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THE CORDED WARE CULTURE IN THE LIGHT OF NEW STRATIGRAPHIC EVIDENCE

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Excavations of four barrows in the Małopolska Uplands, at Mierzanów I and II, Kolosy and Żerniki Górne have produced new stratigraphic evidence that has made it possible to establish much more precisely the periodisation of the Corded Ware culture in that part of Poland. Two periods have been distinguished: I — the barrow period, and II — the niche grave period. Period I was preceded by a stage which left behind it loose finds of type A battle-axes. This preliminary stage and phase I of the barrow period have been assigned to the "Pan-European Horizon". On the basis of planigraphic-typological analysis of the cemetery at Żerniki Górne, the niche grave period has been divided into two phases, an earlier and a later. Two other chronological horizons have been distinguished, too: the Śląza Axe horizon, and the horizon with vessels of the Książnice Wielkie type. The character of the latter horizon proves that at the beginning of the niche grave period the Corded Ware culture absorbed elements of the Funnel Beaker culture, which shows that at least until that time they were contemporaneous. Owing to a study of the burial customs, it has been possible to discover the main trends in the evolution of the people of the Corded Ware culture. This society developed from small patriarchal groups with an economy based on herding and stock-rearing, to more settled larger groups with no traces of social inequality, who based their existence on stockrearing and crop-growing. The results of anthropological researches, which showed that during the niche grave period waves of people of south-eastern, steppe origin may have arrived here, are taken into account.

The barrows so far investigated in Małopolska (Little Poland; Kempisty 1965a; 1965c; 1967a; 1967b; 1967c; 1970; 1971; 1978) have produced much information about the Corded Ware culture. They are of great importance both because they tell us about the time framework of that culture and its burial rites, social structure, demographic problems and the racial make-up of those human groups, and because they provide a base for studying the complex history of the contacts between the people of that culture and those of other cultural groups. Work on this subject has been going on for years. In the period 1962–1968 four barrows were examined: barrows I and II at Miernów, barrow I at Kolosy, and one at Żerniki Górne, woj. Kielce.

Our purpose here is to present the results of the work that has been done on those barrows in relation to the Corded Ware culture. All the evidence concerning this culture, and also that concerning the Mierzanowice and the Trzciniec cultures, is ready for publication in book form (Kempisty 1978). Consequently here the writer gives only some selected photographs and drawings that are necessary to an understanding of the argument. Readers are referred to the aforesaid book for the rest

of the material, which has been analysed in detail and which is given in monographic form.

What are known as the "Małopolska barrows" are a group of grave mounds found mainly in the Małopolska Uplands. This group is heterogeneous both morphologically and chronologically. It has been possible to distinguish three types. Type A consists of high barrows, whose ratio of height to diameter is between 1:6 and 1:10. They are made of humus mixed with pure loess. On the basis of the work done at Miernów, Żerniki Górne (Kempisty 1970; 1978) and Rosiejów, woj. Kielce, (Reyman 1948), we can say with confidence that they belong to the Trzciniec culture. Type B is represented by low objects with relatively wide diameters at the base. In these tumuli the ratio of height to diameter of the base is between 1:11 and 1:25. They are made solely of humus. The evidence from barrows I and II at Miernów (the low mounds are under barrows of the Trzciniec culture), from the barrows at Kolosy and Gruszów, woj. Kraków (Wawrzyniecki 1908), and, outside the Małopolska Uplands, in the Lubaczów group of the Corded Ware culture (Machnik 1966), shows that they are typical grave mounds of the Corded Ware culture.

The barrows of type A and type B are invariably situated on high ground, in places which can be seen from considerable distances. Type C consists of slim mounds, whose ratio of height to diameter of base ranges from 1:3 to 1:4. They are built chiefly of loess slightly mixed with humus. We know neither which period they come from, nor what culture they belong to, and even their function is unknown, for they have not yet been studied. Their most frequent location is in palace grounds, or nearby, which suggests that they may be modern ornamental objects known as "parnassi".

Although only the grave mounds of type B were built by the people of the Corded Ware culture, exploration of barrows of type A, too (belonging to the Trzciniec culture), have produced interesting evidence. For

under the mounds of the Trzciniec culture there were generally either flat cemeteries of the Corded Ware culture, or burials covered with low barrows of type B. So far there has been no exception to this rule (Rosiejów, Miernów I and II, Żerniki Górne).

Stratigraphic systems have been found in all the barrows. Among those that are of particular usefulness to us are those which enable us to decipher the chronological stratification of the Corded Ware culture itself. The vertical stratigraphic arrangements will in particular provide us with a starting-point for our investigations, but wherever possible we shall also resort to planigraphic analysis.

THE STRATIGRAPHY

Cases of stratigraphy have been recorded in barrow II at Miernów, and in barrow I at Kolosy. Barrow I at Miernów and barrow B at Rosiejów confirm only that

the Corded Ware culture is of earlier date than the Trzciniec culture, but tell us nothing about the inner stratification of the former.

MIERNÓW, BARROW II

This barrow, which belongs to type A, covered with its mound (II/I) a lower kurhan belonging to type B (II/2, Fig. 1). Only the latter is associated with the Corded Ware culture, to which the following objects found here belonged: pit grave 2, along with its covering mound (II/2) and encircling ditch, and graves 1, 4, 10, 10a, 11, all those dug into barrow II/2, which thus were younger than the primary burial. Still another stratigraphic arrangement was perceptible among the graves, introducing an element of further chronological stratification — namely, it was discovered that grave 10a was dug into the mound of a little barrow lying above grave 10 containing the skeleton of a horse.

So on the basis of the vertical stratigraphy we can establish the following sequence of the graves: 1 — grave 2 along with kurhan II/2 and its ditch; 2 — grave 10 along with the little barrow covering it; 3 — grave 10a. The grounds on which we may try to define the relative chronology of the other graves, and reconstruct the sequence in which they were dug into the mound of kurhan II/2, are much less certain. Several assumptions must be made:

A. The similarity of grave pits 10 and 2 points to the chronological proximity of these objects. At the same time, the absence of such pits (which are large, and contain traces of fire) in other graves may be regarded as evidence that they belonged to a different stage in the history of the cemetery. Grave 10, containing the skeleton

of the horse, is very likely to have been a sacrificial grave, functionally connected with grave 2. Thus it may be assumed that these two objects are separated by only a small interval of time.

B. It is confirmed by the stratigraphy that grave 10a is younger than grave 10. Therefore one can assume that the other graves dug into the mound, which were without grave goods, and in this respect similar to grave 10a, have the same dating. This is also suggested by the fact that they are close together, and lie near primary grave 2.

C. Niche grave 11, which lies at some distance from this group, and which seems to be quite independent of the presumed E—W location of the type B graves through the middle of barrow II/2, may be regarded as representing still another phase of the cemetery; the idea that the phase involved is a younger one than that to which the furniture-less graves belong is supported by signs that the locations of graves 1, 4 and 10a were deliberately connected with that of the primary grave.

By taking into account the stratigraphic data and the results of an analysis based on those assumptions we are now in a position to suggest the following chronological sequence in which the graves of the Corded Ware culture at Miernów II were made: 1 — grave 2, the oldest; 2 — grave 10; 3 — graves 1, 4, 10a; 4 — grave 11, the youngest.

