 3 to 4 mm; 1 cylindrical bead; length 1.9 cm; width 0.7 cm; 1 small, somewhat rectangular bead (1.2x0.9 cm), of uneven thickness (max. 0.6); the others are small to medium-sized more or less globular to discoid or flattened-biconical beads, varying from 0.7 to 1.7 cm in diameter.

Parallels and connections, dating: The (incomplete) Type 3 timber circle provides a Middle Bronze B terminus post quem for the secondary graves.

The amber beads are of forms occurring in Middle Bronze Age necklace finds here described; the disc-headed pin and the simple bracelets have no specific dating value, but are in no way inconsistent with a Middle Bronze B dating.

FIND NO. 6. ROSWINKELERVEEN, *GEMEENTE* EMMEN, DRENTHE: BOG HOARD (fig. 9)

Map reference: Sheet 18 (Roswinkel), 226.8/534.8.

Site: In Roswinkelerveen (peat bog). The exact location was given as 'Place 38, on the south side'.

Documentation: Drents Museum, Assen, 133 *Dagboek* 1924.

References: (a) *Museumverslag Assen* 1924: p. 16, No. 36; (b) van Giffen, 1925; (c) van Giffen, 1930: pp. 44-45, 79-80; (d) van Giffen, 1944: Afb. 42; (e) van Zeist, 1955; (f) Schlabow, 1974: pp. 193, 207-208, 218, Abb. 19 (d,e,f).

Description of site: According to the Museum records, found at a depth of approximately 4 feet, directly under de *stobbelaag* (wood peat layer), under which there was another meter of peat ("op ±4 voet diepte, volgens mededeling direct onder de stobbelaag, waaronder nog ±1 m veen zat").

Circumstances of find: Found October 1924 during peat digging.

Preservation: Purchased October 1924 by Drents Museum, Assen, from A. Oortwijn (described as a shopkeeper and café-holder at Stadskanaal) and inventoried under 1924/X.7-12, 15.

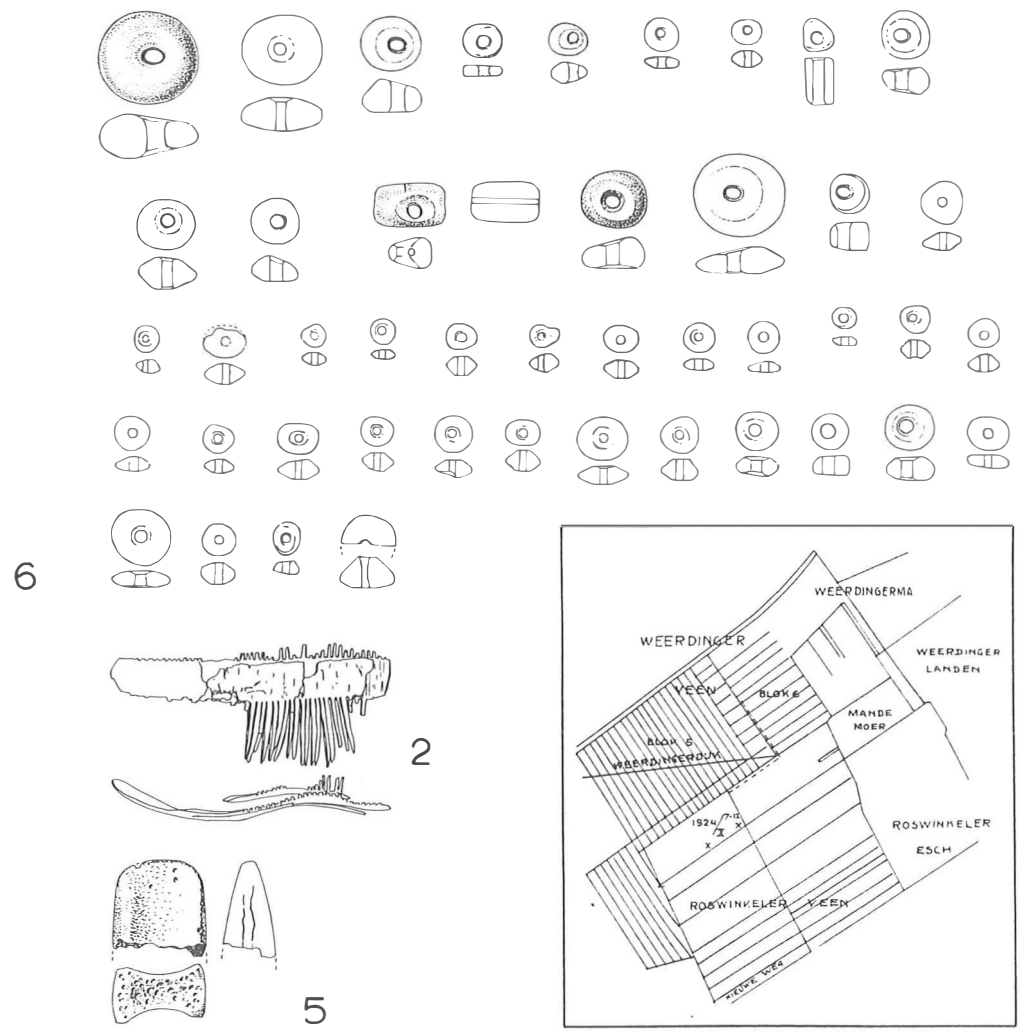


Fig. 9. Find No. 6. Roswinkelerveen (Drenthe), bog hoard(s?). 5. Bronze; 2. Horn; 6. All amber. Scale 1:2. Location plan after Drents Museum inventory.

Description of the objects:

1. Peat turf, in which were two amber beads (Inv. No. 1924/X.8).

2. Fragment of a double-sided horn comb (Inv. No. 1924/X.9).

3. Two fragments of woollen fabric, 30x42 and 21x30 cm resp., in netting technique, dyed red (see Schlabow, 1974: p. 208) (Inv. No. 1924/X.10).

4. Fragment of leather strap, with traces of stitching (Inv. No. 1924/X.11).

5. Fragment of the butt of a bronze palstave (Inv. No. 1924/X.12).

6. Amber necklace, with 44 beads of medium to small size; of translucent amber, dark-reddish to yellowish, well polished (Inv. No. 1924/X.15).

(Nos 1-3) The largest beads (No. 1: 2.7/2.45 cm; 1.2 cm thick; 2.4/2.1 cm; 0.7 cm thick) are markedly 'lop-sided'. The largest has a somewhat oval-worn perforaton; both are slightly dished around the perforation. The third-largest, No. 3, is of oval section; one face is dished.

The smaller beads are mostly biconical to flattened-biconical or lenticular in section, and vary in diameter from 1.7 down to 0.6 cm, with a peak in their size range from 1.1 to 0.6 cm.

Two beads (Nos 4 and 5) are irregularly tubular in form; their sections are somewhat triangular. One of these (No. 5) has both a longitudinal and a transverse perforation.

N.B.: Also belonging to this find, according to the Assen Museum inventory, is a second block of peat, containing a ball of woollen thread (1924/X.7). However, van Zeist (1955: pp. 24-25) pointed out that the two lumps of peat were different in composition, and yielded pollen analyses representing a not insignificant difference in time. His suggestion that two separate peat finds were involved was supported by the fact that a 1:50,000 mapsheet in the B.A.I. archives showed X's at two separate points, some 350 meters apart, in the bog at Roswinkeler Veen.

That the remaining objects represent a single closed find depends on the authority of van Giffen (1943: pp. 479, 556 and Afb. 42).

Parallels and connections: the *amber beads* are, in general similar to those in the Middle Bronze Age graves and hoards here described, if comparatively small in size range. The tubular beads have approximate parallels in the Exloërmond hoard (Find No. 1) and the Weerdinge-Paaschberg grave (Find No. 5); parallels elsewhere are cited under Find No. 1.

The 'spindle-whorl-shaped' bead resembles a bead in the Mander grave in Twente (Find No. 15).

The crossed perforations in one bead are matched in a (somewhat differently shaped) specimen from Hjerpsted in Jutland, in a Period II grave (Aner & Kersten VI: No. 2916).

The double-edged *comb* is highly unusual in Bronze Age contexts, the single-edged comb being normal in that period, whether in bronze or horn. For combs in the Aegean area, see H.-G. Buchholz (1984-1985). According to Buchholz double-sided combs are absent in the Aegean Bronze Age, but had reached Cyprus from the East at least by the end of the XIVth Century BC (Buchholz, 1984-1985: p. 115).

The horn comb and the textile fragments hint at the wealth of perishable materials which do not normally survive. In the Bronze Age of the Netherlands textile fragments have been recovered along with the bog-body of Emmererfscheidenveen, referred to above under Section 1.2.1 (van der Sanden, 1990), and in the Weerdinge-Kamperesch je grave (Find No. 4).

Dating: The palstave fragment, such as it is, suggests a Middle Bronze Age dating; its weak cross-section points to a later rather than an earlier palstave. The amber necklace argues for a Middle Bronze B dating.

FIND NO. 7. EMMERCOMPASCUUM, *GEMEENTE* EMMEN, DRENTHE: BOG HOARD (fig. 10)

Map reference: Sheet 18 (Roswinkel).

Site: Emmercompascuum, "In de westelijke doorsnede plaats 10, onder grenslaag in de darg".

Documentation: Museum Assen, 34 *Dagboek* 1923.

References: *Museumverslag Assen* 1923, pp. 23-24, No. 88.

Description of the site: The necklace was found at a depth of c. 1.90 m in the *darg* (fen peat). A peat sequence "at the spot and somewhat farther to the south, where the wooden trackway passes through the profile", is given in the *Museumverslag* as follows: "ca. 0.00-0.50 Witveen (poorly humified sphagnum peat); ca. 0.50-0.85 Sphagnum + wollegras (cotton grass); ... wooden trackway; ca. 0.85-1.25 Spagnetum; ca. 1.25-1.40 Stobbelaag, pinetum (pine stump layer); ca. 1.40-1.95 Zwartveen (highly humified sphagnum peat) of darg (or fen peat); ca. 1.95-2.15 Alneto-Betuletum (alder-birch fen peat); ca. 2.15-2.85 Darg (fen peat)". For the translation of these terms we are grateful to Dr. W.A. Casparie (B.A.I.).

Circumstances of find: Presumably during peat digging; no details are recorded.

Preservation: Purchased June 1923 by Drents Museum Assen, from the finder, one Vos, barge-operator of Emmercompascuum, via A.J. Baas, schoolteacher of Emmer-Erfscheidenveen. Inventoried under 1923/VI.1.

Description of the objects:

1. *Amber necklace*, strung on a cord (which was practically disintegrated at time of finding), consisting of c. 50 amber beads and two glass beads.

Of the amber beads, 46 are now present; all well preserved and translucent. A few are worn; most appear fresh. Included are: 1 large biconvex bead; diameter 3.7 cm; 3.0 cm thick; carination slightly rounded; cylindrical perforation c. 2 mm; 1 flattened-biconical bead, diameter 3.0 cm; 1.0 cm thick; graduated (23 mm down to c. 8 mm diameter); medium-sized to small biconvex, flattened-biconical to disc-shaped beads; most are carefully ground and well polished; 8 small cylindrical beads.

The one *glass bead* surviving is light blue, barely translucent; globular, with slightly eccentric cylindrical perforation. 7.7x6 mm thick; well preserved, glossy surface.

Parallels and connections: The amber bead types are those occurring in the other Middle Bronze Age hoards here described.

The glass bead is without parallel in the Netherlands. Glass beads occur, however, in numerous Earlier and Middle Bronze Age finds in Denmark, Schleswig-Holstein, and the Lüneburg region.

Dating: The amber bead types suggest dating in Lanting & Mook Middle Bronze B. The glass beads do not contradict this.

FIND NOS 8-9. HIJKEN, *GEMEENTE* BEILEN, DRENTHE: GRAVES IN TUMULUS 9 ON LANDGOED (ESTATE) HOOGHALEN (these two grave finds are here grouped together because they come from the same burial mound)

Map reference: Sheet 17 West (Emmen), 230.25/547.83.

Documentation: B.A.I., Groningen.

References: The complete Hijken-Hooghalen barrow cemetery excavation was published in detail (van der Veen & Lanting, 1989) in a recent *Palaeohistoria*; in view of its completeness and easy accessibility the description here can be limited to a concise summary, with special reference to the richer graves from Tumulus 9. See also Lohof, 1991 (II): pp. 21-22, No. 044-1/2 ('Tumulus IX, Hijkerveld').

Circumstances of find: Excavated 1952-1953 by A.E. van Giffen for B.A.I. Groningen. Eleven tumuli were excavated, of a group of 16; Tumulus 9 in 1953.

Preservation: B.A.I. Groningen until 1988, when transferred to Drents Museum, Assen; inventorized under 1953/VIII.1-44.

Description of site: Two-phase burial mound c. 14.5x1.7 m; only the NE and SW quadrants were excavated, but a trench 1.8 m wide was excavated along the centre-north baulk in the NW quadrant.

Phase 1 was a turf-built tumulus without peripheral structure. It is dated by van der Veen and Lanting to Middle Bronze A. Conventional ^{14}C dating (charcoal on old surface, 'in the trench of the NW quadrant'), GrN-10747: 3290±35 BP; 2-sigma calibration range 1674-1518. Primary, NW-SE coffin inhumation grave in shallow pit. Grave goods as described below, under Excavation find no. 39.

Phase 2 was a tumulus with V-shaped ditch. Central E-W tree-trunk coffin grave, with (No. 31) very long (30 cm) Central European Tumulus Bronze Age pin (*mittlere to jüngere Hügelgräberbronzezeit*). In local terms, according to van der Veen and Lanting, "towards the end of the first half of the Middle Bronze Age".

In the SW quadrant were two secondary, tangential burials; whether dug in from Phase 1 or Phase 2 was indeterminable. One of these contained the pottery vessel, bronze pin shaft, and set of 16 amber beads, described below under Excavation find no. 36.

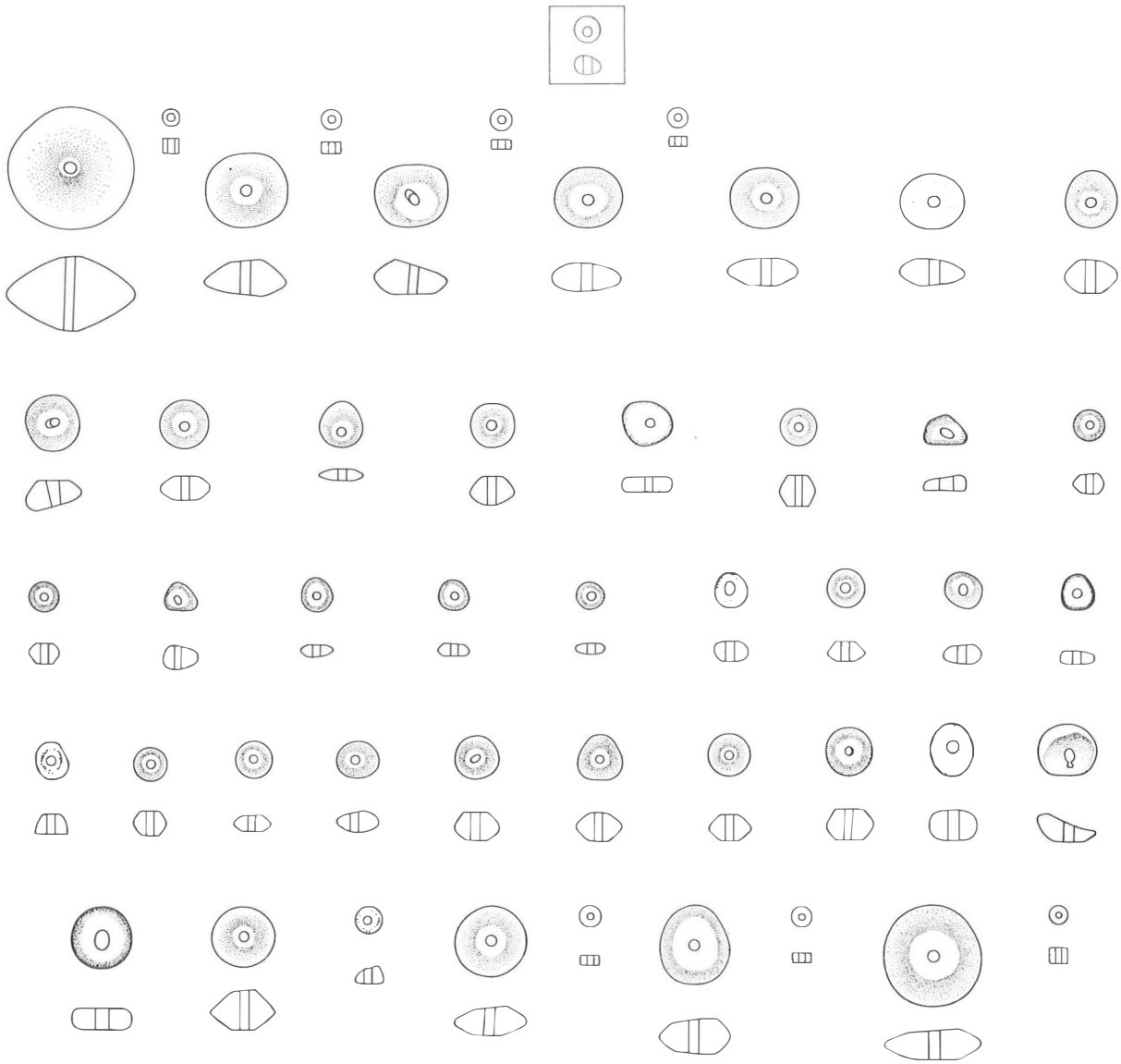


Fig. 10. Find No. 7. Emmercompascuum (Drenthe). All amber except one glass in box, above. Scale 1:2.

FIND NO. 8. EXCAVATION FIND NO. 39 (fig. 11A)

Description of the objects:

1. Pair of *gold coils*; of wire c. 1 mm thick; diameter c. 18 mm. Metal analyses (Hartmann, 1982: p. 100, Anal. Nos 3031-3032, Taf. 6): (1) Ag 10, Cu 0.25, Sn 0.01; (2) Ag 11, Cu 0.56, Sn 0.23.

2. *Pin* of twisted bronze wire. The shaft is bent into a 'sickle' shape. Head rolled; tip missing. Present length 10.5 cm; unrolled length c. 17 cm.

3. *Pin* with inverted-cone and disc head. The edge of the disc is milled. Length 14 cm; diameter head 0.6 cm; disc diameter 1.2 cm.

4. Set of *arrowheads* of sheet bronze very slightly ridged in the centre; severely corroded. At least ten examples are present; all tanged, and at least four with barbs. Length 3.5 to 5.5 cm.

5. Flint *strike-a-light*. Coarse flint blade with bifacial retouch. Length 6.7 cm.

Parallels and connections:

The *roll-headed, twisted pin*: no exact parallel seems to be known. Roll-headed twisted pins were in use in Central Europe in the later Early Bronze Age and the Middle Bronze Age (cf. Laux, 1976: p. 52, Nos 244-246; No. 286, with further references in Notes 20-23). An example from a Bohemian hoard (Varvažov: Kytlicova, 1964: p. 541, Abb. 163A; Jockenhövel, 1971: p. 67, No. 58, Taf. 57C) is dated to the horizon Plzeň-Jíhalka (Reinecke C/D). (The bends in the shaft of this Hijken pin recall the Danubian *Sichelnadel* of the Koszider horizon but these have quite different types of head.)

The *gold coils*: see under Drouwen (Find No. 11), Sleenerzand (Find No. 16), and Velserbroek (Find No. 20).

The sheet bronze *arrowheads*: in general very rare, as arrowheads with a strengthening midrib would have been far more practicable. But for the Netherlands cf. Sleenerzand (Find No. 16) and Vries (Tumulus No. 2, a ring-ditch tumulus, secondary grave: van Giffen, 1941: fig. 12), without the barbs in both these cases. Similarly barbed are some examples, also with very slight midribs, in a set of arrowheads from *Grabhügel* 52 at Schöngeising, Ldkr. Fürstenfeldbruck in Bavaria

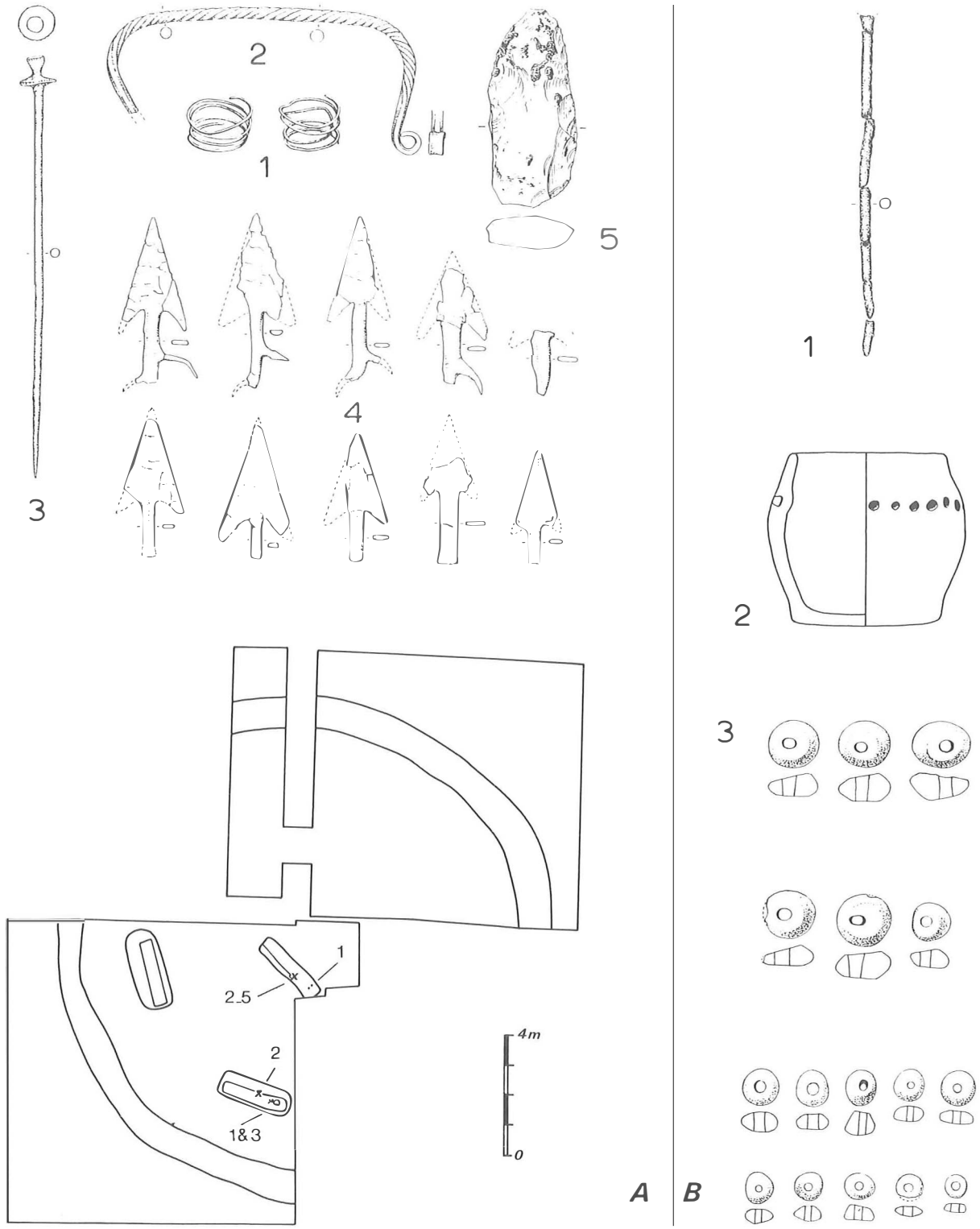


Fig. 11. A. Find No. 8. Hijken (Drenthe), Tumulus 9:1, primary grave with Exc. find No. 39. 1. Gold; 2-4. Bronze; 5. Flint. Scale 1:2.
B. Find No. 9. Hijken (Drenthe), Tumulus 9, secondary grave with Exc. find No. 36a-c. 1. Bronze; 2. Pottery; 3. All amber. Scale 1:2. Plan adapted from van der Veen & Lanting.

(Schauer, 1990, p. 403, Abb. 16, after Koschick); their tangs are more rod-like than those of the Hijken arrowheads.

The *cone-and-disc-headed pin*: Several related examples are illustrated by Laux (1976: pp. 68-70, Nos 366-370; here fig. 12:3-5). He considers them to be a North German variant (probably made in the Middle Weser area) of the Central European *gezackte Nadel*.

Interesting is the occurrence in a hoard in Poland (A. Maćkówka, Gd. Zarzecze, Wojew. Przemysl: Essen, 1985: p. 53, No. 284/284A; here fig. 12:13-14) of a pair of pins evidently related to the Hijken pin and its Lüneburger Heide parallels, but which have a second cone placed below the milled-edge disc, and incised decoration on the long, bent shaft. The source of these pins is obscure; Essen could cite no parallels. But a related series of pins from Bohemia and South Germany (here fig. 12: 8-13) has been illustrated by Herrmann (1970-1971: p. 87, Abb. 10); several examples with heads similar to these by Beck (1980: Taf. 14A5, 14B1, 2, 15B3; Beck assigns these to the *Mohnkopfnadel* series. The Polish hoard is difficult to date, as it contain sobjects ranging from Periods II to IV, but most of its contents are D/HaA1 types.

Dating: The Phase 1 tumulus, without peripheral structures and with a ^{14}C dating of 3290±35 (2-sigma calibration range 1674-1518 BC) was accordingly dated by Lanting & Mook (1977; cf. van der Veen & Lanting, 1989) to Middle Bronze A. If the cone-and-disc-headed pin in this grave is indeed a North German version of the Central European *gezackte Nadel*, then a dating prior to Reinecke D would be excluded; this would place the grave in question in, at the earliest, an end-phase of Dutch Middle Bronze B. Laux (1976: p. 69) dates the *Süddeutsche Form* of the *gezackte Nadeln* to the turn of Period II and Period III.

J.N. Lanting (pers. comm.) suggests that the Hijken cone-and-disc-headed pin could be regarded as a forerunner rather than a derivative of the *gezackte Nadel*, and that he would rather date the pin by its context (the tumulus with structureless periphery, the gold coils and the strike-a-light early) than the tumulus grave by the pin. For the moment we must allow opinions to differ.

Stratigraphically later than this grave is the primary grave of Phase 2 of Tumulus 9, with as only grave-goods (Excavation find no. 31): *pin* with disc head containing shallow depression; under which

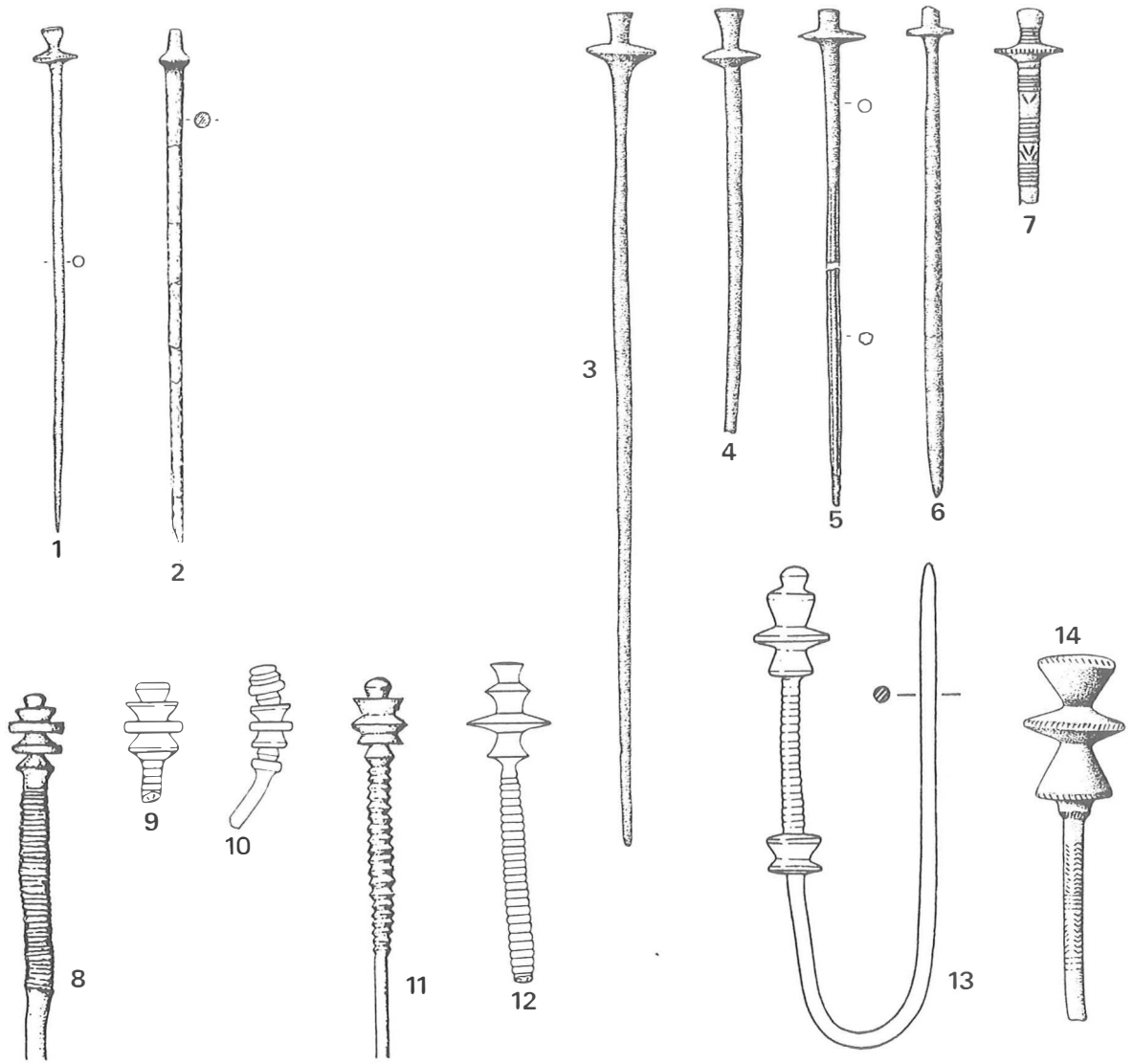


Fig. 12. Pins from Drenthe (1. Hijken; 2. Elp), Northwest Germany (3. Ahlten; 4. Bassum; 5. Gölenkamp; 6. Harmhausen; 7. Westergellersen), Bohemia (8. Lazany, II Hoard; 9. Plátanice; 10. Ústin.L.-Strekov; 11. Hostomice; 12. Klobuky), Bavaria (13. Henfenfeld hoard) and S.E. Poland (14. A Maćkówka). After Waterbolk (2), Laux (3-7), Herrmann (8-13), and Essen (14). Scale 1:2.

are a ribbed inverted-cone section, a plain section, a ribbed slightly swollen section, a plain section, and another ribbed, slightly swollen section. Length 30 cm.

Parallels and connections: *The long pin* (31): similar pins, with many variations as to detail, are current in the *Hügelgräber* of Central Europe. The occurrence of two ribbed swollen zones on the shaft seems, however, to be an unusual feature.

The best parallels, as Lanting and Van der Veen point out, occur among the pins of Type Reckerode of Kubach (1977: pp. 263-273; Taf. 44-46; distribution map Taf. 98B). Further examples have been illustrated by Franc (Saldova, 1988). Such pins have a special concentration in the Fulda-Werra area of East Hessen, with extensions to, for example, Haguenau in Alsace and to South Thüringen. In Hessen such pins were worn more by men than by women.

Kubach dates the Reckerode type to the Middle and Later Tumulus phase. Various features of the Hijken 31 pin tend to suggest, however, that it is late in the series (large size, doubled thickened zone, sunk head), so that a Bessunger Wald/Traisbach dating would seem probable. If so, the Hijken pin in question would have a dating and origin similar to the Type Unterbimbach double wheel-headed pins from Weerdinge-Kampereschje (see Find No. 4).

Interpretation: The set of arrowheads identify Find No. 8 as a male warrior's grave, continuing the tradition reflected in the Drouwen grave with its set of Sögel-type flint arrowheads. The gold spirals do not contradict this, as such gold spirals occur in warrior's graves at Drouwen (Find No. 11), Sleenerzand (Find No. 16) and Velserbroek (Find No. 20); nor by the pins, which reflect Central European Tumulus Culture and/or Lüneburg influence.

FIND NO. 9. SECONDARY TANGENTIAL COFFIN GRAVE, WITH EXCAVATION FIND NOS 36A-C (fig. 11B)

Description of the objects:

1. *Pin*: the head is broken off and missing. Surviving length 13 cm.

2. Small *pottery vessel*: row of small but deep impressions below the rim. Height 5.5 cm; width at rim 4.9 cm.

3. *Amber beads* (16 ex.): large-sized beads are absent from this find. The medium-sized beads (17 to 19 mm) are flattened-biconical in form. The smaller beads (going down to 7 or 8 mm) are flattened-biconical to disc-shaped in form.

Parallels and connections: The 'hexagonal' amber beads recall those in other Middle Bronze Age finds in Drenthe (see above, Sections 1.2 and 1.3), but are in general smaller. Amber beads also occur in two other graves in tumuli in the Hijken-Hooghalen cemetery: Tumulus 6, period 4 (four small irregular beads, two disc beads); Tumulus 10, probably period 2, secondary child's grave, two disc beads (van der Veen & Lanting, 1989: fig. 38).

The small pottery vessel has a general resemblance to Late Neolithic and Earlier Bronze Age pots in Denmark and Schleswig-Holstein (Aner & Kersten, 1973-1986, passim).

Dating: This grave cannot of itself be closely dated. Presumably, on the basis of its general ambiance, it belongs to the second half of the local Middle Bronze Age.

4. CATALOGUE OF OTHER RICHER GRAVES AND HOARDS OF THE EARLY AND MIDDLE BRONZE AGE

FIND NO. 10. WAGENINGEN, *GEMEENTE* WAGENINGEN, GELDERLAND: HOARD (fig. 13)

Map reference: Sheet 39 F (Wageningen), 176-177/443.4-444.5.

Site: In a heath field 'half an hour' (on foot) northeast of Wageningen.

Documentation: Letter of G.P. Versteegh to L.J.F. Janssen (R.M.O. Leiden) d.d. 9 March 1841; enclosing drawings of all the objects (Janssen correspondence, Manuscript Room, University Library Leiden; under B.P.L. 944111/V-Z, file 'Wageningen'). See appendix 1.

References: (a) Pleyte, 1889: p. 49, Pl. XI: 5-9; (b) Ó Ríordaín, 1937: p. 239, fig. 37; (c) Butler, 1959: pp. 126-129, fig. 1; (d) de Laet & Glasbergen, 1959: p. 110, Pl. 26; (e) Butler, 1963a: pp. 15 ff., 29, 189 ff., fig. 1; (f) Butler & van der Waals, 1966: esp. pp. 80-82, fig. 21, appendices I: Nos 21-28, III: No. 12 (with spectro-analyses); (g) Butler, 1971: NL 11; (h) Butler, 1969: pp. 87-88, 103-107, fig. 47 (2nd ed., 1979: pp. 94, 112-115, fig. 79); (i) Clarke, Cowie & Foxon, 1985: p. 148, fig. 4.81, p. 318, No. 177; (j) Gerhartl-Witteveen et al., 1989: pp. 12-13, Nos 1-5.

Description of the site: On gentle slope at the SE edge of the Veluwe, overlooking the Gelderse Vallei, 2 km north of the Rhine bluffs east of Wageningen.

Circumstances of find: Found in December 1840, the objects 'all lying close together', about 60 cm below the surface, while trenching to plant trees. Objects presented by landowner, Alderman J. van Rijn of Wageningen, to R.M.O., Leiden, in June 1841 (see appendix 1).

Description of the objects: All except No. 9, stone, of copper or bronze, with uniform light green patina. Details of metal analyses: see table 2.

1. *Halberd*, with flat-surfaced midrib: a further light 'step' between the midrib and each sharp, bevelled ege. Three asymmetrically placed notches for large rivets. Length 21 cm. Of arsenical copper (As 7%). Inv. No. R.W. 2.

2. *Flat axe*, with slightly convex faces: thin sharp rounded butt; sides facetted. Cutting edge sharp but battered. Finely polished faces, partly with 'tinny' surface. Length 11.5 cm. Of Singen-type copper with 1.6% tin. Inv. No. R.W. 4.

3. *Dagger*: semicircular hilt-plate, projecting shoulders; three rivet-holes, two still containing small rivets of irregularly square cross-section. Flat blade, outlined by two broad, very shallow grooves. Outline of omega-shaped base of hilt preserved in the patina. Edges sharp, slightly worn. Length 15 cm. Of arsenical copper practically identical with halberd, No. 1; one analysed rivet is of low impurity Cu with 1.1% tin. Inv. No. R.W. 3.

4-5. *Penannular rings*, with ends roughly broken: cross-section variable (nearly square to polygonal or rounded). Diameter 6.5-6.7 cm; max. thickness 3 mm. Bracelets; or possibly two fragments of a spiral ornament (the edges do not join). Inv. Nos R.W. 5a,b.

6-7. *Two fragments of thinner rings*. Inv. Nos R.W. 6,7.

8. *Ingot bar*, of square cross-section, folded into rough spiral. Unrolled length approx. 35 cm; max. diameter 4 mm. Inv. No. R.W. 9b.

9. *Polished axe* of fine-grained, mottled brown and black stone: blunt butt, flattened-oval cross-section. Length 13.6 cm. Inv. No. R.W. 1.

10. *Punch or awl*, of rectangular cross-section: one end ground to a point; the other end thinning toward a chisel- like end, but the tip is broken off. Surface rough except for the ground point. Length 10.3 cm; diameter 5 by 3.5 mm. Of Singen-type copper. Inv. No. R.W. 9a.

11. *Rivet*, of octagonal cross-section: only one head is hammered out. Apparently for a halberd, but slightly too thick to fit notches of (2). Length 1.5 cm. Of Singen-type copper. Inv. No. R.W. 10.

12. *Rough-out for rivet* like (11): similar cross-section, but headless. Length 2.7 cm. Of Singen-type copper. Inv. No. R.W. 11.