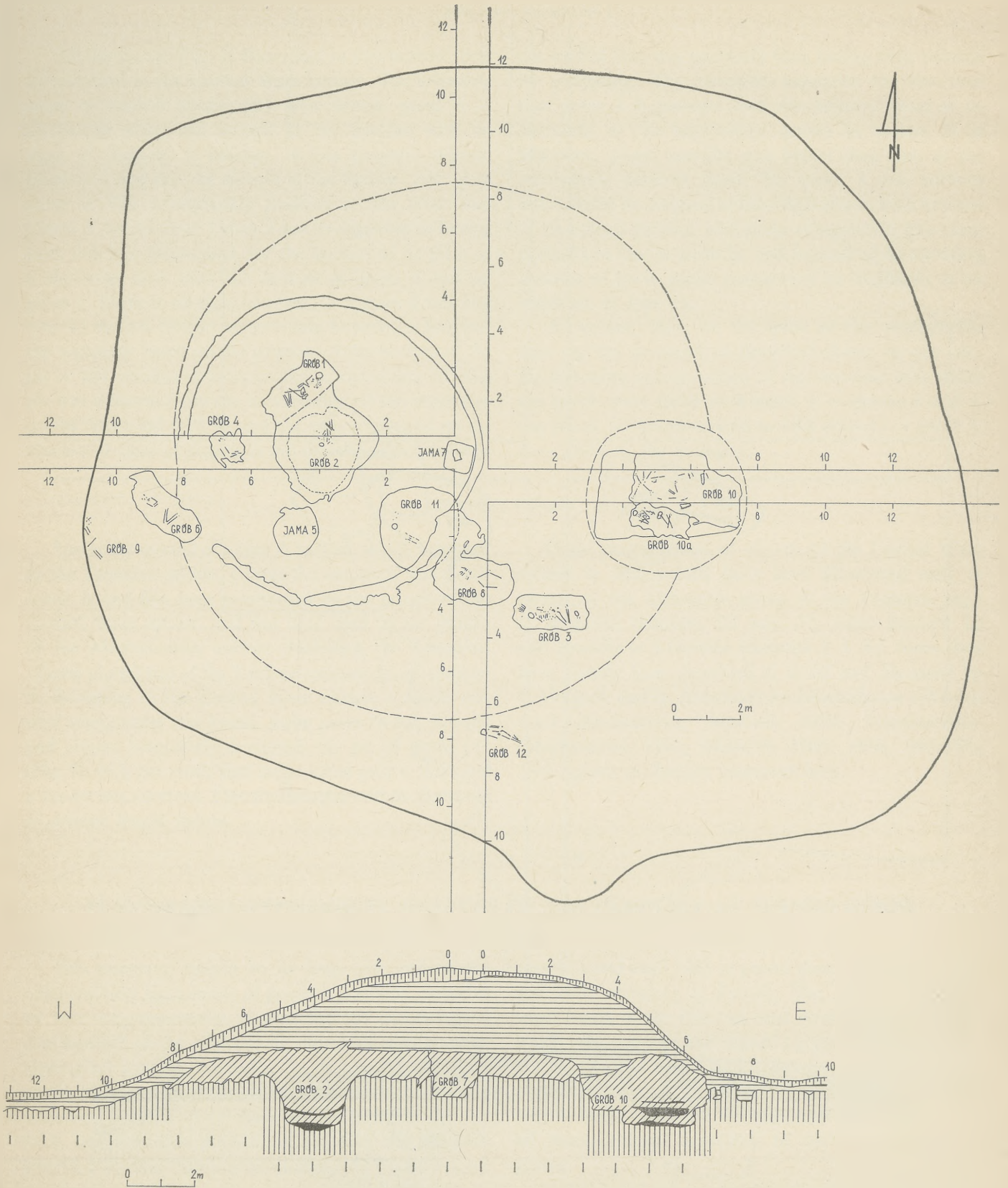


Fig. 1. Miernów. Barrow II. Plan of burials and cross-section of barrow

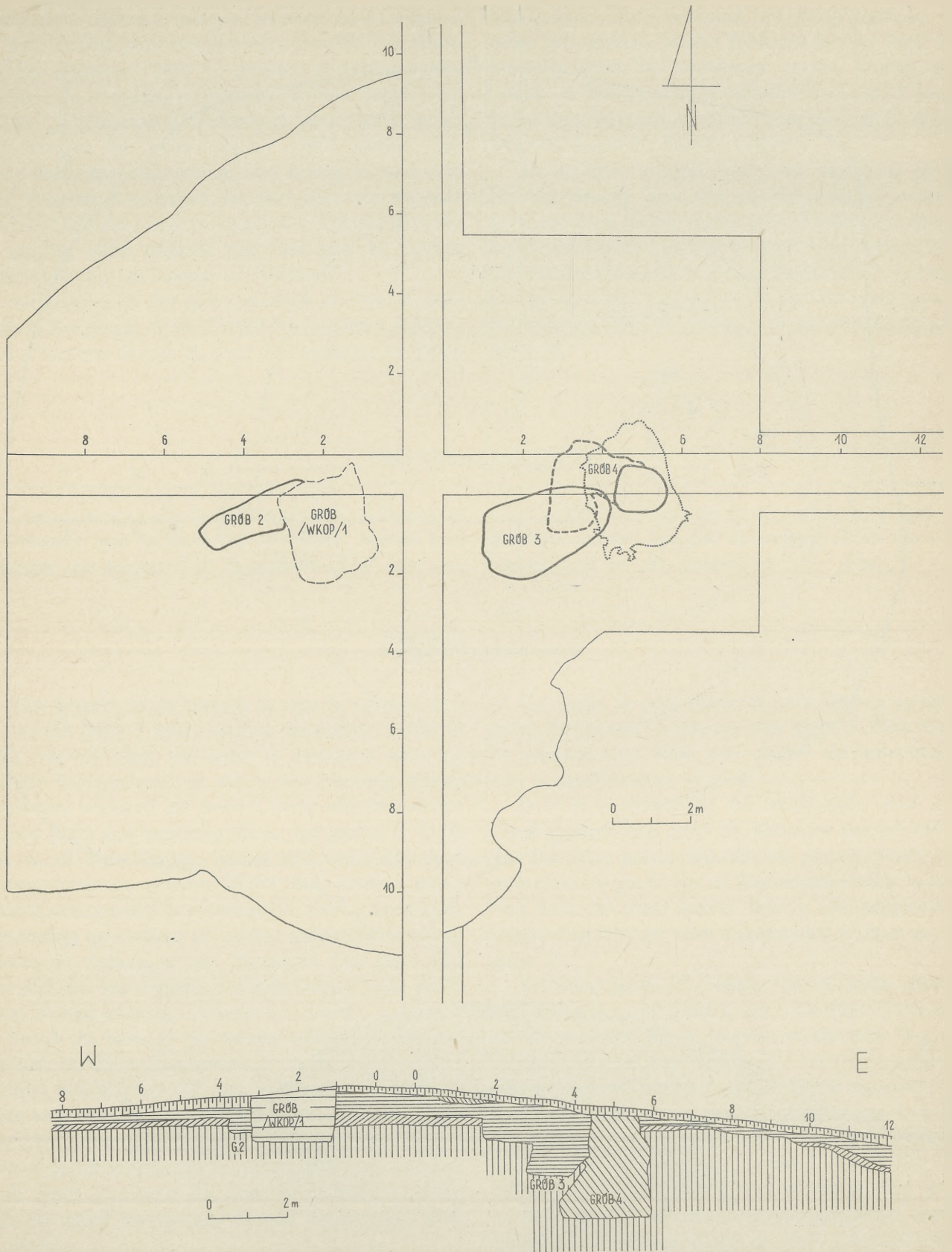


Fig. 2. Kolosy. Barrow I. Plan of burials and cross-section of barrow

KOŁOSY, BARROW I

All the graves (Fig. 2) discovered in this barrow (type B) belonged to the Corded Ware culture. The following cases of vertical stratigraphy were found: grave 3 — discovered under the mound of the barrow, with no signs of digging; it belongs to the original system; grave 4 — dug into the mound of the barrow; later than grave 3. The stratigraphic position of the other two graves is not so clear. Grave 2 can be regarded as having been dug into the mound, for the bottom of its pit is at a shallower level than the bottom of grave 3 and pit grave 1. There is no sign, however, that grave 2 was dug into the mound. Neither observation, however, is decisive: the argument based on the position of the bottom of the pit is not conclusive because the construction of this pit was different from the construction of the other two graves compared with it; and the argument based on the absence of signs of digging is not decisive either, because

the mound here was extremely thin, having been reduced by ploughing. The strongest argument for the view that grave 2 is younger than the primary grave is its similarity to the unfurnished graves in barrow II at Miernów, whose position was higher than that of the sub-barrow primary grave. Pit grave 1 can without much doubt be assigned to the oldest phase, both because of its central position and stone construction (the same probably as that in grave 3), and because of the surviving remains of grave goods represented by fragments of an amphora of type Ia.

Altogether, then, on the basis of the stratigraphic data and the assumptions described above, we can offer the following reconstruction of the sequence with which the graves were made at Kołosy: 1 — graves 1 and 3, the oldest, contemporaneous to each other; 2 — grave 2; 3 — grave 4, the youngest.

ŻERNIKI GÓRNE

Under the mound of a type A barrow, which belonged to the Trzciniec culture, a large flat cemetery was discovered. It had first been established by the people of the Corded Ware culture, and was later used by the groups of the Mierzanowice culture (including the Chłopice-Veselé phase) and of the Trzciniec culture. In the cemetery belonging to the Corded Ware culture a single vertical stratigraphy was found: niche grave 34 cut through and almost completely destroyed the pit of grave 111 (Fig. 3), with the result that in the latter only a skull and a beaker had survived. This stratigraphy will be discussed at greater length below.

Other stratigraphies of objects of the Corded Ware culture in Małopolska have been discovered only in tumuli of the Lubaczów group in the Przemyśl voj.: at Brzezinki (barrows III and IV), Lipie (barrow L) and possibly at Łukawica (barrows I, J, K). Since they have already been described in detail and discussed by J. Machnik and A. Dzieduszycka-Machnikowa (Dzieduszycka-Machnikowa, Machnik 1959; Dzieduszycka-Machnikowa 1960; Machnik 1960; 1966, 240–249), they require no further comment here.

PLANIGRAPHIC-TYPOLOGICAL ANALYSIS OF THE CEMETERY AT ŻERNIKI GÓRNE

This cemetery, thanks to its large size and to the comparatively big number of graves it contains, provided us with an opportunity of studying the chronological stratification of the evidence by means of planigraphic-typological analysis which (by leading to the discovery of the principles governing the spatial expansion of the cemetery) enabled us to discover and describe the various stages in that process. In the end, the evidence provided by this “horizontal stratigraphy” (understood as a system of reciprocally related, indispensable successions of objects on the horizontal plane) is no less useful than stratigraphy in the strict meaning of the term, and is on the whole no less reliable, although often it is more general, since it concerns not single graves, but groups of graves, or parts of the cemetery.

Table 1 shows all cases of the joint occurrence of

vessels found until 1968 in graves discovered in the Corded Ware cemetery at Żerniki. The Roman numerals, small letters of the alphabet, and Arab numerals denote which type, sub-type and variant a given vessel belongs to, in line with the results of a typological analysis already published elsewhere (Kempisty 1978). Graves containing only a single vessel are included, too. The vessels have all been grouped according to their conjunction in graves.

As Table 1 shows, the amphorae are the most frequent component of the multi-vessel assemblages. Around them are various types and sub-types of beakers. When we study the collections of pottery, we see that various types of vessel are found together, and on this basis three groups of pottery may be distinguished. Group I is made up of assemblages from graves containing amphorae

Table 1. Types of vessels occurring together in graves of the Corded Ware culture in the cemetery at Żerniki Górne

Group I		Group II		Group III	
Grave	Type of vessel	Grave	Type of vessel	Grave	Type of vessel
78	AIIId-1+PVIa	26	AIIa+AIIId-2	15	AIIb+PIVb
81	AIIId-1+PVIa+PIVc	113	AIIa+PVb	40	AIIIa
33	PIVc	85	AII+PVb+PVb	48	AVd
45	PVIa	84	AIIa+PVa-1	112	AVd+Min
93	PVIa	94	AIIa+PVa-1	53	Min+PVa-4
64	PVIa+PVIb	31	PVa-1	115	Min+PVc
17a	PVIb	34	PVa-1	49	PVc
74	PVIb	100	PVa-1	95	PVc
111	PVIb	67	AIIa+PVa-3	68	PVa-2
114	PVIb	38	PVa-3	106	PVa-2
97	PVI+Dz	89	PVa-3	42	PVIc
66	Dz	43	AIIa+PIV	63	PVIc
				82	PIVd

A -- amphora, Dz -- jug, P -- beaker, Min -- miniature vessel

of type IIId-1, and vessels which occur at least once in conjunction with the amphorae of the aforesaid sub-type, that is, beakers IVc and VIa, as well as vessels commonly found along with the latter: beaker VIb and a jug. Group II consists of those vessels which became formed into a group owing to their association with amphorae of type IIa — these are amphorae of type IIId-2 and beakers Vb, Va-1, Va-3 and IV. Group III contains all the remaining types and sub-types of vessels that do not occur along with the aforesaid groups or that were not strongly linked together in closed assemblages. In group III, then, we have amphorae IIb, IIIa and Vd, as well as beakers IVb, IVd, Va-2, Va-4, Vc and VIc, and the miniature vessels.

The distribution of the graves containing group III vessels (Fig. 3) is most characteristic. We encounter these graves only in three distinct clusters which have been disturbed almost not at all by the graves containing group I and group II vessels. Cluster A occupies the north-westerly corner of the cemetery. It includes graves 5, 40, 42, 48, 49 and 53. Cluster B lies on the north-east edge of the excavated part of the cemetery, and consists of only two graves: 68 and 106. It is possible that grave 103 belonged to this cluster too, if, like the two graves referred to above, it contained a beaker of type Va-2. And finally cluster C occupies the south-east part of the cemetery, with graves 63, 82, 95, 112, and 115. An intruder in this cluster is grave 114, which was furnished with a beaker of type VIb (belonging to group I).