13. *Fragment of rough bar*, length 6 cm: of copper similar to Singen type (but low Ag), with 1.4% Sn. Inv. No. R.W. 8.

14-18. *Fragments of sheet metal;* each with one smoothed edge. Inv. Nos R.W. 12, 13, 14a-c.

Parallels and connections: References: Krause, 1988; Schmidt & Burgess, 1981: pp. 35-44, 54-59.

The *flat axe:* In form, the flat axe falls generally within the range of the flat axes of Type Migdale (Schmidt & Burgess, 1981), typical for Burgess Stage IV. The ridged sides are found on an axe of Type Dunotter (their No. 45) and on several Type Migdale axes (Nos 57, 60, 98, 137, 151); on Migdale Decorated Variant Nos 197 and 199 (the latter specimen is from the Colleonard Farm hoard). The faint curved facial ridge on the face of the Wageningen axe does not seem to have any parallels in the Migdale group; though it is found on two axes from the Wold Farm, Willerby (E. Riding Yorks.) hoard; Schmidt & Burgess, 1981: Pl. 134:1, 3, 14, 63 (Nos 326-328), 64 (No. 337), with three axes of Type Falkland and one of Type Scrabo Hill, assigned to Burgess Phase V.

Only the metal analysis of the Wageningen axe does not support the idea of a Migdale origin; Migdale axes are alleged to be all of

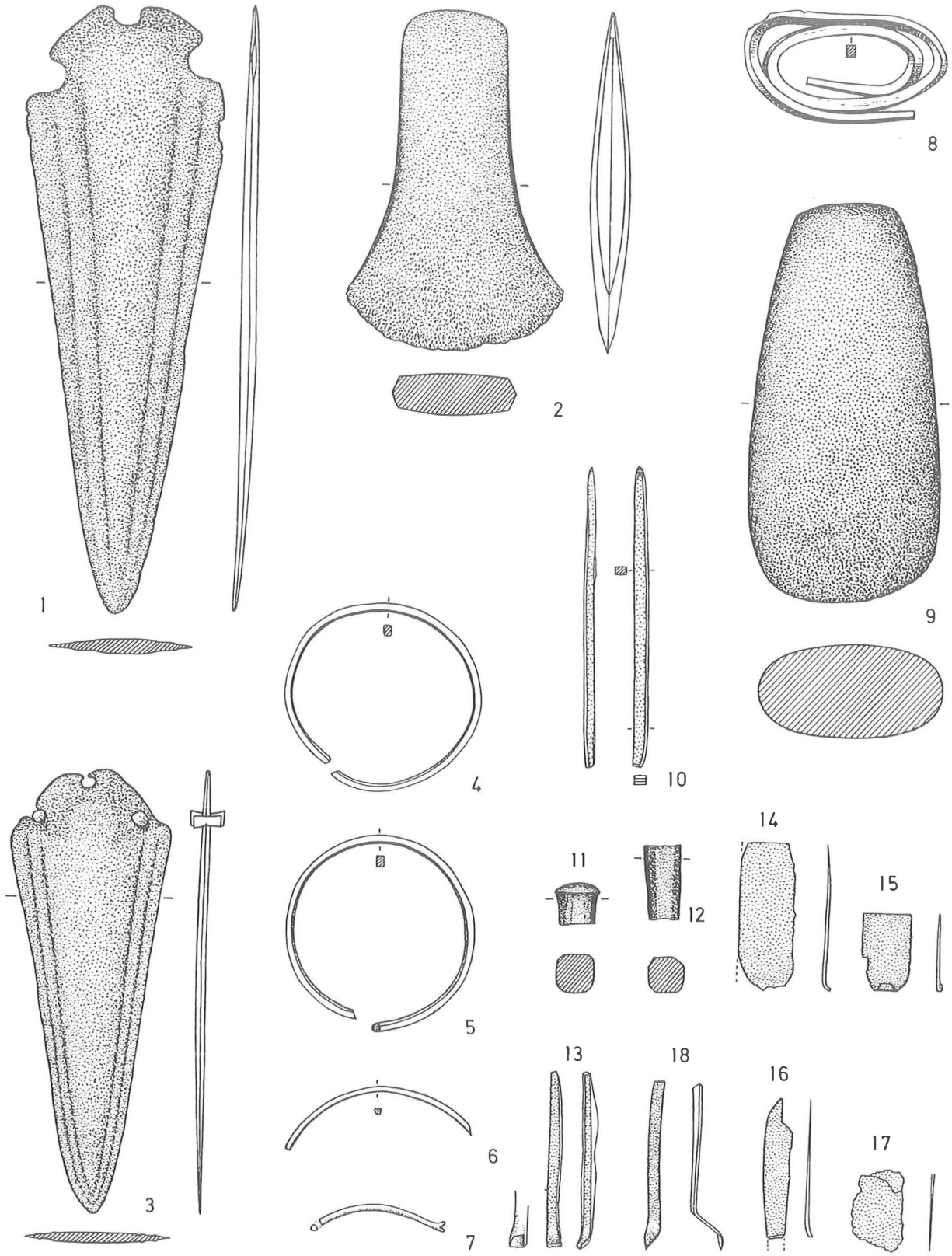


Fig. 13. Find No. 10. Wageningen (Gelderland), hoard. All copper alloy except 9 (stone). Scale 1:2.

Table 2. The Wageningen hoard (Find No. 10): Metal analyses. After Butler & van der Waals (1966) in which metallographic data are also given for some of the objects. References to appendices 1 and 2 refer to that publication.

	Anal	Sn	Pb	As	Sb	Ag	Ni	Bi	Fe	Co
Flat axe of Irish thin-butted faceted type. RW 4. Cast, annealed. Traces of cold-working on surface (//); App. 1:16	BW 1	1.6	0.01	0.2	0.13	0.33	0.66	n.d.	n.d.	0.01
Halberd of Irish type 4: 3 rivet-notches. RW 2. Cast, annealed (//); App. 1:18	BW 2	n.d.	0.03	7.0	0.04	0.03	n.d.	0.006	n.d.	–
Halberd rivet, unfinished. RW 10	BW 5	0.02	n.d.	1.5	7.6	2.5	2.5	0.002	n.d.	0.07
Halberd rivet, unfinished. RW 11	BW 6	0.02	n.d.	1.5	8.6	1.3	2.5	0.002	n.d.	0.07
Knife, triangular, with 3 rivets, shouldered hilt-plate. RW 3. Cast, annealed (//); App. 2:9; traces of cold-working on surface	BW 3	n.d.	0.01	6.8	0.02	0.03	n.d.	0.002	0.006	–
Rivet of knife. RW 3	BW 4	1.1	0.07	0.1	n.d.	0.02	0.02	n.d.	n.d.	–
Awl of rectangular section. RW 9a	BW 7	0.34	0.005	0.4	1.1	0.35	0.60	n.d.	n.d.	0.02
Ingot of rod shape. RW 8	BW 8	1.4	0.01	0.2	0.24	0.03	0.76	0.001	0.005	0.005

bronze, and British alloys do not contain high nickel. Evidently we have to do with an axe made in the Migdale tradition, but of an alloy derived from 'Singen' metal. Only one or two other flat axes found in the Netherlands are also assignable to the Migdale family. Remarkably, nothing in the Wageningen hoard has any relationship whatever to Bell Beaker metal work (Butler & van der Waals, 1966).

The *knife-dagger* in the Wageningen hoard has a hilt-plate of semi-circular form and shoulders, for which it is difficult to cite exact parallels. At least two knife-daggers from the Singen am Hohentwiel cemetery in Southwest Germany (Krause, 1988: Grave 7, Taf. 7C1, Abb. 13:7, Taf. 2D5; metal analysis SAM anal. 1272; ^{14}C date [HD 8972-9116]: 3680±45 BP; Grave 75: Krause, 1988: Taf. 7C1, Abb. 13:75, SAM anal. 346) have, however, an approximately similar hilt form. Other Singen daggers have varied expressions of the shouldered hilt-plate theme.

Although the metal analyses forbid a claim that the Wageningen knife-dagger is a Singen export, we may well consider it to be at least Singen-influenced. The Wageningen halberd and the knife-dagger are possibly from the same workshop, considering the similarity of their metal analyses (note also that both pieces have stepped blade edges). Both pieces have very high As (7.0 and 6.8% respectively), and the percentages of the minor constituents are similar to each other; high As is not a characteristic of Singen metal.

The shouldered hilt-plate is also common, in numerous variations, in the Early Bronze Age of western Europe, especially on halberds, both in the Irish series (Harbison, 1969a) and in France (Gallay, 1981).

The *halberd:* Rather similar to the Wageningen halberd is the example from Upsprunge, Kr. Büren, Westfalen (Sprockhoff, 1956: Taf. 32:2). Also similar, but with four rivet-notches, is the halberd from the neighbourhood of Amiens in Picardy (Blanchet, 1984: p. 131, fig. 56:4, p. 133). The Wageningen halberd is less like Irish Type IV/Type Carn halberds (Harbison, 1969a) than once assumed, but the 'international straight-midribbed halberd' type to which Harbison would assign these specimens (1968: pp. 175-178) still requires fuller definition. The finer, larger halberd with 3 rivet-holes from Roermond, Limburg (Glasbergen & Butler, 1961: fig. 1) and the similar example in the Dieskau hoard (often illustrated: e.g. Butler, 1963: Pl. Ic) are more advanced.

Halberds with notches instead of rivet-holes, but of more developed form, occur in hoards of the classical Únětice phase.

The two unfinished halberd rivets, both of octagonal cross-section, are best paralleled on British-Irish halberds. Thick 'plug' rivets with a shank of polygonal cross-section occur with Irish halberds of several types (e.g. Type Carn (Harbison, 1969a: Nos 145, 151, 155, 170, 171, 177, 183), Type Cotton (Harbison, 1969a: Nos 193, 219, 221, 232, 239, 244, 245, 247, 265, 275, 276), Type Clonard (Harbison, 1969a: Nos 280, 282, 289, 293)). But the Wageningen halberd rivets are of Singen-type metal, with practically identical analyses. Both have very high Sb (7.6 and 8.6% respectively). Sb percentages of this order occur in a number of analysed objects in the Singen cemetery, and also in some flanged axes of Salez type, especially in the hoards of Salez itself (most of the analysed axes) and Hindelwangen (5 ex.) (Bill, 1985; 1987; Krause, 1988). A rivet of the knife has, however, a quite different composition (Sn 1.1%, As 0.1%).

As an awl and an ingot bar are also of metal of Singen (or at least Singen-related) character, we may say that the evidence for Singen-Wageningen contact is considerable. The contact need not necessarily

have been direct; the Adlerberg culture along the Middle Rhine also used Singen-type metal (as, indeed did the Nitra Group in SW Slovakia, and to someextent the Únětice culture). If Krause is correct, 'Singen metal' comes ultimately from the Upper Rhine area in the Swiss Alps.

Dating: The form of the knife-dagger suggests dating within the Southwest German Early Bronze Age stage of the Singen am Hohentwiel cemetery; thus, according to Krause, within the Reinecke A1 phase. The daggers with comparable hilt formare not confined to a morely closely definable stage of the cemetery, as they are found in various areas therof.

The halberd's flat midrib, stepped blade, and large rivet notches suggest, however, some relationship to the halberds of the classical Únětice hoards, so that a dating comparable to the end of Singen and Reinecke A1 seems likely.

The ^{14}C dating of the South German Early Bronze Age has been discussed by Krause (1988: pp. 145-180). The ^{14}C dates for Singen, as evaluated by Krause (1988, pp. 169 ff.) range from 3640 to 3850 BP (conventional), and around 2100-2300 calibrated.

In the Singen cemetery, five graves with decorated rudder heads (*Rudernadel*) and one grave with a *Horkheimer Nadel* have been ^{14}C-dated. Their calibrated ranges, as calculated with the Groningen conversion programme, are shown in table 1, along with those, for comparison, of the St. Walrick dating and that of the Rich Armorican Early Bronze Age grave of Saint-Adrien, Côte-du-Nord (the only Armorican tumulus grave with a low error term). Singen Grave 45 has a high and wide (but not handsome) range, out of line with the others which are quite consistent. Five of the date ranges have in commom the period c. 2140-2050, so it is perhaps not unreasonable to say that 'around 2100' is a fair estimate of the absolute date of this horizon.

Grave 75 occurs in the southern part of the Singen cemetery, in Krause's *Gräbergruppe* IV; Krause (1988: pp. 125-126) assigns this portion of the cemetery to Ruckdeschel's Phase A1b (*Horkheimer Nadel*); while *Gräbergruppe* I, with Grave 7, is assigned to Phase A1a, characterized by *verzierte Scheibenkopfnadel*.

Probably relevant in respect to the Central European contacts of the Netherlands in this phase is the pin from St. Walrick, Gelderland, Tumulus I, phase 2 (Groenman-van Waateringe, 1966: pp. 72-80, 158, 175).

The pin has lost its head, but the uppersurviving part of the shaft is wound with wire, in the manner of a Central European Early Bronze Age *Schleifennadel*. Whether it was a simple knot-headed pin, or one with a more complicated (T-shaped) head, or even a *Horkheimer Nadel*, can no longer be established. Pins with such wire winding were in use in the Singen and other early Bronze Age culture groups (Ruckdeschel, 1978; his Beilagen 1 and 2 provide a convenient overview of the relative chronology of these pin types; cf. Krause, 1988). A similar (also headless) pin occurs with an Armorican-like dagger and Central European neckring and spiral bracelet in the Haguenau forest in Alsace, in the well-known grave from Donauberg Tumulus 12 (Gallay, 1981: p. 114, No. 275, Taf. 51A:1-4; with previous references).

The remarkable hoard from Kynha, Kr. Delitsch in Saxony combines a simple knot-headed pin and a *Horkheimer Nadel* with an Aegean-East Mediterranean slotted-blade dagger and Early Únětice objects (Coblenz, 1986: pp. 37 ff.; Abb. 2-5, Taf. 1-7, 9; dated to Period A1b in the sense of Ruckdeschel).

The first phase of this St. Walrick tumulus was dated by a primary grave with Veluwe Bell Beaker of van der Waals and Glasbergen Type 21f. It was followed, at not too great an interval according to the pollen analysis, by the grave with the bronze pin and a contracted corpse silhouette, and charcoal which gave a ^{14}C dating of 3660±45 BP (GrN-6145). GrN-2996, 3705±80 BP, is from Period III of the same tumulus; Lanting & Mook (1977: pp. 98-99) suggest that "this charcoal has probably been dug up from the grave of period 2". Both the St. Walrick ^{14}C dates are reasonably close to the conventional ^{14}C date of 3680±45 for Singen Grave 7, which in turn lies comfortably in the middle of the Singen ^{14}C range. The St. Walrick ^{14}C date calibrates (2-sigma) in the range 2136-1938. Thus it, and with it the Wageningen hoard, may date in rounded-off absolute terms to the period around 2000 BC. This is fairly close to the calibrated ^{14}C and dendro dates for Leubingen, Helmsdorf, and Leki Male, supporting the relative dating of Wageningen to a time close to the transition from Early to Classical Únětice. In terms of the Lanting-Mook chronology for the Netherlands, it falls not far from the boundary between Late Neolithic and Early Bronze Age.

According to Burgess, tin bronze would have been in regular use in the Killaha-Migdale tradition at this time, but along the Rhine, Singen metal (sometimes with tin in the order of 1 to 2%, but regularly with rather high Sb and Ni) was the metal in common use. In the Netherlands Singen metal was also in use for axes of the phase comparable to Burgess Stages V and/or VI; including the 'Emmen axes' found as local products in the North of the country (see Butler & van der Waals, 1966).

Interpretation: The presence in the Wageningen hoard of one axe, one halberd, and one knife-dagger, all apparently in usable condition, tends to suggest a set of masculine personal equipment. The bracelets do not necessarily contradict the masculine character of the assemblage. The presence of unfinished rivets, an awl or punch, and sheet and bar scrap metal would, however, suggest that the possessor was involved with metal-working.

The metal used for some at least of the Wageningen objects, and the hilt form of the Wageningen dagger, suggest contact with 'Singen' in Southwest Germany, while the form of the flat axe (though not its metal composition) imply contact with the North British Migdale tradition.

The Wageningen hoard may thus be considered to be a 'contact find' linking the Southwest German EBA, close to the end of its Phase A1b, with the British EBA in the Stage IV (Killaha-Migdale) of Burgess.

In terms of development, the Wageningen assemblage seems to be subsequent to the metal-working tradition of the Veluwe Bell Beaker phase – with which, indeed, it has nothing recognizable in common; and to precede the phase in which British-related decorated low-flanged axes occur, chiefly in the centre of the country, and the undecorated low-flanged Emmen axes chiefly in the North.

Remarkable is that the specific Wageningen types are hardly matched in other hoards, grave finds or stray finds in this region. Thus the Wageningen find seems to represent an isolated incident, not demonstrably relatable to other events in the area. It suggests a visitor to the region, perhaps a travelling smith, or a trader along the Rhine route.

The awl or punch has a Middle Bronze Age parallel in iron, found on the Southern Plank Footpath at Bargeroosterveld in Drenthe (Casparie, 1984; 1987).

Unfortunately, the types represented in the Wageningen hoard do not occur in the grave and settlement record in the Netherlands or neighbouring areas, so that it cannot be directly related to the regional chronology based on grave mound and pottery types. Presumably it falls within the period when WKD pottery was in use, thus Early Bronze Age in the sense of Lanting and Mook (1977).

FIND NO. 11. DROUWEN, *GEMEENTE* BORGER, DRENTHE: GRAVE UNDER MORTUARY HOUSE IN TUMULUS (fig. 14)

Map reference: Sheet 12 East (Assen), 249.25/551.95.

Documentation: Biologisch-Archaeologisch Instituut, Groningen.

References: (a) van Giffen, 1930 (I): pp. 84-93, (II): Abb. 78 (original publication); (b) Sprockhoff, 1941: Taf. 20 (photograph); (c) Glasbergen, 1954: p. 145, fig. 67:7, 68; (d) Butler & Smith, 1956: p. 20, fig. 2; (e) Hachmann, 1957a: pp. 33, 37 ff., 88 ff., Kat. Nr. 634, Taf. 39:5-9; (f) de Laet & Glasbergen, 1959: p. 121, fig. 47; (g) Butler, 1963a: pp. 115-117, fig. 33:1; (h) Butler, 1969: pp. 107-110, fig. 48-49 (2nd ed. 1979: pp. 115-119, fig. 80-81); (i) Butler, 1971 (= IA NL 11); (j) Jockenhövel, 1980: p. 39, No. 68, see also his *Ortsregister* 'Drouwen' (p. 230); (k) Butler 1986: pp. 149-150, fig. 16a-c; (l) Lohof, 1991: pp. 28-29, No. 061-0.

Circumstances of find: Excavated 1927 by A.E. van Giffen; supplementary excavation by J.N. Lanting 1985; both for B.A.I., Groningen.

Description of site: Location 1 km south of Drouwen, within early medieval cemetery. During excavation of the cemetery in 1927 remnants were found of a largely destroyed tumulus, with a core of dirty sand, c. 9 m in diameter, and a capping of clean yellow sand; there were traces of a peripheral stone revetment. The 1985 supplementary excavation disclosed part of a square or rectangular V-

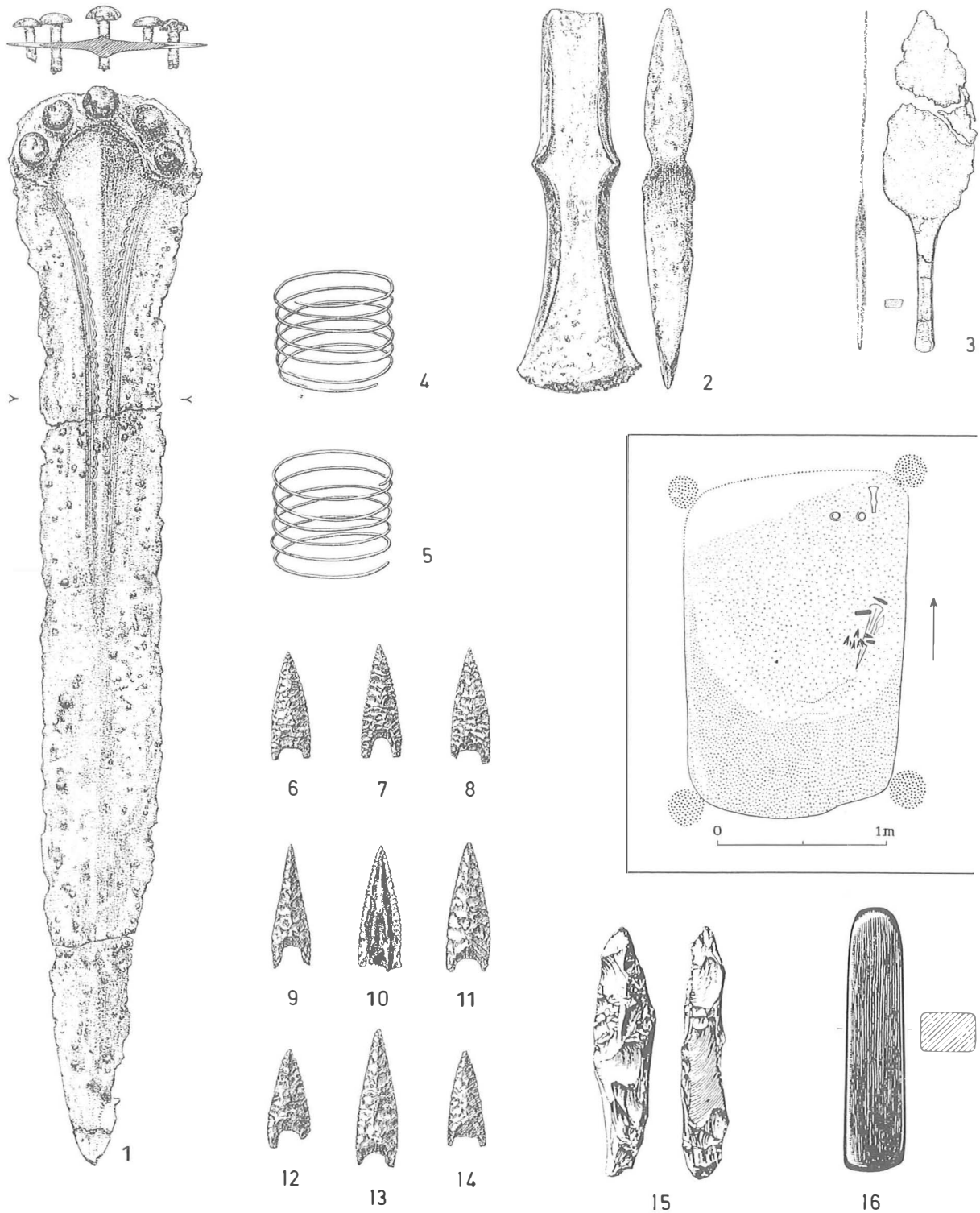


Fig. 14. Find No. 11. Drouwen (Drenthe) grave. 1-3. Bronze: 4-5. Gold: 16. Lydite: 6-15. Flint (10 with pitch). Inset: plan of grave, after excavation photos. Scale 1:2.

Table 3. Spectro-analyses of bronzes from the Drouwen grave. After Junghans, Sangmeister & Schröder (1960).

	Sn	Pb	As	Sb	Ag	Ni	Bi	Au	Zn	Co	Fe
1 Dirk	4.1	0	1.25	0.19	0.03	0.42	tr	0	0	0	0.11
2 Flanged axe	9.7	0.11	0.87	tr	0.07	0.23	0	0	0.2	0	0.38

sectioned ditch, with an internal diameter of at least 32.5x16 m which is presumably associated with the original construction.

Under the tumulus lay a four-post mortuary house, c. 1.85x1.40 m. Therein, approximately on the old surface, was the grave, the plan of which (fig. 14, inset) is based on the 1927 excavation photographs.

Description of the objects:

1. *Bronze dirk*. Broad ogival blade, thin prominent midrib; rounded heel with five capped rivets arranged in an arc. Incised decoration on blade (four lines outlined by pointillé, with an inner margin of small arcs). Surface corroded and blistered. Traces of grain of wooden hilt preserved in the corrosion. Length 34.5 cm. Inv. No. 1927/VIII.40c.

2. Bronze *flanged axe* with cast 'nicked' flanges. Length 12.7 cm. Inv. No. 1927/VIII.40a.

3. Bronze *tanged razor*. Thin flat blade, badly preserved; thicker narrow tang, thinning to slightly expanded end. (The shape of upper half of blade as shown is based on excavation drawing and photograph in situ; the exact original outline was indeterminate. The tang and base of blade were well preserved). Inv. No. 1927/VIII.40f.

4-5. Pair of *gold coils*, of thin springy round-sectioned wire. Length 3 cm; diameter 3.8 cm; thickness of wire 1.3 mm. Gold analyses (Hartmann, 1952: p. 102, Tab. 11): Anal. No. 3035: Ag 20-25, Cu 0.41, Sn 0.036; Anal. No. 3036: Ag c. 20, Cu 0.48, Sn 0.055; both assigned to Hartmann's Mat. Group A3. Inv. Nos 1927/VIII.b 1-2.

6-14. Nine finely worked hollow-based *arrowheads* of translucent grey flint, with orange patina. Two have minutely serrated edges. One (11) retains coating of black resinous material, with the hollow originally filled by tip of arrow-shaft. Inv. Nos 1927/VIII.40g 1-9.

15. *Strike-a-light*, of flint similar to (6-14). Length 8.2 cm. Inv. No. 1927/VIII.40d.

16. *Whetstone* of black lydite. Rectangular cross-section; all for faces polished; ends rounded. Length 8.7 cm. Inv. No. 1927/VIII.40e.

Parallels and connections: Most of the objects in this grave are typical of the much discussed Sögel group, characteristic in the Early Bronze Age of northwestern Germany and western Jutland. The Sögel group was described most exhaustively by Hachmann (1957a), who also traced the origins of its metal types in the Carpathian basin and southern Germany. Further contributions to its definition have been made by Bergmann (1952; 1970), Piesker (1958), Lomborg (1959), Laux (1971), Bokelmann (1977), Kubach (1973) and others.

1. The *dirk* is typical for the series of daggers and dirks with round hilt-plate, four or five capped rivets (*Ringniete*), thin midrib, and (often) decorated blade classified as Sögel blades. (Some blades with 'plug' rivets are otherwise very similar, but are not usually classified under the 'Sögel' label). No complete distribution map exists; one may compare those of Sprockhoff (1941: Abb. 31), Hachmann (1957a: Karte 1), Struve (1971: Taf. 5), Tackenberg (1985: Karte 17), etc., with curious discrepancies.

Only a few additional specimens are known in the Netherlands: decorated dagger blades are known from Agelo near Ootmarsum, Twente (present location unknown; illustrated Molhuijsen, 1844: p. 174) and from the Hunerberg at Nijmegen (Museum Nijmegen, GNAC 39).

A decorated dirk from the river Maas at Borgharen, *gemeente* Maastricht (Butler, 1969: Pl. 5 (2nd ed. 1979: fig. 12); is typically 'Sögel' except that the hilt-plate is rounded-trapeze-shaped.

2. The *geknickte Randbeil* (no English translation seems to exist) is frequently associated both with Sögel and Wohlde daggers and rapiers, and has a similar distribution.

The Drouwen example is typologically 'early' in that it has no trace of stopridge formation (in contrast to Overloon, cf. Find No. 12). Very few other examples in the Netherlands: two unpublished 'from Waal or Rhine' without exact provenance, are in the study collection of the B.A.I., Groningen: 1938/IV. 8-9, ex Blijdenstein collection.

3. The *razor*: early example, double-edged, with leaf-shaped blade, cf. Jockenhövel, 1971; 1980. Possibly of British origin. Cf. Ehestorf, Kr. Bremervörde (Laux, 1971: No. 4, Taf. 6; 1-6, dated by Laux to his *Zeitgruppe* I, but by Jacob-Friesen (1967), Jockenhövel (1971), Kibbert (1980) to the Sögel-Wohlde phase).

4-5. The *gold coils*: Wohlde, Kr. Celle, *Hügel* A, *Fund* I: Hahne, 1909: pp. 62-63, Taf. XIII: 1,7; Laux, 1971: No. 32F, Taf. 3: 1-2 (with *osthannoverische* palstave Laux Var. A, assigned to *Zeitgruppe* I according to Laux; but according to Hahne the palstave was a separate find, *Fund* II).

6-14. Hollow-based *arrowheads* of this form and quality are not common in the Netherlands, but cf. Balloërveld, *gemeente* Rolde, Drenthe, Tumulus 4, van Giffen, 1935: p. 13, afb. 3:5, 9:5; Noordsleen, *gemeente* Sleen, Drenthe, unpubl. cremation grave with roll-headed pin, amber bead, etc.; Medemblik, North Holland, near recently excavated Bronze Age long house. More common in German Sögel graves.

15. Sögel, Kr. Hümmling, Sprockhoff, 1941: Abb. 25:2,3: Baven, Kr. Celle. Sprockhoff, 1941: Abb. 26:16,17, and Piesker, 1956: Taf. 5.

16. Sögel, Kr. Hümmling, Sprockhoff, 1941: Abb. 25:4.

Grave structure: Similar mortuary houses in tumuli in Drenthe cited, with further references, by Glasbergen, 1954: pp. 142 ff.

Dating: Sögel-Wohlde phase; now equated with Central European Early Tumulus (= Lochham, etc.). Within that period, it may still be considered to be typologically earlier, however, than finds such as Ehestorf, Wildeshausen, Ilsmoor, Valsmøgle (see below under Overloon, Find No. 12).

The recently discovered ring-ditch would, if actually contemporary with the mound and the grave, place the Drouwen tumulus within the Lanting & Mook Middle Bronze A.

For Sögel-Wohlde ^{14}C datings, see table 1: these suggest an absolute dating in or around the 17th century.

Observations:

a. Chemical analyses of three of the bronzes quoted by van Giffen, 1930: No.4, are superseded by spectro-analyses by Junghans, Sangmeister & Schröder (1960: pp. 110, 128, 168, Nr. 681) (see table 3);

b. The material of the tumulus contained a barbed and tanged arrowhead, presumably of earlier date. Graves of a Merovingian-Carolingian cemetery were inserted into the tumulus.

Remarks: The richest known of the men's graves of Sögel type. This rich Drouwen warrior's grave seems rather isolated in the Netherlands, being on the extreme western periphery of the Sögel group; though it may be grouped geographically with the Hümmling (Emsland) graves at Sögel itself, some 50 km west of Drouwen, and, farther off, the finds of Wildeshausen (Jacob-Friesen, 1954; 1967) in Oldenburg and Ehestorf near the mouth of the Weser (Laux, 1971: Cat. No. 4, with further references).

At Drouwen we evidently have to do with a person commanding, and buried with, unusual respect. Whether he was an intrusive figure, or a commanding person risen in the local culture but enjoying distant connections, cannot be determined on present evidence.

The occurrence at Drouwen of a series of, for this region, extraordinarily rich Late Bronze Age finds (Butler, 1986) raises the question of whether there was here a long-existent centre of authority. Rich Middle Bronze Age finds are, however, still lacking from this locality; so that continuity may be surmised but not demonstrated.

FIND NO. 12. SMAKTER SPURKT, *GEMEENTE* VENRAY, LIMBURG: THE 'OVERLOON' HOARD (fig. 15)

Map reference: Sheet 52 West (Venlo), 195.7/396.4.

Site: In a field called 'de Klippen', c. 2 km SE of Overloon; close to the eastern border of (but not, as previously assumed, in) the province of Noord-Brabant (information from B. Kruysen and W. Glasbergen).

Documentation: Correspondence in B.A.I. Groningen: *burgemeester* of Vierlingsbeek to van Giffen, 1 March 1948; H. van Daal to van Giffen, 17 October 1949; van der Griendt to van Giffen, 13 October 1950.

References: (a) Bursch, 1952: afb. 4; (b) Mariën, 1952: pp. 193-194. fig. 179; (c) Hachmann, 1957a: pp. 34, 69 ff., 122, 129, 131, Kat.nr. 636, Taf. 42:14-19; (d) Butler, 1959. pp. 129-131, fig. 2; (e) Butler, 1971: NL 13; (f) Butler, 1969: pp. 41-42, Afb. 11 (2nd ed. 1979: pp. 42-43, afb. 14); (g) Jacob-Friesen, 1967: pp. 35, 72, 90 ff., 115, 380, Kat.No. 1739; Taf. 5.

Description of site: A natural hillock overgrown with firs and scrub, on a piece of waste ground bordering on the Pesten.

Circumstances of find: Found by Math. Th. Peeters of Overloon in quarrying sand, at a depth of 30-40 cm, in May 1934.

Preservation: Noord-Brabants Museum, 's-Hertogenbosch; inventoried under 8369-74.

Description of the objects: All of bronze. All pieces have a fine dark green patina, but with patches of light green corrosion where the objects were in contact (see below under Observations).

1. *Rapier*. Slightly rounded trapeze-shaped hilt-plate, with small notch at centre of butt. Holes for four narrow rivets; abraded fragment of one rivet in situ. Omega-shaped outline of base of hilt. Lozenge blade cross-section, the medial ridge rounded. Blade-edges ground slightly concave; quite sharp. Abrasion of blade-edges is recent. Length 48.7 cm. Inv. No. 8369.

2. *Rapier* (fragment). Blade slightly leaf-shaped, with lozenge cross-section; bevelled edges. Hilt-end lost (the break is modern). Edges quite sharp where preserved, but most of the edges show severe recent abrasion. Length of fragment 39.7 cm. Inv. No. 3870.

3. *Flanged axe* with 'nicked' cast flanges. Low but distinct sloping stop-ridge. Cutting-edge recently abraded. Length 17.7 cm. Inv. No. 8373.

4. *Spearhead*, with elongated leaf-shaped blade. The upper third of the socket-tube sharply ridged, the remainder rounded. Squarish peg-holes. Length 17.2 cm. Inv. No. 8371.

5. *Spearhead*, with leaf-shaped blade; bevelled edges. Slight but distinct ridge on each side of socket from base of blade to the round peg-holes. Incised decoration on socket in Scandinavian 'Fårdrup' style (projection thereof: 5a). Finely polished surface. Edges now abraded, socket broken. Present length 14.6 cm (tip missing). Inv. No. 3872.

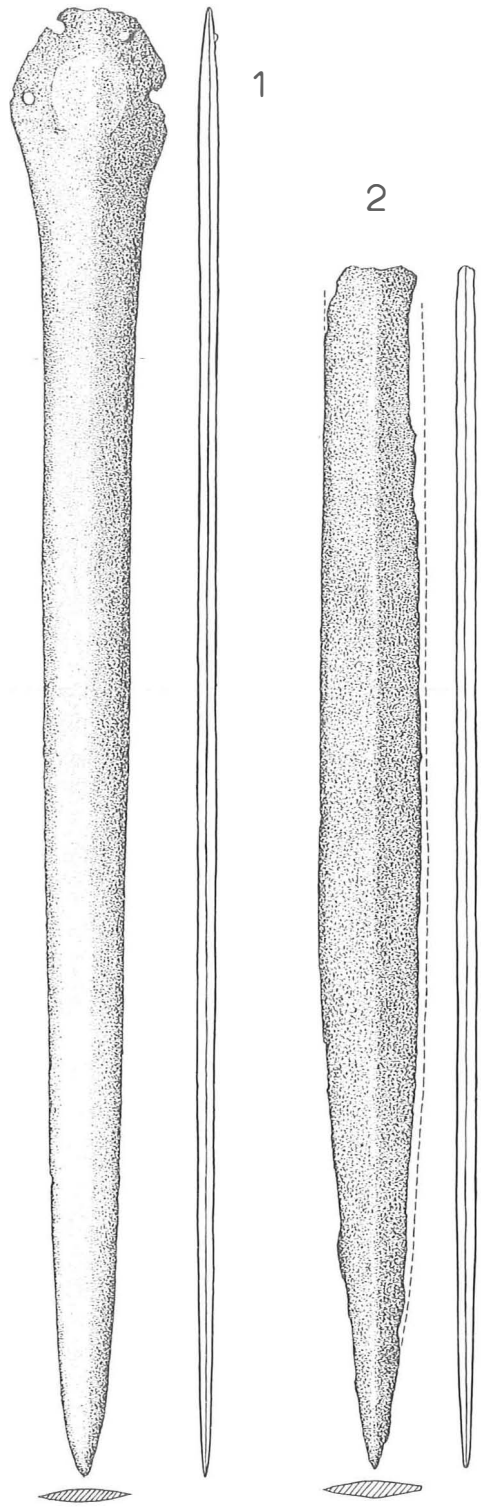
6. *Pin*, with crude elongated vertical perforation, around which the shaft is swollen. Slightly expanded head. Tip recently broken off. Length 15.9 cm; max. diameter of shaft 4.5 mm (of swelling, 6 mm); diameter of head 5 mm. Inv. No. 8374.

Comparisons:

1, possibly 2: rapiers of Wohlde type (Sprockhoff, 1941: pp. 32-33; Bergmann, 1952: pp. 21 ff., Karte 1; Bergmann, 1970; Holste, 1953: pp. 43-44, Taf. 15:5, Taf. 17, Karte 2; Hachmann, 1957: esp. pp. 32 ff., Karte 2; Piesker, 1937: p. 144; Laux, 1971: pp. 71-72). The Wohlde type includes daggers and dirks as well as full-fledged rapier-length specimens. The distribution area includes western Jutland as well as much of North Germany; to which can be added the eastern half of the Netherlands.

The Wohlde rapiers are closely related to (perhaps identical with) the rapiers with trapeze-shaped hilt and four capped rivets of Central Europe (Holste, 1953: pp. 43-44, Taf. 15:5, Taf. 17, Karte 2); which have been divided into numerous varieties by Schauer (1971: pp. 24 ff.). (Daggers: see Ritterhofer, 1983: pp. 208-214). There is no obvious differentiation between Central European and more northerly finds.