One can see, then, that the graves that contained group III vessels were scattered on the edges of the cemetery, and surrounded on three sides the middle part of the cemetery, occupied by graves equipped with vessels that had completely different links. Moreover, within the three clusters of group III graves one can

perceive smaller spatial units which are laid out in a surprisingly logical arrangement. For instance, in cluster A the spatial relationship between graves 48 and 49 is the same as the relationship between graves 112 and 115 in cluster C opposite: in the more southerly graves (48 and 112) we find amphorae belonging to type Vd, while in the more northern graves (49 and 115) we find beakers of type Vc. This would seem to suggest that these two segments of clusters situated at opposite ends of the cemetery are contemporaneous. It also provides an indication of how the ground in the cemetery was taken up by the successive graves — they were (in this case) arranged symmetrically in a north-west and south-east direction on either side of the middle part of the cemetery. Another example, confirming the same kind of arrangement of the graves in the cemetery, is provided by graves 42 and 63, which lie opposite each other, the former in grave cluster A, and the latter in grave cluster C. Since these graves lie on the very edge of their respective clusters, and since between them there are no graves with group III pottery, and when we take into consideration the direction in which the cemetery grew, it may be taken that graves 42 and 63 were the first graves in the creation of clusters A and C, which grew towards the north-west and south-east respectively. If this is correct graves 48 and 49, and also graves 112 and 115 placed symmetrically to them, would be the last link in this process. Graves 68 and 106 in cluster B could have come into existence later still, or at the same time as the graves in clusters A and C. There is no evidence to show their place in this process.

The characteristic position of the graves with pottery of type III, which were always at the edges of the cemetery and whose increase in number was always away from the centre, would seem to indicate that they represent a phase later than the graves of groups I and II. In other

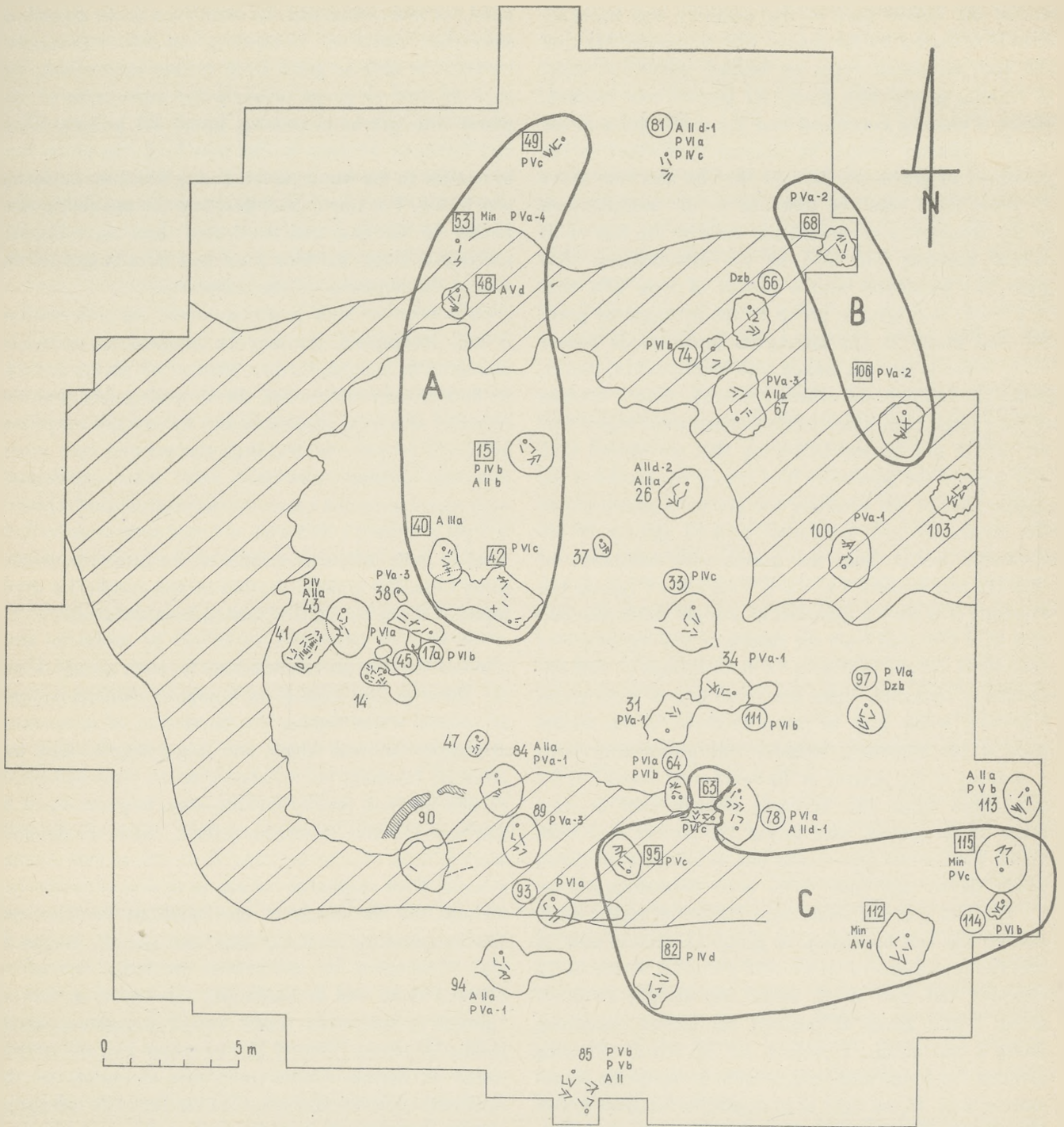


Fig. 3. Żerniki Górne. Plan of graves in a cemetery of the Corded Ware culture

The numbers of the graves with group I pottery are given in the circles V, the numbers of the graves with group III pottery are given in the squares V, and the others are the numbers of the graves with group II pottery. The thick line denotes the boundary of grave clusters A, B, and C with group III pottery. Diagonal lines mark the area whose surface was destroyed when earth was taken from it to build a barrow of the Trzciniec culture

words, the middle part of the cemetery was probably already occupied by the graves with amphorae IIa and IIc and associated types of beaker, when the stage of making graves with group III pottery was reached. Hence it must be concluded that the oldest grave in the Żerniki cemetery should be situated somewhere in the proximity of graves 33, 31, and 34. The idea that grave 33 could have been the first one in the establishment of the cemetery is supported not only by the fact of its central position, but also by the circumstance that grave 111 (equipped with a beaker of type VIb, that is, a vessel belonging to group I) was damaged by grave 34. And grave 34 has among its grave goods beaker Va-1, which is strongly linked with amphora IIa, that is, group II. Although the evidence is weak, since it consists of but a single case, it nevertheless constitutes a signal that we should not ignore, indicating that we should take into account the possibility that among the graves in the middle part of the cemetery the graves containing type IIc amphorae and associated beakers (group I) are somewhat earlier than the graves with amphorae of type IIa and beakers Vb, Va-1, Va-3 and IV (group II). Probably it is only a question of a slight difference that may have stemmed from the successive making of graves containing vessels belonging to both groups (I and II). Generally speaking, there are more graves with group I pottery, which may be taken as older, in the middle part of the cemetery, whereas this group constitutes a minority of the pottery in the south-west cluster, which must have come into existence already after at least some of the graves with group III pottery had been made. Yet the two types occur side by side in both zones, which shows they must have been contemporaneous.

The fact that the south-west cluster of graves arose outside the belt consisting of group III graves tells us that the appearance of graves with group III vessels in the cemetery did not at all mean the disappearance of group I and group II pottery; for graves containing group I and group II pottery still occurred, spreading towards the south-west, and possibly towards the south-east as well. In the light of planigraphic analysis, graves 17a, 38, 43, 45, 14, 41 as well as 85, 94, 93, 90 and possibly 89, 84 and 47 as well, should be regarded as later than graves 40 and 42, and graves 63, 95, and some of them may be contemporary with graves 15, 48, 53 and 49 further to the north, and graves 82, 112 and 115 further east.

Here a word of warning may be in place. It should be borne in mind that a planigraphic analysis, no matter how plausible it seems, is based on excavations of only one part of the site. Moreover, it is not easy to assess how big this part is in relation to the whole. True, the western and northern edges of the cemetery here were discovered in the course of the dig, but it is not known how far south-east this edge extends. With this difficulty in

mind, we must stress that the results are in the meantime somewhat tentative. Depending on the information we shall be able to glean from further excavations, we shall be able to gauge properly the importance of the phase with graves containing group III pottery. First and foremost we must realise how long this phase was in relation to the whole period during which the cemetery was in use. For one cannot preclude the possibility that farther to the east and south-east there were distinct successive areas marking later and later stages in the spatial development of the cemetery.

Yet even at this juncture, when our information is still incomplete, we may be tempted to carry our planigraphic analysis further. First of all we are anxious to find an explanation for the surprising fact that the cemetery was used simultaneously by two quite separate groups of people, who had little contact with each other, and who differed from each other quite significantly with regard to certain spheres of material culture (especially style of pottery), and who, it would seem, buried their dead in quite different sections of the cemetery. At the same time, the general rhythm of the cemetery's development shows no signs of having been disturbed.

In view of this situation, it will be useful to have a closer look at the relationships between groups I and II. These groups consist of completely different types of vessels, which creates the impression of an extreme divergence between these two assemblages. This impression, however, is invalidated by the results of planigraphic analysis, and by the discovery, in grave 26, of an amphora IIa and an amphora IIc-2, the latter differing slightly from variant d-1, but nevertheless very similar in style; both amphorae belong, as is usual in these two variants, to the vessels of the Książnice Wielkie type. The relationship between these two pottery groups is also illuminated by comparing the links ascertained between them and J. Machnik's typological system of "groups of coexistent traits" found throughout Małopolska (Machnik 1966, 79 ff.). In group I of the pottery found at Żerniki Górne, only one equivalent of the extremely typical conjunctions of the Batowice sub-group (A) has been found (namely, the coexistence of beakers of type VIa and VIb), and one equivalent of a conjunction found in the Nowy Daromin sub-group (B) — that is, a VIa beaker, and a IVc beaker. The conjunction of amphora IIa with beaker Vb in group II is the same as that which occurs in the Batowice sub-group, while the conjunction of a IIa amphora with two variants of the type Va beakers corresponds to the situation characteristic of the Nowy Daromin sub-group. Taking everything into consideration, the two groups of pottery shapes referred to here (I and II) manifest principles of conjunction that are typical of a larger unit: the Cracow-Sandomierz group of the Corded Ware culture (Machnik 1966, 183). Nor is this invalidated by the occurrence,

at Żerniki Górne, of type II*d* amphorae, because they are closely related to the vessels of the Książnice Wielkie type previously found in the Batowice sub-group (Książnice Wielkie, woj. Kielce; Sokolina, woj. Kraków).

Group I of the Żerniki pottery has a clear numerical predominance of "Batowice" characteristics, while in group II the "Nowy Daromin" characteristics are numerically predominant. But if we take into account still other pottery shape correlations discovered by J. Machnik in the Cracow-Sandomierz group, the contemporaneity of groups I and II can be demonstrated. The beakers of type VI*a* and type VI*b*, which are found in both sub-groups of the Cracow-Sandomierz group of the Corded Ware culture, are of primary importance in establishing this. There they occurred along with amphorae of type II*a* and beakers of types IV, Va, and Vb — that is (apart from amphorae II*d* and the jugs) along with all the types of vessels constituting groups I and II from Żerniki Górne.

In this connection the complete apartness of II*a* amphorae and type VI beakers in this cemetery is strange. If we take into consideration the fact that these vessels are found in fairly large numbers we can hardly regard their apartness as accidental. But since their contemporaneity has been proved elsewhere, and since planigraphic analysis of the Żerniki cemetery has left no doubt of it, it may be that the explanation lies in the fact that different population groups used this cemetery. This may have come about for instance, as a result of exogamic marriages, which resulted in a mixture of "Batowice" and "Nowy Daromin" elements. Since Żerniki Górne lies in between those two sub-groups, I think such a hypothesis is extremely probable. Of course in consequence one must accept that in the history of the Batowice sub-group there was a phase during which beakers of types VI*a* and VI*b* were in use, but no amphorae of type II*a*, and that in the Nowy Daromin sub-group there was a phase with amphorae of type II*a*, but no beakers of types VI*a* and VI*b*. Thus the assemblages in which amphorae II*a* occurred simultaneously with beakers VI*a* or VI*b* should date from a period later than the aforesaid hypothetical phase, as a result of the mingling of two sub-groups of the Cracow-Sandomierz group of the Corded Ware culture. This would provide us with additional confirmation of the contemporaneity of groups I and II of the ceramic forms at Żerniki Górne.

A similar process applied to group III of the Żerniki pottery leads us to the conclusion that here, too, there were links with the Batowice sub-group, through amphorae of types III and V and beakers of type Vc, and links with the Nowy Daromin group, through amphorae II*b* and beaker IV*b*, but also with the Lubaczów group, through the type VIc beaker and the miniature vessels. Moreover, group III included variants

a-2 and a-4 of the type V beakers, elsewhere not known in Małopolska. Variant Va-4 has above all connections with the Bohemian group of the Corded Ware culture (Buchvaldek 1967, 36 f., Fig. 4, and 39, Fig. 4; Buchvaldek, Koutecky 1970, Fig. 26, 114:1). Still more links completely alien to groups I and II are noted here. It should be noted that an amphora of type II*b*, which in every respect is very close to some of the "Złota" amphorae, although it differs from them in the shape of the handles (Krzak 1968, Figs. 11 and 23), is classed as belonging to group III. On the other hand the type IV*b* beaker found along with it in grave 15 is closest to similar vessels in the Lubaczów group and in the Nowy Daromin sub-group. A type IV*d* beaker represents an exotic form. We are familiar with another specimen which is similar, although the ornamentation is different, from Jurkowice, woj. Tarnobrzeg (Machnik 1966, 237, Plate XII 1). And both exhibit a similarity to some vessels from the eastern groups of the Corded Ware culture — e.g. to an amphora from Viktorov in the Ukraine (Machnik 1960). Yet the type IV*d* beaker from Żerniki Górne is ornamented in a way that is characteristic of the type Va vessels that are common in the Cracow-Sandomierz group. It is worth recalling that the type VIc beakers show connections not only with the Lubaczów group, but also with the Middle Dniepr culture, in which vessels of this kind are particularly characteristic components of grave furnishings (Artemenko 1967, Figs. 2:1, 3, 4:2,3, etc.).

It seems right, too, to assign one of the type Va-3 beakers found in grave 38 to pottery group III. This assignation is justified both by the situation of the grave, and the characteristically "Mierzanowice" ornamentation on the neck of this vessel. Thus group III is an eclectic one. It contains elements taken from other, sometimes distant, groups of the Corded Ware culture. Even for this reason alone we must regard group III as being younger than the two previously discussed. Besides, the characteristic location of the graves containing group III pottery on the edges of the cemetery provides eloquent corroboration of this view.

It may be concluded, then, that the Żerniki cemetery contains three groups of pottery types that occur in two phases of the cemetery's existence: groups I and II representing phase A (the older phase, Fig. 4), while group III represents phase B (the younger phase, Fig. 5). This conclusion gains even stronger support when we examine other, non-pottery characteristics of the equipment of the graves belonging to those phases, for we find, apart from the pottery, other differences between the graves assigned to phases A and B.

Differences in the funerary customs are manifested mainly in differences in the number of pottery vessels placed in the graves.

Table 2 shows clearly that during the younger phase

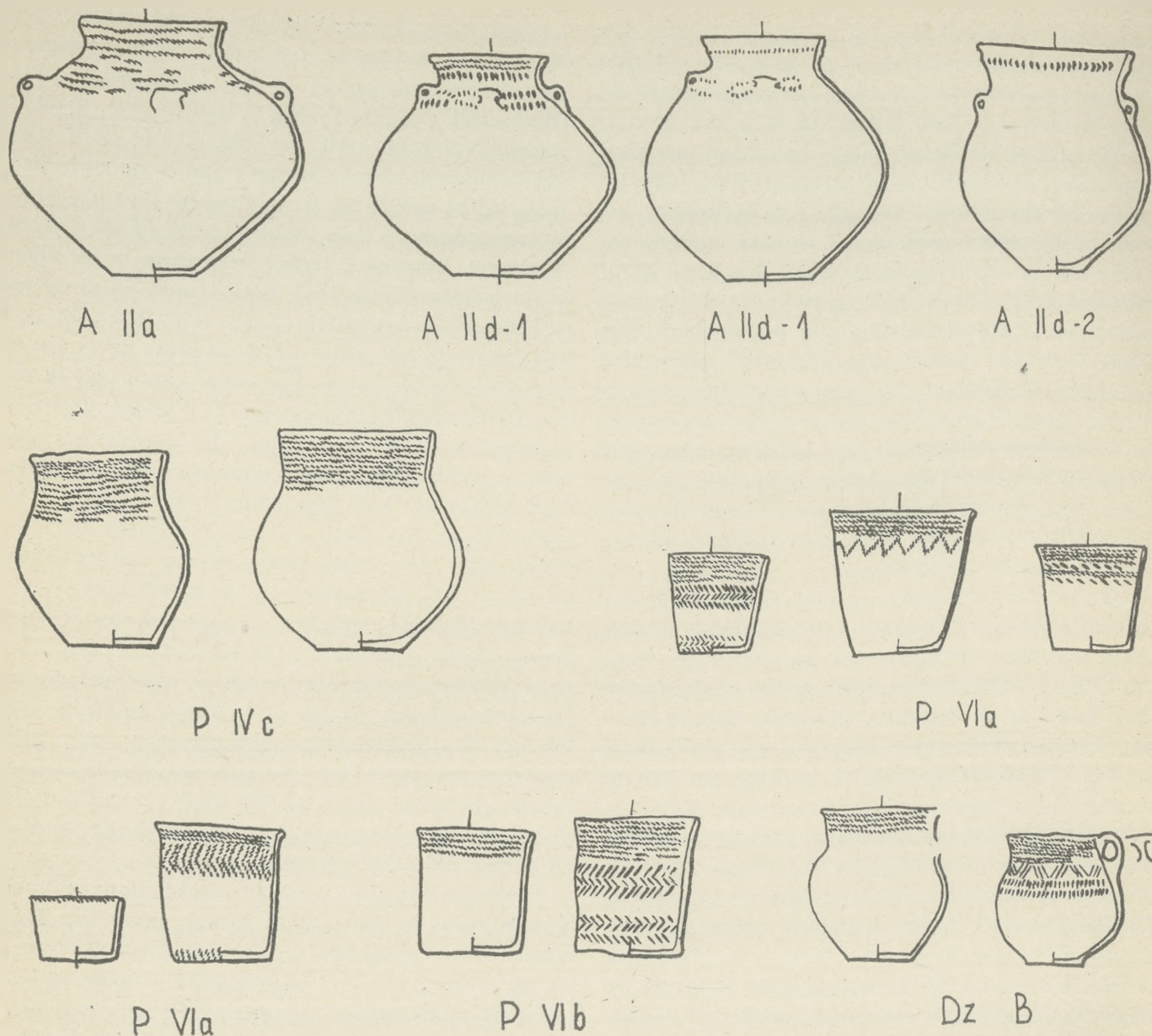


Fig. 4. Żerniki Górne. Vessels from phase A graves of the Corded Ware culture cemetery

Table 2. Pottery in the phase A and phase B graves of the Corded Ware culture in the cemetery at Żerniki Górne

Phase	Graves with 1 vessel		Graves with more than 1 vessel		Total
	No.	per cent	No.	per cent	
A	13	54.1	11	45.9	24
B	9	69.2	4	30.8	13

a relative increase took place in the percentage of graves containing only one vessel. But apart from the numerical difference, a qualitative difference may be noted, too.

In both phases, the graves with single vessels contained mostly beakers (Table 3). But in phase A jugs sometimes occurred, too. In phase B, on the other hand, slightly more than a quarter of the graves with single vessels contained an amphora; this custom was completely unknown in phase A. Phases A and B likewise differ

in the quality of the furnishings of graves containing more than one vessel. In phase A, in nearly 80% of the cases the grave contained an amphora and a beaker (or two beakers). In phase B, this combination occurred in only one in four. In phase A the amphorae generally (in 9 graves out of 11) formed part of the multi-vessel

Table 3. Qualitative differences in the pottery equipment of phase A and phase B graves of the Corded Ware culture in the cemetery at Żerniki Górne

Phase	Graves with 1 vessel			Graves with more than 1 vessel					Total
	P	A	Dz	A+P	A+A	P+P	A+Min	P+Min	
A	12	—	1	8	1	1	—	1	24
B	7	2	—	1	—	—	1	2	13