This is the second-longest of the 8 Wohlde rapiers known in the Netherlands. It is also longer than most of the South German examples; but specimens of comparable length are found among Schauer's Type



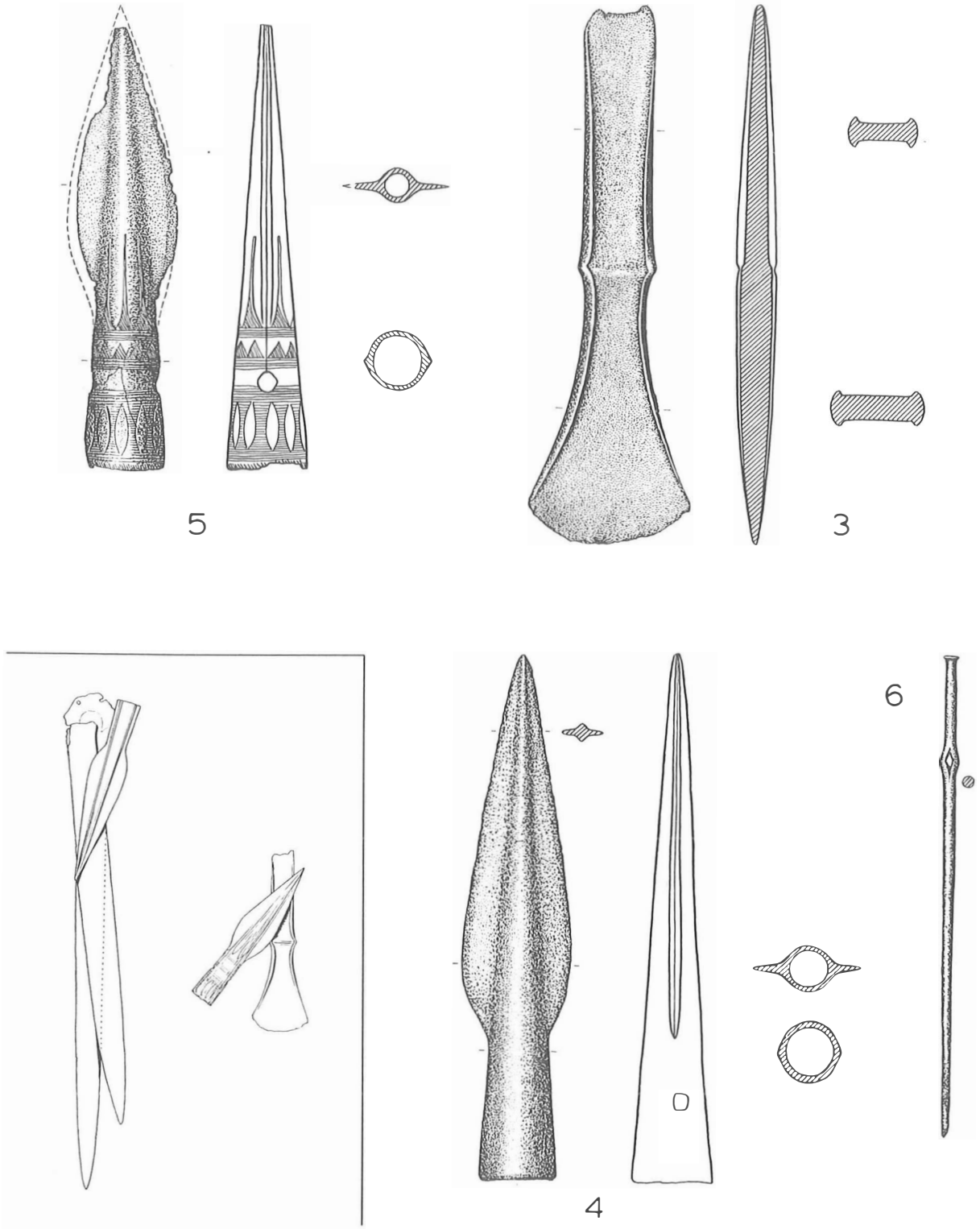


Fig. 15. Find No. 12. Smakter Spurkt (Limburg). the 'Overloon' hoard. Scale: 2:5 (1.2), 1:2 (3-6). Inset: patina discolourations suggest overlapping of the objects in the ground as shown; but the position of the two groups relative to each other is unknown.

Gamprin (Schauer, 1971: p. 38, Nos 90-107; only his later Type Mägerkingen, his Nos 112-116, has longer examples).

Two Wohlde weapons, of dirk length (Mus. RMO Leiden, I 1901.1.1 and I 1931.2.15 respectively; but note, one a dealer's provenance, the other from a large collection) are attributed to the River Maas at Venlo, c. 20 km to the SE.

Another geographical grouping, of three specimens (two rapiers, one dirk) is from Twente (eastern Overijssel: see below, under Monnikenbraak, Find No. 13). In Drenthe in the North we know only of a few dagger-length Wohlde weapons.

Two Wohlde rapiers are from tumuli on the Veluwe, in the centre of the country. One is from the Bergsham, Tum. 3, *gemeente* Garderen (see below under Dating), the other was found in a burial mound some 12 km to the north, near Putten; little is known of the find circumstances (Ypey, 1956; Elzinga, 1957; Hacke-Oudemans, 1963).

3. The *geknickte Randbeil*: Drouwen, Drenthe (Find No. 11 above; q.v. for further refs. concerning the *geknickte Randbeile*). This Overloon specimen is unusually long, and also atypical in having a slight 'ledge' stopridge.

4. Assigned by G. Jacob-Friesen (1967: Chapter I) to Becker's Type Torsted (Becker, 1964 (IA DK 11:15,34). A shorter example, likewise with square peg-holes, is from the Wildeshausen, Ldkr. Oldenburg, hoard (Jacob-Friesen, 1954; 1967: Cat.No. 1090; pp. 91 ff., 115, Taf. 10).

5. Slender, late variant of the spearheads of Bagterp type (Jacob-Friesen, 1967: Chapter I; 1954: p. 32, n20). Cf. also Babbin, Kr. Pyritz, Hachmann, 1957: Taf. 36:15-16. See Jacob-Friesen, 1967: p. 100, Taf. 5.

6. Similar but headless, and with rounded perforation: Barglay (Bargloy in Laux, 1971, 1976) in Oldenburg, Niedersachsen (Sprockhoff, 1941: Abb. 26:15, and Hachmann, 1957: Taf. 39:2). Laux (1976: p. 48) has assigned the Overloon pin to his 'Typ Bargloy', in company with only two other examples: the Bargloy pin itself, found in a grave with a Sögel dagger, etc., and the swollen-neck gold *Lochhalsnadel* from the grave of Buddinge in Danish Zeeland, with among other things a Valsømagle spearhead (Lomborg, 1959: pp. 89-90, No. 140; assigned by Lomborg to late in Period IIa (now called Period IB), cf. Jacob-Friesen, 1967: No. 354, II Taf. 32:1-6). Both these pins have, unlike the Overloon pin, a round perforation. Pins with elongated punched perforation seem to be rare north of the Alps (though needles with similar perforation, but smaller, and without heads, occur in very diverse chronological contexts; in the Netherlands cf. the Ommerschans hoard, Find No. 17). Ultimately related to E. Mediterranean-Near Eastern 'toggle-pins' (Henschel-Simon, 1936: pp. 169 ff.; Schaeffer, 1948: fig. 44 ff., with numerous varieties), which spread to S.E. and Central Europe. A slit-perforated pin similar to the Overloon specimen has, however, recently come to light in a Tumulus grave in Southwest Germany, at Weikersheim-Queckbronn, Main-Tauberkreis (Biel, 1990: Taf. 45C).

Dating: According to Hachmann (1957) late in his Wohlde Phase, and not before his Horizon IV, which brings 'Tumulus B2' (in more recent terminology, *mittlere Hügelgräber*/Tumulus C1) influences to the North. Subsequently, various authorities have telescoped the 'Sögel' and 'Wohlde' phases of Hachmann into one Sögel-Wohlde phase, which has its Central European contacts with the Earlier Tumulus (B, Lochham) phase.

Within 'Sögel-Wohlde', however, Overloon evidently must rank as tail-end, to judge by both the long rapier and the unusually long flanged axe with slight, 'proto-palstave' stopridge.

A link with the grave record in the Netherlands is provided by the tumulus of the Bergsham, *gemeente* Barneveld, Gelderland, Tumulus 3 (van Giffen, 1937; Glasbergen, 1954 (II): p. 54; Hulst, 1971). There a rapier almost identical with that of Overloon – indeed, slightly longer – occurred in the primary cremation grave under an 8-post mortuary house, surrounded by a circle of closely-set posts. This brings it within the Middle Bronze B of Lanting & Mook (1977).

A curious feature of the Bergsham find is that the only burial found inside the mortuary house was that of an *infans*. If the rapier actually belonged to the young child, we would seem to be dealing with a documented case of ascribed ranking; though it is equally conceivable that the monument was in honour of an adult warrior who was not actually buried in the mortuary house itself.

Vankilde (1988: p. 31, fig. 2) includes the Overloon hoard in a seriation table as characteristic of Northern Period IB, along with such finds as Ilsmoor (Neukloster) and Valsømagle.

Observations: Corrosion-marks indicating contact between the bronzes permits a partial reconstruction of the arrangement of the objects in the earth. The two rapier-blades were lying one upon the other, at a slight angle, with one of the spearheads obliquely across the broken rapier blade. The flanged axe was crossed diagonally by the tip of the spearheads. In the sketch given (fig. 15:5a), the objects are shown in two groups; the original relative position of these two groups cannot be determined.

Remarks: All the types in the Overloon hoard have more or less parallels in the graves and hoards of the Sögel-Wohlde complex of Northwest Germany and adjacent provinces, and were presumably imported to the Netherlands as a unit. Though all the pieces are damaged, this appears to be the result of mis-handling after the find was made; the find may represent the personal equipment of one or two warriors.

The Overloon hoard is the only rich Sögel-Wohlde assemblage in the southern part of the country. The nearest comparable hoard find is that from Wildeshausen in Oldenburg (Jacob-Friesen, 1954; 1967).

FIND NO. 13. MONNIKENBRAAK, *GEMEENTE* TUBBERGEN, OVERIJSSEL: PROBABLE GRAVE FIND IN TUMULUS NEAR *HAVEZATE* (MANOR HOUSE) HERINCKHAVE (fig. 16A)

Map reference: Sheet 28 East (Almelo), 249.70/489.46.

Documentation: Rijksmuseum Twente, Enschede.

References: (a) ter Kuile, 1924; (b) Lohof, 1991 (II): p. 100, No. 245-0 (brief summary).

Circumstances of find: dug up in a tumulus by an unnamed shepherd; according to ter Kuile the objects were found 'together in one find'. No further details known.

Description of site: none.

Preservation: Objects acquired with the collection ter Kuile in 1952 by Rijksmuseum Twente; preserved under Inv. Nos 791-793, 1010.

Description of the objects:

1. *Rapier*. Hilt-plate rounded-biconical, with slight V-notch at butt; originally four capped rivets (two notches, two perforations with rivets preserved); narrow omega-shaped hilt mark; parallel-sided blade with ridged cross-section; hollowed blade edges. Tip originally present (photo in ter Kuile 1924) but now broken off and missing. Length originally c. 38/39 cm; width hilt-plate 5.1 cm. Inv. No. 1010.

2. *Flanged axe*. Straightish butt, narrow parallel-sided body, but wide blade. Groups of parallel incised lines as decoration on sides. The edges of the flanges are nicked. Length 16.6 cm; blade width 5.9 cm; max. width of flanges 1.4 cm. Inv. No. 792.

3. *Whetstone*, of rectangular cross-section (1.1x1.0 cm), tapering slightly to flattened ends; no perforation. Length 10.5 cm. Inv. No. 793.

4. Small *bowl*, with concave collar, truncated cone body. Height 5 cm; width at rim 6 cm. Inv. No. 791.

Parallels and connections:

1. The rapier is of Wohlde type (parallels discussed above under Find No. 12). The second Wohlde rapier from the Monnikenbraak cemetery is very similar in size and form. It was dug out of a burial mound in 1888 in the Monnikenbraak cemetery by J.W. Mulder, along with a plain, narrow, legged leaf-shaped spearhead (rather like the spearhead from Holset: see Find No. 22 below) possibly but not certainly from the same deposit (fig. 16: B); an Early Iron Age urn was higher up in the mound (Museum Zwolle, Inv. No. 123-4). Only a few kilometers to the north, another Wohlde rapier, evidently a bog find, is from the Weitemanslanden near Vriesenveen (Mus. Enschede, Inv. 11109, formerly 500-270).

2. The flanged axe is without parallels in the Netherlands. It can be considered to be a derivative of the Riquewihr type of Abels (1972: pp. 32-33, Nos 225-237); at least one example of which, his No. 236 from Ollon, has related incised decoration on the sides (related decoration also on other Reinecke A2 flanged axes types: Abels No. 171, Type Lausanne I, Var. A from Tavel; No. 349, Type Cressier, Var. I from Ollon).

A flanged axe almost identical to the Monnikenbraak specimen,

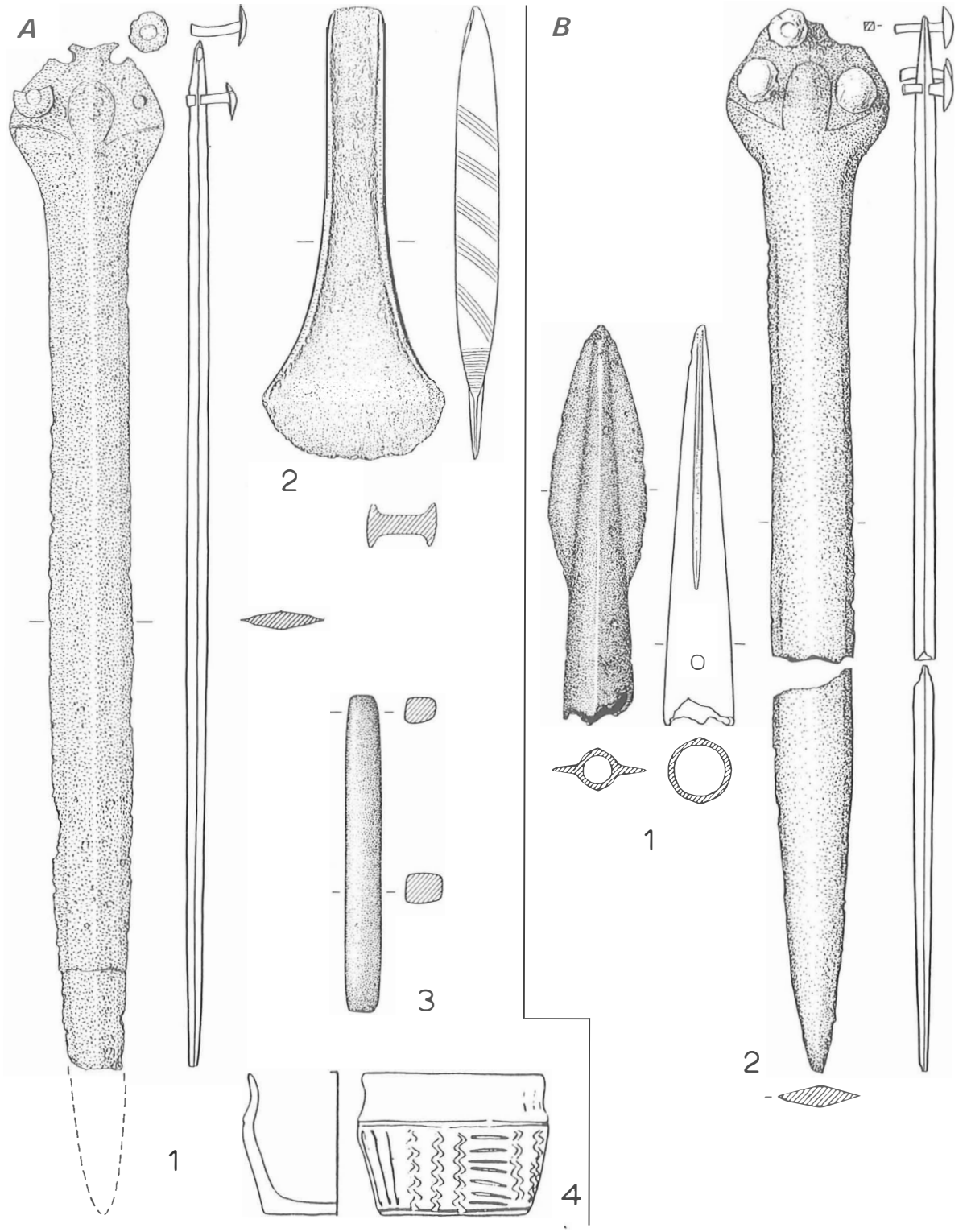


Fig. 16. A. Find No. 13. Monnikenbraak (Overijssel), tumulus grave. 1,2. Bronze; 3. Stone; 4. Pottery. 4 after Verlinde. Scale 1:2.
B. Monnikenbraak (Overijssel). From a tumulus, but uncertain association (see under Find Nos 12 and 13). 1,2. Bronze. Scale 1:2.

but with the groups of parallel lines in the more common horizontal arrangement rather than diagonally, is from a rich Northern Period I grave in Schleswig-Holstein (Hüsby, Kr. Schleswig-Flensburg, *Grabhügel* 27, *Grab* G: Aner & Kersten IV, No. 2362: pp. 124-133, esp. pp. 131-133, Abb. 133, Taf. 36:2362G). The same motif is found on a *geknickte Randbeil* in a Danish Sögel grave at Lejrskov (Aner & Kersten VIII: No. 3806).

The other grave goods include a small spearhead with ridged socket, a twisted *Rollenkopfnadel*, and a slate pendant/whetstone, not unlike the Monnikenbraak whetstone, but with perforation.

It is interesting that such groups of incised parallel lines as side decoration on axes are also found on several specimens in Picardy. The axes concerned include narrow-body, ultra-wide blade flanged axes, apparent ceremonial derivates of axes in the Riquewihr-Langquaid tradition, from Bury (Oise) and the area of Abbeville, and a shield palstave from Beauvais (Blanchet, 1984: p. 129, fig. 54:1-2, and p. 171, fig. 85:7, showing that this decorative tradition continued into the Tréboul-Acton Park phase at least. In the Netherlands itself, this decorative motif (horizontal bands) also occurs on the flanged axe (damaged; probably of Abels type Mägerkingen or Nehren) in the primary cremation grave of the tumulus with bank of Alphen, North Brabant (Beex, 1966; Butler, 1966).

4. The small *bowl* offers difficulties. It is atypical both in form and decoration. While Verlinde (1987: p. 166, No. 674, Abb. 99:674) believes it to be a Late Bronze Age-Early Iron Age Urnfield accessory vessel, thus casting doubt on the homogeneity of the find, Lohof (1991: p. 100) accepts it as an example of Middle Bronze Age *Kümmerkeramik*. We may note that small pottery vessels with similar hollow neck are not uncommon in Early to Middle Bronze Age contexts in Denmark and Schleswig-Holstein, as a perusal of the volumes of Kersten & Aner makes clear. Though most have a bulbous lower part, a few have straight-sided lower parts like the Monnikenbraak vessel (for example, their No. 417, vol. I, pp. 147-148, from a rich Period II grave at Jaegersborg; 2718G, Morsum, Gem. Sylt-Ost, with urn in stone cist, attributed to Period III; 2823B, from Oldersbek, in Southwest Schleswig, from a decayed treetrunk coffin grave, Period II or III). But we hesitate to pass final judgment on this pot.

Dating: Assuming the accuracy of the ter Kuile statement that the objects represent a single find, we can date it in the first instance by the rapier, which places it in the Sögel-Wohlde phase and the MB A of Lanting & Mook. The flanged axe and whetstone would in any case not be out of place in this chronological context. If indeed a genuine closed find, it would be the richest warrior's grave of the Sögel-Wohlde phase in Twente.

FIND NO. 14. VOORHOUT, *GEMEENTEN* HILLEGOM AND LISSE, SOUTH HOLLAND: HOARD (figs 17A-E and 18)

Map reference: Sheet 30 East ('s Gravenhage), 93.3/470.4.

References: (a) Holwerda, 1908: Pl. XIV; (b) Lorjé, 1908; (c) Sprockhoff, 1941: Taf. 26; (d) Butler, 1959: pp. 131-134, fig. 3; (e) Butler, 1963: pp. 48 ff., 124 ff., 213 ff., fig. 11; (f) Butler, 1971: NL. 14; (g) Bloemers et al., 1981: p. 53 (with colour photograph).

Description of the site: The precise find-spot is not recorded, beyond that it was on land belonging to the bulb-grower Veldhuizen van Zanten of Lisse, lying south of the then Catholic Seminary. The find-spot was visited by the Director of the R.M.O., J.H. Holwerda, and the geologist J. Lorjé, but their accounts are remarkably lacking in details as to the exact location. According to Holwerda, the objects lay in a pit c. 50x50 cm, in peat covered by sand. A sequence of sand and peat layers at the site is given by Lorjé, but it was not possible to determine the layer in which the pit was found or from which level it was dug. The corroded condition of the bronzes implies that they were not purely in peat. The area south of the former Seminary was subsequently built over and is now part of the village of Voorhout.

Circumstances of find: Found in the Spring of 1907; circumstances not recorded.

Preservation: R.M.O., Leiden; acquired October 1908 through the mediation of Veldhuizen van Zanten. Inventoried under Inv. No. h/1908/10.1-19.

Description of the objects: All of bronze. All corroded in varying degree; most pieces have lost all or nearly all their original surface. Basic patina blackish, but with irregularly mottled surfaces; most pieces have reddish iron-stain partially overlying patina, (19) has quite different, green patina.

1. *Flanged axe* (palstave?): very thin, of unusual form and proportions. Low, cast flanges, rounded septum, long widely expanded blade. Faint trace of incipient stop-ridge on one side. Broken; the central portion missing. Length (as reconstructed) 18.5 cm, Inv. No. h/1908/10.18.

2. *Flanged axe* (butt end missing): high thin cast flanges, flat septum. Flanges slightly rounded externally, their edges bevelled. Present length 10.3 cm, Inv. No. h/1908/10.17.

3-4. *Flanged stopridge axes*: (3) high thin cast flanges (abraded), expanded blade, length 15.2 cm, Inv. No. h/1908/10.6; (4) high thin cast flanges, expanded blade, length 16.8 cm, Inv. No. h/1908/10.8.

5. *Lugged chisel* ('trunnion celt'): lower end sharpened, butt blunt. Asymmetrical longitudinally and in cross-section. Length 16.9 cm, Inv. No. h/1908/10.19.

6-14. *Palstaves with broad blade, and with shield-shaped indentation beneath the stopridge*: (6) length 17.1 cm, Inv. No. h/1908/10.5; (7) length 14.7 cm, Inv. No. h/1908/10.14; (8) length 17.1 cm, Inv. No. h/1908/10.11; (9) length 16.8 cm, Inv. No. h/1908/10.10; (10) length 16.2 cm, Inv. No. h/1908/10.4; (11) length 15.7 cm, Inv. No. h/1908/10.9; (12) length 16.6 cm, Inv. No. h/1908/10.12; (13) length 17 cm, Inv. No. h/1908/10.7; (14) length 16.6 cm, Inv. No. h/1908/10.2.

15-19. *Palstaves with shield-shaped indentation below the stopridge; a vertical rib inside the 'shield'*: (15) length 16 cm, Inv. No. h/1908/10.1; (16) length 17 cm, Inv. No. h/1908/10.13; (17) blade and butt damaged; present length 12.8 cm, Inv. No. h/1908/10.16; (18) length 17.7 cm, Inv. No. h/1908/10.15; (19) length 16.5 cm, Inv. No. h/1908/10.3.

Parallels and connections:

The *palstaves*: All but one belong to the 'Group I: primary shield pattern palstaves' defined by Schmidt & Burgess, 1981: pp. 117 ff., Nos 770-787A. Most are of the Acton Park/North Welsh type; which in distribution within Britain extends beyond the North Wales province into the English Midlands (cf. Vine, 1982: Nos 749-761).

Palstaves related to the Acton Park type, though with deviant features suggesting non- British manufacture, have been found in the Pyrzyce (formerly Pyritz) hoard in Poland and in Brittany (Tréboul horizon: Briard (1965: pp. 84-86, figs 23:4, 24:1-3, 6-7) and Alsace (Habsheim hoard: e.g. Stein, 1979: pp. 84-85, No. 174, with further references, Taf. 63-65). Palstave No. 14 is of a smaller, more graceful variety less typical of Acton Park. A similar palstave is from the Hague (Savornin Lohmanplein). Voorhout No. 9 is also perhaps to be included in this category.

The *highflanged axe* (No. 2): Numerous approximate parallels in the Tréboul phase in Brittany, and in Atlantic France generally (Briard, 1956: Pl. I-XVII; 1958: pp. 35-36); Briard & Verron, 1976a: p. 45; Type 4121 under *Types atlantiques*). This type seems to be rare in Britain, although an example is illustrated by O'Connor (1980: fig. 15B, No. 37: in the mixed-date hoard from Sidlesham, Sussex).

In the Netherlands, an example from Veenenburg, South Holland, formerly attributed to that hoard (Find No. 21) is a stray find, presumably from the Veenenburg estate.

The *flanged stopridge axes* (Nos 3-4): Flanged stopridge axes of Type Plaisir (Butler, 1987: esp. pp. 10-13, fig. 3, pp. 31-32, note 3).

The *lugged chisel*: This example is of North Welsh origin, to judge by the metal analysis (see below under Metallurgy). The widespread occurrence of the type in general has been documented by Wesse (1990); the Voorhout example is his Cat.No. 250, p. 210.

Metallurgy: Fourteen of the Voorhout objects were sampled for spectrographic and metallographic analysis by P. Northover (Oxford). The detailed results have not yet been published, but in a brief published comment (Northover, 1980) and in an as yet unpublished typescript he has indicated that thirteen of the fourteen Voorhout objects are of his (tentatively designated) M metal, which is characteristic for the early Middle Bronze Age industry of North Wales. The fourteenth object, the highflanged axe, with a deviant composition, is typologically attributable to a different, if undetermined source (cf. graph of metal analyses, fig. 18).

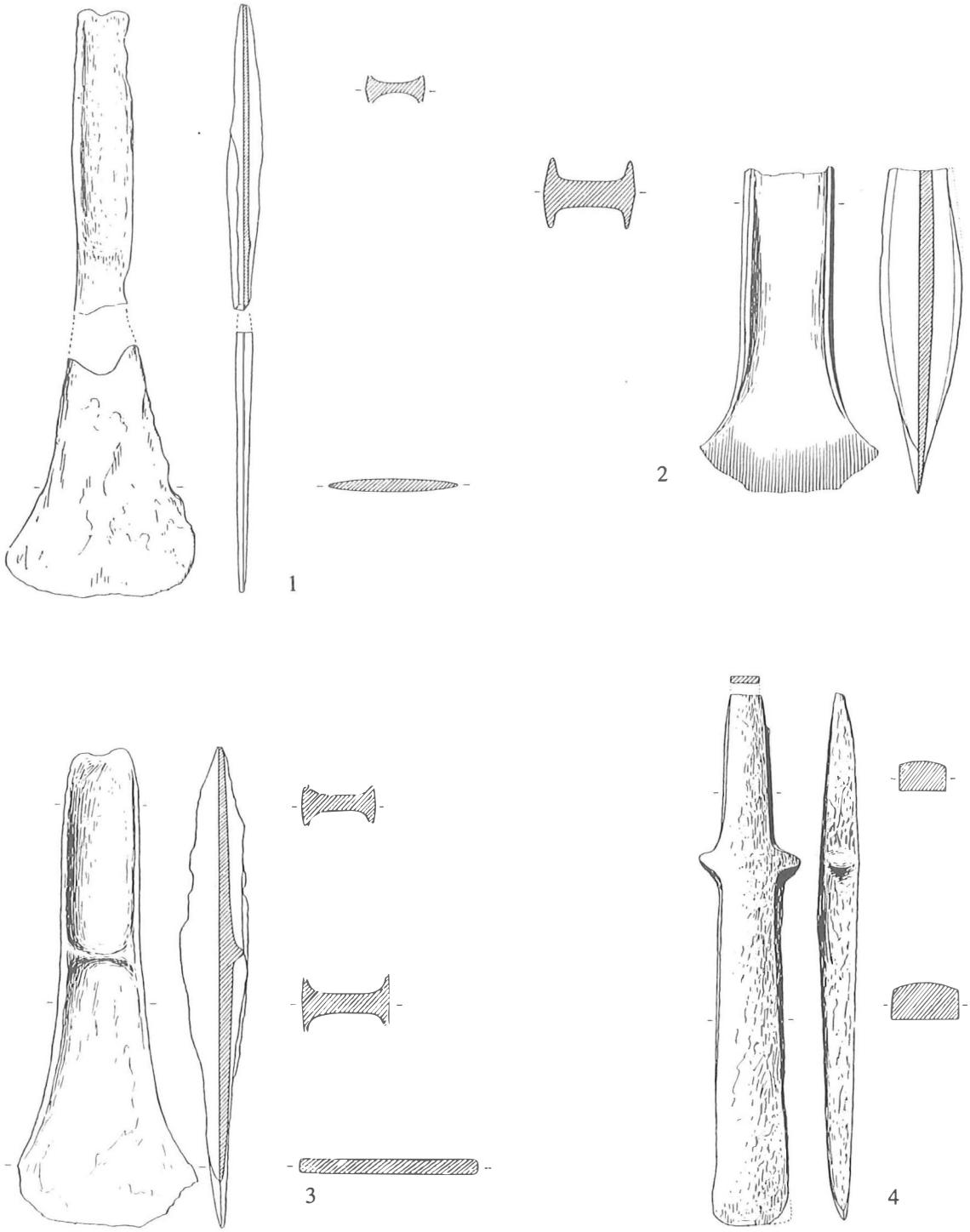


Fig. 17. A. Find No. 14. Voorhout (South Holland), hoard (with figs 5B-5E). Scale.1:2.

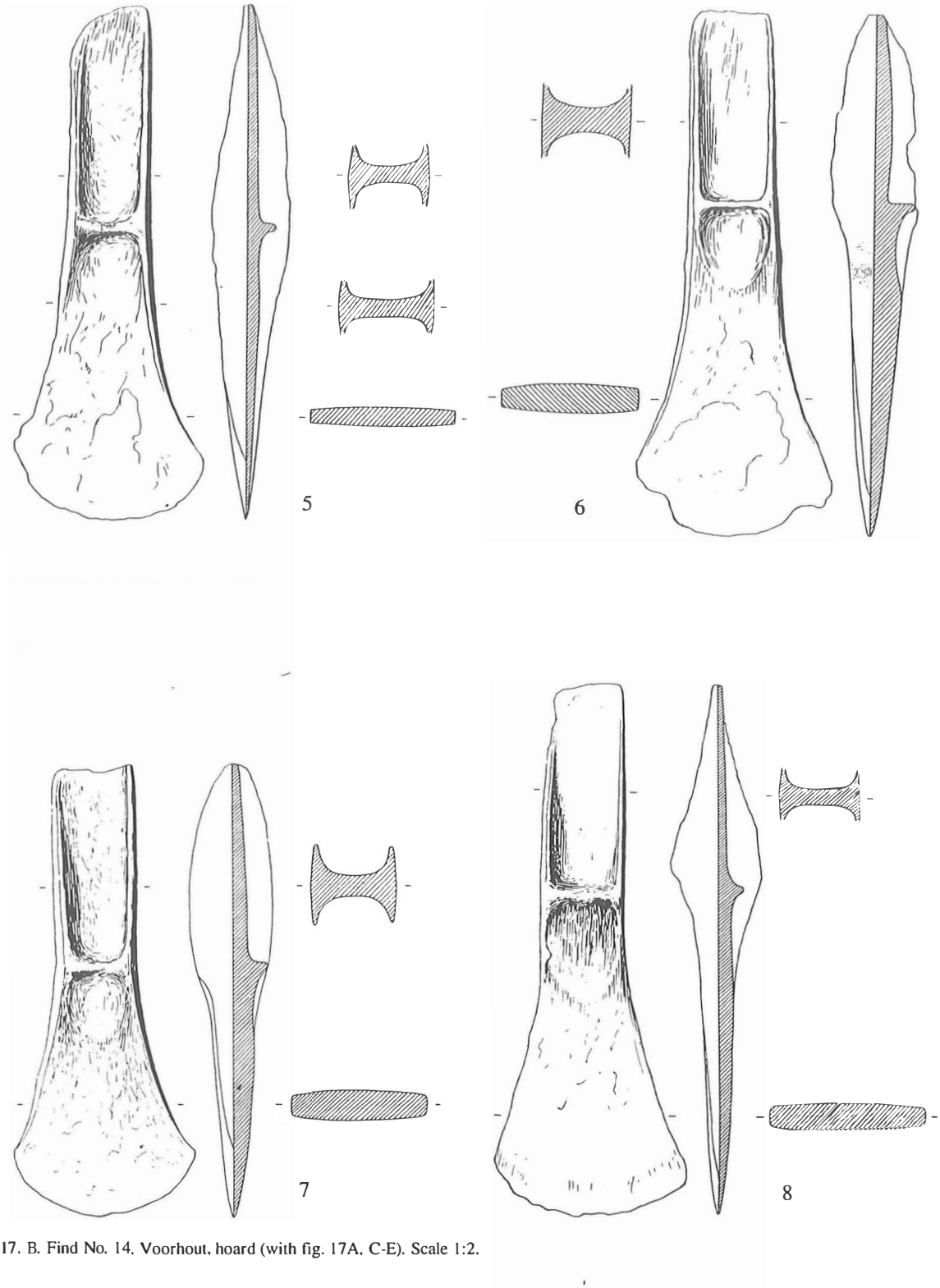


Fig. 17. B. Find No. 14. Voorhout, hoard (with fig. 17A, C-E). Scale 1:2.

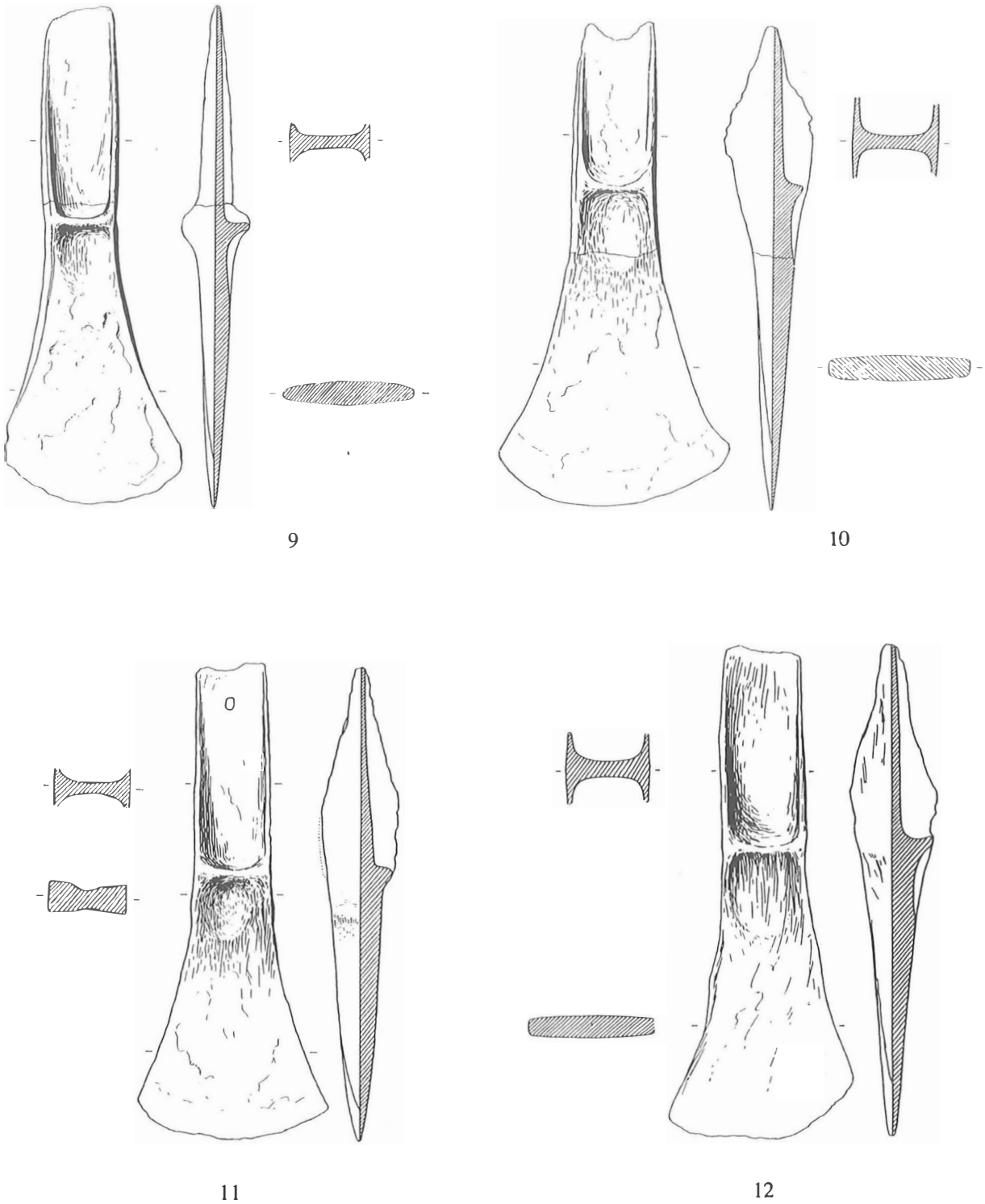


Fig. 17. C. Find No. 14. Voorhout, hoard (with fig. 17A-B, D-E). Scale 1:2.