For key see Table 1

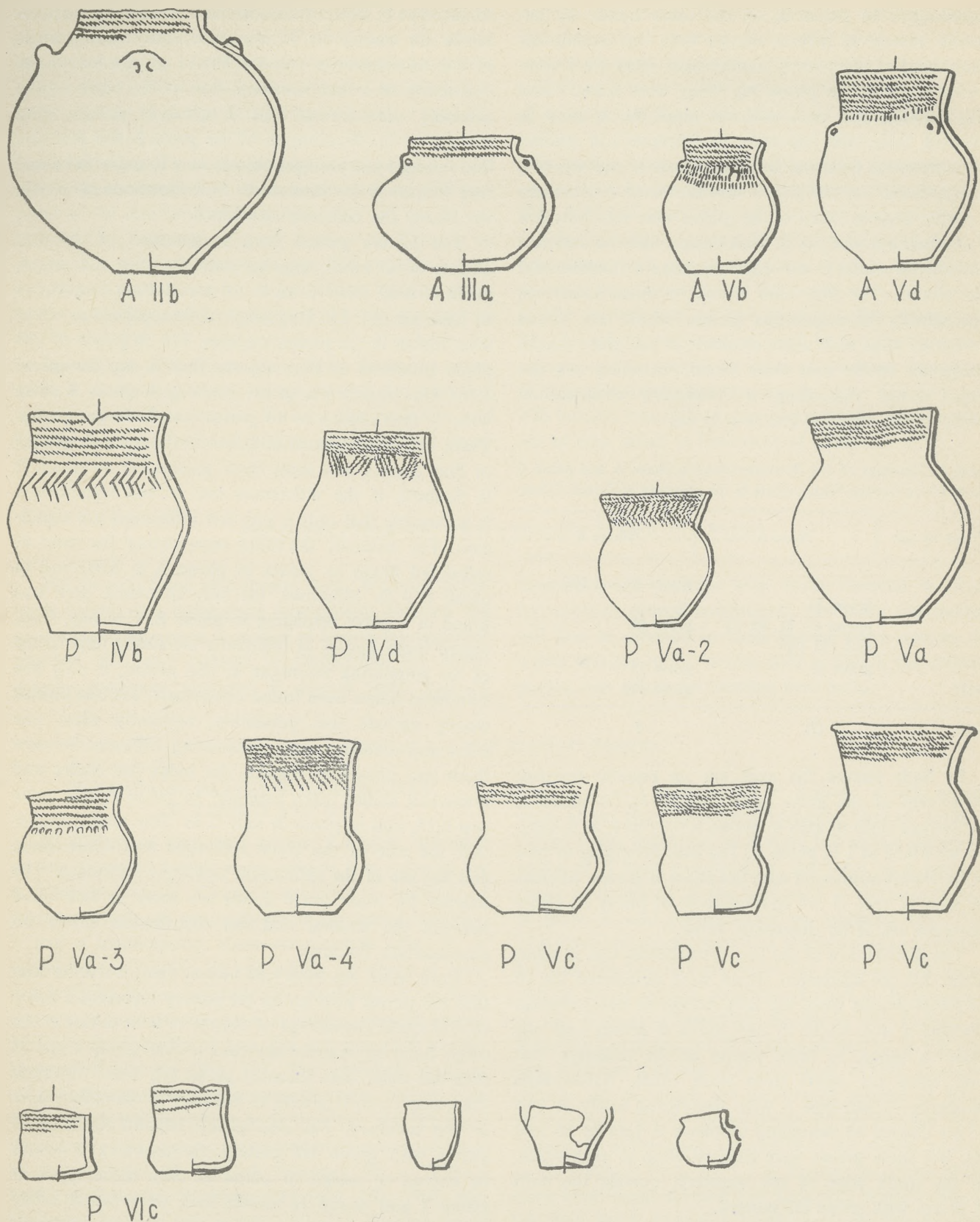


Fig. 5. Žerniki Górne. Vessels from phase B graves of the Corded Ware culture cemetery

assemblages. In phase B, on the other hand, the miniature vessels of diverse shapes were the commonest component of the pottery assemblages (they were completely unknown in phase A). They were found twice with beakers, and once with an amphora. It may be accepted, then, that important quantitative and qualitative differences occurred between phase A and phase B as regards the way the graves were furnished with vessels.

Other objects found in the graves were relatively few in number, but analysis of such objects likewise confirms that on the whole it was right to make a division into two phases. The flint axes form the most numerous, typologically heterogeneous group, which are linked in various ways with other elements of the grave goods. Altogether twelve axes were found, including two damaged ones. According to Machnik's classification (1966, 45-47), they fall into four types.

Table 4. Typology of the flint axes found in phase A and phase B graves of the Corded Ware culture in the cemetery at Żerniki Górne

Type of axe	Phase A	Phase B
Ib	—	graves 49 and 106
Ic	grave 31	—
II	graves 67, 81, 85, 97 and 113 (?)	grave 68
II	grave 43	grave 15
Ib/III	—	grave 115
Total	7 (?)	5

In both phases the axes are an equally frequent component of the grave goods (Table 4). In phase A the average ratio of axes to graves is 0.29 to 1, as compared with 0.38 to 1 in phase B. The axes belonging to type Ib are clearly connected with the phase B graves, whereas the axes of type II are characteristic of phase A. Other axe-types are of no diagnostic value.

The distribution of the flint arrowheads, too, is significant. All the specimens which were discovered are of the heart-shaped type, but they belong to two varieties: sub-type a was found in two phase B graves and one phase A grave, in three points of the cemetery that were quite far apart from each other. Arrowheads belonging to sub-type b were discovered solely in two graves classed as belonging to phase A (graves 85 and 94). But these graves were situated close to each other, on the south edge of the cemetery, outside the strip of graves with group III pottery.

Among the five graves furnished with beads made of shells or bones, only one lies in the middle part of the cemetery (grave 26). The others occupy a place on its southern periphery (graves 85, 89 and 84), or on its north-eastern one (grave 106). One is struck by the fact that these ornaments were found in the same part of the cemetery as the heart-shaped arrowheads belonging

to sub-type b. Both the beads and the sub-type b arrowheads are among the objects particularly characteristic of the Mierzanowice culture. Hence we are led to the conviction that their concentration at the edges of the cemetery corroborates our conclusions drawn from a study of the distribution of the pottery. For it shows that younger and younger objects were found with increasing frequency in those areas and directions in which, we know, the cemetery developed.

The picture gained from examination of the flint objects of all kinds, together with the axes and arrowheads already referred to, is not a very clear one. It can be asserted that the frequency of flint objects is somewhat higher in the phase A graves. For 24 graves of this phase produced 62 flint objects, that is, an average of 2.583 flint objects per grave, whereas in phase B there were 28 flint objects to 13 graves (i.e. 2.154 per grave). There are also disparities between the various groups of flint objects, but since these groups are so small, it is doubtful if the differences are of any significance. It is possible that only a very few differences are significant. For instance, the index representing the ratio of splintered flakes to graves in phase A is 0.08, and in phase B 0.23. Moreover, the only splintered core was found in a grave belonging to phase B. Can one, then, regard those figures as indicating increasing importance of the splintering technique at this period, if only five splintered flakes were found altogether? Yet one cannot wholly exclude this possibility, especially when one takes into consideration an interesting difference between these two phases as regards the index for blades and retouched blades taken together. In phase A this index was 0.75, and in phase B only 0.30. This might suggest that the role of the blade technique was diminishing, and the use of the splintering technique increasing. The indexes for other grave goods are more or less equal between the phases, and the distribution shows no characteristic features.

From what has been said above, then, it will be seen that the graves with group III pottery represent a fairly characteristic assemblage of objects of later date. On the other hand one cannot say that all the group I and II finds are older than those of group III. This is because the group I and II graves lie not only in the middle part of the cemetery, but also partly beyond the belt of graves with group III pottery. So probably it would be correct to assign to phase A only those types of group I and group II vessels that were found solely in the middle part of the cemetery, that is, the assemblages with amphorae of type II d-1 and type II d-2, and jugs and beakers of type IV c (Fig. 4). We can also assign to phase A grave 111, containing a type VI b beaker, for it has been proved by the stratigraphy that this grave is older than grave 34, which contained pottery belonging to group II.

It is noteworthy that in phase A the so-constituted pottery assemblage embraced all the types of vessels belonging to group I (which centres around the amphorae of type II_d-1) and also a small number of vessels belonging to group II (a type II_d-2 amphora with a type II_a amphora found along with it in grave 26). On the other hand the other II_a amphorae and the Va-1, Va-3 and Vb beakers occurred in burials situated in different parts of the cemetery, and so (since they do not fit our criteria) they were not assigned to phase A. There is no doubt that at least some of the type VI_a beakers belong to phase A, which may be deduced from their presence in the assemblages with amphorae II_d-1 and jugs (graves 81, 78, and 97). The same may be said of at least one beaker of type VI_b (from grave 111). From the point of view of typology there are no grounds for asserting that there are discrepancies between the type VI_a and VI_b beakers that we assigned to phase A, and those

outside that phase. Indeed, quite the contrary, for in the majority of cases a great typological similarity is evident between them. This impression becomes stronger still if we compare their ornamental motifs, the mode of execution of the motifs, and their distribution on the surface of the vessel. It then transpires that the type VI_b beaker from grave 111 (Fig. 6:13) has very close equivalents in the type VI_a specimens from grave 64 (Fig. 6:7) and grave 93, and has very near analogies in the beakers from graves 74 (Fig. 6:11) and 114. In accordance with our assumptions, there is no difficulty in assigning graves 64 and 74 to phase A, for they lie in the central part of the cemetery. But graves 114, 93, 17a and 45, on the other hand, lie outside the central cluster, and so should be taken as evidence in support of the hypothesis that the use of type VI_a and type VI_b beakers was of long duration, and that such beakers are of little value as indicators of date.

PERIODISATION OF THE CORDED WARE CULTURE

We are now faced with several tasks. We must define more closely the typological connections between the assemblages discovered in graves of known stratigraphic position. We must attempt to synchronise the stratigraphic sequences obtained at diverse sites. And by

comparing our findings with wider material we must try to reach general conclusions. Naturally our interest will first be directed to those graves which occupy the lowest position in the various sites — that is, the primary graves, over which the barrows were built.

PERIOD I — THE BARROW PERIOD

SUB-BARROW GRAVES WITH AMPHORAE OF TYPES Ia AND Ie

At Kolosy at least two graves: 1 and 3, belonged to the primary burial place, which was covered by a common mound. Grave 3 exhibited a number of features which tell us chiefly about the burial customs: it had a characteristic stone construction (Fig. 6); it contained the remains of two adults, of whom at least one (judging by the presence of a battle-axe at the feet) was a male; and the skeletons lay in the extended, supine position, along the E—W axis. The only grave gift was the aforesaid battle-axe (Fig. 7a). The extended position of the skeletons here represents the only known case in the Corded Ware culture in Małopolska. But the stone construction of the grave may possibly have its equivalent in the enigmatically related discovery (in a "Pluta's field" in Gruszów, Wawrzeński 1904, 158; 1908, 60). Skeletons lying in the supine, extended position occur sporadically in the Corded Ware culture — for instance in the barrows at Babięty Małe, woj. Olsztyn, in north-east Poland (Kilian 1955, 65; Okulicz 1973, 108). On the other hand the battle-axe mentioned here is analogous to the specimen found in grave 2 at Miernów II.