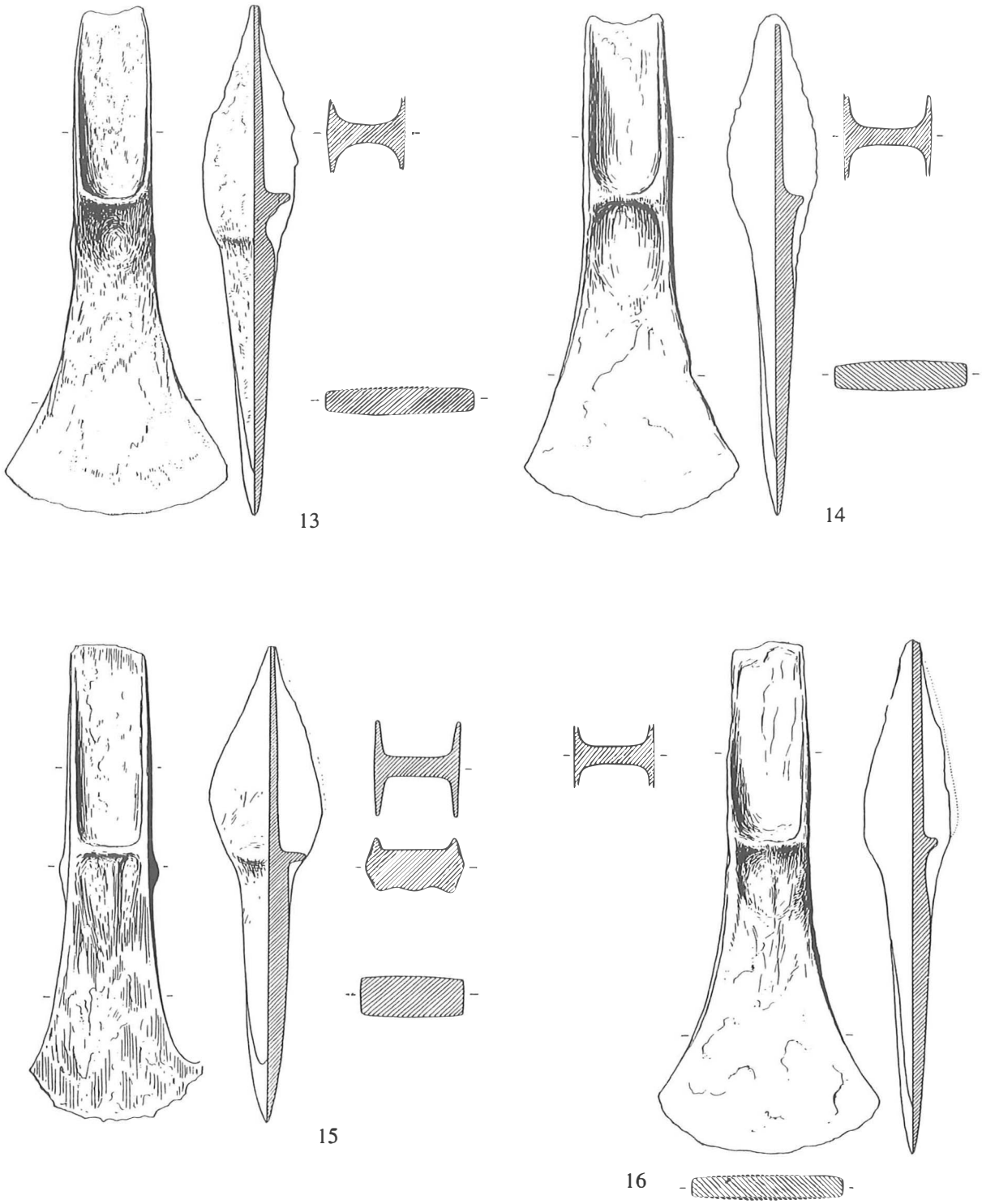


Fig. 17. D. Find No. 14. Voorhout, hoard (with fig. 17A-C, E). Scale 1:2.

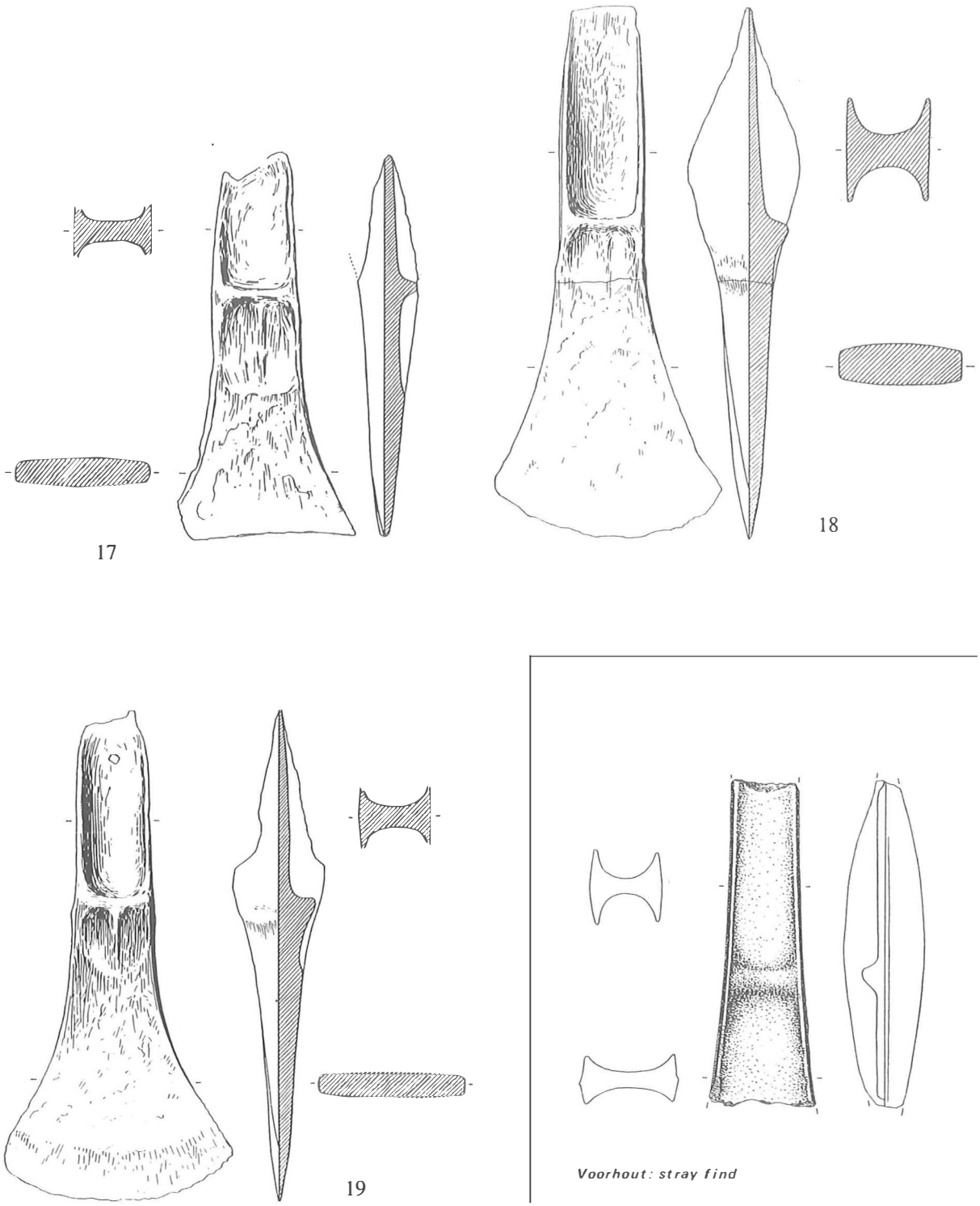


Fig. 17. E. Find No. 14. Voorhout, hoard (with fig. 17A-D). Scale 1:2. Box: Stray find, Voorhout, Herenstraat 57, 1985. Scale 1:2.

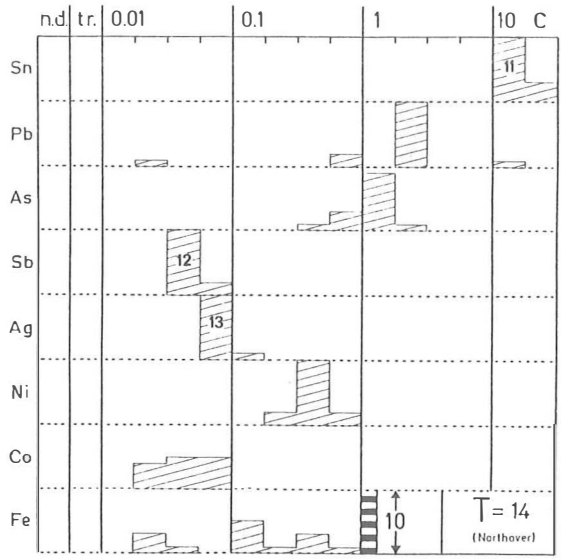


Fig. 18. Find No. 14. Voorhout, hoard: electron micro-probe analyses.

Dating: Palstaves of, or related to, 'Acton Park' in Britain, and flanged stopridge axes of the Plaisir type occur in a series of hoards across northern Europe which the present writer (Butler, 1963: esp. pp. 59-62) termed the 'Ilsmoor horizon'; cf. Schmidt & Burgess, 1981: pp. 115-125. In the Emsland, just east of the Netherlands border, this type of hoard is represented by the find of Hüvede, Kr. Lingen (Sprockhoff, 1941; Kaltofen, 1985: p. 22, No. 35, Taf. 25:11-14, under 'Bramsche'). These finds interlock with the Valsømøgle phase (now termed early Bronze Age IB) in Denmark.

Burgess and his collaborators have subsequently divided 'Acton Park' into two sub-phases: the earlier, Acton Park I, ill-documented in British associated finds, but well represented in earlier hoards of the 'Ilsmoor horizon' on the Continent (Rülow, etc.), and a later phase, Acton Park II, to which the Acton Park hoard itself and the Voorhout hoard belong, which they equate chronologically with the Central European Göggenhofen phase and later 'Ilsmoor horizon' finds. This conception reflects to a degree the Hachmann chronological distinction between 'Sögel' and 'Wohlde' which is for most commentators now outmoded.

Acton Park is typical for Burgess stage VIII and British Middle Bronze Age I; Burgess (1980b: pp. 126-129) regards the Acton Park hoard, with tin-lead bronzes, as characteristic of his 'Acton Park 2' stage. Related palstaves, with or without 'shield' below the stopridge, are dated in Brittany to the Tréboul phase (Briard, 1956; 1965: p. 84, fig. 23:4,11; 24:6,7). A fine example of the typical Acton Park 2 palstave is a stray find recently published by Horst (1987: p. 138, Abb. 9:1) from Oranienberg in the Havel area in Brandenburg.

The Habsheim hoard contains, together with palstaves unmistably related to the North Wales type (but local, rough castings) flanged axes of Type Möhlin (Stein, 1979: pp. 84-85, No. 174; Briard & Verron, 1976: pp. 57-58, Type 4214, fig. 2).

Discussion: That all but one of the Voorhout objects are imports from the North Wales area follows both from the typological and metallurgical evidence. They must have been imported to the Dutch coastal dune area/Old Rhine mouth area *en bloc;* such a group of objects could not have been assembled locally. The damaged condition of most of the objects argues that they were imported as scrap metal, not as new objects; possibly they were intended for re-melting locally, or perhaps for trade farther up the Rhine (as suggested by the Habsheim find). But the Voorhout lugged chisel could be interpreted as a smith's tool.

The occurrence of 'Acton Park' material in Brittany, South Holland, western Poland and Alsace documents the existence of widespread exchange networks in the period concerned.

FIND NO. 15. MANDER, *GEMEENTE* TUBBERGEN, OVERIJSSEL: SECONDARY INHUMATION GRAVE IN TUMULUS II/1958 (fig. 19)

Map reference: Sheet 28 East (Almelo), 253.86/497.01

Documentation: Rijksmuseum Twente, Enschede.

References: (a) Hijszeler, 1958; Hijszeler, in Dingeldein, 1964: pp. 234-235 (summary description); Lanting, 1973: p. 237; Lanting & Mook, 1977: pp. 89, 93 (^{14}C dates earlier phases); Lohof, 1991 (II): pp. 118-119 (summary description). The find has not previously been fully described or illustrated.

Circumstances of find: excavated 1958 by C.C.J.W. Hijszeler, for Rijksmuseum Twente.

Description of site: Tumulus with two ^{14}C-dated Late Neolithic periods (Per. 1, GrN-2388, 3910±55 BP, Per. 2, GrN-2982, 3620±70 BP). Two peripheral, parallel secondary extended inhumations were found; in one part of the skull was preserved, the other contained the grave goods here described.

Preservation: Rijksmuseum Twente, Inv. No. 1011.

Description of the objects:

1-3. Three *amber beads*. The largest (3.0x1.8 cm) has a truncated-cone shape and small perforation; another (2.2x0.5 cm) is a disc of uneven section, with a worn oval perforation; the third (1.1x1.4 cm) is spheroid.

4-5. Two small *bronze wire coils* (diam. 5 to 6 mm).

6. Fragment of *bronze wire*, irregularly coiled.

7. Sheet-bronze truncated cone-shaped *tutulus* (secondarily?) slightly oval, 1.6x1.3 cm; height 0.55 cm). The central perforation is also slightly oval.

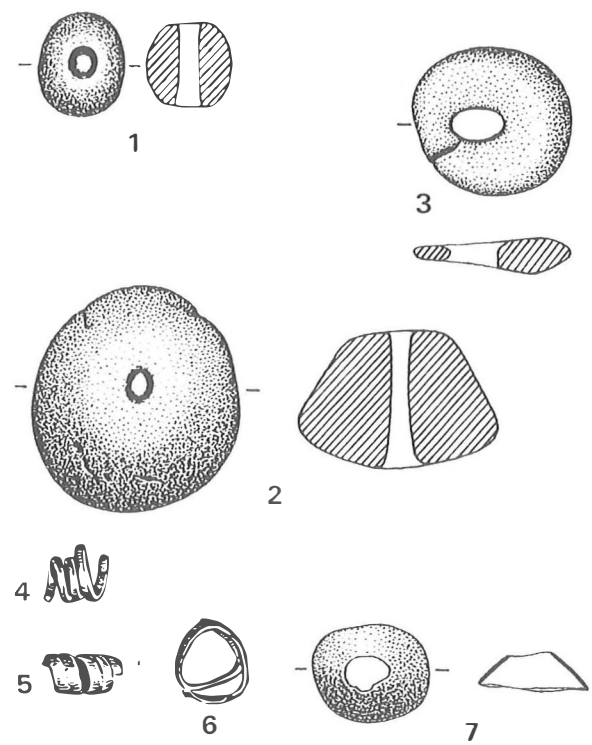


Fig. 19. Find No. 15. Mander (Overijssel), Tumulus II/1958, grave. 1-3. Amber; 4-7. Bronze. Scale 1:1.

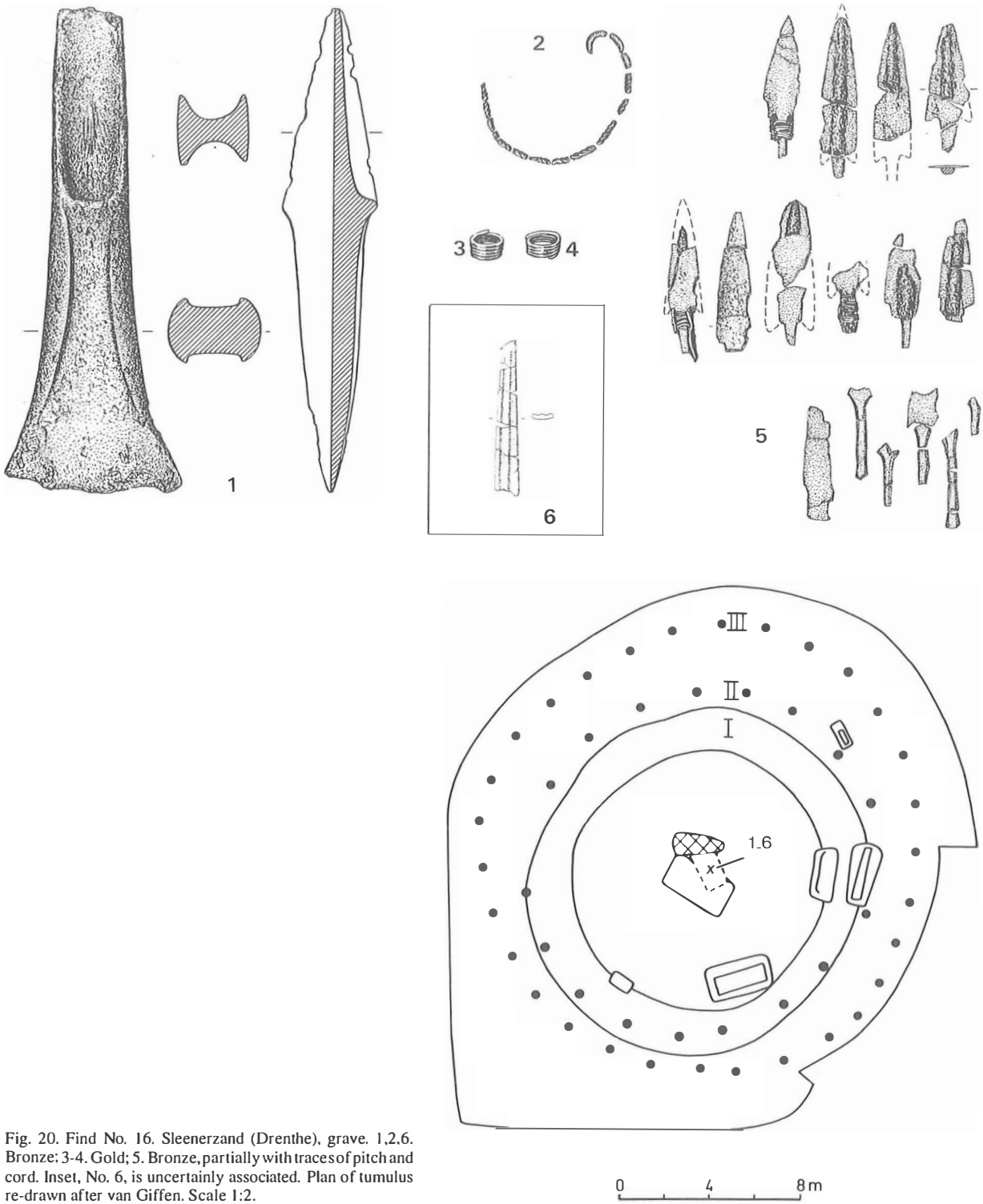


Fig. 20. Find No. 16. Sleenerzand (Drenthe), grave. 1,2,6. Bronze; 3-4. Gold; 5. Bronze, partially with traces of pitch and cord. Inset, No. 6, is uncertainly associated. Plan of tumulus re-drawn after van Giffen. Scale 1:2.

Parallels and connections: Amber bead 1 may be regarded as an irregular variant of the 'hexagonals', discussed at length in Section 1 above. Amber bead 2 has good parallels in Central European *Hügelgräber* contexts, i.e. Sulzbach-Langenbuchenberg, with wheel-headed pins recalled those of Weerdinge (see Find No. 4 above and Hachmann, 1957b: Abb. 8:8, 11, 13) as well as in amber necklaces in Drenthe.

Bronze wire-coil beads frequently accompany amber beads in the Central and North European Middle Bronze Age, though not, apart from this find, in the Netherlands.

The tutulus differs from the usual Central European Early and Middle Bronze Age sort in that it has a central perforation, but no perforations at the rim. In general it resembles the rivet-caps characteristically employed on Sögel and Wohlde daggers. A very similar tutulus is in the Bath-Monkswood hoard, Somerset, England (*Inventaria Arch.* GB 42:16), dating to the Taunton phase.

Dating: The amber beads generally resemble those in Drente finds of Middle Bronze B and related finds elsewhere (see Section 1). A Middle Bronze B date, more or less contemporary with Weerdinge-Paaschberg, would therefore be likely. Rather similar beads occur in the Late Bronze Age (Period V) hoard from Holzhausen, Kr. Wildeshausen in Oldenburg (Gandert, 1955), but the inhumation grave form at Mander favours the Middle Bronze Age dating. The Bath-Monkswood tutulus is consistent therewith.

FIND NO. 16. SLEENERZAND, *GEMEENTE* SLEEN/*GEMEENTE* ZWEELOO BOUNDARY, DRENTHE: PRIMARY GRAVE OF PHASE 2 IN TUMULUS 'DE GALGENBERG' (fig. 20)

Map reference: Sheet 17 East (Emmen), 248.30/537.24.

Documentation: Drents Museum, 86 *Dagboek* 1934. B.A.I. photo album 1934b, Nos 105-113a; 1936, Nos 176-177.

References: (a) *Museumverslag Assen* 1934: pp. 21, Nos 64-67; pp. 121-123, Afb. 32; (b) van Giffen, 1936b: pp. 104-110, Afb. 10-14; (c) van Giffen, 1940: pp. 207-209, Afb. 32; (d) van Giffen, 1944: pp. 478-479, Afb. 40-41; (e) Glasbergen, 1954 (II): p. 22, fig. 47, p. 32, Nos 16-17; (f) Butler, 1969: pp. 110-114, fig. 50 (2nd ed. 1979: pp. 119-121, fig. 82); (g) Lohof, 1991: pp. 67-68, No. 163-1/2/3.

Circumstances of find: Excavated May 1934 (two quadrants) and 1938 (other two quadrants) by A.E. van Giffen for B.A.I. Groningen.

Preservation: Drents Museum, Assen; inventoried under 1934/V.30.

Description of site: A three-period tumulus, c. 23x1.85 m; with an urnfield immediately to its south.

Phase 1 was an early Middle Bronze Age sod-built mound with ring-ditch; a central rectangular grave pit contained an unperforated schist whetstone of rectangular section.

Phase 2, a sod-built capping surrounded by a post circle (Glasbergen Type 3; diameter 15 m); 19 postholes; of which one was cut by a secondary grave with a NNW-SSE central primary grave, containing the grave goods here described, which were not found in situ, however.

Phase 3 was a similar but slightly larger capping, also with Type 3 post circle. Its central primary grave was destroyed by recent disturbance. There were four tangential secondary coffin graves belonging to Phases 2 and 3: one of these contained an unidentifiable, corroded fragment of a bronze pin.

Urn burials were found at and near the edge of Phase 3.

A concise summary with some further details: Glasbergen, 1954: p. 32.

Description of the objects:

1. *Palstave*. Slightly rounded stopridge; rounded septum; on lower part, rounded sides, projecting as sharply moulded low flanges above the flat face. Cutting edge has recent damage. Surface corrosion-pitted, but otherwise well preserved. Length 16 cm; width 5.8 cm; max. thickness 3.2 cm. Traces of wooden shaft adhere to both faces of septum.

2. *Twisted ring of uniform thickness* (slightly over 2 mm) now in numerous fragments. Three curved untwisted wire fragments are probably remains of hooked terminal(s). Diameter c. 5 cm.

3-4. *Pair of gold spirals*, of thin round-sectioned wire, tightly coiled. Length 5 cm; diameter of coil 1.3 cm.

5. Series (at least 14 examples, according to van Giffen) of thin sheet bronze *arrowheads*, most with flat tang and barbs. All are severely corroded and badly damaged, in consequence of a modern disturbance at the NNE end of the grave where the arrowheads lay. One nearly complete blade has a length of 5 cm; a nearly complete tang is 2.6 cm long.

Traces of wooden shafts and bark fibres were preserved.

6. Fragment (one arm) of *tweezers*; three ribs on the face.

Parallels and connections: The *palstave* has somewhat atypical proportions, but in all its features could be a product of the local North Netherlands-Northwest German Middle Bronze Age industry (Butler, 1963).

The *twisted ring* was originally illustrated by van Giffen, followed by Glasbergen (1954: fig. 47) as a closed annular ring. Such a form could not have been made by genuine twisting, and there is no reason to suspect a cast imitation. We have therefore considered the reconstruction as here illustrated more probable. Rings of this character occur in bronze, but more commonly in gold, in northern Europe.

A related object, though not a ring, is the twisted 'pin'(?) from a grave in Hijken-Hooghalen, Tumulus 9 (see Find No. 8).

The *gold coils* of single wire resemble those in the Drouwen 'Sögel grave' (Find No. 11) and in Hijken-Hooghalen, Tumulus 9, central grave (Find No. 8), but are smaller. Cf. also Velserbroek (Find No. 20), in 'chain' with double-wire coils.

The set of *arrowheads* has a counterpart in the Hijken-Hooghalen, Tumulus 9, grave cited above (Find No. 8). Single example: Vries, Drenthe, Tumulus 2, in secondary treetrunk coffin grave (van Giffen, 1941: afb. 12).

The *tweezers*: Tweezers with similar ribbing, but different in form (i.e. horseshoe-shaped in side view, with widely expanded blade) occur in several finds in burial mounds in the Schwäbische Alb region in Southwest Germany (Pirling et al., 1980: Taf. 23K4, 28H3, 29L2, 46N2, 46 O). They are attributed to the Tumulus Bronze Age, but appear not to be more closely datable; the Catalogue entries for these finds do not make it clear whether the objects with which they are illustrated (including *Lochhalsnadel*, but also a midwinged axe) are in each case from the same grave or merely from the same tumulus.

Though it is certainly not evident that the Sleenerzand fragment is reconstructible in horseshoe shape (the surviving fragments are so small that the original form is by no means clear), it is difficult to imagine that there is no relationship between the Sleenerzand example and those of the Tumulus Bronze Age.

N.B. Doubts have arisen as to the association of the tweezers with the grave find. According to W.A.B. van der Sanden, curator of the Drents Museum, it is not explicitly identifiable in the sources.

Dating: The timber circle and the palstave indicate a dating in Middle Bronze B.

Interpretation: One of the richest male warrior's graves of the Middle Bronze Age in the north of the country.

FIND NO. 17. OMMERSCHANS, *GEMEENTE* OMMEN, OVERIJSSEL: BOG HOARD (figs 21 and 22)

Map reference: Sheet 22 West (Coevorden), 223.2/511.6.

Documentation: Correspondence; photographs (Museum Nos 2663, 2666) of objects; notes of J.H. Holwerda under 'Ommen' in R.M.O., Leiden. File of notes and correspondence of J. Butter with the family Lüps and others; in R.M.O., Leiden. Letter F. Stein to J.A. Bakker, 26 February 1959, with list and description of the objects, then preserved by W. Lüps, Holzhausen am Ammersee, Bavaria (I.P.P. archive, Amsterdam).

References: (a) Butter, 1950: esp. p. 8; (b) Butler & Bakker, 1961; (c) Briard, 1965: pp. 91-93, fig. 28; (d) Jockenhövel, 1980: p. 81, No. 232, Taf. 13); (e) Butler & Sarfatij, 1970-1971: Pl. XI + loose folding plate.

Circumstances of find: Found, c. 1894-1900, by Geert Remmelts just under the surface in a heath field near Ommerschans; precise localization is disputed. According to vague accounts the sword lay on a sort of platform of birchwood stakes, in peat on sand; the other objects lay on the sword. No further details known.

Preservation: Kept until c. 1929 at the home of Alexander Seemann (forester on the estate of E. Lüps) at Junne, Overijssel. June-August 1927 temporarily on loan to R.M.O., Leiden, where the

objects were photographed, and a plaster cast was made of the sword (mould still extant under inventory RMO 1927/9.1). In the period 1927-1930 Holwerda tried unsuccessfully to arrange a purchase by the Museum. Since c. 1929 the hoard has been housed with the Lüps family in South Germany. Subsequent efforts by the Museum, and privately by the Deventer amateur archaeologist J. Butter, to procure the return of the objects to the Netherlands were without success.

Extensive enquiries concerning the find were made by Butter and by J.A. Bakker (I.P.P., Amsterdam). At the request of Prof. W. Glasbergen, the objects were studied, drawn and described by F. Stein, then assistant to Professor J. Werner (Inst. für Vor- und Frühgeschichte, München), in February 1959. Her detailed typescript report (under Documentation above) served as the basis for the subsequent publication by Butler & Bakker. At that time two small objects from the hoard (the bronze wire spiral No. 12 and stone object No. 15) had been lost, but the other objects were still on a wooden plank onto which they had been nailed in the Junne period.

Description of the objects:

1. *Sword*, of exaggerated size (length 68.3; width across hilt-plate 18.6; maximum thickness 0.8 cm). Hilt trapeze-shaped, with gently rounded butt; blade ogival. The upper part of the blade is strengthened by a broad midrib of gently rounded section; on each side of the midrib, and separated from it by a flat space, is a broad, low, flat-topped rib. These ribs form an ogival ornament; from the point or bottom of which a single thin narrow rib descends to the tip of the sword. Inside the ribbing, and parallel to it, is a single incised line. The surface of the sword is smooth; all trades of casting roughness and seams have been removed, but there is no high polish. There are no rivet-holes or notches. The bevel which forms the blade edge is markedly concave, and meets the face of the sword in a raised ridge. The edge is not sharp, and is a good millimetre thick. The casting is nowhere thicker than c. 8 mm; it gives the impression of excellent workmanship.

2. *Razor*, double edged, with parallel sides, tapering slightly toward the straight butt end, which has two small rivet-holes. In the rounded opposite end is a small round notch. Cross-section: shallow pointed-oval. Faint traces of what appears to be a hilt-mark vaguely discernible on one side. Length 13.9; width 3.7; thickness 0.4 cm.

3. *Chisel*, with short broad blade, separated by a shoulder from a tang oval in cross-section (broken off). The cutting-edge is oblique, and sharpened from one side only. Present length 5.5; width of cutting edge 3.15; thickness 0.6 cm.

4. *Chisel* of narrow triangular outline, rectangular cross-section; cutting-edge sharpened from both sides. Length 8.6; width 1.55; thickness 0.4 cm.

5. *Rod* of rectangular cross-section; one end thinning as if to a cutting-edge; but no trace of hammering or grinding is detectable. Length 10.6; width 0.2; thickness 0.17 cm.

6. *Pin or needle shaft*; section round, becoming oval toward the upper end, where it is broken off. Present length 8.0; thickness 0.2 cm.

7. *Pin or needle*; rectangular cross-section, slightly flattened and broken off at lower end; elongated perforation surrounded by a swelling, as if the hole had been punched through, near the other end. Length 8.66; thickness 0.2 by 0.2, at perforation 0.4 cm.

8. *Rectangular fragment of thin metal*; on one side, five shallow longitudinal grooves, seemingly incised; the other side is nearly flat, but with faint longitudinal grooves, visible only as a variation in the patina, and faintly to be felt with the fingers. One end straight, the other broken off. Length 9.5; width 2.26; thickness, 0.2 cm.

9. *Fragment of rough metal*, of irregular cross-section; all four faces with transverse irregular marks of a cutting tool. Cf. No. 11. Length 6.0; width 1.55; thickness 0.54 cm.

10. *Fragment of rough metal*. Length 1.7; width 2.9; thickness 0.26 cm.

11. *Fragment of rough metal*, as No. 9. Length 9.38; width 1.38; thickness 0.5 cm.

12. *Spiral* (irregular) of wire; missing, and not seen by Miss Stein.

13. *Flint chisel* (fragment), of rectangular cross-section, polished on all four faces; both ends broken off. Length 5.2; width 0.53; thickness 0.75 cm.

14. *Fragmentary flint implement*, probably a chisel; of irregular D section; polished on all faces. Length 3.6; width 1.1; thickness 0.53 cm.

15. *Flint or stone implement*, missing and not seen by Miss Stein.

16. *Stone chisel* of black fine-grained stone, of sub-rectangular cross-section, polished on all faces. Length 4.8; width 1.87; thickness 0.55 cm.

17. *Stone tablet*, of grainy quartzitic chert; rectangular cross-section. Three sides have artificial oblique edges; the fourth is unworked. Length 5.7; width 3.45; thickness 0.4 cm.

18. *Whetstone* of sandstone; sub-rectangular section; edges rounded. Length 10.1; width 2.45; thickness 1.5 cm.

Parallels and connections:

The sword: identical to, and possibly from the same mould as the 'ceremonial sword' from Plougrescant, Côte-du-Nord, Brittany. A specimen almost identical in size and form, but with slightly different dimensions (length 70.9, width 18.1 cm) has been found recently at Oxborough, Norfolk, East Anglia (we are indebted to Stuart Needham, British Museum London, for information in advance of publication, photograph and 1:1 drawing of this sword). Although certainly not from the same mould, it is likely to be a product of the same workshop as the Plougrescant and Ommerschans swords, the smaller example from Jutphaas, prov. Utrecht (Butler & Sarfatij, 1970-1971), and the genuine lower part of the Beaune specimen.

We have been informed by Dr. Needham that spectro-analysis in the British Museum of the sword from Beaune, Côte-d'Or (Greenwell, 1902: pp. 4-5, fig. 3; Butler & Bakker, 1961: pp. 201-204) has shown that it is a composite object, of which the upper part (thus with the hilt-plate) is of modern metal. The other four specimens – Plougrescant, Ommerschans, Oxborough and Jutphaas – form a typologically homogeneous group of ceremonial swords.

These ceremonial swords (all finished but left unsharpened, and without rivet-holes for hilt attachment) are apparently derivatives of the functional Armorican Saint-Brandan type (Briard, 1965: pp. 86-87, 99-103, dist. map fig. 34; Butler & Bakker, 1961: pp. 203-210; Schauer, 1972; Jockenhövel, 1980: p. 81).

Burgess & Gerloff (1981: pp. 13-14) have emphasized the relationship of these swords to the three narrower blades making up their type Kimberley – their Nos 58-60, from Kimberley (Norfolk), Finningley (Notts./Yorks. border), and Erpingham (Norfolk) – which they claim as being from the same mould. Compared with the ceremonial swords of Plougrescant type, the Type Kimberley blades have a similar hilt-plate form and a similar broad-above, thin-below type of midrib. They lack, however, the extra ribs flanking the upper midrib, and all three have sharp blade edges. The Kimberley blade is, like the ceremonial swords, without rivet-holes, but the Finningley specimen has two plug rivets. The Type Kimberley swords are less clearly 'ceremonial' swords; they are not of abnormal size and proportions. The 'ricasso' on the Kimberley specimen, to which chronological value has hitherto been attached, is according to Needham merely accidental damage; the Beaune 'ricasso' belongs to the non-genuine part of the specimen.

The trapeze-shaped hilt-plates with rounded butt as well as the midrib form provide a link with some at least of the series of long narrow riveted rapiers from Southeast England which Schauer (1984: pp. 179-182, Abb. 42, Taf. 1) has cited as being related to the extraordinary specimen decorated with gold and copper inlay strips from the Marais de Nantes, Loire-Atlantique.

Southeast English blades like: Isleham, Cambs. (Schauer, 1984: p. 180, Abb. 43:2); Manea, Cambs. (Schauer, 1984: p. 180, Abb. 43:4); Surbiton, London (Schauer, 1984: p. 180, Abb. 43:3); Wandsworth, London (Schauer, 1984: p. 181, Abb. 44:2); Staines, London (Schauer, 1984: p. 181, Abb. 44:3) can perhaps been seen as a group parallel to, or derived from, the rapiers of Tréboul type (Briard, 1965: pp. 86-87, 99-103; dist. map fig. 34) and which may have contributed to the development of the ceremonial swords of the Plougrescant series.

The razor: related to 'Pantalica A' razors (Butler & Bakker, 1961: pp. 206-208; Jockenhövel, 1980: p. 81). The pair of rivet-holes at the base is, however, atypical for this razor type, and may hark back to earlier Aegean razors (though a similar rivet arrangement is found on a number of early Irish knife-razors: cf. Jockenhövel, 1980: Taf. I, II:42). The only other razor in the Atlantic West assigned to the Pantalica A type, a stray peat find from Lakenheath, Cambs. (Jockenhövel, 1980: Taf. 13:231) has a single rivet-hole.

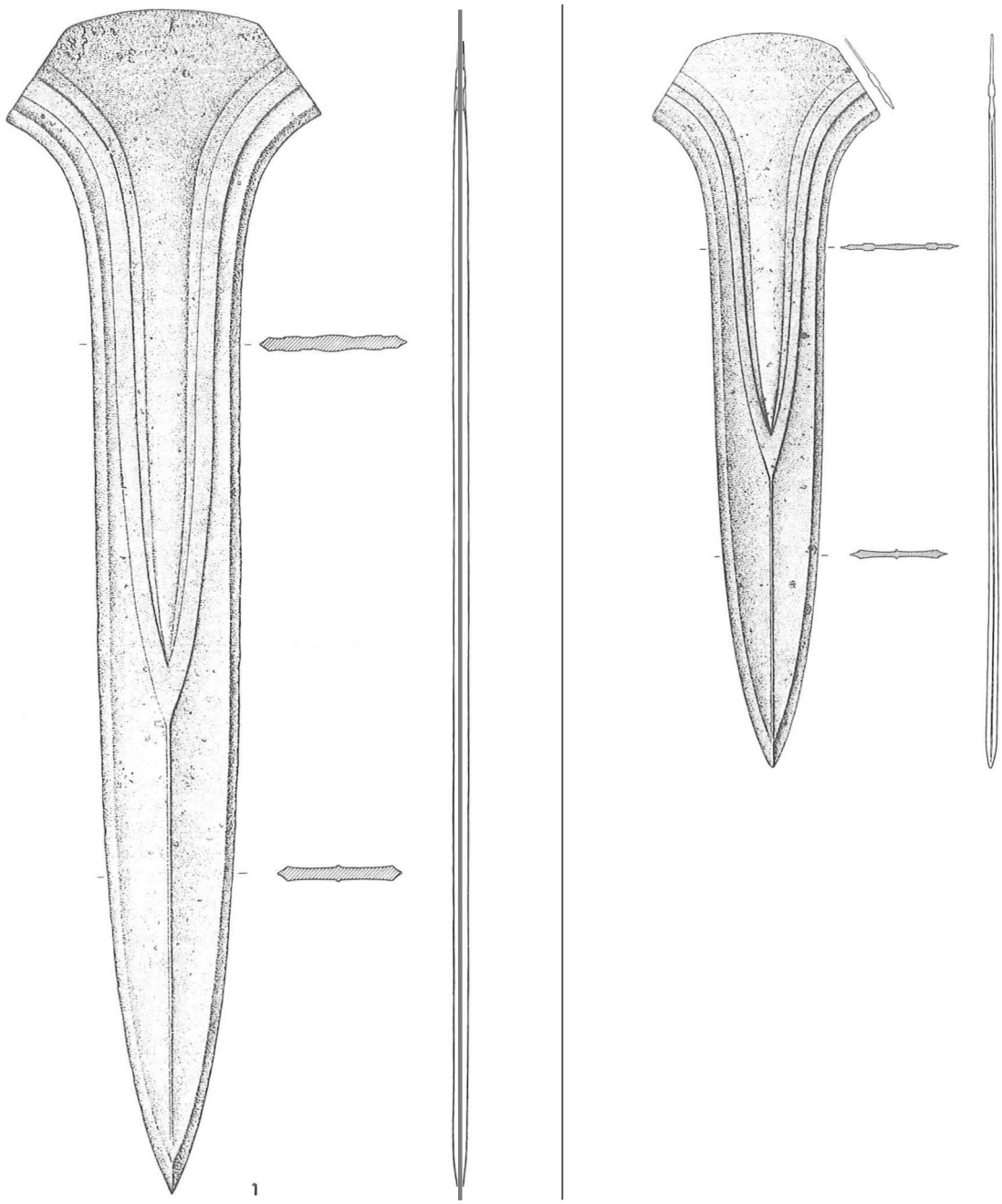
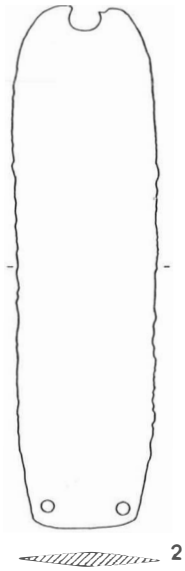
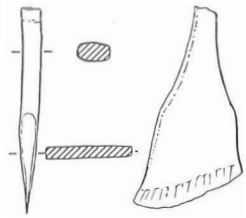
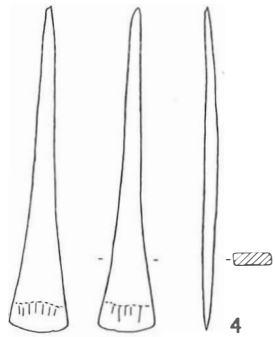
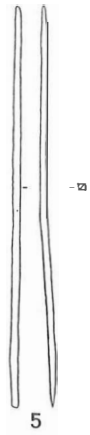


Fig. 21. Find No. 17. Ommerschans (Overijssel), hoard. 1-11. Bronze: 13,14,16,18. Stone. Scale: 1:4 (1) and 1:2 (2-18). Unnumbered: the sword from Jutphaas. Scale 1:4.


2

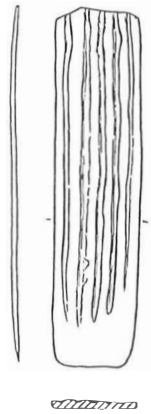

3


4

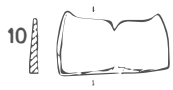

5


6

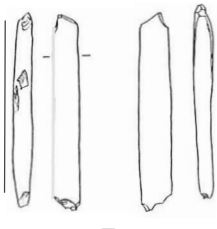

7


8

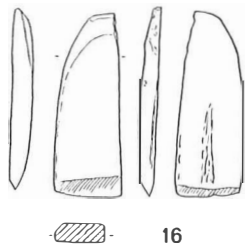

9

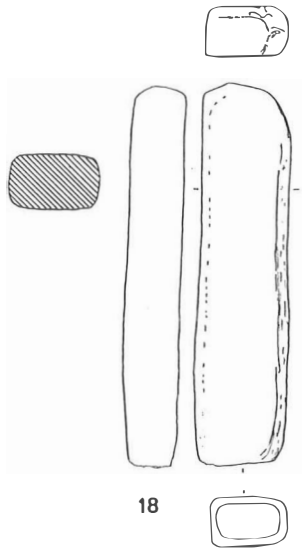

10

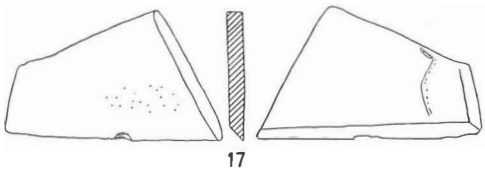

11


13


14


16


18


17

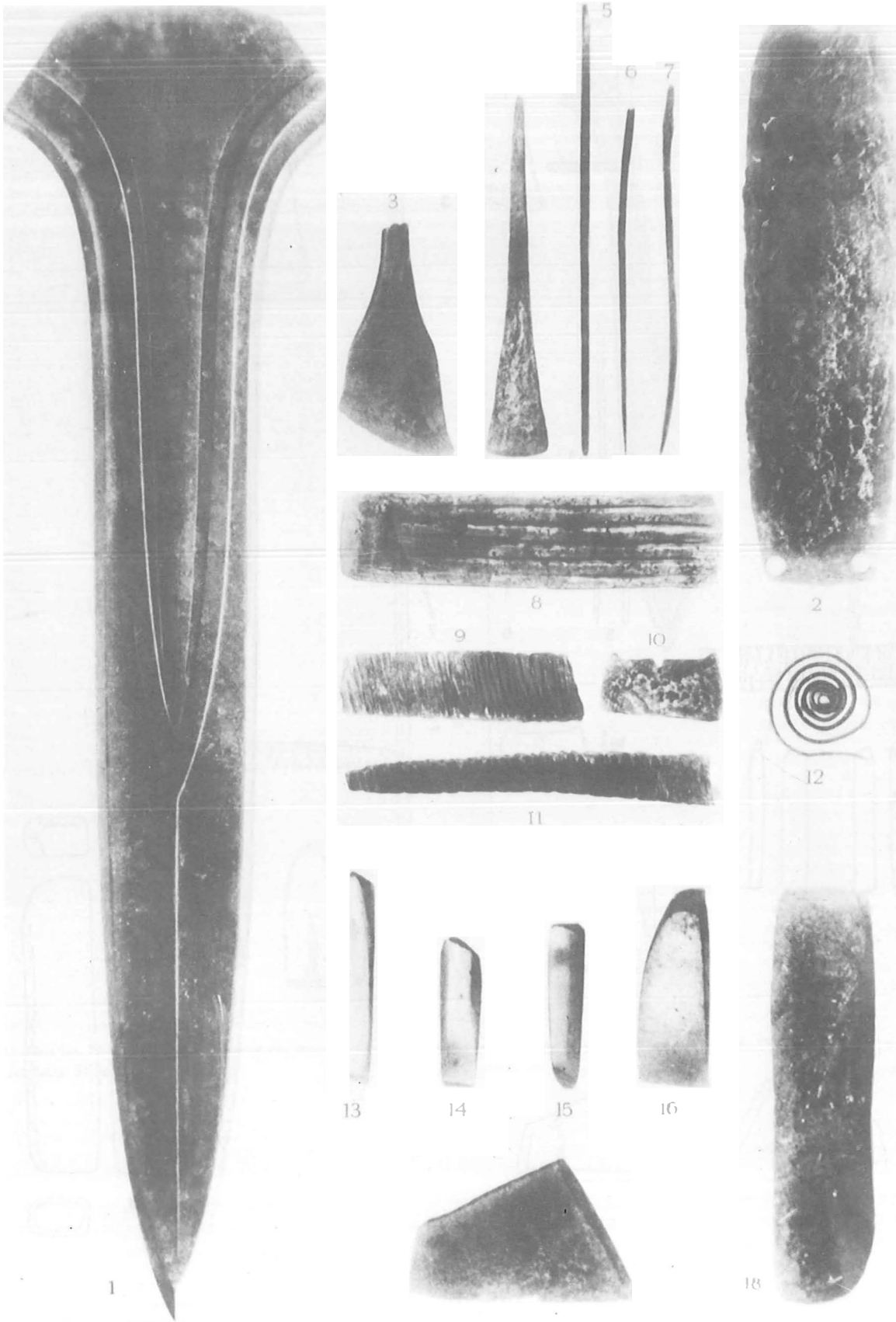


Fig. 22. Find No. 17. Ommerschans (Overijssel), hoard (see fig. 21). Photograph of the find by R.M.O. in 1926.

The *tanged chisel* (No. 3): the marked asymmetry of the blade, suggesting a cutting rather than a chiselling function, is matched on an unshouldered specimen from the Sparkford Hill hoard, Somerset, England (Smith, 1959b: GB 46:3) and another from the Oxford-Burgesses' Meadow hoard (Smith, 1959b: GB 6:5).

The *thin triangular chisel* (No. 4) is presumably intended for delicate chisel or punch work. No close parallel in the Netherlands, though not uncommon elsewhere.

Dating: The Plougrescant sword was dubiously associated with socketed axes (see above); the Oxborough and Jutphaas swords were stray finds. Schauer (1972) has re-emphasized the derivation of these from the Tréboul/Saint-Brandan 'Atlantic rapiers', which would date the 'Plougrescant variant' to the Tréboul phase, or at most shortly thereafter. The beginning of the Tréboul phase is equated with Central European Tumulus B (Lochham-Wohlde influence).

Jockenhövel (1980: p. 81) classifies the razor as a Pantalica A razor, and remarks that Peroni's dating of such razors to Pantalica I, c. 1250 BC, would be closer to the Tréboul dating than the Pantalica II dating of Müller-Karpe (though it does not close the gap entirely). The argument derived from the earliest appearance of the ricasso (imitated on the Beaune sword: Butler & Bakker, 1961: pp. 204-206) which supported a dating c. 13th century, falls away in view of the non-authenticity of the upper part of the specimen, but it would still be plausible if, as we suggested in 1981, the Ommerschans razor could be an 'Aegean' specimen somewhat earlier than Pantalica A.

In North European terms, this would place the Ommerschans sword in late Period II or early III; thus in local terms, late in Middle Bronze B.

Interpretation: The Ommerschans sword, like its parallels in Jutphaas, Plougrescant and Oxborough, is carefully finished, yet never sharpened, and never provided with rivet-holes by which it could be firmly attached to a hilt. These facts, together with the extraordinary and impractical size of the three giant swords, emphasize that they were display objects, and not intended for actual use as weapons.

Plougrescant and Ommerschans, extraordinary and well made prestige objects apparently by the same hand (from an Atlantic workshop: in Armorica? or South England?) are separated by over 800 kilometers. Elsewhere (Butler, 1973; 1987) we have pointed to evidence for links between various regions of France and the Netherlands via the Meuse (Maas) valley, extending in time from Tréboul to Rosnoën; at least a few objects involved continued on to the centre and north of the Netherlands. For a Sicilian or Aegean connection with the Netherlands in this period no obvious explanation suggests itself, but the contemporary, possibly Aegean sickle/knife from the Heiloo hoard (Find No. 19) may cautiously be cited in this connection.

The Ommerschans peat hoard is presumably a votive deposit, and of masculine character. The chisels, the stone polishers, and the scrap metal in the hoard suggest a possible connection with metal-working, though other handicrafts may have been involved.

In terms of ranking, the exotic prestige goods, especially the sword and the Pantalica-related razor, contrast strongly with the workaday tool components of the hoard.

FIND NO. 18. EPE, *GEMEENTE* EPE, GELDERLAND: HOARD (fig. 23)

Map reference: Sheet 27 West (Hattem).

References: (a) Butler, 1971; (b) Butler, 1969: p. 93, fig. 41 (2nd ed. 1979: pp. 99-100, fig. 66).

Preservation: R.M.O., Leiden; inventoried under WE 5 to WE 7.

Circumstances of find: Accidental, by workmen. Objects presented by E.F.J. Weerts of Epe to R.M.O., Leiden, in February 1865.

Description of site: "On the slope of a hill about two ells [2 m] below the surface, and ... beneath a bank or layer of iron-pan and gravel which had to be broken through ... (The objects) were wrapped in something which the workmen took to be linen cloth, but which was wholly decayed and could not be brought away with them" (letter of donor accompanying the objects, 8 Feb. 1865; achives R.M.O.). It is not clear whether the 'hill' was a burial mound or a natural elevation.

Description of the objects: All of bronze, with identical patina (patchily bright green to almost black), in fine state of preservation. No trace of the 'linen cloth' in the patina.

1. *Stopridge axe* with thick cast flanges, very prominent bar stopridge. Three facets on each side. Blade hammered and then ground, the grinding-plane encroaching on the base of the flanges. The septum above the stopridge is rounded; below the stopridge, flat. Length 13.5 cm. Inv. No. WE 5.

2. *Palstave* with broad blade, the outline of which becomes convex toward the cutting-edge. Rounded stopridge. Blade ornamented with thin midrib flanked by shorter ribs. Marks of hammer-finishing on one face of the blade. Broken in antiquity across narrowest part. Length 17 cm. Inv. No. WE 6.

3. *Sickle* with two knobs; three ribs outlining the back edge. Tip greatly curved. Cutting-edge heavily reground. Length 12.2 cm. Inv. No. WE 7.

Parallels and connections:

The *flanged stopridge axe*: (References: Butler, 1963b: pp. 196-198, fig. 8-9, p. 210, List III; Hulst, 1989: esp. p. 142, Afb. 2, 143); Typical for the present author's Type Vlagtwedde, a local derivative of western European flanged stopridge axes of Type Plaisir (Butler, 1987). The number of examples has doubled since 1963 (Hulst, 1989). Distribution chiefly in river IJssel region. An example from Brummen-Oeken, Gelderland, has a blade with a marked 'crinoline' outline, evidently an imitation of western European palstaves like the Epe specimen.

The *palstave*: Such wide-bladed 'crinoline' palstaves are well known in southern England (cf. Rowlands, 1976, examples occurring in a variety of classes). Blanchet (1984) groups such palstaves under the heading Type Normande, but adequate survey of the South British and Norman material is still lacking.

Schmidt and Burgess have included the Epe example under their Type Oxford (1981: p. 132). O'Connor (1980) suggests that both the palstave and the sickle are of British origin.

Nearly identical: Blackrock (near Brighton, Sussex) hoard, Piggott, 1949: pp. 114-115, fig. 3 (third from left); further references there cited; *Inventaria* GB.47, No. 13; O'Connor, 1980: p. 329. The general form is common in South England and Northwest France. Cf. also Barton Bendish, Norfolk (*Inventaria* GB.7).

The *sickle*: ultimately derivable from the Danubian Middle Bronze Age and Central European Tumulus Bronze Age sickles, which have been extensively published and discussed in recent literature (e.g. Rittershofer, 1983: pp. 200-208, Tab. 5-6, 381 Liste 6-8; Primas, 1986; Říhovsky, 1989: pp. 93 ff.). The Central European sickles vary greatly in detail (0 to 3 ribs, knobs single round, single elongated or double, etc.); in general they are shorter and less strongly curved than Late Bronze Age sickles. Some additional examples, present in the Merseyside County Museums, Liverpool, have been illustrated by Nicholson: three from 'northern Hungary' (1980: p. 66, Pl. 126, No. 127-129) and two without provenance (p. 112, Pl. 50, No. 291-292).

Though the possibility can be entertained that such sickles were locally produced in the periphal areas of their distribution like the Netherlands and Somerset, distinctive local characteristics have not been identified. We assume from the strong re-sharpening of the Epe sickle that its S curve is due to secondary re-working and not a typological feature. Apart from this, one of the sickles from Holset (Find No. 22 below) has much in common with the Epe sickle (e.g. three ribs, rounded butt) and they may have a common origin.

Dating: The palstave dates the Epe find in British terms to the Taunton phase, which is contemporary with the French *Bronze moyen* 2 of Blanchet (1984), Northern Period II or at the latest the transition II/III, and in the Netherlands Middle Bronze B. The sickle is in itself not closely datable: the Central European series from which it is derived run from the beginning (horizon Kosziderpadlás-Bühl) to the end (phase D) of the Tumulus Bronze Age; but in Britain the related sickles are dated to the Taunton phase.

Comments: Whether or not found in a tumulus, the Epe assemblage would be quite extraordinary as contents of a grave, and is therefore presumed to represent a hoard deposit (see also Holset, Find No. 22 below). It may, however, be noted that Central European Middle Bronze Age sickles do sometimes occur in graves and other tumulus deposits (Primas, 1986; p. 18, Tab. 7; p. 19, Tab. 8-9). Sickles may

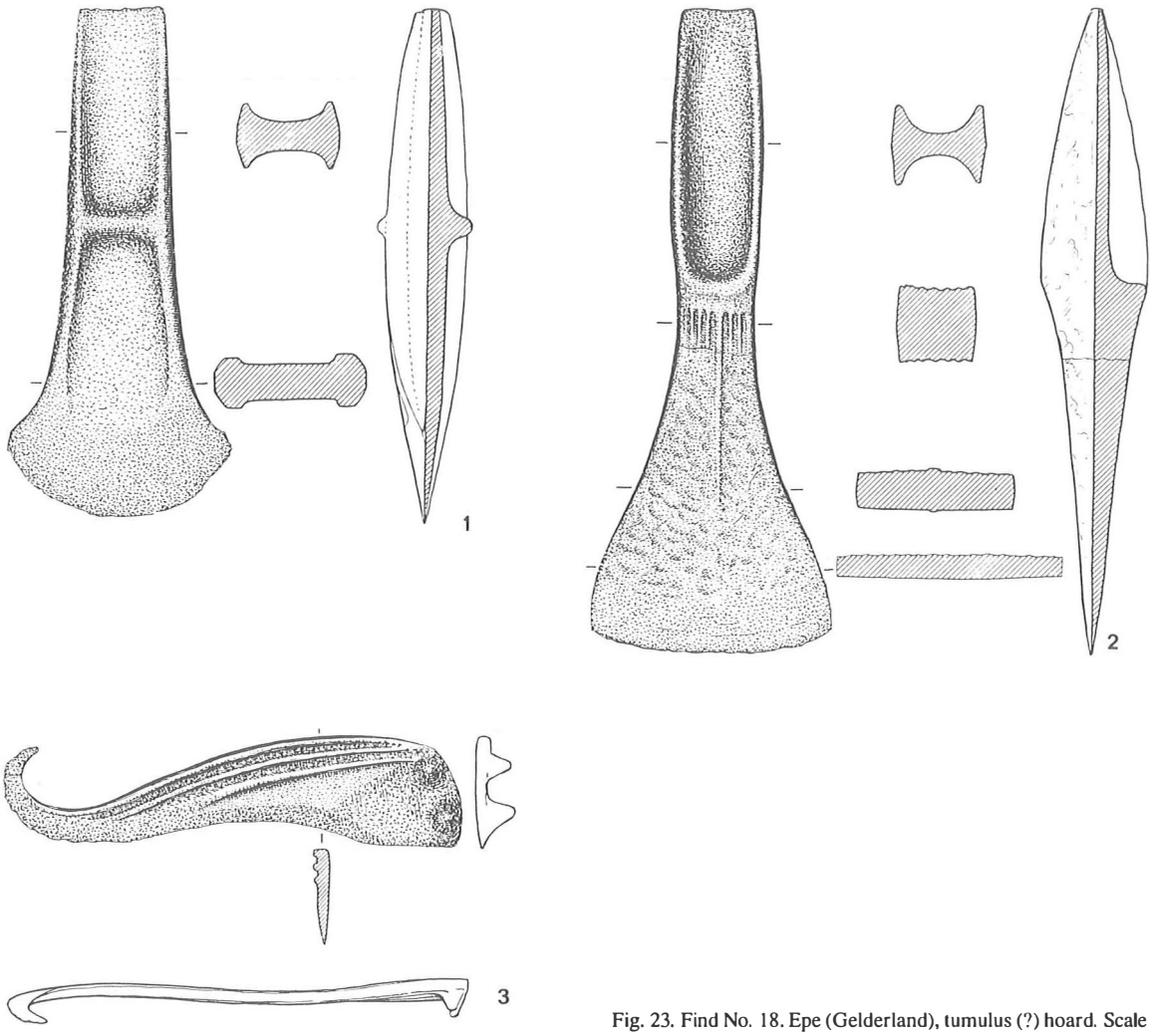


Fig. 23. Find No. 18. Epe (Gelderland), tumulus (?) hoard. Scale 1:2.

conceivably had some sort of ritual significance under some circumstances. In the Middle Bronze Age of the Netherlands, we may note that bronze sickles occur not only in the tumulus finds of Holset and Epe, but also in the bog hoards of Heiloo, Find No. 19 following, and Veenenburg, Find No. 21 below.

As a contact find, the Epe hoard has special value in that it combines a Central European Middle Bronze Age object, the sickle, and one of the British-West French Middle Bronze Age (the palstave) with a local product, the stopridge axe otherwise not closely dated.

FIND NO. 19. BOLLENDORP, *GEMEENTE* HEILOO, NORTH HOLLAND: HOARD (fig. 24)

Map reference: Sheet 19 West (Alkmaar), 108.0/511.4.

Site: The location is given on the map of Brunsting (1962: fig. 1), along the Krommelaan in Bollendorp, c. 2 km southwest of Heiloo; in a parcel then owned by P. Vooren of Limmen, N.H.

References: (a) Brunsting, 1962; (b) O'Connor, 1980 (II): p. 417, No. 208.

Circumstances of find: Found 1932 (or earlier?) by W. Harms (Bakkum, N.H.), during levelling, presumably of a parcel of dune land, at a depth of c. 3.5 m below the then surface. According to the finder, the objects lay in a row, vertically with points upward, the bronze knife/sickle in the middle.

Preservation: The find was known to the R.M.O. as early as 1932, but was not then acquired. For a time it was displayed with the collection of the Provincial Water Board for North Holland at the House Foghteloo in Bakkum. Purchased from the finder-owner Harms by R.M.O. in 1947; inventoried under g1947/12.10-14.

Description of the objects:

1. Bronze *knife/sickle*. Curved blade, of triangular section; back convex, slightly rounded; cutting edge concave with sharpening facet c. 3/4 of its length. Butt slightly rounded, with single perforation. Length 16.3 cm; butt 2.5 cm; maximum thickness 4 mm; perforation diameter 6 mm. Inv. No. g 1947/12.14.

2-5. Four *flint sickles*; all bifacially worked; D-shaped, nearly straight blade edge; 10, 12 and 13 with unretouched butt end: (10) of reddish brown patinated flint; heavy gloss over entire surface, except at buttend. Cutting edge slightly concave. Length 16.3 cm; width 5.5 cm; thickness 1.2 cm; (11) of reddish brown flint; butt is retouched. Heavy sickle gloss overall except at buttend. Cutting edge is somewhat irregular. Length 16.2 cm; width 4.1 cm; thickness 0.9 cm; (12) of grey-black flint, translucent at edges, butt with white crust. No gloss. Slightly sinuous cutting edge. Length 14.8 cm; width 4 cm; thickness 1.1 cm; (13) of reddish brown flint, slightly translucent at edges. Concave cutting edge. White crust with glossy patina at both ends. No sickle gloss. Length 14.8 cm; width 3.9 cm; thickness 1.0 cm. Inv. Nos g1947/12.10-13.

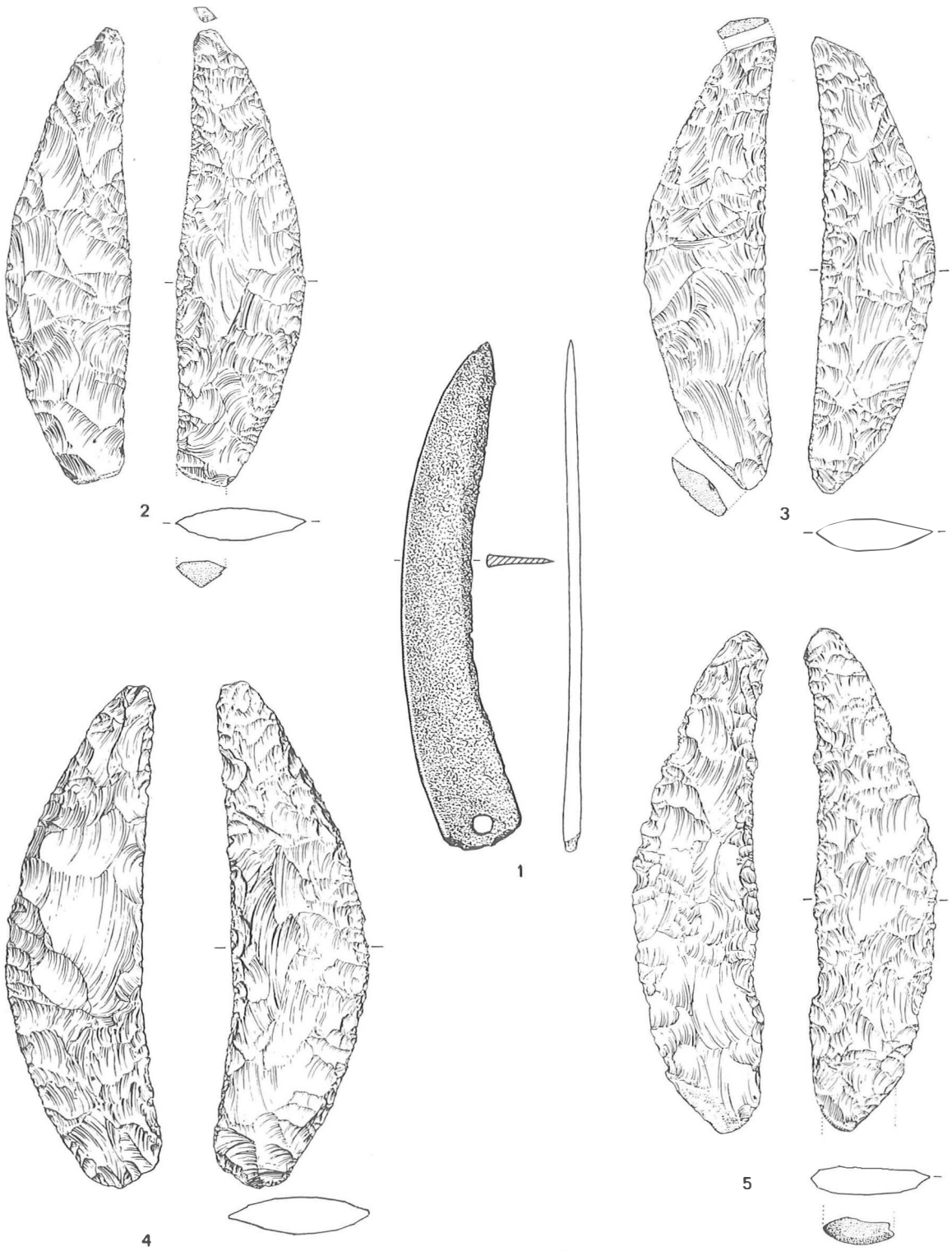


Fig. 24. Find No. 19. Bollendorp (North Holland), bog hoard. 1. Bronze; 2-5. Flint. Scale 1:2.

Parallels and connections:

The bronze *knife/sickle*: The perforation in the butt end and the absence of a rib or ribs on one side stand in the way of comparison with the types of sickles normal in most of Europe. Nor is the Heiloo blade similar to knives of types current in this region. Brunsting (1962) compared the Heiloo blade with Mycenaean and Minoan sickle-like knives of the Greek Late Bronze Age, but also with a Siberian series; giving preference to a Mycenaean origin. O'Connor (1980), in a brief commentary, prefered a relationship with a rather heterogeneous series of British sickles. Presumably Brunsting had in mind specimens similar to some of those from the hoards found at Mycenae (more recently: Müller-Karpe, 1980: p. 778, Taf. 232-233). Some of these are very similar to our Heiloo specimen; we may cite in particular the sickle illustrated by Demakopoulous (1988: pp. 246-247, No. 262, with colour photo), found amid the ruins of LHIII houses, and attributed to LHIIIB, 13th century.

Similar too, but more strongly curved, are the sickles from settlement sites in the Swiss Graubünden (Primas, 1986: pp. 191-192, esp. Nos 2043, 2047), of equivalent date if Primas is correct in assigning them to Period D.

The *flint sickles* formally resemble the northern Late Neolithic Type A of Kühn (1979: pp. 64-67, Taf. 18:1, 3-5), except that the cutting edges are less markedly concave than those of the specimens illustrated by Kühn.

Similar flint sickles, D-shaped or in varying degree crescentic, are very common in West Friesland (modern North Holland); several examples have occurred in Middle and Late Bronze Age settlement sites. In the modern province of Friesland 21 finds have been listed for the Westergo district alone (van Gijn & Waterbolk, 1984: p. 122). In lesser numbers they occur in Groningen and Drenthe and Northwest Germany; a general survey is still lacking. Van der Waals (1972-73) mentions hoards of flint sickles from De Haar/Nieuw-Trimunt, *gemeente* Marum, Groningen (2 ex.), Boertange, Groningen (5 sickles, plus five scraper-like flints), and Rolde/Nijlande, Drenthe (7 ex., photo Bruijn & Bunte, 1961: fig. 75), and illustrates three examples, probably a hoard, from de Uitwedsmee near Onstwedde, Groningen.

Such flint sickles were made from good-sized pieces of tabular flint, of a quality not normally found in the morainic deposits in the Netherlands, so that importation is presumed (Stapert, 1988). Many of these sickles have heavy gloss, not confined to the cutting edges. Micro-wear study (van Gijn, 1984) has suggested that they were used not for cutting grain but, rather, for turf-cutting or similar work in soil.

Dating: Brunsting chose a date for the Heiloo bronze knife/sickle of Late Helladic IIIB (13th century BC), based on the Mycenaean parallels, but without justifying this dating in detail. The British vague parallels cited by O'Connor offer no dating evidence, but the Graubünden sickles cited above are of similar date.

The dating evidence for flint sickles such as those in the Heiloo hoard varies from region to region. In Denmark and Schleswig-Holstein they are considered to be Late Neolithic, with extension into EBI and occasionally as late as Period II (Kühn, 1979). In West Friesland there is evidence from settlement finds for use in the Middle and Late Bronze Age. In the northern coastal area of the Netherlands, where Late Bronze Age occupation is lacking, they have been claimed as characteristic for the first part of the pre-Roman Iron Age (van Giffen, 1944b: pp. 130, 172-177, 188, 231-240, afb. 37-38; Groenman-van Waateringe & van Regteren Altena, 1961; van der Waals, 1972-73; Boersma, 1988; cf. Plaggenburg, Kr. Aurich: Maier, 1974: p. 39, Abb. 23; Sprockhoff, 1956: p. 51; Tackenberg, 1971: pp. 44-45).

A probable hoard consisting of one bronze sickle (knobbed; two backing ribs) and three flint sickles, in form similar to the Heiloo flint sickles, was found in the Baltic coastal area, at Renz, Kr. Rügen (Keiling, 1989: Pl. 34). Bronze sickles of this type are common in Northern Period II, but a later date is not to be excluded.

The burden for the dating of the Heiloo find would therefore fall upon the bronze sickle, which, despite the uncertainties involved, may well fall in the period suggested by Brunsting; placing it in a late stage of Lanting and Mook Middle Bronze B.

Evaluation: A find of unusual character, matched only in the Renz, Kr. Rügen hoard already mentioned. The heavy gloss on two of the Heiloo flint sickles shows that they have been intensively used.

FIND NO. 20. VELSERBROEK, *GEMEENTE* VELSEN, NORTH HOLLAND: GRAVE (fig. 25)

Map reference: Sheet 25 West (Amsterdam), 104.8/493.8.

References (the description below is based on the following provisional accounts of a recent, not yet fully published excavation): (a) Bosman & Soonius, 1989; (b) Bosman & Soonius, 1990; (c) Therkorn & Bosman, 1990: pp. 2-10.

Description of the site: Extended, E-W inhumation burial, set not in a tumulus, but in a natural sand dune. The body for the most part decayed away, but parts were recognizable as stains in the sand. The head was represented by a dark, humous stain in which some fragments of tooth glaze cappings were preserved. The gold wire rings and the palstave lay at the head. Along the right side of the body was a trace of corroded bronze, extending over a length of c. 80 cm; presumed to be the remains of a sword. Removed en bloc and carefully excavated under laboratory conditions, but so little metal survived that it was impossible to recover the object or determine its character. The burial was surrounded by a rectangular ditch, externally measuring 2.80x0.90 m. The inner wall of this ditch was lined with vertically placed wooden planks. The grave pit was covered with sods. This dune burial was situated some 25 m west of a Middle Bronze Age settlement, including at least two plans of 3-aisled post structures – a house, 5x18 m, with a period of renewal, and a shorter structure, 5 x l l m, tentatively considered to be a barn. The settlement, dated by DKS pottery in the house ditches, is at the NW edge of the Haarlem dune ridge, on which agriculture was practiced in the Middle Bronze Age.

Find circumstances: Excavated November-December 1988 by W.J. Bosman for the I.P.P., Amsterdam, as part of a systematic archaeological survey and rescue campaign in anticipation of residential development.

Description of the objects:

1. *Palstave:* haft part has flanges of convex outline. Stopridge encircles the waist. Blade with side flanges: modest blade expansion. Sides richly decorated, with on upper part alternating bands of incised horizontal and zigzag lines; on lower part alternating bands of transverse incised lines and ladders. Length 21.5 cm; width 4.7 cm; waist rib 2.9x2.5 cm.

2. Series of *gold wire coiled rings:* pair of doubled wire, with closed ends. On one of the double wire rings are linked chainwise two single-wire coils. Diameter of double-wire rings: 2.7 cm.

Analysis of one of the rings (electron micro-probe, by R.P.E. Poorter, Dept. of Chemical Geology, University of Utrecht): Au 90.65%, Ag 8.95%, Cu 0.26%, Sn 0.14%.

From the excavation, but not from the grave, are two barbed and tanged 'short ogival' flint arrowheads.

Parallels and connections:

The *palstave:* Several examples with encircling rib separating the shafting part from the blade part are known in the Netherlands; but this is the only richly decorated example in the country.

Similar belted palstaves are common in the North European area (Aner & Kersten, 1973-1986). Kersten (1936) classified them as Type CIIa; Laux (1971: pp. 80-81) as Type Osthannover, with four sub-types (A-D) present in the Lüneburger Heide region. Richly decorated examples within his Type B1 are considered to reflect Nordic influence (cf. Kibbert, 1980: pp. 219-221, with further references), and are dated to his *Zeitgruppe* II.

The Velserbroek palstave is presumably imported from Denmark or Schleswig-Holstein, as are also a side-decorated example from a tumulus at Epe on the Veluwe (Ypey, 1956) and the undecorated long narrow grave example from a tumulus grave with Type 3 post circle at Texel-Den Burg (Woltering, 1973: pp. 5-6, figs 12-13; 1974; Lanting & Mook, 1977: p. 115; ^{14}C dating GrN-7456, 2995±75 BP, 2-sigma calibration range 1418-1028). A simpler, undecorated specimen, of Laux Type B1, is from Hijken-Hooghalen, Tumulus 1, phase 3, of Laux Type B1 (found in a treetrunk coffin grave within a timber circle of Glasbergen Type 3: van der Veen & Lanting, 1989: pp. 196-200, Exc. find No. 7, fig. 38:7; Lohof, 1991: p. 22, No. 046-2/3).

The *gold wire rings:* A set of four chain-linked double wire gold rings is from Susteren, Limburg (Butler, 1969: Pl. 6 left = 1979: fig. 30). They were found on the site of a Roman cemetery; nothing is known of their actual context.

Similar double wire rings with both ends closed are common both

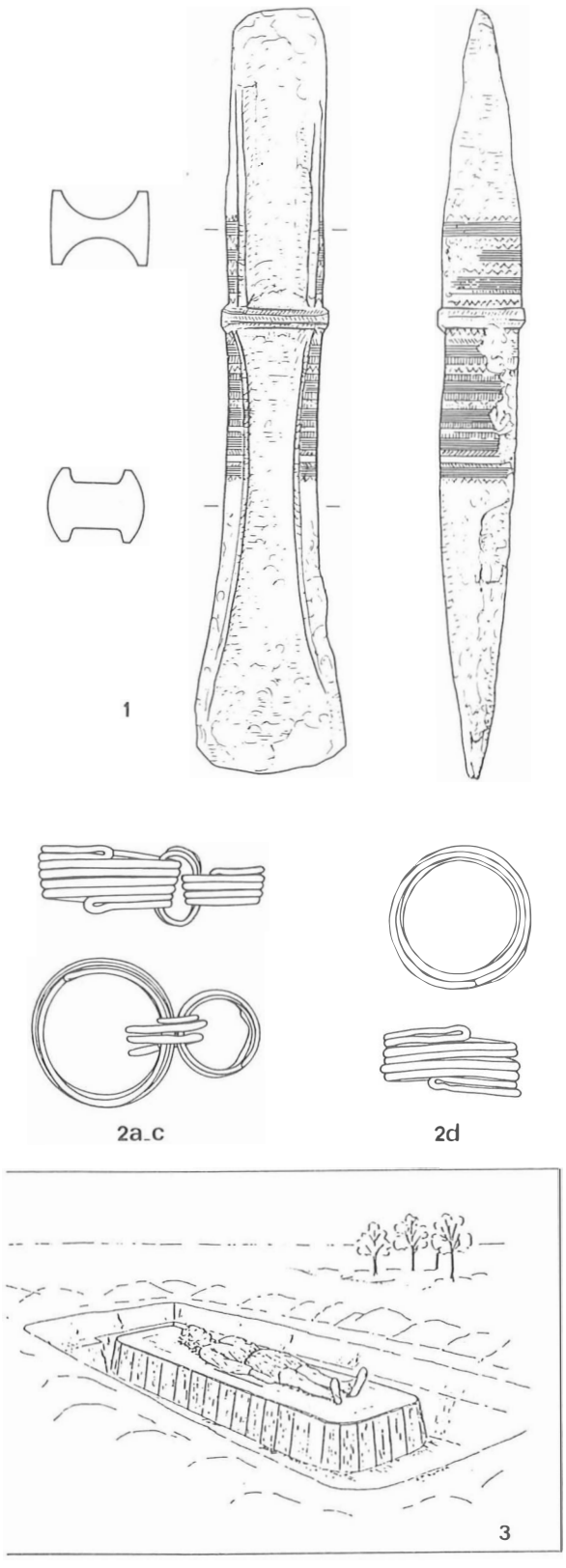


Fig. 25. Find No. 20. Velserboek (North Holland), grave. 1. Bronze (scale 1:2); 2a-d. Gold (scale 1:1); 3. Reconstruction of the grave. Drawings: T. Spruyt, B. Brouwensteyn and B. Donker (1); B. Brouwensteyn (2); A.M. Numan (3; after Therkorn and Bosman), all I.P.P. Amsterdam.

in Central Europe and the Danish area: Hartmann (1982) illustrates numerous examples. Broholm (1952: p. 54, No. 180) gives some statistics of their occurrence in Denmark. They are common in Period II (35 rings: of which 5 from the Islands as against 30 from Jutland) and III ('145 discoveries' of which 13 from the islands and 132 from Jutland). Even more numerous are the undated stray finds (163 examples). Double-wire rings occur frequently in pairs in graves, varying from fingerring to bracelet size. There is a strong concentration in the Limfjord area in Northwest Jutland. Aner and Kersten illustrate dated examples from Period II (VI: 2916, 2962B, 3061A; VIII: 3919B, 3923) and Period III (IV: 2519D). They seem to be unknown in Northwest Germany.