Another grave, which likewise is probably a primary

one — grave 1 in barrow I at Kolosy — tells us still more about the chronology, including that of grave 3. Grave 1 was destroyed, it is true, but rather significant traces of it have remained, in the form of a mass of pieces of limestone of the kind used in the construction of grave 3, and fragments of an amphora (Fig. 7b). The limestone blocks point to a similarity of construction between the two graves, while the amphora fragments remind us of similar amphorae found in Małopolska, in the German Democratic Republic, the Federal of Republic Germany, and Bohemia, as well as in the western Ukraine and the area occupied by the Rzucewo culture, all of which are universally agreed as being characteristic of the oldest phase of the Corded Ware culture. In Małopolska we regard as the closest analogy to the amphora from grave 1 at Kolosy the vessels of the same kind found in grave 5 at Książnice Wielkie (Machnik 1964, 247 f., Plate II 12) and also in the "Piwniczyska field" barrow at Gruszów (Wawrzeński 1908, 55–57, Plate XXI 4, 5). They are similar in shape, in ornament, and especially its composition. All three amphorae — those from Kolosy, Książnice Wielkie and Gruszów — have short necks and splayed rims decorated with diagonal incisions. The shape of these vessels is almost identi-

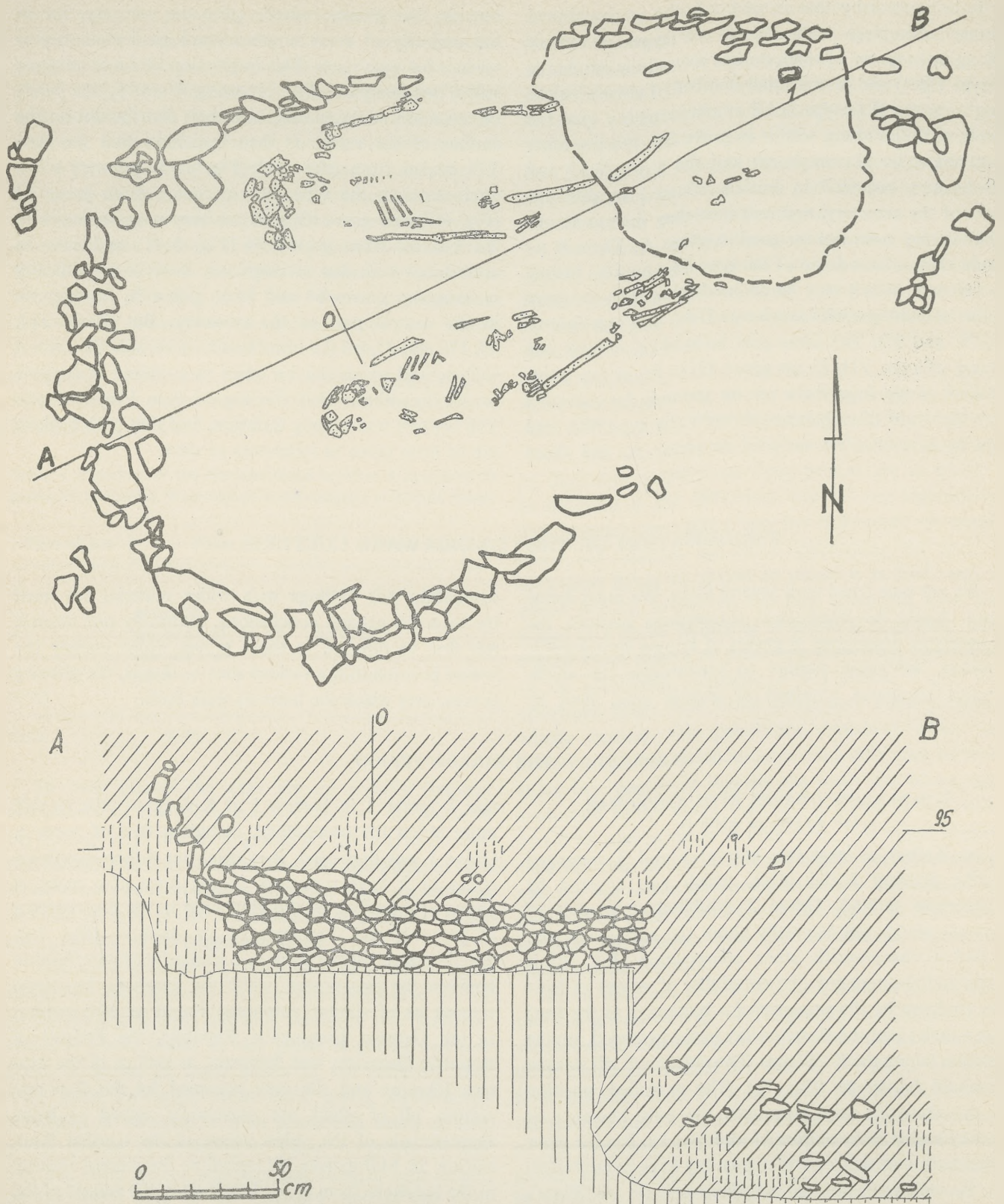


Fig. 6. Kolosy. Barrow I. Plan and cross-section of grave 3

cal in all cases. According to Machnik's typology (1966, 32), they must all be taken as belonging to type Ia. Machnik has already described vessels found outside Poland which are similar to the amphorae of type Ia. He perceives a particular similarity between the Książnice Wielkie amphora and specimens from Grishantsy

in the Ukraine, Kolin in Bohemia, and Angersbach in FRG (Machnik 1966, 112 f.). All in all the type Ia amphorae belong to the vast assemblage of "Thuringian amphorae" (*Strichbündelamphoren*; Fischer 1969, Kilian 1955, 119) found in a very large part of Europe stretching from Switzerland right to the western Ukraine (Kilian

1955, 154 f., 296-310, map 8; Buchvaldek 1966, 137 f., 153-155, 167, Fig. 11; Sulimirski 1955b). The "Thuringian amphorae" are not all of the same age, as has been stressed repeatedly in the literature of the subject (Sulimirski 1955a; Kilian 1955). But Buchvaldek and Machnik succeeded in showing that the amphorae of type Ia (A1, A2 and A3a-b respectively) represent, at least in Poland, the oldest horizons of the Corded Ware culture (Buchvaldek 1967, 89, 102-106; Machnik 1966, 112-118, 177 f.).

There may be a slight difference of date between graves 1 and 3. Grave 1 may be older, as would seem to be indicated not only by the nature of the equipment of that grave, but also by its central position. At any rate the difference of age is certainly not big; both graves were of stone construction, and were covered by the same barrow.

The primary burial under barrow I at Miernów (Kempisty 1967a) containing a "Thuringian amphora" of type Ia and a flint blade (Fig. 8) revealed still other features of the burial customs. The tightly crouching position of the skeleton, the fact that it lay on its right side along an E-W axis, with the head to the west, and the male sex of the skeleton, are all features very similar indeed to those of the graves of the Corded Ware people in Saxony and Thuringia (Fischer 1956, 121), Bohemia (Buchvaldek 1967, 68, Fig. 9), and other regions where that culture occurs.

A particularly interesting fact is that this E-W orientation (with some deviations) is a constant feature of the burials of the Kalbsrieth group. It is worth recalling here that the Kalbsrieth group, which was first distin-

guished by Fischer (1952, 168), represents in his opinion the earliest stage of the Corded Ware culture in Thuringia and Saxony, which can be perceived in the stratigraphy (Fischer 1956, 109f.). This has been accepted by a number

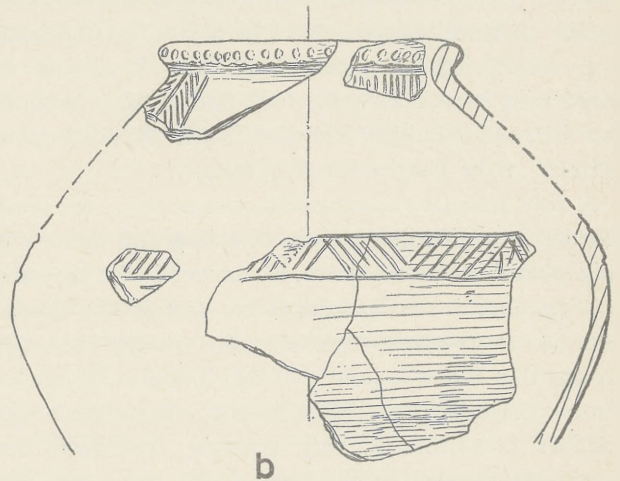
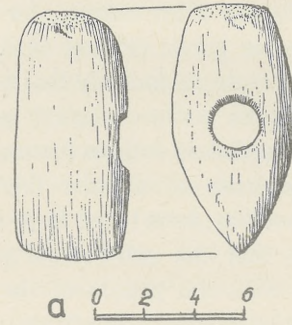


Fig. 7. Kolosy. Barrow I. Grave 3. Stone battle-axe and reconstructed amphora

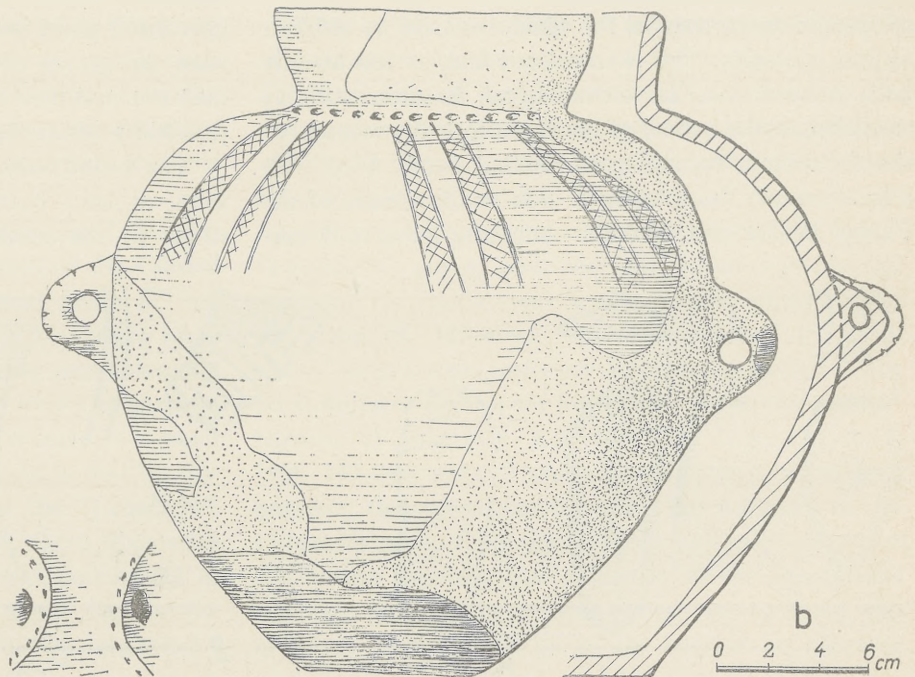
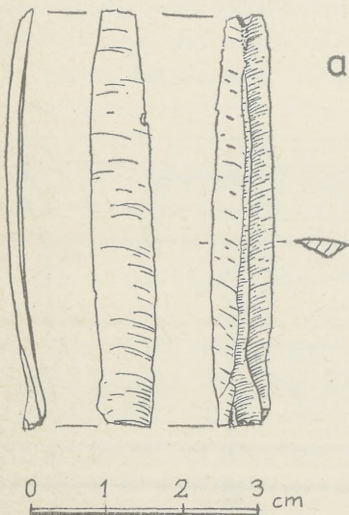


Fig. 8. Miernów. Barrow I. Primary grave
a - flint blade, b - amphora

of archaeologists: Mildenerger (1953, 62f.), Šturms (1957, 291), Buchvaldek (1961), Sulimirski (1959, 228). But there have been criticism and scepticism, too. In particular, it is thought that it is very uncertain as to whether the graves of the Kalbsrieth group really do belong to the Corded Ware culture, for they contained no diagnostic grave goods (Preuss 1958, 205; Behrens 1973, 173). Some authors, too, say that a different interpretation is possible on sociological grounds (Struve 1955, 100 f.). Nevertheless various features of the graves, including the presence of circular ditches round the mouth of the grave pits, seem to me to provide sufficiently strong evidence that the sub-barrow primary burials were connected with the people of the Corded Ware culture. Another author who is of this opinion is Wiślański (1978), who assigned to the Corded Ware culture a grave at Modliborzycze, woj. Bydgoszcz, on the basis of its Kalbsrieth characteristics. Thus it should be agreed with Machnik (1966, 106) that at least some of these barrows should be included in the "Pan-European horizon" of the Corded Ware culture.

A very unusual element of the burial rites here is the presence of a gift, in the form of a dog and the jaw of a pig, placed beside the grave, but covered with the same grave mound. Animal sacrifices are rare in the Corded Ware culture (Fischer 1956, 235; Buchvaldek 1967, 63), whereas they occur regularly in the Globular Amphorae culture (Gabałówna 1958, 63-67). Sometimes such sacrifices constitute a very strongly developed and inseparable element of the cult, as for instance in the cemetery at Złota, woj. Tarnobrzeg, at the "Gajowizna" site (Krzak 1977). An amphora discovered there, which on the whole is of "Thuringian" type, bears a number of specific characteristics for which it would be difficult to find analogies. This is an eclectic find, as has already been pointed out. Its technological features, such as the firing, or the facture of the surface, or the colours, or the decoration, consisting of vertical bands filled with a basket-weave motif, make it akin to the vessels of the Funnel Beaker and Globular Amphora cultures (Kem-

pisty 1967a, 169). Yet the composition of the ornamentation and the placing of the handles are "Thuringian", as for instance on an amphora of the Rzucewo culture from Rzucewo, woj. Gdańsk (Kilian 1955, Plate I 4). All these features taken together, along with the characteristics of the burial customs, undoubtedly justify us in assigning the grave from Miernów I to the same chronological-cultural horizon as the aforesaid sub-barrow primary graves at Kolosy and Gruszów, as well as flat grave 5 at Książnice Wielkie.

THE SUB-BARROW GRAVES ENCIRCLED BY DITCHES

The main example of the graves mentioned in the sub-title here is the primary grave at Miernów II (Fig. 9). It is clearly connected with the finds belonging to the Lubaczów group of the Corded Ware culture. The similarity of burial customs is particularly evident. For instance, all the graves belonging to the Lubaczów group, like the one at Miernów, were covered by low mounds. As a rule the grave pits were ringed by ditches, and there were generally traces of charred wood among the material filling the pits. Unfortunately we cannot compare the position of the skeletons, since at Brzezinki, Łukawica or Lipie none have been preserved. On the other hand, we can guess at the direction in which they were laid, from the direction of the axes of the grave pits. From this it may be conjectured that many of the skeletons lay in a NW-SE or NE-SW direction. Possibly the circular grave pit also has its analogy in the Lubaczów group. Two pits (2 and 3), approximately circular in outline, were discovered in barrow IV at Brzezinki, but their character is not clear. They may have been grave pits (Machnik 1966, 77, suggests they were the graves of children), as is suggested by both their size and their contents, but one cannot rule out the possibility that they had a different ritual function.

The various objects comprising the grave goods here were, at least partly, of the Lubaczów type. One is struck by the similarity of the undecorated beaker of

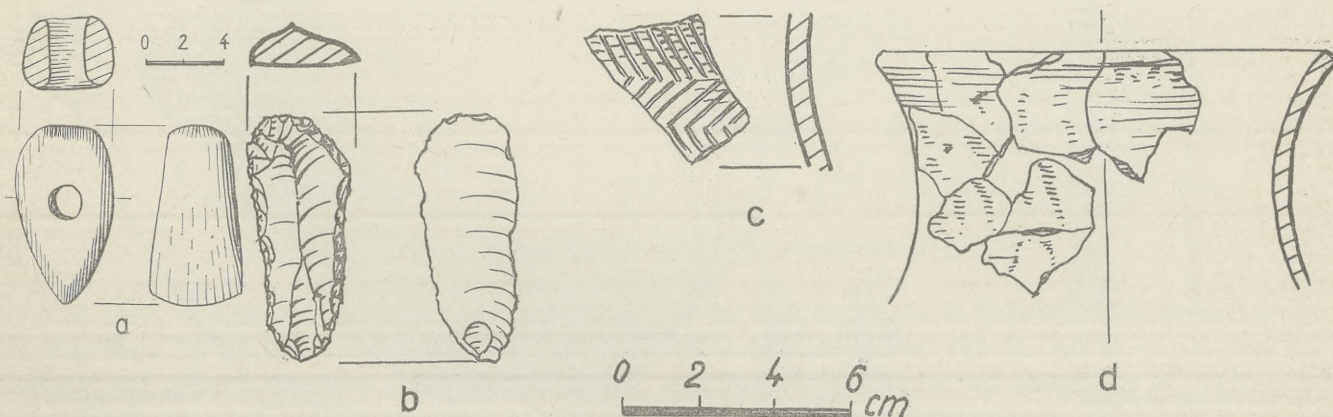


Fig. 9. Miernów. Barrow II. Grave 2

a - stone battle-axe, b - flint scraper, c - fragment of an ornamented beaker, d - upper part of a type VIb (?) beaker

type IVb from grave 2 at Miernów II (Fig. 9d) to the undecorated specimens of this same type from barrow K at Łukawica, and from the central grave in barrow III at Brzezinki. Type IVb beakers are also found outside the Lubaczów group area in Małopolska. We know, for instance, of an almost biconical variant of this type of beaker, which was found in grave 15 at Żerniki Górne (Fig. 4). But outside the Lubaczów group they are always decorated. This characteristic (absence of decoration) of the Lubaczów group is, besides, not only found in the type IVb beakers, but also in the amphorae from the same area and the vessels of the Brzezinki type. Part of a beaker found in the same grave (Fig. 9c), decorated with an incised chevron pattern on the neck and the upper part of the belly, also resembles very closely a fragment of a type IVb beaker from a barrow at Lipie as well as vessels from the central grave in barrow IV at Brzezinki. As a matter of fact this kind of ornamentation is frequently found on the vessels of the Lubaczów group, but very rarely in the Małopolska Uplands, where it never occurs by itself, but always in conjunction with corded ornamentation, and almost always only on beakers of types VIa and VIb, although — exceptionally — it can be seen on the afore-said type IVb beaker from grave 15 at Żerniki Górne and on a type II beaker from grave 1 at Nowy Daromin, woj. Tarnobrzeg (Antoniewicz 1925, Fig. 42).

Coming now to the type II battle-axe, it is found oftenest in the western part of the Małopolska Uplands, and also, but extremely rarely, in the drainage basin of the Middle San (Machnik 1966, 42). Thus its presence in grave 2 at Miernów II fits in with what Machnik declared to be the area with the most common occurrence of that type. So most of the objects found in this grave (apart from a "local" battle-axe and an undiagnostic scraper) are clearly of the "Lubaczów" type, as are the signs of funeral customs. Were it not for geographical distance, we could simply class this grave in the Lubaczów group.

Hence a doubt arises: namely, does the Lubaczów group represent a local, regional variant of the Corded Ware culture, or rather a chronological phase of that culture, which, however, occurred over a larger area. For it should be remembered that in the area belonging to the Lubaczów group more or less only the barrows have been excavated, and only those situated in a small area. As a matter of fact additional light is cast on this question by the discovery of finds of the "Lubaczów" type at Kęsocha, woj. Ostrołęka, in northern Mazowsze (Okulicz 1973, 110 ff.; 1978). This was barrow III at site 2, "Borek", in the place of that name. The barrow was about 10 m in diameter and 1.25 m in height. Under the mantle of earth there were many layers of stone forming a circular heap about 7.5 m in diameter, while lower down, in a layer of grey, mixed sand, there were

nine heaps of charred bones, on the basis of which it was possible to distinguish 5 graves. Anthropological analysis of the bones revealed that the remains of six persons were laid in these graves, while one of the heaps contained the incinerated bones of a dog. In the same level the outline of a narrow ditch was visible, consisting apparently of separate pits with rounded or sharp-pointed bottoms, situated close to each other and as it were merging into each other. In ground plan the ditch was oval, measuring 4.2×4.8 m. Approximately 35 cm below the layer containing the cremated skeletons, a layer of pure sand was found, still containing traces of the bottom of the ditch, and the perfectly legible outline of a rectangular grave pit. The depth of this pit was about 1.5 m from the level at which it was discovered. At successively lower levels the shape of the grave pit and the direction of the main axis changed. The pit was filled with sand mixed with small pieces and large lumps of charcoal. In the north and east sections of the grave pit, many fragments of large, charred pine logs came to light, many of them standing vertically. The grave pit contained no traces of bones, but had fragments of three vessels: 1 — a low beaker decorated with a chevron pattern on the neck and two rows of triangular stamped impressions lower down; 2 — a small amphora, probably with two lugs and undecorated; 3 — a fat round beaker with a splayed rim and a row of finger-tip impressions at the base; the surface of this beaker was very rubbed.

In the C14 Laboratory of the National Museum in Copenhagen the charcoal from the material that filled the grave pit was declared to have come from pine, and its age was fixed at 1930±100 B.C. (Tauber 1973, 107).

Now in this assemblage we can see a whole number of similarities to the graves of the Lubaczów group. The similarity of burial customs also extends to the outer appearance of the grave (which is a flat tumulus), and to its inner construction. The rectangular grave pit, containing numerous fragments of charcoal and large pieces of logs is after all just the same as the typical "Lubaczów" grave, and, like the latter, contains no skeleton. No less typical is the circular ditch ringing the grave pit. Moreover, the orientation of the main axis of the grave pit, and even the changing outline of the pit at different depths, are found, too, in the "Lubaczów" barrows at Brzezinki, Łukawice and Lipie (Machnik 1966, 240–249, and references there). It must be stressed, however, that disparities do exist. For example, in the Lubaczów group there are no stone constructions under the barrow mounds. The similarity of the two groups becomes particularly evident when we compare the inventory of the grave pit of the barrow at Kęsocha with the "Lubaczów" material (Okulicz 1973, Fig. 45g, h). A particularly notable illustration of these similarities is provided by the beaker decorated with a chevron

pattern. Equivalent to it are the so-called "Brzezinki type vessels", which, in the archaeological evidence from the "Lubaczów" *kurhans*, Machnik (1966, 36 f., 90) distinguished as a specifically local form. For especially as regards shape the Kęsocha beaker is extremely similar to two vessels of the Brzezinki type which came from grave 2 in barrow III and barrow V at Brzezinki (Machnik 1966, Plate XXI 1c, 3b). On the other hand it differs from them in size (being much higher), and in the fact that it is ornamented. Yet the chevron motif itself is common in the "Lubaczów" finds (Machnik 1966, 86 f.), where it also occurs in conjunction with another ornamental motif of the Kęsocha beaker — that is, incision of the rim, such as occurs, for example, on the type IVb beaker from the central grave in barrow IV at Brzezinki (Machnik 1966, Plate XXII 3a).