The analysis for one of the Velserbroek rings is comparable to the analysis of one of the single-wire spirals from Hijken (Find No. 9), but has a higher tin value. Cf. generally the Danish material (Hartmann, 1982: Diagram 6, Tab. 22-23; Vankilde, 1990: pp. 127-129).

The *grave structure* is considered by van der Veen & Lanting (1989) to be a 'beehive grave', comparable to a Middle Bronze Age grave at Gasteren, Drenthe (van Giffen, 1945: Afb. 12) and Late Neolithic examples. The use of a grave chamber constructed with vertically set planks also has Danish parallels, in the 'chamber graves' illustrated by O. Madsen (1988-1989, esp. figs 16, 18, 19).

Dating: The palstave is a Northern Period II type; Laux also has them in his *Zeitgruppe* II. Thus, in the Netherlands, within Lanting and Mook Middle Bronze B.

Comments: The Velserbroek find is one of the very few richer Middle Bronze Age graves known in the western coastal region of the Netherlands (cf. Zwaagdijk, Find No. 24). Certainly the palstave with the other examples cited above, and very probably the gold rings, reflect contacts with the northern cultural area in Northern Period II.

FIND NO. 21. VEENENBURG, *GEMEENTEN* HILLEGOM AND LISSE, SOUTH HOLLAND: HOARD (fig. 26)

Map reference: Sheet 24 (Hillegom), 99.2/476.7.

Site: Found in the 'railway sand pit' on the Veenenburg estate, in the *gemeente* Hillegom. The exact find-spot is described by Leembruggen as lying 10 degrees west of north, at a distance of 170 meters, from the boundary post *gemeenten* Hillegom and Lisse, along the main road from Leiden to Haarlem.

Documentation: Basic documentation for this hoard is a letter from W. Leembruggen (in 1897 owner of the Veenenburg estate in the *gemeenten* Lisse and Hillegom) to Dr. Jesse, of the R.M.O., dated 23 March 1897; enclosing a sheet with 1:1 drawings (his own?) of 11 objects (out of 25 constituting the find) and a second sheet with a description and a sketch map of the find-spot. This communication (appendix 2) was intended for Dr. W. Pleyte, then director of the R.M.O. at Leiden.

Publications dealing with this hoard (see references) have all made only partial, and to some extent inaccurate use of this basic source. Recent re-discovery of the Leembruggen document in the Pleyte archive in the R.M.O. (*'Ontv. brieven'* 1897/57) and kindly made available by A. Peddemors (to whom our thanks are due) now permit a corrected account of the find circumstances and content of the Veenenburg hoard, superseding all the previous, partially inaccurate accounts (including our own, which, due to the inaccessibility of the original letter, relied on the secondary accounts of Pleyte and Oppenheim). Objects previously attributed to the hoard, but not belonging to it if one follows the Leembruggen inventory, are illustrated in figure 27. Presumably these objects were found on the Veenenburg estate and were acquired by the Museum along with the objects of the hoard.

References: (a) Pleyte, 1902: Pl. VII: 1-12; (b) Oppenheim, 1927: figs 13-16, 18, 19; (c) van Giffen, 1928; (d) van Heemskerck-Düker & Felix, 1942: Pl. 106 and 112 (photos); (e) Butler, 1959: esp. pp. 134-136, fig. 4.

Description of site: According to Leembruggen, the objects were lying c. 40 cm below the surface of a hard peaty layer (dari), which was 1 to 1.5 m thick and had an extension of about 1/12 hectare. The altitude of the peat layer is given by Leembruggen as from c. 5 cm above to c. 1.45 m below *Amsterdam Datum*; 30 to 40 years previously the peaty deposit was covered by sand dunes to a height of about 3 m. Pleyte's summary account incorrectly places the find on rather than in the peat layer.

The 1:25,000 topographical map, Sheet 383, surveyed in 1888, shows, at the spot indicated by Leembruggen, a roughly circular sand pit, about 400 m across, at the time of the survey in use for garden plots. It lies close to the easternedge of thedune ridge, about 2 km NE of the centre of Lisse.

Subsequently, the whole field, just southwest of the cement-brick factory of van Herwaarden, was levelled downwards for bulb cultivation, so that nothing of the original situation now survives.

Circumstances of find: Found, according to Leembruggen, 12 March 1897. He gives no details as to the circumstances. The find date is quoted correctly by Pleyte. Oppenheim cites a 'document of 1876' concerning the hoard which he saw at the Veenenburg house; but this date is apparently a misprint, and the 'document' he cites was presumably a draft or retained copy of Leembruggen's letter of 1897.

Preservation: The hoard was kept at the Veenenburg house, and later at Haarlem, until 1930, when it was presented, together with other finds from the Veenenburg locality, to the R.M.O. by Leembruggen's widow, the Baroness van Hardenbroek van Ammerstol-Leembruggen. The collection was inventoried under the numbers 1930/VII.1-54.

Description of the objects: All of bronze. The objects have well-preserved surfaces, of bronze colour, with remains of original black patina, with a few spots of green.

As there are at least four differing versions of the composition of

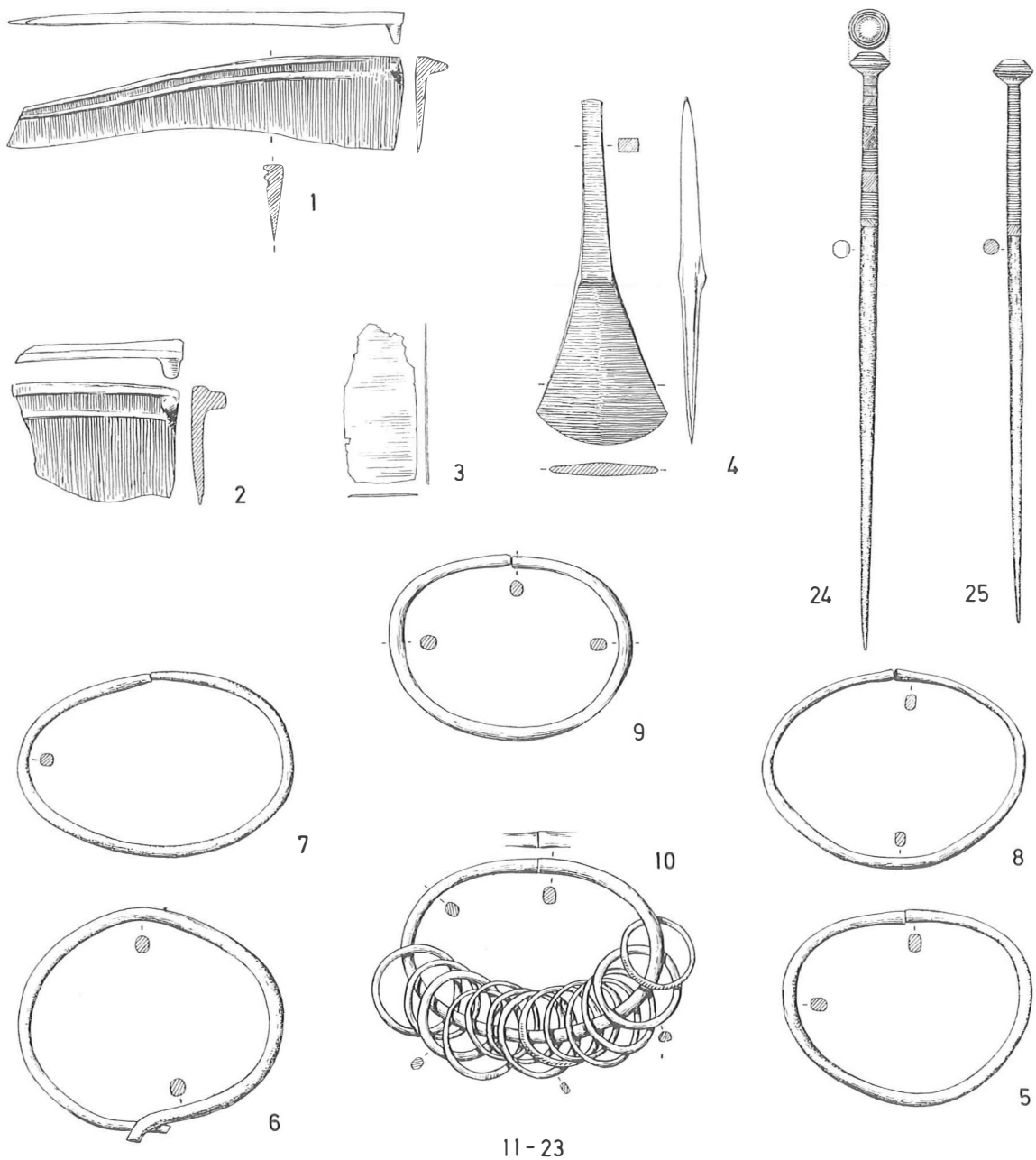


Fig. 26. Find No. 21. Veenenburg (South Holland), bog hoard. Scale 1:2.

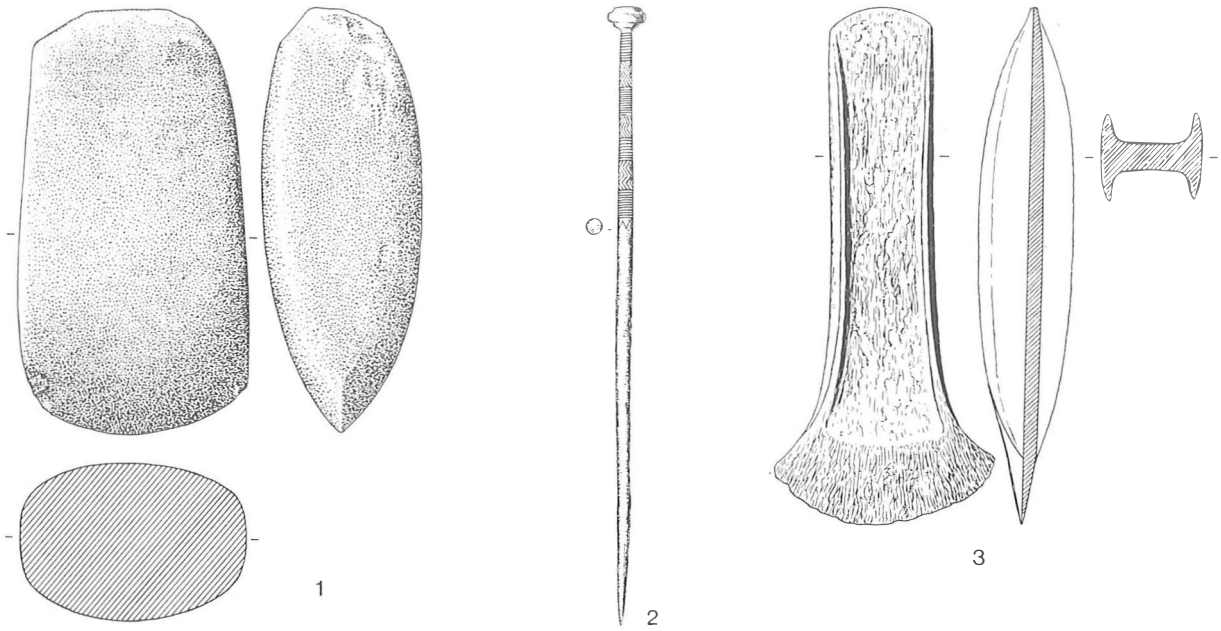


Fig. 27. Subtractions from Find No. 21: Objects from the Veenenburg estate, erroneously attributed to the hoard. 1. Stone. Scale 1:2.

Table 4. Veenenburg, Hillegom, ZH: Composition of the hoard according to Leembruggen (1897), Pleyte (1902) and Oppenheim (1927).

RMO h 1930.7 drawings number	Type Pl. VII	Leembruggen fig.	Pleyte fig.	Oppenheim sequence
33	Stone axe	–	1	–
34	Flanged axe	–	–	19
35	Knobbed sickle	E	5	16
36	'Razor' fragment	F	7	–
37	Knobbed sickle fragment	D	6	–
38	Leather knife/chisel	C	4	*'Bijltje'*
39	Pin, bicon. head	A	2	18 right
40	Pin, bicon. head	B	3	18 left
41	Pin, stepped head	–	–	–
42	Ring, pennan.	G	–	–
43	Ring, pennan., crossed ends	G	9	–
44	Ring, pennan.	G	–	–
45	Ring, pennan.	G	8, 10, 11	–
46	Ring, pennan.	G	–	–
47	Ring, pennan., with 13 small rings	–	12	13
	Finger pot	–	–	15

N.B. The objects which do not appear in the Leembruggen description must be considered as not belonging to the hoard of 1897, but are presumably other finds from the Veenenburg estate.

the hoard (Leembruggen in litt., 1897; Pleyte, 1902; Oppenheim, 1927; the R.M.O. accessions register for 1930, cf. table 4; Butler, 1959), it is important to establish the correct inventory. Primary, of course, is the list given by Leembruggen, who received the objects from the finder (whoever that may have been) and sent the list, together with good drawings of many of the objects and with descriptions, within ten days of the find. His letter makes an orderly, precise impression; we therefore rely entirely on his account.

The Leembruggen inventory consists of 25 objects:

1. *Knobbed sickle*, with single knob. Two deep grooves outline the thickened edge. The blade tip is broken off, and the break subsequently (in antiquity) ground smooth. Both faces of the sharp cutting edge are hollow-ground. Length 11.6 cm, RMO h.1930/7.35.

2. *Knobbed sickle* (fragment) similar to (1), but larger and with two prominent ribs. Both faces of cutting edge hollow ground. Length 4.7 cm, RMO h.1930/7.37.

3. *Fragment of blade*, thin and parallel-sided, razor-sharp on both edges. Length 4.7 cm, RMO h.1930/7.36.

4. *Tanged chisel* (or *Ledermesser*) with curved sides, widely expanded blade. Tang rectangular in cross-section, with butt end

slightly expanded and sharpened; tang separated from blade by a ridged thickening on face. Blade faces slightly convex, with remains of casting seams forming ridges on the sides. Length 10.2 cm, RMO h.1930/7.38.

5-10. *Penannular rings*, of bracelet size; all irregularly oval in form, of slender bars slightly oval in cross-section. The Leembruggen account speaks of six rings of this character; of which four are shown in his drawings. Of these, two are open penannular rings; one is a pennanular ring with ends meeting, and one with the end overlapping and bent upward slightly.

In the museum, all the rings are now closed penannular: RMO h. 1930/7.42 ends slightly expanded and meeting, 7.3x5.7 cm; thickness 4 mm; RMO h.1930/7.43: with overlappingends, 8x6.5 cm; thickness 4.5 mm; RMO h.1930/7.44: ends flattened and meeting, 8x5.3 cm; thickness 3.5 mm; RMO h.1930/7.45: ends slightly expanded and meeting, 8x6 cm; RMO h.1930/7.46: 7.2x5.4 cm; thickness 4 mm; RMO h.1930/7.47: 7.7x5.3 cm; thickness 4.5 mm.

11-23. Thirteen *small closed annular rings;* varying in diameter and thickness. The largest has a diameter of 2.9 cm. Two have nicking along their outer side; the others are plain. All show traces of wear.

These are now mounted on, and were inventoried with one of the closed bracelets (RMO h.1930/7.47), as shown in the drawing; that they were originally so mounted is not stated by Leembruggen, nor shown in his drawing; which could lead to the conclusion that this placement occurred subsequent to the finding of the objects, but before they reached the Museum.

24-25. *Pins with flattened biconical head;* differing in decoration. 24: Head bears incised ornament consisting of two groups of horizontal lines; there is a ring of punch strokes on the head. The neck has varied zones of zigzag lines, diagonal hatching, horizontal lines, and cross-hatching. Length 17.5 cm; head diameter 1.2 cm; RMO h.1930/ 7.39. 25: Head bears incised horizontal lines, with a ring of punch strokes below. The neck has a long band of horizontal lines and a short band of diagonal hatching. Length 16.5 cm; head diameter 1.2 cm; RMO h.1930/7.40.

Parallels and connections:

The pins: Pins with the head form of the Veenenburg pins (biconical, with flattened top; decorated) do not seem to occur, apart from isolated examples, in the Central European territory of the *Hügelgräberkultur*; but there is a concentration – a dozen examples within a small area – in the region of the Lüneburger Heide. Laux classifies them under the heading *Nadeln mit tonnenförmigem Kopf*, chiefly of the variants Holthusen and Kronsberg (Laux, 1976: No. 426 ff.; distribution his Taf. 50A). The decoration of the Veenenburg pins can also be matched on Lüneburg pins especially in the parallel Deutsch-Evern series, and occasionally on other pin types.

A pin from Leer (Kr. Leer; Ems mouth area) is included by Laux in his *Nadeln mit tonnenförmigen Kopf* series, under Variant-Holthusen, and is thus undoubtedly a Lüneburg export: if Laux is right, from the Uelzen area. This pin (plus, perhaps, the pin without its head from Laren, North Holland: Butler, 1969/1979, which can be matched as to decoration both in the Lüneburg area and in Hessen) is a bridge between the Lüneburg region and Veenenburg.

The third Veenenburg pin, RMO h.1930/7.41, though not part of the hoard, would seem to be contemporary with it and of the same origin. Its head form links it with Laux' Type Deutsch-Evern; its decoration can also be matched among Lüneburg pins (the Holthusen pin from Bodenstedt, Laux No. 426, offers an almost exact parallel); but its decoration is also matched in the Hessian series (e.g. Kubach, 1977: Nos 686, 704, 949, 952, 964; these are assigned by Kubach to a variety of types).

The *tanged chisel* (or *Ledermesser*) seems to be without exact parallel. Typologically it falls between the simple triangular chisel (such as we have in the Ommerschans hoard in Overijssel; fig. 21:A) and the form with thickened rib running all around the middle, which in recent years has been claimed to represent functionally a leather-workers' knife rather than a chisel (Roth, 1974; Burgess & Cowen, 1972: pp. 217-218).

The Veenenburg example is not quite like any illustrated example known to the writer, with its continuous-curved sides and a thickening only in the form of a rib on the faces. It belongs, in fact, to none of the four classes distinguished by Roth, though in outline it agrees with many examples of his Type I; and it may be regarded as their forerunner.

The bracelets: The bracelets in the Veenenburg hoard are made simply of bent wire, without further embellishment. The ends have been modified sligtly by hammering: either slightly thinned or slightly thickened. Roughly similar objects occur in Brittany in the Rosnoën phase (Briard, 1965: fig. 52:6) and in such hoards as Bois-de-Lessines, Foubertsart (Hainault, Belgium; Mariën, 1956) and Anzin, Dept. Nord, northern France (Mohen, 1972: pp. 451-452, fig. 4; Blanchet, 1984: pp. 228, 231 fig. 122); and Villers-sur-Authie (Somme, Picardie: Blanchet, 1984: pp. 164, 168, 167 fig. 83 esp. Nos 5 and 6). The Villers-sur-Authie hoard, with its Picardy pins and Bignan-like bracelets, is assigned by Blanchet to *Bronze median* 2; the Anzin hoard, with its midwinged Grigny axe, plain narrow-bladed palstave, etc. is assigned to *Bronze final* 1. The Foubertsart hoard, with its twisted bracelet and pin with swollen ribbed neck and trumpet head, can also date to *Bronze final* 1.

Dating: Most clearly datable are the pins. Most of the best parallels for the Veenenburg pins are dated to the earlier phase (Furhrhop/Bergen-Bleckmar/Oldendorf) of Laux's *Stufe* Deutsch-Evern; the parallels in Hessen are mostly of Kubach's *Stufe* Wollmesheim. In both cases we are in the *Späte Hügelgraber-Frühe Urnenfelder*, formerly Reinecke D. Some examples may be a stage earlier or later.

The other objects are not closely datable in themselves, but would be not amiss in this chronological context. Thus the Veenenburg hoard would belong to a late stage of Lanting & Mook Middle Bronze B.

References: Kubach, 1977: Nos 686, 704, 949, 952, 964; Laux, 1976: No. 426 ff., Taf. 50A; Laux, 1989; Bönisch, 1990.

Remarks: As a bog find, the Veenenburg hoard is presumably a votivedeposit. The predominance of ornaments in the hoard, including the pair of pins, might suggest that it is a female assemblage. Possibly the sickles and the 'leather knife' were in this case associated with a female handicraft – perhaps leather-working! – though at Epe (Find No. 18) and Holset (Find No. 22) sickles occurred in more masculine-looking contexts.

FIND NO. 22. HOLSET, *GEMEENTE* VAALS, LIMBURG: HOARDS IN TUMULUS 'THE SICKLE GRAVE' (fig. 28)

Map reference: Sheet 62 West (Heerlen), 196.9/308.55.

Site: Three bronze objects – two knobbed sickles and a narrow pegged spearhead – were recovered from a burial mound (referred to, since the discovery of these bronzes, as 'the Sickle Grave'; the mound in question is one of a group of five tumuli in a wooded, sloping terrain in the Herenhauw or Malensbosch woods near Holset, Limburg) during an excavation in 1926 by the Aachen schoolmaster, antiquary and historian, *Oberlehrer* J. Liese (1886-1939).

Documentation: The excavation was never published, but some documentation, including a plan and a few photographs made during the excavation, with accompanying annotations, were preserved by a friend of Liese, Father J. van Liempd (then of Wittem, Limburg), who had assisted Liese during part of the excavation. The van Liempd album was loaned to the I.P.P., Amsterdam, in 1961, where copies were made of the relevant material, and are there preserved in the I.P.P. Protocol Book 'Holset', along with further material assembled by Hooier. This material formed the basis for a short description of the site by Hooier (1959; 1961; the bronzes are here mentioned, but no description of them was then available).

Hooier also conducted, on behalf of the I.P.P., an excavation in one of the mounds, which was also never published, but detailed documentation of it is also present in the I.P.P. 'Holset' Protocol Book.

References: (a) Hooier, 1959.

Description of the site: 'The Sickle Grave' had a diameter of c. 23 meters. The mound contained a complicated series of drystone constructions, the general plan of which is shown (fig. 28). The significance of all these curiously shaped features is obscure. It would seem unlikely that all of them were laid on at the same time, but the surviving notes do not clarify the sequence of stone constructions. The notes inform us that there was a layer of earth between the original ground surface and the stonework, and this is shown on the photographs.

Above the earth layer is a series of wholly or partially circular, cell-like drystone constructions, of which only one, slightly east of the centre of the mound, is actually a completely circular structure, of the order of 6 metres in external diameter, and with walling around 80 cm thick. It cuts through several 'earlier' similar structures (which could alternatively be interpreted as crescentic annexes to the completely circular chamber). The central circular construction was interpreted by van Liempd and by Hooier as a burial chamber, though van Liempd's notes state explicitly that no traces whatsoever of a burial were found. On the east side of the 'burial chamber' is an opening, interpreted by van Liempd as an entrance, though if the plan is correct it could hardly have been wide enough for a dog to squeeze through. Outside this 'entrance' are two irregular serpentine features forming a sort of funnel for the 'entrance'. The photographs tend to suggest that the stonework of the chambers is the surviving portion of a sort of dome-shaped capping.

In the main chamber there was a stony platform of complicated shape, with a length of c. 3.5 m and c. 1.75 m wide, but there was no actual trace of a burial on it, and there are no known finds from it. Charcoal and traces of bone (whether human or animal, burnt or unburnt is unknown) occurred in a small side chamber.

According to a marginal note on the plan, two bronze objects – the smaller of the two sickles and the spearhead – were found close together, under the stones of the circular walling at the east side; while the larger sickle came from loose earth outside the wall structure, but close by.

The bronze objects thus do not seem to have been placed in the grave, but outside it, and stratigraphically prior to the building of the chamber walling. The two sickles would, in any case, be most unusual grave goods.

Preservation: The present location of the bronze objects is unknown. Plaster casts are, however, preserved in the Brussels Museum, from which the drawings for this publication were made.

Description of the objects:

1. *Spearhead*, with slender leaf-shaped blade, round socket, peg-holes. Length 11.8 cm; blade width 1.5 cm; socket-mouth width 2.1 cm.

2. *Sickle*, moderately curved, with three backing ribs; rounded butt, with two haftingknobs. Length 12.1 cm; max. width 2.8 cm near butt.

3. *Sickle*, more strongly curved than (2), with a reverse bend near butt; two backing ribs; plastic >>> motif near butt, which is rounded; two hafting knobs. Length 12.5 cm; max. width near butt 2.8 cm; width in centre 3.5 cm.

Parallels and connections: References: Mozsolics, 1967; Rittershofer, 1983: esp. pp. 200-208; Stein, 1979: Taf. 14:8-4, Taf. 15-

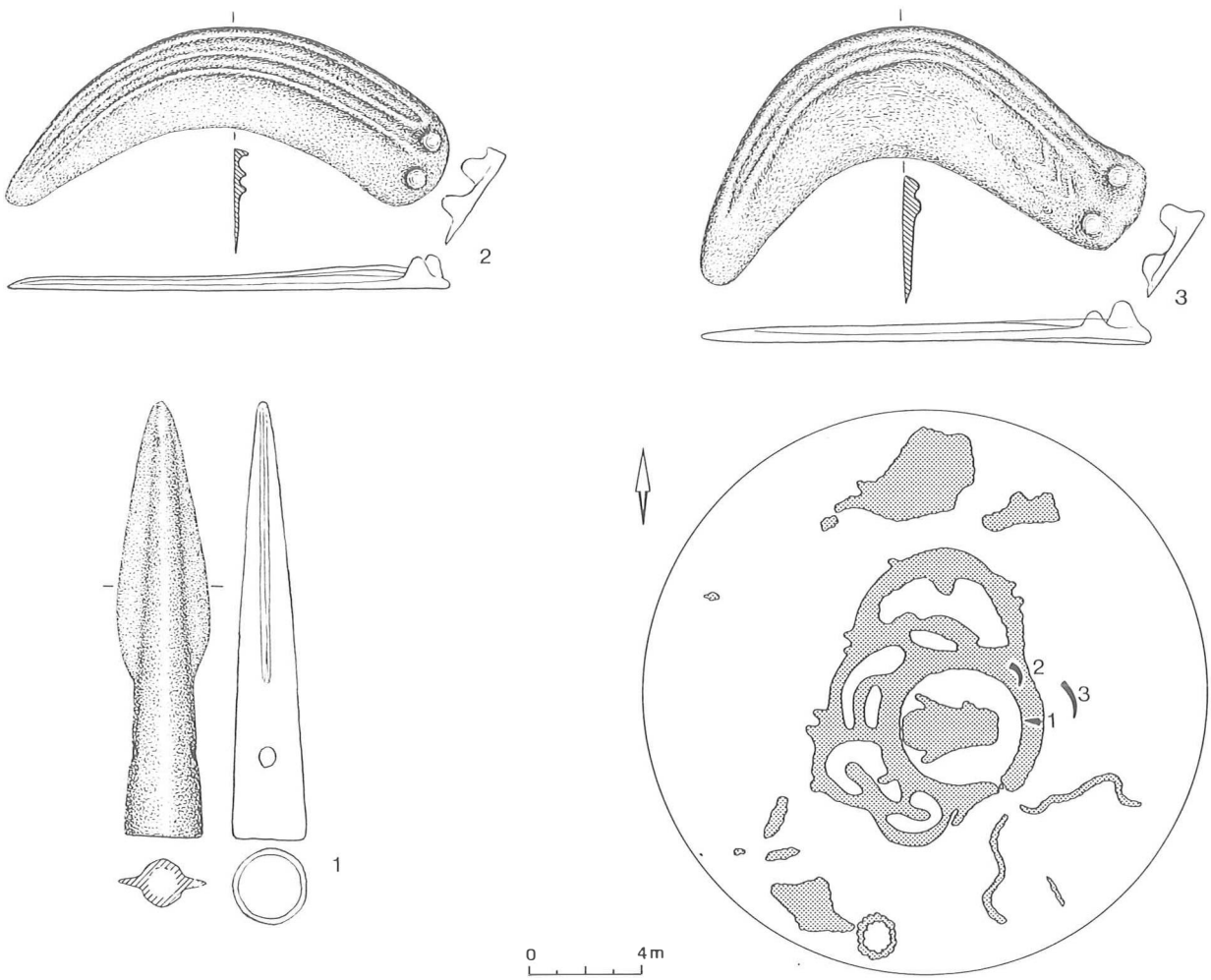


Fig. 28. Find No. 22. Holset (Malensbosch, Limburg), tumulus hoard. Scale 1:2. Excavation plan re-drawn from notebook van Liempt (stone settings shaded).

16; Smith, 1959a; 1959b; Dehn, 1941; Sprockhoff, 1941 (II): Taf. 46-52, esp. Taf. 49.

The *two-knobbed sickles*: Both of the Holset sickles are strongly curved, and have three backing ribs and two hafting knobs. The smaller sickle has, in addition, a pattern of three raised chevron-like figures on the blade. The only other example of a two-knobbed sickle in the Netherlands is also from a hoard in a burial mound, at Epe, Gelderland (above, Find No. 18). This sickle also has three backing ribs. Its shape has been rather drastically altered by re-sharpening; this is clearly demonstrated by the way the ribs are cut through. Noteworthy is the rounded heel of the Epe sickle, an unusual feature which it shares with both of the Holset specimens.

While sickles with single knob are very common in large parts of Europe, the two-knobbed variety is scarce. Examples are known in Hungary (in the hoard of Dunaújváros-Kosidlerpadlás, Find 2: Mozsolicz, 1967: Taf. 49:2), southern Germany (hoards of Bühl, Ackenbach; graves at Wilsingen-Stockäcker, Kr. Münsingen: Rittershofer, 1983: pp. 200-208, 380 Liste 6; Stein, 1979) and England (especially in Somerset: Smith, 1959b: fig. 1:10; Edington Burtle: *Inventaria* GB 44:16-18; Taunton: *Inventaria* GB 43:22; Sparkford: *Inventaria* GB 46:1-2). Some unprovenanced examples are illustrated by Nicholson (1980: p. 66, Pl. 126, Nos 127-129; p. 112, Pl. 50, Nos 291-292).

Between the South German and Dutch finds few examples are known. There is a find of two specimens (N.B. with three backing ribs!), in a possible hoard at Kreuznach-Kastell (Dehn, 1941: Abb. 19, 1131, No. 9; with a decorated sheet metal fragment). Primas dates the Kreuznach find to Late Tumulus/Early Urnfield (Reinecke D).

The caret-shaped ribs on the face of sickle No. 2 occur also on a few sickles from the Central European area. Examples are (two carets vertically): Uzd, Kom. Tolna, Hungary (Hänsel, 1968 (II): Taf. 51:10, in hoard Hänsel M.D.II); (single caret): in Kubšice hoard, S. Moravia, Říhovský, 1959: Taf. 1:3, Taf. 58:A1; (two carets): Bad Kösen-Kukulau, Kr. Naumburg in Central Germany; (two carets): von Brunn, 1968: p. 326, No. 114, Taf. 96:2, hoard Ha A1/A2. Also in Somerset, England: (single caret): Edington Burtle hoard, *Inventaria* GB 44:15.

The *spearhead*: The narrow pegged spearhead from the Holset deposit closely resembles the spearheads which Rittershofer (1983: p. 219 distribution map Abb. 12, p. 220 Tab. 8 for associations; p. 382 Liste 11) has termed 'spearheads of type Bühl', from their occurrence in that hoard. Their distribution, in so far as known to Rittershofer, is mainly South German, but with a few finds extending to North Germany. Of special interest is the grave find of such a spearhead at Herstelle, Kr. Höxter in Westfalen (*Hügelgrab* 3): Rittershofer's Liste 11 No. 7; Hachmann (1957a: pp. 34, 37 ff., Taf. 41:8-11, Kat. 363, p. 203). This grave includes a Wohlde sword, a flint strike-a-light and an iron concretion (Sprockhoff, 1941: Abb. 25:6-9.; according to Hachmann Sprockhoff's attribution of this find to 'Etteln' is erroneous).

The rather similar, if slightly wider, spearhead from a tumulus at Monnikenbraak (see above under Find No. 13) is also possibly associated with a Wohlde rapier.

Dating: The British two-knobbed sickles are assignable to the Taunton phase, British MBA 2.

The Epe hoard's palstave, with its close parallel in the Brighton Black Rock hoard, Sussex (O'Connor. 1980: p. 329, Cat. No. 34, with previous references), is consistent with this.

Thus the Holset deposits can be assigned in local terms to Lanting and Mook Middle Bronze B.

Interpretation: As there was no evidence that either of these two deposits were directly associated with a burial in the tumulus, they are best regarded as funerary hoards, comparable to those at Swalmen (Find No. 23) and perhaps Epe (Find No. 18). If, however, there were more than one phase of construction, it is conceivable that the bronzes were in a burial chamber at some stage, and redeposited peripherally at a subsequent stage. But at Swalmen-Swalmen (Find No. 23) there were also two peripheral deposits in a tumulus.

Both the spearhead and the sickles can be regarded as products of Central European Tumulus Bronze Age influence.

FIND NO. 23. SWALMEN-HILLENRAAD, *GEMEENTE* SWALMEN, LIMBURG: HOARDS IN TUMULI 1 AND 2 (fig. 29)

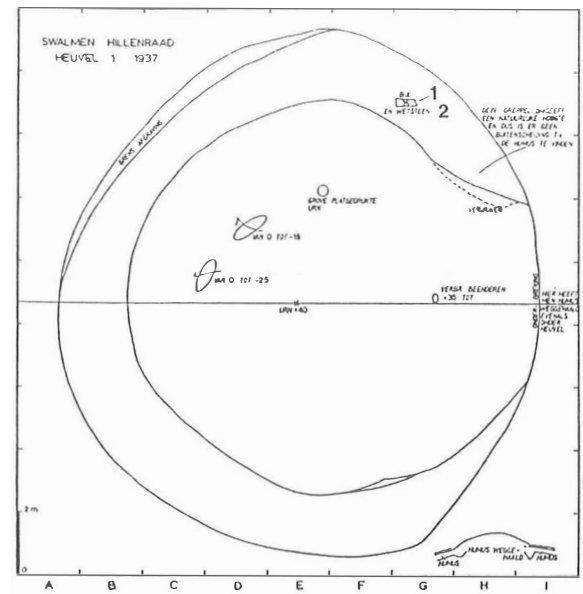
Map reference: Sheet 62 West (Heerlen), 196.9/308.55.

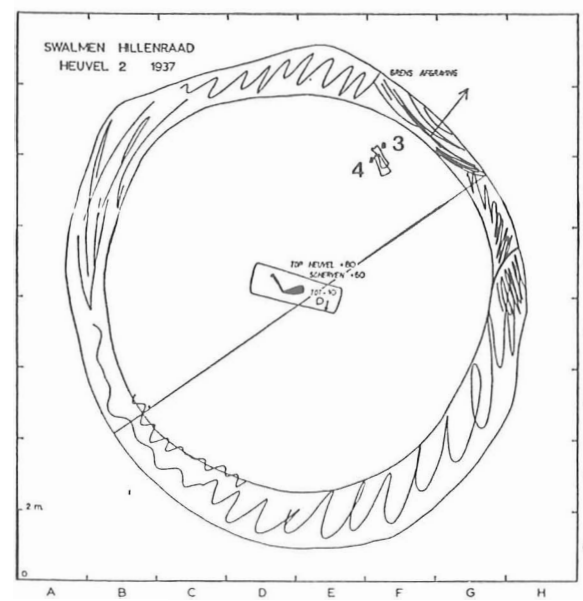
Documentation: In R.M.O., Leiden, and elsewhere, summarized by Lanting & van der Waals, 1974: p. 5.

References: (a) Lanting & van der Waals, 1974: esp. pp. 68-72, figs 30-31; (b) Groenman-van Waateringe, 1974; (c) Butler, 1973: p. 330; (d) Butler, 1987: esp. pp. 13-26, figs 5-15.

Description of the site: Tumuli 1 and 2 are adjacent, and part of a small group of mounds c. 1 km east of Swalmen. This is one of a number of sites at Swalmen.

Tumulus 1 had a diameter of c. 15.50-16.00 m; height c. 1 m; of sand. Bursch's rather sketchy plan indicates a ring-ditch, but on the





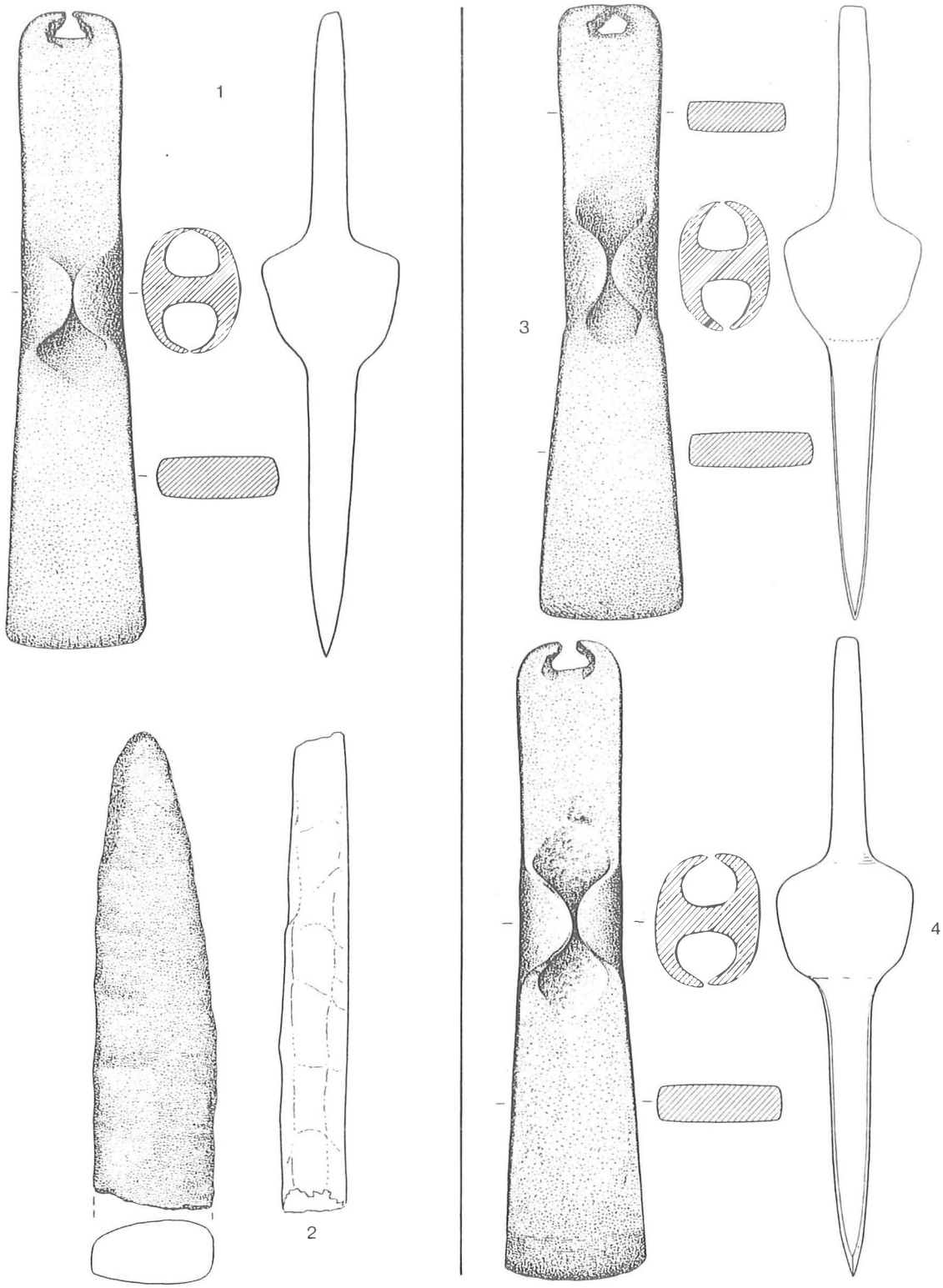


Fig. 29. Find No. 23. Swalmen-Hillenraad (Limburg), tumulus hoards. 1,2. Tumulus 1 (2. Stone); 3,4. Tumulus 2. Scale 1:2. Tumulus plans redrawn from field drawings of Bursch.

basis of their test trench Lanting and van der Waals deny this. No primary central grave was found. Secondary in the mound were HVS/DKS/Laren pottery and an early Harpstedt urn with accessory bowl.

Toward the edge of the mound, on the NE, a bronze winged axe and a large whetstone were found together. According to Lanting and van der Waals these represent a secondary deposit, and are a *terminus ante quem* for the mound itself.

Tumulus 2: c. 13x0.8 m; of sand. As with Tumulus 1, the Bursch plan suggests a ring-ditch, but the Lanting and van der Waals cutting disproves this. A central ESE-WNW rectangular grave pit, 2.60x0.85 m, contained surviving fragments of a lightly contracted sketeton on its left side, head to ESE; there were no grave goods.

Toward the NE edge of the mound, two midwinged axes, like the one in Tumulus 1, were found together.

Circumstances of find: Excavated 1937 by F.C. Bursch for R.M.O. Leiden. Small-scale supplementary excavation 1972 by Lanting and van der Waals.

Preservation: The winged axe and whetstone from Tumulus 1 are in the R.M.O. Leiden (Inv. No. 1 1937/8.47,48). One winged axe from Tumulus 2 is in the Bonnefanten Museum, Maastricht (Inv. No. 247), the other is in private possession (family Wolff Metternich, Castle Hillenraad).

Description of the objects:

Winged axe (RMO 1 1937/8.47): rounded butt with indentation; sides nearly parallel, only slightly sinuous. Short, almost centrally placed D-shaped wings. Sides of lower part slightly convex, with no blade expansion. Length 20.4 cm; blade width 4.5 cm; max. thickness (wings) 3.2 cm.

Winged axe (Maastricht 247): length 19.75 cm; blade width 4.5 cm; thickness (wings) 3.0 cm.

Winged axe (Pvt.): length 20.45 cm; blade width 4.6 cm; thickness (wings) 33.5 cm.

Whetstone (RMO 1 1937/8.48): length 15.3 cm; width 4.0 cm; thickness 2.25 cm.

Parallels and connections: Winged axes of Type Grigny (Kibbert, 1984; Butler, 1987: pp. 23-26, fig. 14-16) are even more common in eastern France than in western Germany. And in West Germany they are far more common along the Mosel than along the Rhine. A series of finds of such axes along the Meuse (Maas) in Belgium and the south of the Netherlands suggests an import stream northwards from eastern France. Cf. the midwinged axes in hoards from Maaseik (prov. Belg. Limburg) and Yvoir (prov. Namur) in Belgium (Warmenbol, 1990), Anzin (Nord) and Erondelle (Somme) (Blanchet, 1984: fig. 132: e.g. Nos 9-11; Mariën, 1952). But very similar axes occur in Central Germany (von Brunn, 1968).

Dating: The Grigny axes are dated by Kibbert to the *frühe und ältere Urnenfelderzeit* (Reinecke D and HaA1 in older terminology).

Interpretation: Deposits of bronzes in a tumulus, and not directly connected with a grave deposit, include those from Holset in South Limburg (Find No. 22) and possibly Epe (Find No. 18), along the eastern edge of the Veluwe plateau in Gelderland. These may be somewhat earlier than the two Swalmen-Hillenraad tumulus hoards. Noteworthy is the predominance in these hoards of tools, and especially axes and sickles, not broken up for recycling; thus probably votive or funerary deposits rather than scrap metal.

FIND NO. 24. ZWAAGDIJK, *GEMEENTE* WERVERSHOOF, NORTH HOLLAND: FLAT GRAVE 3 (fig. 30)

Map reference: Sheet 14 East (Alkmaar), 139.7/525.3.

Documentation: R.O.B., Amersfoort.

References: (a) Modderman, 1964; (b) Butler, 1964; (c) Huizinga, 1964; (d) Runia, 1986; 1987.

Circumstances of find: Rescue excavation 1964, by P.J.R. Modderman for R.O.B., Amersfoort.

Preservation: Part of the finds Westfries Museum Hoorn; part were transferred from the Institute for Human Biology, University of Utrecht, to the I.P.P., Amsterdam, c. 1986 (Runia, 1987); later to the Westfries Museum, Hoorn. The rapier has the Inv. No. N 1963/XII.a17.

Description of the site: Cemetery of at least five flat graves with skeletons; located c. 500 m south of the Zwaagdijk Middle Bronze Age barrow cemetery partially excavated by van Giffen (1944b); and adjacent to a presumed contemporary Bronze Age settlement with ditched fields or enclosures, partially excavated along with the flat graves (Modderman, 1964). In the settlement animal bones, chiefly of cattle, were recovered (Clason, 1964). Conventional ^{14}C date of charcoal from a settlement ditch (revised figure given by Lanting & Mook, 1977: pp. 112, 127), GrN-4343, conventional 3200±60 BP, 2-sigma calibration range 1628-1479 BC.

Grave 3 was the only grave accompanied by grave goods. The grave had previously been partially disturbed, first by a drain-pipe trench through its centre, then by workmen during levelling operations. The skull, some of the arm bones, and part of the rapier were still in situ. The rapier had lain slantwise across the left elbow and the abdomen. The amber beads were not observed in situ, but must have been transported to the Utrecht Institute along with soil lifted with the bones; there they were found by Runia (1986) in a match-box with a tag indicating that they belonged with the bones of Grave 3.

Description of the objects:

1. *Rapier*: rounded hilt-plate (the sides of which are badly damaged), with six 'plug' rivets graduated in size (the longest central; heads diagonal), five in situ, arranged in a shallow arc. Narrow blade, with ridged and stepped cross-section. Severely corroded. Present length of fragments (lowest part lost) c. 45 cm; original length estimated c. 55-60 cm. Reference: Butler, 1964.

2. Four *amber beads*, all small, with cylindrical perforation. Three of these were available for examination in the spring of 1992; the fourth is described after Runia (1986): (a) biconical bead, slightly flattened around the perforations; diameter 1.38 cm; thickness 0.64 cm; perforation 0.27 cm; (b) disc-shaped bead, slightly convex sides; diameter 0.72 cm; thickness 0.32 cm; perforation 0.2 cm; (c) barrel-shaped bead, slightly convex sides; diameter 0.66 cm; thickness 0.46 cm; perforation 0.28 cm; (d) ovoid outline; flattened sides; diameter 0.92x0.71 cm; thickness 0.42 cm; perforation 0.27 cm. Reference: Runia, 1986: pp. 137-138, with photo.

3. *Skeleton*: according to Huizinga (1964) 'a robust, strong and tall adult male individual (estimated stature 181 cm)', probably not of the same population as the other skeletons in this cemetery.

Further finds: according to Runia (1987), the grave also contained a piece of worked flint, a piece of sandstone, and a small, not further identified small animal bone.

Parallels and connections:

The *rapier*: A small number of six-riveted rapiers classified under the heading Type Saint-Triphon (Schauer, 1971: pp. 33-35, Nos 48-52, *Nahestehend* No. 53; to which we might add his untyped No. 167) seem to be better parallels for the Zwaagdijk rapier than we could find in 1964. The Saint-Triphon-type rapiers may have capped rivets, plug rivets, or a combination of both rivet types. The only parallel for the unusual stepped blade section of the Zwaagdijk rapier in Schauer's corpus is, however, the rapier from Unterbimbach, Kr. Fulda, in East Hessen (Schauer, 1971: No. 110, Taf. 29b); this rapier has four rivets, two capped and two plug; it falls under Schauer's Typ Panholz. The specimen from Wolfhagen in Hessen, which we cited in 1964 as the best known parallel for Zwaagdijk, has not lost its relevance; it has rivets quite like those of Zwaagdijk, in a similar arc, and if the original illustration of Bergmann (1962: p. 110, Abb. 7) is to be believed, its blade cross-section is exactly like that of Zwaagdijk, though the illustration of Schauer (1971: No. 174) shows a rounded rather than a ridged middle section. Incidentally, the gold coil associated with the Wolfhagen rapier is quite like the small single-wire Netherlands specimens from Hijken, etc. (see Find Nos 8, 16, 20).

Dating: As a derivative of the Saint-Triphon and related rapiers, the Zwaagdijk rapier is datable in Central European terms to the Early or Middle Tumulus period (Lochham or Göggenhofen). It would thus come within or soon after the Sögel-Wohlde phase, in Lanting and Mook Middle Bronze A. This is compatible with the ^{14}C dating of the adjacent settlement (see above), though the wide calibrated date range makes close comparison impossible.

Comments: This grave is noteworthy in view of the very small number of Middle Bronze Age graves with grave goods known in the western coastal region of the Netherlands. See also the Velserbroek grave, Find No. 20.

Also at Zwaagdijk, a sword is said to have been found c. 1857 in a tumulus (No. XIV of van Giffen, 1944b), together with the skeleton

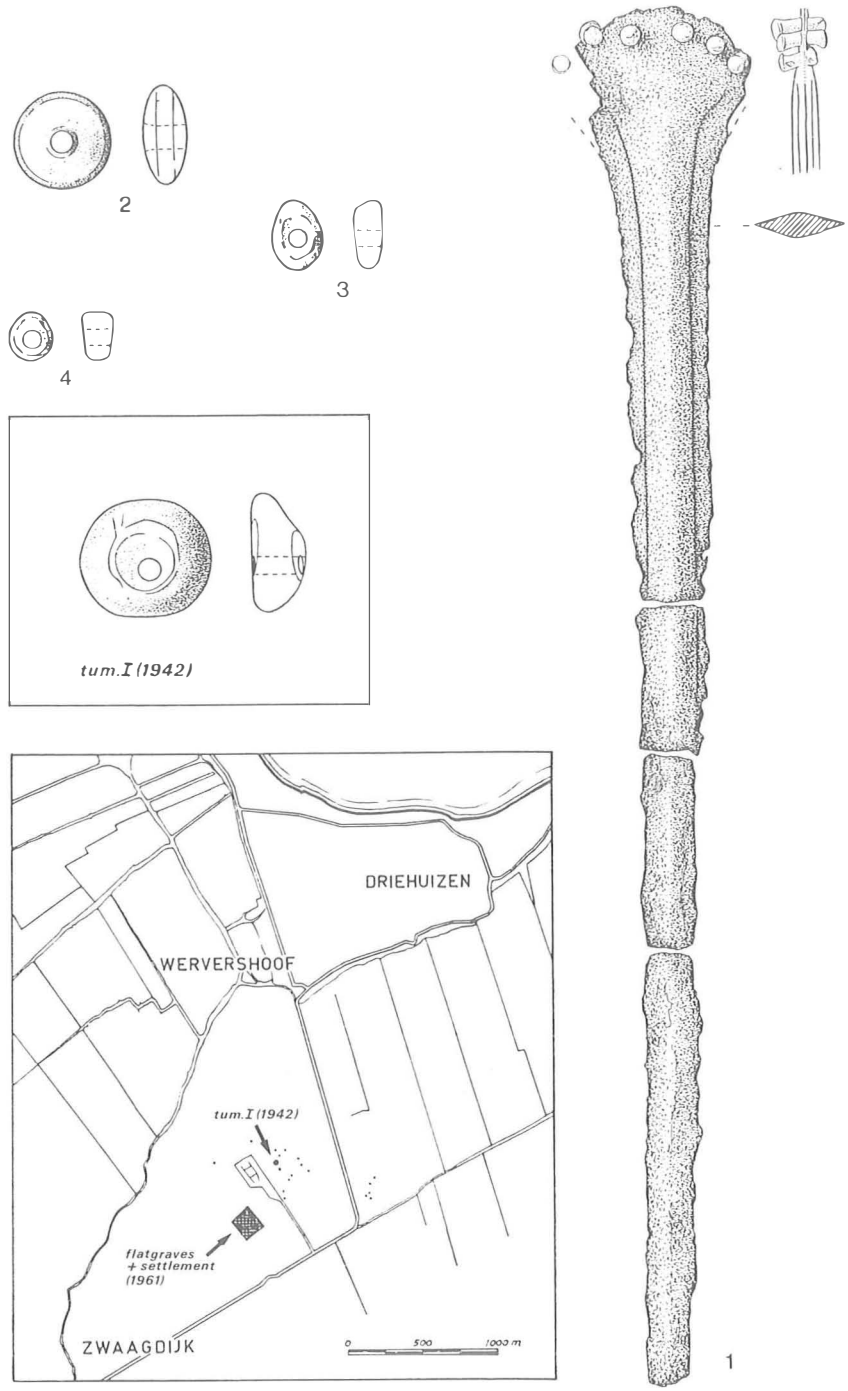


Fig. 30. (1-4) Find No. 24. Zwaagdijk (North Holland), Grave 3 of Modderman. 1. Bronze; 2-4. Amber (one bead missing). Scale: 2:5 (1) and 1:1 (2-4). In box: amber bead, van Giffen's tumulus I; scale 1:1. Situation map adapted from Modderman (1961).

of a large man and a pair of irregularly coiled lengths of gold wire. The sword (if such it was) has been lost without trace; no drawing or description is known. It is not even recorded whether it was of bronze or iron.

The gold wire coils were, however, still preserved at the farmhouse of the landowner at the time of the B.A.I. excavations, and were examined and described by van Giffen (1944b: Abb. 17). They measured, unrolled, 42.5x0.007 cm and 44x0.06 cm respectively, thus totalling 86.5 cm of gold wire. According to a touchstone determination they were of pure gold; which if accurate would distinguish them from the silver-containing gold wire ornaments from Bronze Age graves (Find Nos 8, 11, 16, 20).

The photographs do not really suggest that the gold wires had been wrapped round a sword handle, or in any way were finished ornaments or parts thereof; they seem to be simply irregular lengths of wire. Unfortunately these gold wires have also since been lost.

The higher parts of Tumuli I and IV of the Zwaagdijk group yielded mutilated skeletons of unknown date. Van Giffen records a tradition that soldiers of Count William II (1227-1256) were buried in these tumuli. He suggests that followers of Count Floris V (1254-

1296) were more likely candidates, as William II is not known to have fought in the area concerned. Such a tradition need not necessarily be taken seriously. Runia (1987: p. 34) has in the meantime re-examined the skeletal material from Tumuli I and IV. He finds that the presumed 'late' skeletons do not differ in condition from those in the certain Bronze Age graves: and thus these 'late' graves may be Bronze Age too. Furthermore, he finds that of the eight 'medieval warrior' skeletons at least four were probably female and one was a child of less than 10 years. It would seem, then, that the 'medieval soldiers' have disappeared from the scene.

Although direct evidence for attributing the alleged sword and the gold wire lengths to the Bronze Age is absent, the possibility cannot be dismissed, especially in view of the presence close by of the Zwaagdijk (Modderman's No. 3) Middle Bronze Age sword and the four gold rings of Velserbroek (Find No. 20) c. 50 km to the southeast.

In the ring-ditch of another Zwaagdijk tumulus (van Giffen's No. 1) a single amber bead was found (van Giffen, 1944b: p. 125, Afb. 90). It is a rather irregular discoid, slightly oval in outline (1.8x1.6 cm; thickness .7 cm; perforation .25 cm).

5. ACKNOWLEDGEMENTS

This study was sponsored jointly by the Biologisch-Archaeologisch Instituut of the University of Groningen and the (recently renamed) Instituut voor Prae- en Protohistorische Archeologie Albert Egges van Giffen, on the initiative of their former directors, Professor H.T. Waterbolk and Professor W. Glasbergen. It was financed by the Nederlandse Organisatie voor Zuiver-Wetenschappelijk Onderzoek and the two Institutes. Its execution required the collaboration of the directors and staff of several dozen museums and of innumerable private owners of objects, to all of whom we are most grateful; the enumeration of all their names would require many pages, and to name some and omit others would be invidious. So we hereby thank them all collectively. We must express a special word of thanks to the two institutes for continuing to afford space and facilities even after my official retirement in 1986.

With few exceptions (i.e. with respect to objects illustrated in the literature but now unfindable) the objects were drawn from the originals by professional draughtsmen, either free-lancers in part-time employment at the cost of the Z.W.O., or staff draughtsmen of the B.A.I. and I.P.P. We wish especially to thank B. Kuitert, B. Kracht, L. Hart, G. de Weerd, H. Roelink, and J.M. Smit for the high standard of their devoted art-work on the artefacts.

A number of persons have given extensive and invaluable administrative support with the collection and ordering of the documentation. These include C.H. Butler-Geerlink, T.C. Appelboom, W. de Vries-Metz, E. Wolthuis and J. Steegstra. The computer facilities of the University of Groningen (Rekencentrum) and the computer department of the I.P.P. have been very helpful. Numbers of colleagues at the B.A.I., the I.P.P. and the Rijksdienst voor het Oudheidkundig Bodemonderzoek at Amersfoort, and especially those members of its staff who were also provincial archaeologists, have also made valuable contributions.

6. REFERENCES

ABELS, B.-U., 1972. *Die Randleistenbeile in Baden-Württemberg, dem Elsaß, der Franche-Comté und der Schweiz* (= Prähistorische Bronzefunde IX:4). München.

ANER, E. & K. KERSTEN, 1973-1986. *Die Funde der älteren Bronzezeit des nordischen Kreises in Dänemark, Schleswig-Holstein und Niedersachsen.* Band I-VIII. Neumünster.

ANNABLE, F.K. & D.D.A. SIMPSON, 1964. *Guide catalogue of the Neolithic and Bronze Age collections in Devizes Museum.* Devizes.

ANSCHER, J.T. TEN, 1990. Vogelenzang, a Hilversum-1 settlement. *Helinium* 30, pp. 44-78.

ASHBEE, P., 1960. *The Bronze Age round barrow in Britain.* London.

ASHBEE, P., M. BELL & E. PROUDFOOT, 1989. *Wilsford shaft: Excavations 1960-62* (= Archaeological report 11). London.

BARFIELD, L.H., 1991. Wessex with and without Mycenae: new evidence from Switzerland. *Antiquity* 65, pp. 102-107.

BASS, G.F., 1987. Splendors of the Bronze Age. *National Geographic* 172, pp. 692-732.

BASS, G.F., 1989. Das Wrack von Ulu Burum. *Geo* (1), pp. 84-98.

BECK, C. & S. SHENNAN, 1991. *Amber in prehistoric Britain.* Oxford.

BECK, H.C. & J.F.S. STONE, 1936. Faience beads of the British Bronze Age. *Archaeologia* 85, pp. 203-252.

BECKER, C.J., 1954. A segmented faience bead from Jutland, with notes on amber beads from Bronze Age Denmark. *Acta Archaeologia* 25, pp. 241-252.

BECKER, C.J., 1964 (1965). Neue Hortfunde aus Dänemark mit frühbronzezeitlichen Lanzenspitzen. *Acta Archaeologica* 35, pp. 115-152.

BECKERS, H.J. & G.A.J. BECKERS, 1940. *Voorgeschiedenis van Zuid-Limburg. Twintig jaren archaeologisch onderzoek.* Maastricht.

BEEX, G., 1966. Ringwalheuvel te Alphen, prov. Noord-Brabant. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 14, pp. 53-65.

BERGMANN, J., 1952. Zur frühen und älteren Bronzezeit in Niedersachsen. *Germania* 30, pp. 21-30.

BERGMANN, J., 1962. Bronzezeitliche Hügelgräber im Stadtwald von Wolfhagen. *Fundberichte aus Hessen* 2, pp. 101-113.

BERGMANN, J., 1970. *Die ältere Bronzezeit Nordwestdeutschlands. Neue Methoden zur ethnischen und historischen Interpretation urgeschichtlicher Quellen* (= Kasseler Beiträge zur Vor- und Frühgeschichte 2). Marburg.

BIEL, J., 1990. Weikersheim-Queckbronn. *Fundberichte aus Baden-Württemberg* 15, pp. 548-549.

BILL, J., 1977. Zum Depot von Salez. *Jahresbericht Institut für Vor- und Frühgeschichte Frankfurt am Main*, pp. 200-206.

BILL, J., 1985. Zur Fundsituation der frühbronzezeitlichen Horte Mels-Rosheld, Gams-Gasenzen und Salez im Kanton St. Gallen. *Archäologisches Korrespondenzblatt* 15, pp. 25-29.

BLANCHET, J.-C., 1984. *Les premiers métallurgistes en Picardie et dans le Nord de la France* (= Mémoires de la Société Préhistorique Française 17). Paris.

BLANCHET, J.-C. et al. (eds), 1987a. *Les relations entre le continent et les Iles Britanniques à l'Age du Bronze. Actes du Colloque de Lille dans le cadre du 22eme Congrès Préhistorique de France, 2-7 septembre 1984.* Amiens.

BLANCHET, J.-C. & Cl. MORDANT, 1987b. Les premières haches à rebords et à butée dans le Bassin parisien et le Nord de la France. In: J.C. Blanchet & Cl. Mordant (eds), *Les relations entre le continent et les Iles Britanniques à l'Age du Bronze. Actes du Colloque de Lille dans le cadre du 22eme Congrès Préhistorique de France, 2-7 septembre 1984.* Amiens, pp. 89-118.

BLOEMERS, J.H.F., L.P. LOUWE KOOIJMANS & H. SARFATIJ, 1981. *Verleden land: archeologische opgravingen in Nederland.* Amsterdam.

BOERSMA, J.W., 1988. De datering van een vuurstenen sikkel uit Middelstum-Boerdamsterweg. In: M. Bierma et al. (eds), 1988: *Terpen en wierden in het Fries-Groningse Kustgebied.* Groningen, pp. 31-35.

BOKELMANN, K., 1977. Ein Grabhügel der Stein- und Bronzezeit bei Rastorf, Kreis Plön. *Offa* 34, pp. 90-100.

BÖNISCH, E., 1990. Das jungbronzezeitliche Gräberfeld der Lausitzer Kultur Saalhausen 2, Kr. Senftenburg. *Veröffentlichungen des Museums für Ur- und Frühgeschichte Potsdam* 24, pp. 63-170.

BOSMAN, W.J. & C.M. SOONIUS, 1989. Velsen: Velserbroek-polder. In: P.J. Woltering, Archeologische kroniek van Holland over 1988. I. Noord-Holland. *Holland* 21, pp. 286-288 (with note by R.P.E. Poorter and H. Kars).

BOSMAN, W.J. & C.M. SOONIUS, 1990. Bronstijdboeren met hun schaapjes op het droge in Velsen. *Westerheem* 39, pp. 1-5.

BOUZEK, J., 1985. *The Aegean, Anatolia and Europe: Cultural interrelations in the second millenium B.C.* Praha.

BRANDT, K.-H., n.d. Vor und Frühgeschichte. In: W. Kloos (ed.), *Focke-Museum Bremen, I. Führer durch die Sammlungen im Neubau.* Bremen, pp. 136-171.

BRIARD, J., 1956. Le dépôt de fondeur de Tréboul, Douarnenez. *Travaux du Laboratoire d'Anthropologie ... Faculté des Sciences de Rennes*, pp. 33-51.

BRIARD, J., 1965. *Les dépôts Bretons et l'Age du Bronze Atlantique.* Rennes.

BRIARD, J., 1970. Un tumulus du Bronze ancien, Kernonen en Plouvorn (Finistère). *l'Anthropologie* 74, pp. 5-55.

BRIARD, J., 1984. *Les tumulus d'Armorique* (= L'Age du Bronze en France 3). Paris.

BRIARD, J. & J.-P. MOHEN, 1976. Le dépôt du Bronze Moyen de Douault (Côtes-du-Nord). *Antiquités Nationales* 8, pp. 28-37.

BRIARD, J. & G. VERRON, 1976a. *Typologie des objets de l'âge du Bronze en France, III. Haches* (1). Paris.

BRIARD, J. & G. VERRON, 1976b. *Typologie des objets de l'âge du Bronze en France, IV. Haches (2) herminettes.* Paris.

BROHOLM, H.C., 1944. *Danske Oldsager, II* (= Danish Antiquities 3). København.

BROHOLM, H.C., 1952. *Danske Oldsager, III. Aeldre bronzealder.* København.

BRONGERS, J.A. & P.J. WOLTERING, 1978. *De prehistorie van Nederland. Economisch-technisch.* Haarlem.

BRUNN, W.A. VON, 1968. *Mitteldeutsche Hortfunde der jüngeren Bronzezeit* (= Römisch-Germanische Forschungen 29). Berlin.

BRUNSTING, H., 1962. De sikkels van Heiloo. *Oudheidkundige Mededelingen Rijksmuseum voor Oudheden Leiden* 42, pp. 107-115.

BRUIJN, A. & H. BUNTE, 1961. *Twee duizend eeuwen Nederland.* Den Haag.

BUCHHOLZ, H.-G., 1984-1985. Ägäische Kämme. *Acta Praehistorica et Archaeologica* 16/17, pp. 91-142.

BURGESS, C.B., 1980a. The Bronze Age in Wales. In: J.A. Taylor (ed.), *Culture and environment in prehistoric Wales* (= BAR Intern. series 76). Oxford, pp. 243-286.

BURGESS, C.B., 1980b. *The age of Stonehenge.* London.

BURGESS, C.B. & J.-D. COWEN, 1972. The Ebnal hoard and early Bronze Age metal working traditions. In: F. Lynch & C.B. Burgess (eds), *Prehistoric man in Wales and the West.* Bath, pp. 167-181.

BURGESS, C.B. & S. GERLOFF, 1981. *The dirks and rapiers of Great Britain and Ireland* (= Prähistorische Bronzefunde IV:7). München.

BURSCH, F.C., 1933. Die Becherkultur in den Niederlanden. *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* N.R. 14, pp. 39-123.

BURSCH, F.C., 1936. Grafvormen van het Noorden. *Oudheidkundige Mededelingen uit 's Rijksmuseum van Oudheden te Leiden* 17, pp. 53-71.

BURSCH, F.C., 1952. De depotvondst van Overloon en de Bronstijd in Noord-Brabant. *Brabants Heem* 4, pp. 35-40.

BUTLER, J.J., 1959. Vergeten schatvondsten uit de Bronstijd. In: *Honderd Eeuwen Nederland* (= Antiquity and Survival II, no. 5-6). Den Haag, pp. 125-142.

BUTLER, J.J., 1960. A Bronze Age concentration at Bargeroosterveld. With some notes on the axe trade across northern Europe. *Palaeohistoria* 8, pp. 101-126.

BUTLER, J.J., 1963a. Bronze Age connections across the North Sea. A study in prehistoric trade and industrial relations between the British Isles, the Netherlands, North Germany and Scandinavia – c. 1700-700 B.C. *Palaeohistoria* 9, pp. 1-286.

BUTLER, J.J., 1963b. Ook in de oudere bronstijd bronsbewerking in Noord-Nederland? *Nieuwe Drentse Volksalmanak* 81, pp. 181-212.

BUTLER, J.J., 1964. The bronze rapier from Zwaagdijk, *gemeente* Wervershoof, prov. North Holland. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 14, pp. 44-52.

BUTLER, J.J., 1966. The bronze flanged axe from Alphen, Prov. Noord-Brabant. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 14, pp. 66-68.

BUTLER, J.J., 1969/1979. *Nederland in de Bronstijd.* 2nd ed. 1979. Bussum.

BUTLER, J.J., 1971. *Bronze Age grave groups and hoards of the Netherlands* (= Inventaria Archaeologica: the Netherlands, 2, set NL 11-16). Bonn.

BUTLER, J.J., 1973. Einheimische Bronzebeilproduktion im Niederrhein-Maasgebiet. *Palaeohistoria* 15, pp. 319-343.

BUTLER, J.J., 1984-1985. De IJzertijd-halsring uit Onstwedder Barlage (Gr.). *Groningse Volksalmanak*, pp. 146-159.

BUTLER, J.J., 1986. Drouwen: end of a 'Nordic' rainbow? *Palaeohistoria* 28, pp. 133-168.

BUTLER, J.J., 1987. Bronze Age connections: France and the Netherlands. *Palaeohistoria* 29, 9-34.

BUTLER, J.J. & J.A. BAKKER, 1961. A forgotten Middle Bronze Age hoard with a Sicilian razor from Ommerschans (Overijssel). *Helinium* 1, pp. 193-210.

BUTLER, J.J. & H. SARFATIJ, 1970-1971. Another bronze ceremonial sword by the Plougrescant-Ommerschans smith. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 20-21, pp. 301-309.

BUTLER, J.J. & I.F. SMITH, 1956. Razors, urns, and the British Middle Bronze Age. *Annual Report of the Institute of Archaeology* 12, pp. 20-52.

BUTLER, J.J. & J.D. VAN DER WAALS, 1966. Bell beakers and early metal-working in the Netherlands. *Palaeohistoria* 12, pp. 41-139.

BUTLER, J.J., J.N. LANTING & J.D. VAN DER WAALS, 1972. Anner Tol III: a four-period bell beaker and Bronze Age barrow at Schuilingsoord, gem. Zuidlaren, Drente. *Helinium* 12, pp. 225-241.

BUTTER, J., 1950. Podsolprofielen in de gemeente Ommen. *Verslagen en Mededeelingen van de Vereeniging voor Overijssels Regt en Geschiedenis* 66, pp. 1-??.

CASPARIE, W.A., 1972. Bog development in Southeastern Drenthe (the Netherlands). Thesis Rijksuniversiteit Groningen. 's-Gravenhage.

CASPARIE, W.A., 1984. The three Bronze Age footpaths XVI(Bou) and XVIII(Bou) in the raised bog of Southeast Drenthe. *Palaeohistoria* 26, pp. 41-99.

CASPARIE, W.A., 1987. Bog trackways in the Netherlands. *Palaeohistoria* 29, pp. 35-65.

CHRISTENSEN, K. & J. JENSEN, 1991. Egtvedpigens alder (The age of the Egtved girl: a dendrochronological project). *Nationalmuseets Arbejdsmark*, pp. 11-19.

CLARKE, D.V., T.G. COWIE & A. FOXON, 1985. *Symbols of power at the time of Stonehenge.* Edinburgh.

CLASON, A.T., 1964. The animal bones from the Bronze Age settlement of Zwaagdijk. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 14, pp. 44-52.

COBLENZ, W., 1985. Straubing und Aunjetitz. Bermerkungen zu einem neuen Depotfund aus Kyhna, Kr. Delitzsch. *Bayerische Vorgeschichtsblätter* 50, pp. 113-218.

COBLENZ, W., 1986. Ein frühbronzezeitlicher Verwahrfund von Kyhna, Kr. Delitzsch. *Arbeits- und Forschungsberichte zur sächsischen Bodendenkmalpflege* 30, pp. 37-88.

COLT-HOARE, R., 1810-1821; reprint 1975. *The ancient history of Wiltshire.* London.

DAVIES, G.D., 1968. A palstave and amber bead from Colchester, Essex. *Antiquaries Journal* 48, pp. 1-5.

DECHELETTE, J., 1910. *Manuel d'archéologie préhistorique, Celtique et Gallo-Romaine, II. Archéologie Celtique ou protohistorique. Age du Bronze.* Paris.

DEHN, W., 1941. *Kreuznach I-II* (= Katalog e west-und süddeutscher Altertumssammlungen VII). Berlin.
DEMAKOPOULOU, K. (ed.), 1988. *The Mycenaean world*. Athens.
DINGELDEIN, W.H., 1964. *Land van de Dinkel*. 4th ed. Enschede.
ECKERT, J., 1990. Ein Grabhügel derälteren Bronzezeit bei Wahnbek, Landkreis Ammerland. *Oldenburger Jahrbuch* 90, pp. 157-172.
EOGAN, G., 1983. *The hoards of the Irish later Bronze Age*. Dublin.
ESSEN, R., 1985. *Die Nadeln in Polen, II. Mittlere Bronzezeit* (= Prähistorische Bronzefunde XIII:9). München.
FEUSTEL, R., 1958. *Bronzezeitliche Hügelgräberkultur im Gebiet von Schwarza (Südthüringen)* (= Veröffentichungen des Museums für Ur- unbd Frühgeschichte Thüringens 1). Weimar.
FOX, C.F., 1941. The non-socketed sickles of Britain. *Archaeologia Cambrensis* 96, pp. 135-162.
FRANC, F.X., 1988. *St'áhlauer Ausgrabungen, 1890: Prehled nalezist' v oblasti Mze, Radbuzy, Uhlavya Klabavy, 1906*. Ed. by V. Saldová. Praha.
GALLAY, G., 1981. *Die kupfer- und altbronzezeitlichen Dolche und Stabdolche in Frankreich* (= Prähistorische Bronzefunde VI:5). München.
GALLAY, G., 1988. *Die mittel- und spätbronze- sowie ältereisenzeitlichen Bronzedolchen in Frankreich und auf den britischen Kanalinseln* (= Prähistorische Bronzefunde VI:7). München.
GALLAY, G., 1991. Review of Krause, 1988. *Germania* 69, pp. 204-207.
GANDERT, O.-F., 1955. Der Hortfund von Holzhausen (Landkreis Oldenburg). *Oldenburger Jahrbuch* 55, pp. 99-113.
GARDIN, C. DU, 1986. La parure d'ambre à l'âge du Bronze en France. *Bulletin de la Société Préhistorique Française* 83, pp. 546-580.
GASSMANN, P., 1991. Datation des couches archéologiques par l'analyse dendrochronologique des éclats de bois et chutes de taille: les sites de Saint Blaise/Bain des Dames et Hauterive-Champréveyres (Neuchâtel). *Jahresschrift der Schweizerischen Gesellschaft für Ur- und Frühgeschichte* 74, pp. 183-194.
GEDL, M., 1983. *Die Nadeln in Polen, I. Frühe und ältere Bronzezeit* (= Prähistorische Bronzefunde XIII:7). München.
GERHARTL-WITTEVEEN, A., A. KOSTER & L. SWINKELS (eds), 1989. *Schatkamer van Gelderse Oudheden*. Nijmegen.
GERLOFF, S., 1975. *The Early Bronze Age daggers in Great Britain, and a reconsideration of the Wessex Culture* (= Prähistorische Bronzefunde VI:2). München.
GIFFEN, A.E. VAN, 1925. De ligging der archaeologica in het hoogveen. In: *Handelingen van het XXste Ned. Natuur- en Geneeskundig Congres, gehouden te Groningen op 14, 15 en 16 april 1925*. Haarlem, pp. 265-268.
GIFFEN, A.E. VAN, 1925-1927. *De hunebedden in Nederland*. Utrecht.
GIFFEN, A.E. VAN, 1928. Naschrift over de prae- en proto-historische Hillegomse duinvondsten. In: R. Oppenheim, Zwerftochten in oer-Nederland, II. In de achterduinen (Zuid-Holland). *De Levende Natuur* 32, pp. 78-83.
GIFFEN, A.E. VAN, 1930. *Die Bauart der Einzelgräber* (= Mannus-Bibliothek 44-45). Leipzig.
GIFFEN, A.E. VAN, 1936a. De steenkransheuvel en de Paaschberg te Weerdinge, gem. Emmen. *Nieuwe Drentsche Volksalmanak* 54, pp. 112-116.
GIFFEN, A.E. VAN, 1936b. De zgn. Galgenberg en het kringgrepurnenveld in de boschwachterij Sleenerzand, gem. Sleen-Zweeloo. *Nieuwe Drentsche Volksalmanak* 54, pp. 104-110.
GIFFEN, A.E. VAN, 1940. De drie-periodenheuvel, de zgn. Galgenberg, boschwachterij 'Sleenerzand', gem. Sleen-Zweeloo. *Nieuwe Drentsche Volksalmanak* 58, pp. 207-209.
GIFFEN, A.E. VAN, 1941. Drie grafheuvels (I-III) W. van Vries. *Nieuwe Drentsche Volksalmanak* 59, pp. 115-119.
GIFFEN, A.E. VAN, 1943. Tumulus II, de zgn. Paaschberg, te Weerdinge, gem. Emmen. *Nieuwe Drentsche Volksalmanak* 61, pp. 94-97.
GIFFEN, A.E. VAN, 1944a (2nd ed.). Opgravingen in Drenthe tot 1941. In: J. Poortman (ed.), *Drenthe, een handboek voor het kennen van het Drentsche leven in voorbije eeuwen*. Meppel, pp. 393-568.
GIFFEN, A.E. VAN, 1944b. Grafheuvels te Zwaagdijk, gem. Wervershoof (N.H.). *West-Frieslands Oud en Nieuw* 17, pp. 121-231.
GIFFEN, A.E. VAN, 1945. Het kringgrepurnenveld en de grafheuvels O.Z.O. van Gasteren, gem. Anloo. *Nieuwe Drentsche Volksalmanak* 63, pp. 69-134.
GIMBUTAS, M., 1965. *Bronze Age cultures in Central and East Europe*. The Hague.
GLASBERGEN, W., 1954. Barrow excavations in the Eight Beatitudes: The Bronze Age cemetery between Toterfout and Halve Mijl, North-Brabant. *Palaeohistoria* 2-3, pp. I-XIV, 1-134, resp. 1-204.
GLASBERGEN, W., 1957. 'Preface' to Van Rendierjager tot Ontginner. *Nieuwe Drentse Volksalmanak* 75, pp. 1-2.
GLASBERGEN, W. & J.J. BUTLER, 1961. An Irish halberd from Roermond (Dutch Limburg). *Helinium* 1, pp. 55-57.
GREENWELL, W., 1902. On some rare forms of bronze weapons and implements. *Archaeologia 63*, pp. 1 ff.
GROENMAN-VAN WAATERINGE, W., 1966a. Palynologisch onderzoek van drie laat-neolithische tumuli te St. Walrick bij Overasselt (Gld.) In: *In het voetspoor van A.E. van Giffen*. Groningen, pp. 72-80.
GROENMAN-VAN WAATERINGE, W., 1966b. Nederzettingen van de Hilversumcultuur te Vogelenzang (N.H.) en Den Haag (Z.H.). In: *In het voetspoor van A.E. van Giffen*. Groningen, pp. 81-92.
GROENMAN-VAN WAATERINGE, W., 1974. Palynologische Untersuchungen von spätneolitischen und bronzezeitlichen Gräbhügeln bei Swalmen. *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* 55, pp. 112-119.
GROENMAN-VAN WAATERINGE, W. & J.F. VAN REGTEREN ALTENA, 1961. Een vuurstenen sikkel uit de voor-Romeinse ijzertijd te Den Haag. *Helinium* 1, pp. 141-146.
GIJN, A.L. VAN, 1984. The use of Bronze Age flint sickles in the Netherlands: a preliminary report. In: S. Beyries (ed.), *Industries lithiques: tracéologie et technologie* (= BAR Intern. Ser. 411). Oxford, pp. 197-218.
GIJN, A.L. VAN & H.T. WATERBOLK, 1984. The colonization of the salt marshes of Friesland and Groningen: the possibility of a transhumance prelude. *Palaeohistoria* 26, pp. 101-122.
HACHMANN, R., 1957a. *Die frühe Bronzezeit im westlichen Ostseegebiet und ihre mittel- und südosteuropäische Beziehungen. Chronologische Untersuchungen* (= Beihefte zum Atlas der Urgeschichte 6). Hamburg.
HACHMANN, R., 1957b. Bronzezeitliche Bernsteinschieber. *Bayerische Vorgeschichtsblätter* 22, pp. 1-36.
HACKE-OUDEMANS, J.J., 1963. Een bronzenzwaard uit de omgeving van Putten. *Westerheem* 12, pp. 48-50.
HAHNE, H., 1909. Bericht über die Ausgrabung von Hügeln bei Wohlde, Kr. Celle. *Jahrbuch des Provinzial-Museums zu Hannover 1908-1909*, pp. 57-67
HÄNSEL, B., 1968. *Beiträge zur Chronologie der mittleren Bronzezeit im Karpathenbecken I-II* (= Beiträge zur ur- und frühgeschichtlichen Archäologie des Mittelmeer-Kulturraums Heidelberg 8). Bonn.
HARBISON, P., 1968. Irish Early Bronze Age exports found on the continent and their derivatives. *Palaeohistoria* 14, pp. 173-186.
HARBISON, P., 1969a. *The daggers and the halberds of the Early Bronze Age in Ireland* (= Prähistorische Bronzefunde VI:1). München.
HARBISON, P., 1969b. *The axes of the Early Bronze Age in Ireland* (= Prähistorische Bronzefunde IX:1). München.
HARDING, A.F., 1984. *The Myceneans and Europe*. London.
HARDING, A. & H. HUGHES-BROCK, 1974. Amber in the Mycenaean world. *Annual of the British School of Archaeology at Athens* 69, pp. 145-172.
HARTMANN, A., 1982. *Prähistorische Goldfunde aus Europa. II. Spektralanalytische Untersuchungen und deren Auswertung* (= Studien zu den Anfängen der Metallurgie 5). Berlin.
HAWKES, C.F.C. (ed.), 1956. *Grave-groups and hoards of the British Bronze Age* (= Inventaria Archaeologica. Great Britain, 1st set, GB 1-8). London.

HEEMSKERCK DÜKER, W.F. VAN & P. FELIX, 1942 (3rd ed.). *Wat aarde bewaarde. Vondsten uit onze vroegste geschiedenis.* Den Haag.

HEERINGEN, R.M. VAN, 1978. Een faience-kraal uit Vogelenzang en een glazen kraal uit Ermelo. *Westerheem* 27, pp. 284-290.

HENCKEN, H., 1932. *The archeology of Cornwall and Scilly.* London.

HENNIG, H., 1970. *Die Grab- und Hortfunde der Urnenfelderkultur aus Ober- und Mittelfranken* (= Materialhefte zur Bayerischen Vorgeschichte 23). Kallmünz.

HERRMANN, F.-R., 1970-1971. Der spätbronzezeitliche Hortfund von Henfenfeld in Mittelfranken. *Jahrbuch Bayerische Bodendenkmalpflege* 11-12, pp. 75-96.

HOCHULI, S., 1991. Zur Datierung der früh- und mittelbronzezeitlichen Siedlungsstelle 'Bleiche 2' bei Arbon TG. *Jahresschrift Schweizer. Gesellschaft für Ur- und Frühgeschichte* 74, pp. 107-114.

HOLSTE, F., 1953. *Die bronzezeitlichen Vollgriffschwerter Bayerns* (= Münchener Beiträge zur Vor- und Frühgeschichte 4). München.

HOLWERDA, J.H., 1908. Bronsdepotvondst bij Voorhout. *Oudheidkundige Mededelingen Rijksmuseum van Oudheden te Leiden* 2, pp. 45-46.

HOLWERDA, J.H., 1927. 'Note under Ommen'. *Verslag Directeur Rijksmuseum van Oudheden Leiden over 1927*, p. 12.

HOOIER, C.R., 1959 (2nd rev. ed. 1961). Grafheuvels uit de bronstijd te Holset bij Vaals (L). In: W. Glasbergen & W. Groenman-van Waateringe (eds), *In het voetspoor van A.E. van Giffen.* Groningen, pp. 95-97.

HORST, F., 1987. Das mittelbronzezeitliche Hügelgräberfeld von Weitgendorf, Kr. Pritzwalk. *Veröffentlichungen des Museums für Ur- und Frühgeschichte Potsdam* 21, pp. 131-144.

HOUSLEY, R.A. & R.E.M. HEDGES, 1989. Radiocarbon dating. In: P. Ashbee, M. Bell & E. Proudfoot, *Wilsford shaft: Excavations 1960-62* (= Archaeological report 11). London, pp. 68-71.

HUIZINGA, J., 1964. Preliminary physical anthropological investigations. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 14, pp. 35-36.

HULST, R., 1971. *Garderen: Grafheuvels op de Bergsham* (= Archeologische Monumenten in Nederland 2). Bussum/Amersfoort.

HULST, R.S., 1989. Archeologische kroniek van Gelderland 1988. *Bijdragen en Mededelingen van de Vereniging Gelre* 80, pp. 141-160.

HIJSZELER, C.C.W.J., 1970. De pre- en protohistorie van Twente. In: B.H. Slicher van Bath et al., *Geschiedenis van Overijssel.* Deventer, pp. 37-49.

HIJSZELER, C.C.J.W., 1981. Graven in historie. In: H. Schelhaas, B. Molenaar & A. Dekkers (eds), *Graven en begraven in Overijssel* (= Jaarboek Overijssel). Zwolle, pp. 19-39.

JACOB-FRIESEN, G., 1954. Der älterbronzezeitliche Hortfund von Wildeshausen. *Oldenburger Jahrbuch* 54, pp. 27-38.

JACOB-FRIESEN, G., 1967. *Bronzezeitliche Lanzenspitzen Norddeutschlands und Skandinaviens* (= Veröffentlichungen der urgeschichtlichen Sammlungen des Landesmuseums zu Hannover 17). Hildesheim.

JOCKENHÖVEL, A., 1971. *Die Rasiermersser in Mitteleuropa* (= Prähistorische Bronzefunde VIII:1). München.

JOCKENHÖVEL, A., 1975. Zum Beginn der Jungebronzezeitkultur in Westeuropa. *Jahresberichte des Instituts für Vorgeschichte der Universität Frankfurt a.M.* pp. 134-181.

JOCKENHÖVEL, A., 1980. *Die Rasiermesser in Westeuropa* (= Prähistorische Bronzefunde VIII:3). München.

JUNGHANS, S., E. SANGMEISTER & M. SCHRÖDER, 1960. *Metallanalysen kupferzeitlicher und frühbronzezeitlicher Bodenfunde aus Europa.* Berlin.

KALTOFEN, A., 1985. *Die ur- und frühgeschichtliche Sammlung des Kreisheimatmuseums Lingen/Ems* (= Materialhefte zur Ur- und Frühgeschichte Niedersachsens 20). Hildesheim.

KEEFER, E., 1990. Die 'Siedlung Forschner' am Federsee und ihre mittelbronzezeitlichen Funde. *Prähistorische Zeitschrift* 71, pp. 38-46.

KEILING, H., 1989. *35 Jahre Museum für Ur- und Frühgeschichte Schwerin* (Archäologische Funde und Denkmale aus den Norden der DDR; Museumskatalog 8). Schwerin.

KELLER-TARNUZZER, K., 1952. Weiningen. *Jahrbuch der Schweizerischen Gesellschaft für Urgeschichte* 42, pp. 68-70.

KERSTEN, K., 1936. *Zur älteren nordischen Bronzezeit.* Neumünster.

KERSTEN, K., 1958. *Die Funde der älteren Bronzezeit in Pommern* (= Beiheft zum Atlas der Urgeschichte 7). Hamburg.

KIBBERT, K., 1980. *Die Äxte und Beile im mittleren Westdeutschland I* (= Prähistorische Bronzefunde IX:10). München.

KIBBERT, K., 1984. *Die Äxte und Beile im mittleren Westdeutschland II* (= Prähistorische Bronzefunde IX:13). München.

KRAUSE, R., 1988. *Die endneolithischen und frühbronzezeitlichen Grabfunde auf der Nordstadtterrasse von Singen am Hohentwiel I* (= Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg 32). Stuttgart.

KRAUSE, R., B. BECKER & B. KROMER, 1989. Zur absoluten Chronologie der frühen Bronzezeit. *Germania* 67, pp. 421-442.

KUBACH, W., 1973. Zwei Gräber mit 'Sögeler' Ausstattung aus der deutschen Mittelgebirgszone. *Germania* 51, pp. 403-417.

KUBACH, W., 1977. *Die Nadeln in Hessen und Rheinhessen* (= Prähistorische Bronzefunde XIII:3). München.

KÜHN, H.J., 1979. *Das Spätneolithikum in Schleswig-Holstein* (= Offa-Bücher 40). Neumünster.

KUILE, G.J. TER, 1924. Verslag der ledenvergadering, gehouden op 6 November 1923 te Almelo. *Verslagen en Mededeelingen van de Vereeniging tot Beoefening van Overijsselsch Regt en Geschiedenis* 41, pp. XXI-XXIII.

KYTLICOVA, O., 1964. Zur Zeitstellung der Depotfunde des Horizonts Plzen-Jihalka. *Archeologiské Rozhledy* 16, pp. 516-556.

LAET, S.J. DE, 1958. *The Low Countries* (= Ancient peoples and places 5). London.

LAET, S.J. DE & W. GLASBERGEN, 1959. *De voorgeschiedenis der Lage Landen.* Groningen.

LANTING, J.N. & W.G. MOOK, 1977. *The pre- and protohistory of the Netherlands in terms of radiocarbon dates.* Groningen.

LANTING, J.N. & J.D. VAN DER WAALS, 1974. Oudheidkundig onderzoek bij Swalmen, I. Praehistorie. *Oudheidkundige Mededelingen Rijksmuseum van Oudheden te Leiden* 55, pp. 1-111.

LAUX, F., 1971. *Die Bronzezeit in der Lüneburger Heide* (= Veröffentlichungen der urgeschichtlichen Sammlungen des Landesmuseums zu Hannover 18). Hildesheim.

LAUX, F., 1976. *Die Nadeln in Niedersachsen* (= Prähistorische Bronzefunde XIII:4). München.

LAUX, F., 1989. Reiche Männergräber aus Gülzow, Kr. Herzogtum Lauenburg. Ein Beitrag zur regionalen Gruppengliederung im südlichen Holstein während der älteren und mittleren Bronzezeit. *Offa* 46, pp. 51-72.

LAUX, F., 1990. Zur älteren und mittleren Bronzezeit in Niedersachsen. In: V. Furmanek & F. Horst (eds), *Beiträge zur Geschichte und Kultur der mitteleuropäischen Bronzezeit*, I-II. Berlin/Nitra, pp. 275-294.

LIVERSAGE, D. & M., 1990. On distinguishing Materialgruppen in Early Bronze Age copper: the case of Vycapy-Opatovce. *Památky Archeologické* 81, pp. 466-475.

LIVERSAGE, D. & M., in press. Impurity patterns and cultural history, an inquiry into compositional patterns in the Bronze Age (typescript kindly made available by authors).

LOHOF, E., 1991. I. Grafritueel en sociale verandering in de bronstijd van Noordoost-Nederland. II. Catalogus van bronstijd-grafheuvels uit Noordoost-Nederland. Duplicated doctoral dissertation. Amsterdam.

LOMBORG, E., 1959. Donauländische Kulturbeziehungen und die relative Chronologie der frühen nordischen Bronzezeit. *Acta Archaeologia* 30, pp. 51-146.

LOMBORG, E., 1968. Den tidlige bronzealders kronologi. *Aarbøger*, pp. 91-152.

LORJÉ, J., 1908. Geologische beschouwingen over de vondst der bronzen bij Voorhout. *Oudheidkundige Mededeelingen Rijksmuseum te Leiden* 2, pp. 46-50.

LOWTHER, A.W.G., 1939. Early Bronze Age – Pagan Saxon period. In: *A survey of the prehistory of the Farnham district.* Guildford, pp. 153-260.

MacWHITE, E., 1944. Amber in the Irish Bronze Age. *Journal of the Cork Historical and Archaeological Society* 49, pp. 122-127.

MADSEN, O., 1988-1989. Grønlund. A mound with a chamber-grave and other graves from the Bronze Age at Grønlund. *Kuml*, pp. 97-118.

MAIER, R., 1974. *Ur- und frühgeschichtliche Denkmäler und Funde aus Ost-Friesland* (= Wegweiser zur Vor- und Frühgeschichte Niedersachsens 8). Hildesheim.

MARIËN, M.-E., 1952. *Oud-België. Van de eerste landbouwers tot de komst van Caesar*. Antwerpen.

MARIËN, M.-E., 1956. Petit ensemble d'objets de l'age du bronze final trouvés à Bois-de-Lessines (Hain.). *Revue belge d'archeologie et d'histoire de l'art* 25, pp. 77-103.

MILOJČIČ, V., 1955. Neue Bernsteinschieber aus Griechenland. *Germania* 33, pp. 316-319.

MILOTTE, J.-P., G. CORDIER & P. ABAUZIT, 1968. Essai de typologie protohistorique: les haches à aillerons médians. *Revue Archéologique de l'Est et du Centre-Est* 19, pp. 7-68.

MODDERMAN, P.J.R., 1959. Een 'Hilversum' pot met wikkeldraadstempel versierd en een bronzen naald uit Vorstenbosch (N.Br.). *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 9, pp. 288-289.

MODDERMAN, P.J.R., 1960-1961. Een palstave uit Epe, Gelderland. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 10-11, pp. 546-548.

MODDERMAN, P.J.R., 1964. Middle Bronze Age graves and settlement traces at Zwaagdijk, *gemeente* Wervershoof, prov. North Holland; with an appendix by J. Huizinga. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 14, pp. 27-36.

MOHEN, J.-P., 1972. Que savons-nous de l'Age du Bronze dans le Nord de la France? *Bulletin de la Société Préhistorique Française* 69, pp. 444-464.

MOLHUIJSEN, P.C., 1844. Eene Romeinsche legerplaats bij Ootmarsum. *Overijsselsche Almanak voor Oudheid en Letteren 9*, pp. 169-185.

MORDANT, D., 1966. Les enclos funéraires protohistoriques de Gravon (Marne). *Revue Archéologique de l'Est* 17, pp. 47-69.

MOZSOLICS, A., 1967. *Bronzezeit des Karpathenbeckens: Depotfundhorizonte von Hajdúsámson und Kosziderpadlás*. Budapest.

MULDER, J.W., 1889. Overblijfselen der oudheid in Overijssel. *Verslagen en Mededeelingen van de Vereeniging tot Beoefening van Overijsselsch Regt en Geschiedenis* (2e afd.) 17, pp. 1-15.

MÜLLER-KARPE, H., 1980. *Handbuch der Vorgeschichte. IV. Bronzezeit*. München.

MYLONAS, G., 1972. *Ho taphikos kyklos B ton Mykinon*. Athens.

NEEDHAM, S.P., M.N. LEESE, D.R. HOOK & M.J. HUGHES, 1988. Developments in the Early Bronze Age metallurgy of southern Britain. *World Archaeology* 20, pp. 383-402.

NEUGEBAUER-MARESCH, C. & J.-W. NEUGEBAUER, 1988-1989. Goldobjekte aus den Frühbronzezeitnekropole Franshausen I und II und Gemeinlebarn F. *Mitteilungen der anthropologischen Gesellschaft Wien* 118-119, pp. 101-134.

NEUGEBAUER, J.W. & C. NEUGEBAUER-MARESCH, 1990. Überblick über die frühe und mittlere Bronzezeit in Österreich. In: V. Furmanek & F. Horst (eds), *Beiträge zur Geschichte und Kultur der mitteleuropäischen Bronzezeit*, I-II. Berlin/Nitra, pp. 309-349.

NICHOLSON, S.M., 1980. *Catalogue of the prehistoric metalwork in Merseyside County Museums*. Liverpool.

NORTHOVER, J.P., 1977. Bronze in the British Bronze Age. In: W.A. Oddy (ed.), *Aspects of early metallurgy*. London, pp. 63-70.

O'CONNOR, B., 1980. *Cross-Channel relations in the later Bronze Age* (= BAR Intern. Ser. 91). Oxford.

OOSTERWALDER, C., 1971. *Die mittlere Bronzezeit im schweizerischen Mittelland und Jura*. Basel.

OPPENHEIM, R., 1927. Zwerftochten in Oer-Nederland, II. In de achterduinen (Zuid-Holland). *De Levende Natuur* 32, pp. 74-78.

O RIORDAIN, S.P., 1939. The halberd in Bronze Age Europe. *Archaeologia* 86, pp. 195-321.

PARE, C., 1991. *Swords, wagon-graves, and the beginning of the Early Iron Age in Central Europe* (= Kleine Schriften aus dem Vorgeschichtlichen Seminar der Philipps-Universität Marburg). Marburg.

PEARCE, S.M., 1971. A late Bronze Age hoard from Glentanar, Aberdeenshire. *Proceedings of the Society of Antiquaries of Scotland* 103, pp. 53-64.

PEARCE, S.M., 1979. Amber beads from the late Bronze Age hoard from Glentanar, Aberdeenshire. *Proceedings of the Society of Antiquaries of Scotland* 108, pp. 124-129.

PIESKER, H., 1937. Funde aus der ältesten Bronzezeit der Heide. *Nachrichten aus Niedersachsens Urgeschichte* 11, pp. 120-143.

PIESKER, H., 1958. *Untersuchungen zur älteren Lüneburger Bronzezeit*. Lüneburg.

PIGGOTT, C.M., 1949. A Late Bronze Age hoard from Blackrock in Sussex and its significance. *Proceedings of the Prehistoric Society* 15, pp. 107-121.

PIRLING, R., U. WELS-WEYRAUCH & A. ZÜRN, 1980. *Die mittlere Bronzezeit auf der schwäbischen Alb* (= Prähistorische Bronzefunde XX:3). München.

PLEYTE, W., 1889. *Nederlandsche Oudheden. Gelderland*. Leiden.

PLEYTE, W., 1902. *Nederlandsche Oudheden. West-Friesland*. Leiden.

PRIMAS, M., 1986. *Die Sicheln in Mitteleuropa. I. Österreich, Schweiz, Süddeutschland* (= Prähistorische Bronzefunde XVIII:2). München.

RAVESCHOT, P., 1973. Bronzen vleugel- en hulsbijlen uit de bronstijd en de vroege ijzertijd in België, I-III. Duplicated thesis, Univ. of Ghent.

REMOUCHAMPS, A.E., 1925. Een vondst uit Nieuw-Weerdinge Drenthe. *Oudheidkundige Mededelingen uit 's Rijksmuseum van Oudheden te Leiden* 6, pp. 32-35.

RICHTER, I., 1970. *Der Arm- und Beinschmuck der Bronze- und Urnenfelderzeit in Hessen und Rheinhessen* (= Prähistorische Bronzefunde X:1). München.

RÍHOVSKÝ, J., 1989. *Die Sicheln in Mähren* (= Prähistorische Bronzefunde XVIII:3). München.

RITTERSHOFER, K.-F., 1983. Der Hortfund von Bühl und seine Beziehungen. *Bericht der Römisch-Germanischen Kommission* 64, pp. 139-415.

RÖSCHMANN, J., 1963. *Vorgeschichte des Kreises Flensburg*. Neumünster.

ROTH, H., 1974. Ein Ledermesser der atlantischen Bronzezeit aus Mittelfranken. *Archäologisches Korrespondenzblatt* 4, pp. 37-47.

ROWLANDS, M.J., 1976. *The production and distribution of metalwork in the Middle Bronze Age in southern Britain, I-II* (= BAR Intern. series 31). Oxford.

RUCKDESCHEL, W., 1978. *Die frühbronzezeitlichen Gräber Südbayerns: ein Beitrag zur Kenntnis der Straubinger Kultur* (= Antiquitas Reihe 2, Abh. aus dem Gebiete der Vor- und Frühgeschichte 11). Bonn.

RUNIA, L.T., 1986. Zwaagdijk. In: Archaeologisch Nieuws, *Bulletin KNOB* 85: 2, pp. 137-138.

RUNIA, L.T., 1987. *The chemical analysis of prehistoric bones: a palaeodietary and ecoarchaeological study of Bronze Age West-Friesland* (= BAR Intern. Series 363). Oxford.

SANDEN, W.A.B. VAN DER (ed.), 1990. *Mens en moeras. Veenlijken in Nederland van de bronstijd tot en met de Romeinse tijd*. Assen.

SCHAEFFER, C.F.A., 1948. *Stratigraphie comparée et chronologie de l'Asie Occidentale (IIIe et II millénaire)*. London.

SCHAUER, P., 1971. *Die Schwerter in Süddeutschland, Österreich und der Schweiz* (= Prähistorische Bronzefunde IV:2). München.

SCHAUER, P., 1972. Ein westeuropäisches Bronzeschwert aus dem Main bei Frankfurt-Höchst. *Germania* 50, pp. 16-29.

SCHAUER, P., 1984. Spuren minoisch-mykenischen und orientalischen Einflusses im atlantischen Westeuropa. *Jahrbuch Römisch-Germanischen Zentralmuseums Mainz* 31, pp. 137-186.

SCHAUER, P., 1990. Schutz- und Angriffwaffen bronzezeitlicher Krieger im Spiegel ausgewählter Grabfunde Mitteleuropas. In: V. Furmánek & F. Horst (eds), *Beiträge zur Geschichte und Kultur der mitteleuropäischen Bronzezeit*, I-II. Berlin/Nitra, pp. 381-410.

SCHLABOW, K., 1974. Vor- und frühgeschichtliche Textilfunde aus dem nördlichen Niederlanden. *Palaeohistoria* 16, pp. 169-222.

SCHMIDT, P.K. & C.B. BURGESS, 1981. *The axes of Scotland and northern England* (= Prähistorische Bronzefunde IX:7). München.
SCHUBART, H., 1972. *Die Funde der älteren Bronzezeit in Mecklenburg* (= Offa-Bücher 26). Neumünster.
SCHÜNEMANN, D., 1975. Die ältere und die mittlere Bronzezeit im Kreis Verden. Urgeschichte des Kreises Verden V. *Nachrichten aus Niedersachsens Urgeschichte* 44, pp. 35-85.
SHENNAN, S., 1982. Exchange and ranking: the role of amber in the earlier Bronze Age of Europe. In: C. Renfrew & S. Shennan (eds), *Ranking, resource and exchange; aspects of the archaeology of Early European society*. Cambridge, pp. 33-45.
SMITH, M.A., 1959a. Some Somerset hoards and their place in the Bronze Age of southern Britain. *Proceedings of the Prehistoric Society* 25, pp. 144-187.
SMITH, M.A. (ed.), 1959b. *Middle Bronze Age hoards from southern England* (= Inventaria Archaeologica. Great Britain, 7th set: GB,42-47). London.
SPROCKHOFF, E., 1930. Hügelgräber bei Vorwohlde im Kreise Sulingen. *Prähistorische Zeitschrift* 21, pp. 193-236.
SPROCKHOFF, E., 1941. Niedersachsens Bedeutung für die Bronzezeit Westeuropas. Zur Verankerung einer neuen Kulturprovinz. *Bericht der Römisch-Germanischen Kommission* 31 (Teil II), pp. 1-138.
SPROCKHOFF, E., 1956. *Jungbronzezeitliche Hortfunde der Südzone des nordischen Kreises (Periode V)* (= Römisch-Germanisches Zentralmuseum zu Mainz Katalog 16). Mainz.
STAPERT, D., 1988. Een sikkel en een halffabrikaat van Middelstum-Boerdamsterweg. In: M. Biermae al. (eds), *Terpen en wierden in het Fries-Groningse kustgebied*. Groningen, pp. 36-49.
STEIN, F., 1976. *Bronzezeitliche Hortfunde in Süddeutschland* (= Saarbrücker Beiträge zur Altertumskunde 23). Bonn.
STEIN, F., 1979. *Katalog der vorgeschichtlichen Hortfunde in Süddeutschland* (= Saarbrücker Beiträge zur Altertumskunde 24). Bonn.
STRUVE, K.W., 1971. *Geschichte Schleswig-Holsteins II:1: Die Bronzezeit, Periode I-III*. Neumünster.
SÜDHOLZ, G., 1964. *Die ältere Bronzezeit zwischen Niederrhein und Mittelweser* (= Münstersche Beiträge zur Vorgeschichtsforschung 1). Hildesheim.
TACKENBERG, K., 1927. Das erste Auftreten der Leichenverbrennung in Schlesien. *Alt-Schlesien* 2, pp. 13-32.
TACKENBERG, K., 1971. *Die jüngere Bronzezeit in Nordwestdeutschland. 1. Die Bronzen* (= Veröffentlichungen der urgeschichtlichen Sammlungen des Landesmuseums zu Hannover 19). Hildesheim.
TACKENBERG, K., 1985. *Westfalen in der Urgeschichte: 45 Fundkarten vom Paläolithikum bis in der Zeit um Christi Geburt*. Münster.
THERKORN, L.L. & W. BOSMAN, 1990. *Archeologische opgravingen in Velsen*. pp. 2-10.
TORKE, W., 1990. Abschlussbericht zu den Ausgrabungen in der 'Siedlung Forschner' und Ergebnisse der Bauholzuntersuchung. *Prähistorische Zeitschrift* 71, pp. 52-57.
VANKILDE, H., 1988. A Late Neolithic hoard with objects of bronze and gold from Skeldal, Central Jutland. *Journal of Danish Archaeology* 7, pp. 113-135.
VANKILDE, H., 1990. Metal analyses of the Skeldal hoard and aspects of early Danish metal use. *Journal of Danish Archaeology* 9, pp. 114.
VEEN, M. VAN DER & J.N. LANTING, 1989. A group of tumuli on the 'Hooghalen' estate near Hijken (municipality of Beilen, province of Drenthe, the Netherlands). *Palaeohistoria* 31, pp. 191-234.
VERLINDE, A.D., 1987. Die Gräber und Grabfunde der späten Bronzezeit und frühen Eisenzeit in Overijssel. Diss., Leiden.
VERWERS, W.J.H., 1990. *Archeologische kroniek van Noord-Brabant 1985-1987* (= Bijdragen tot de studie van het Brabants Heem 34). Waalre.
VINE, P.M., 1982. *The Neolithic and Bronze Age cultures of the Middle and Upper Trent Basin* (= BAR Britischseries 105). Oxford.
VONS, P., 1970. De vervaardiging van barnsteen-kralen te Velsen in de vroege bronstijd. *Westerheem* 19, pp. 34-35.
WAALS, J.D. VAN DER, 1972-1973. Vondsten van de Uitwedsmee bij Onstwedde. *Groningse Volksalmanak*, pp. 167-182.
WAALS, J.D. VAN DER & J.J. BUTLER, 1976. Bargeroosterveld. In: H. Beck u.a. (eds), *Reallexikon der germanischen Altertumskunde von Joh. Hoops*, 2nd ed., 2. Berlin/New York, pp. 54-58.
WACE, A.J.B., 1932. *Chamber tombs at Mycenae* (= Archaeologia 82). London.
WARMENBOL, E., 1990. Un petit dépôt du Bronze final découvert à Yvoir (Namur). *Helinium* 30, pp. 79-92.
WARREN, P. & V. HANKEY, 1989. *Aegean Bronze Age chronology*. Bristol.
WATERBOLK, H.T., 1977. De prehistorie. In: J.A. Bornewesser et al. (eds), *Winkler Prins geschiedenis der Nederlanden. I. Van de prehistorie tot de Bourgondische periode*. Amsterdam, pp. 11-46.
WATERBOLK, H.T., 1985. Archeologie in Drenthe. In: J. Heringa et al., *Geschiedenis van Drenthe*. Meppel, pp. 15-90.
WATERBOLK, H.T., 1988. Zomerbewoning in het terpengebied? In: M. Bierma et al. (eds), *Terpen en wierden in het Fries-Groningse kustgebied*. Groningen, pp. 1-19.
WATERBOLK, H.J. & H.T. WATERBOLK, 1991. Amber on the coast of the Netherlands. In: *Liber Amicorum Jacques A.E. Nenquin* (= Studia Archaeologica). pp. 201-209.
WEBER, C., 1991. Eine neue bronzezeitliche Radnadel vom Niederrhein. *Archäologie im Rheinland* 1990, pp. 30-31.
WESSE, A., 1990. *Die Ärmchenbeile der alten Welt. Ein Beitrag zum Beginn der Eisenzeit im östlichen Mitteleuropa* (= Universitätsforschungen zur prähistorischen Archäologie, 3. Aus dem Institut für Ur- und Frühgeschichte der Universität Kiel). Bonn.
WELS-WEYRAUCH, U., 1978. *Die Anhänger und Halsringe in Südwest-Deutschland und Nordbayern* (= Prähistorische Bronzefunde XI:1). München.
WILHELMI, K., 1979. Zu den Bronzeringen und Bernsteinperlen im Depot von Lienen-Kattenvenne, Kreis Steinfurt. *Archäologisches Korrespondenzblatt* 9, pp. 303-311.
WILHELMI, K., 1983. *Die jüngere Bronzezeit zwischen Niederrhein und Mittelweser* (= Kleine Schriften aus dem urgeschichtlichen Seminar Marburg 15). Marburg.
WILROTH, K.A., 1985. *Die Hortfunde der älteren Bronzezeit in Südschweden und auf den dänischen Inseln*. Neumünster.
WOLTERING, P.J., 1973. Wonen rond de Hoge Berg: prehistorie en vroegste geschiedenis van Texel. *Texel* 6 (2), pp. 2-20.
WOLTERING, P.J., 1974. 2000 jaar wonen: opgravingen op Texel. *Spiegel Historiael* 9, pp. 322-325.
WRIGHT, E., 1990. *The Ferriby boats: seacraft of the Bronze Age*. London.
YPEY, J., 1956. Een bronzen zwaard uit de omgeving van Putten. *Westerheem* 5, pp. 103-107.
ZEIST, W. VAN, 1955. Pollen analytical investigations in the northern Netherlands, with special reference to archaeology. Thesis Utrecht. Amsterdam (also as: *Acta Botanica Neerlandica* 4, 1955, pp. 1-81).

APPENDIX 1: The Wageningen hoard – Find circumstances

These are described in a letter of G.P. Versteegh dated Wageningen, 9 March 1841, to L.J.F. Janssen in the Rijksmuseum van Oudheden, Leiden, accompanied by drawings of all the objects. Versteegh writes that they were "found in a piece of heath ground, which lies at a half hour's distance northeast of this town (Wageningen), belonging to Mr. J. van Rijn, Alderman here, on the occasion of the trenching or draining of that piece of ground to the depth of one Dutch el [1 meter-ed.] for the planting of oak trees; at approximately the half of that depth, and all lying close together". The date of the find is stated by Versteegh to be the beginning of the previous December, i.e. 1840.

This letter was preserved not in the RMO, but in the Janssen correspondence in the Manuscripts Room of the University Library, Leiden (reference B.P.L. 944III/V-Z, in the file 'Wageningen'). The

same information was noted in the Leiden museum accessions register when the hoard was acquired by the museum in June 1841. But the museum cataloger failed to take over the phrase "all lying close together", which has occasionally given rise to needless uncertainty on this point. Further confusion has arisen from the coupling on one plate by Pleyte (1889: p. 49, Pl. XI:5-9) of the hoard with a beaker-like vessel, which was also found at Wageningen, but not at the same time or as part of the same find. This vessel does not seem to have reached the museum and its fate is unknown; in any case, it has nothing to do with the hoard.

Cadastral records show that Alderman Van Rijn owned a number of parcels of heath and woods northeast of Wageningen at the time; of these, two parcels lies at a distance from the town of c. 2.5 km, and could accordingly have been described as having been 'half an hour' away; the other parcels are at a greater distance. It is likely, therefore, that the actual find-spot lies on one of these two parcels, both of which are shown as wooded on the 1:50,000 topographical map of 1850, surveyed in 1847. The two parcels are some 300 m distant from one another. The actual find-spot can, therefore, be approximately located.

Extract letter G.P. Versteegh to L.J.F. Janssen (original Dutch text):

... Nu overgaande tot de beantwoording van Uw waard schrijven, is dienende, dat in het begin der jongstledene Maand December, de voorwerpen op nevensgaande, ter bezichtiging overgezonden worden, de tekening voorgesteld, gevonden zijn geworden op een stuk heidegrond, op een half uur afstands ten noordoosten van deze stad gelegen, toebehoorende aan den Heer J. van Rijn, wethouder alhier, bij gelegenheid van het ter beplanting met eiken takken, eene nederl. el diep, ontgraven of riolen van denzelven grond, en wel, ongeveer op de helft dier diepte, en allen kort nabij elkander ...

APPENDIX 2: The Veenenburg hoard – Text letter of W. Leembruggen dated 'Veenenburg', Lisse, 23 March 1897, to Rijksmuseum van Oudheden (see also table 4)

Zeer Geachte Heer Jesse,

Het deed mij veel genoegen uit Uw geëerde letteren van gisteren de belangstelling te mogen vernemen van Dr. Pleyte in de hier gevonden bronzen voorwerpen en hoop ik dat de schetstekeningen met aanduiding der vindplaats en omschrijving welke ik hierbij voeg, tegemoet komt aan de wenschen van den Directeur. Indien de schets niet voldoende, ben ik gaarne bereid bij gelegenheid dat ik weer eens in Leiden kom een en ander Dr. Pleyte te laten zien, en hoop ZEW dan geheel hersteld te mogen ontmoeten.

W. Leembruggen

Deze voorwerpen zijn allen van brons, en gevonden 12 maart 1897 in de z.g. Spoorzanderij onder Hillegom, van het landgoed Veenenburg, hetwelk gelegen is in de Gemeenten Lisse en Hillegom, op eene afstand van 170 M van de grenspaal tusschen Hillegom en Lisse, die staat aan den Rijksstraatweg van Haarlem naar Leiden, in eene richting van ±10° ten Westen-Noord van genoemde grenspaal. Zij lagen allen bijeen op eene diepte van ±40 cm onder de oppervlakte eener zeer harde darie (een soort veenachtige) laag, die op zichzelf eene oppervlakte had van ±$^1/_{12}$ Hectare, dik was ±$^1/_2$–1$^1/_2$ M en gelegen van ±5cm: +Amst.Peil tot ±1.45–AP. Vóóreen 30 à 40 tal jaren bevonden zich boven die veenlaag duinen ter hoogte van ±3 Meter.

Van A-B-C-D-E en F aanwezig elk één voorwerp	=6 stuks
Van G behalve den 4 geteekende nog 2, te zamen	=6 stuks
Van H in 't geheel	±13 stuks van dezelfde grootte
Totaal	25 stuks

Translation by J.J.B.:

Greatly esteemed Mr Jesse,

I was very pleased to learn from your valued letters of yesterday of the interest of Dr. Pleyte in the bronze objects found here, and hope that the sketch with indication of the find spot and description which I hereby enclose meets with the wishes of the Director. If the sketch is not sufficient I am gladly willing on an occasion that I again come to Leiden to let Dr. Pleyte see the things, and hope to be able to find him completely recovered.

(was signed W. Leembruggen)

These objects are all of bronze, and found 12 March 1897 in the so-called 'Rail Sandpit' (Spoorzanderij) at Hillegom, of the Estate Veenenburg, which is situated in the Gemeenten Lisse and Hillegom, at a distance of 170 M. from the boundary post between Hillegom and Lisse, which stands along the national highway from Haarlem to Leiden, in a direction ±10° west of north from the boundary post named. They lay all together at a depth of ±40 cm under the surface of a very hard dari (a sort of peaty) layer, which of itself had a surface of ±$^1/_{12}$ hectare, was ±$^1/_2$-1$^1/_2$ M thick, and situated from ± plus 5 cm Amsterdam datum to ± minus 1.45 Amsterdam datum. 30 or 40 years ago there were above this peat layer dunes to a height of ± 3 meters.

Of A-B-C-D-E and F one object each is present	= 6 pieces
Of G, besides the 4 drawn, another 2, together	= 6 pieces
Of H all told	= 13 of same size
Total	25 pieces