Another vessel from Kęsocha has survived, too, but unfortunately only in the form of a few fragments which are insufficient to make the reconstruction completely trustworthy. Even so, the suggested reconstruction illustrated in Fig. 10 appears to be a very likely one.

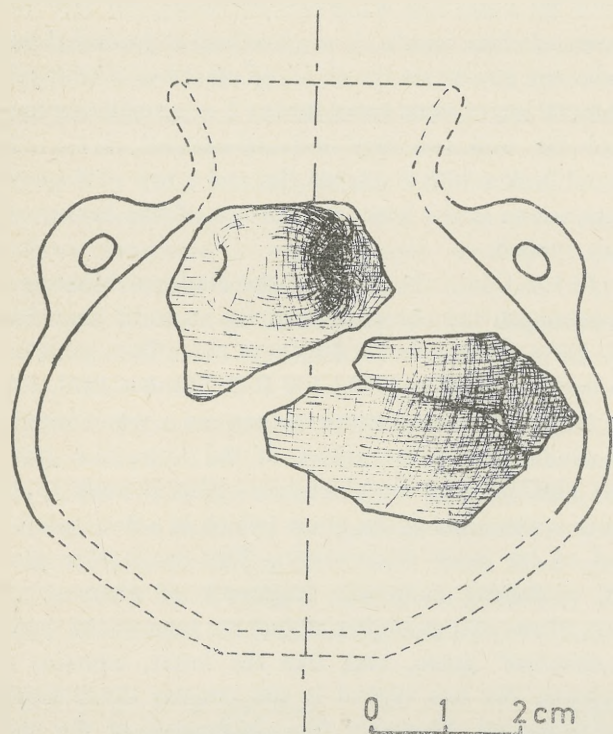


Fig. 10. Kęsocha. Reconstructed amphora

We are familiar, too, with similar amphorae from the Lubaczów group: from the grave pit of barrow I at Lipie (Machnik 1966, Plate XXIII 4b, c), and from the barrow at Surmaczówka, woj. Przemyśl (Machnik 1966, Plate XXIV, 4a, b). True, the specimen from Kęsocha is a little smaller than the four amphorae from Lipie and Surmaczówka, but they all belong to the small vessel group.

A third vessel — a beaker ornamented with finger impressions below the rim, and with the entire surface

very rubbed — has nothing in common with the finds of the Lubaczów group. On the contrary, it has some affinities with some of the grave relics from the Mazurian Lake District, especially those from Koczek, woj. Olsztyn. Because of the finger impression motif on this beaker, it may be compared with specimens from Boborów (Kilian 1955, Fig. 297 E) and Kołowin (Kilian 1955, 259), both in the Olsztyn woj., as was rightly pointed out by Okulicz (1973, p. 116). Of course vessels (including beakers) with or without an applied band, and decorated with finger impressions, also occur in large numbers among the finds of the Rzućewo culture, where they are important, characteristic components of the grave goods (Żurek 1954, 36, Plates III 1–6, X 16–23; Kilian 1955, 31 f., 24 f., 121; Tetzlaff 1970, Fig. 125 B: 30, 33, 36, 37, H:66). They have also been found in other settlements of the Corded Ware culture — for instance at Biederitz-Heyrothsberge, site 11, near Magdeburg (Behrens 1969, 97, Fig. 9a), also in the cemeteries of the Złota culture at Złota (Krzak 1958, Fig. 14b; 1961, Figs. 54d, 83d; 1968, 110, Fig. 18; 1969, 246 f., 250; 1970b, Figs. 74, XVIII, 98d), while a single specimen of this type also came to light in a grave at Dąbrówno, woj. Słupsk, in Western Pomerania (Kilian 1955, 25, 172, Plate XII 70a; Siuchniński 1969, 13 f., Plate L). According to Kilian, vessels with this kind of decoration have their prototype in the Funnel Beaker culture (Kilian 1955, 78, 121). On the whole Krzak takes the same view of the vessels with applied bands and finger impressions in the Złota culture, although he does not exclude the possibility that they may have derived from the Radial Decorated Pottery culture (Krzak 1969, 246 f.). But this does not explain their chronological position in the Corded Ware culture. Becker (1956, 71) comes to a similar conclusion after typological-chronological study of known finds of this kind discovered in Europe. But it is noteworthy that out of the three specimens of vessels of this kind discovered in well dated stratigraphic situations, it can be taken that two belong to the earliest phase of the Single Grave culture in Jutland (Møllerup and Hunshoved; Becker 1956, p. 68, Figs. 2 and 3), and one to a later phase (Selbjerg; cf. Becker 1956, p. 68). Vessels of this type and its various subtypes occur in fairly large numbers in culture layers of the Corded Ware settlements in Finland, and especially in the Nyland region, on the northern shores of the Bay of Finland (Edgren 1970, 25, 49, Fig. 18). But they have been found only once, together with objects bearing features of the older phase of the Corded Ware culture, in a grave at Ekmäs (Edgren 1959, 50 f., Figs. 6a, b, 9a–d). From his studies of this assemblage and analogous finds in Europe, Edgren (1959, 50 f.) came to the conclusion that the vessels with applied bands and with finger impressions under the rim should, especially in view of their wide range of occurrence, be reckoned as

belonging to the oldest elements of the Corded Ware culture. This opinion is shared by Buchvaldek (1971, 558), although with some hesitation. Indeed today there is no longer any doubt that the area where these vessels were in use was a large one, even comprising the whole of Central Europe from Switzerland (Strahm 1971; 1973, Fig. 10) to Holland and Jutland in the north (Becker 1956), and Poland and Finland in the east. The discovery at Kęsocha provides us for the first time with grounds for assigning the vessels of this type to the early phase of the Corded Ware culture in north-east Poland.

The Kęsocha grave is not an isolated specimen of its kind in this area. It is, in the view of the discoverer, contemporary with barrows at Babięty Małe and Mochovoye, in raj. Primorsk, obl. Kaliningrad (USSR), which are similar to it in many respects, and, along with them, represents the graves of the earliest phase of the Corded Ware culture in that region (Okulicz 1973, 108–112).

It was necessary to discuss this fresh North Mazovian discovery and its context in order to see grave 2 from barrow II at Miernów in the proper light. For now we can place this grave in a chronological horizon which, owing to the evidence of the sub-barrow primary burials, can be distinguished from the area of the Lubaczów group in the south, stretching as far as the Polish Lowlands in the north. This horizon should be dated to the boundary between the III and the II millennium B.C. Owing to two C14 dates which are now available to us, we now know that this horizon can be placed between the years 2010 ± 100 (Miernów) and 1930 ± 100 (Kęsocha; Tauber 1973, 106).

A grave discovered at Koniusza, woj. Kraków (Kruk 1973b) also resembles grave 2 from barrow II at Miernów in some respects. But this resemblance holds good only of the burial customs, and not of the grave goods. It seems likely that the sub-barrow grave at Koniusza belongs to another chronological horizon of the Corded Ware culture, as I shall attempt to prove below.

THE PIT GRAVES DUG INTO THE MOUNDS OF THE BARROWS

In two of the barrows with which we have been concerned here (barrow II at Miernów and the barrow at Kolosy), burials of the Corded Ware culture have been found dug into the mounds, hence it is proved by the stratigraphy that they are of a later date than the primary sub-barrow graves.

At Kolosy, apart from the two primary graves already discussed, 1 and 3, two more, 2 and 4, have been disco-

vered. As has already been remarked, the stratigraphic position of grave 2 is not certain. There are no signs that it was dug into the mound of the kurhan. This could indicate that, like graves 1 and 3, it was covered by a barrow, but on the other hand we must take into account the fact that the thickness of the mound over this grave is very low. The shallowness of the grave pit, the bottom of which lay about 25–30 cm higher than the bottom of graves 1 and 3, may suggest that the grave was dug into the mound. Grave 2 was oriented in the same direction as the primary graves: SW—NE. Apart from two flint flakes, no other finds were discovered in this grave.

In barrow II at Miernów, a large number of burials were discovered dug into the mound of the oldest tumulus. Five such burials, one of them belonging to an animal (grave 10), belonged to the Corded Ware culture. Four of the graves were of the pit type.

Grave 10, containing the skeleton of a horse, was dug into the eastern edge of the mound of barrow II/2, and was then covered by a little barrow which protruded slightly above the surface of the first. The grave pit bore strong traces of fire, resembling in this respect primary sub-barrow grave 2. This characteristic, which is not repeated in the other Corded Ware graves at this site, as well as the fact that burial 10a was dug into grave 10, prove that there was a close time relationship between grave 2 and animal grave 10.

Pit graves 1, 4 and 10a are different from the others in that they had no furnishings (apart from part of a flint implement in grave 10a). Their longer axes were oriented in different directions. It is hard to say anything about the typology of these graves, but it is worth noting that they are all grouped in an area near primary sub-barrow grave 2, and, along with the place where the horse is buried (grave 10), are arranged in a regular strip running E—W through the middle of barrow II/2. Their stratigraphy indicates beyond doubt that they are of later date than the sub-barrow grave, but owing to the absence of grave goods it is impossible to estimate the interval between them and the oldest burial at the site. The fact that they are somewhat grouped together, and the logic of their arrangement, suggest that they date from times not far distant from the period when barrow II/2 was made. In my opinion, they are analogous to grave 2 at Kolosy, and possibly to the cremation burials without grave goods at Kęsocha. In all these instances it may be presumed that the graves still belong to the Barrow period.

PERIOD II — THE NICHE GRAVES PERIOD

Shaft graves and niche graves were also dug into the barrow mounds of the Corded Ware culture at Kolosy and Miernów II. They belong, not to the Barrow period

(for graves so constructed were never found in the position of the primary sub-barrow graves), but to the next stage in the development of this culture, a stage which

is known as the "Niche Graves period". During that period the Corded Ware culture took on new characteristics, as regards both funerary customs and material culture. At the beginning one can distinguish a fairly extensive culture horizon that embraces both old elements of the style characteristic of the barrow period, and clear presages of the new style that was shortly to dominate the whole of the Małopolska Uplands: the style represented by what is known as the Cracow-Sandomierz group of the Corded Ware culture.

THE SHAFT GRAVE AT KOŁOSY,
AND THE ŚLĘŻA BATTLE-AXE HORIZON

There are no doubts as to the stratigraphy of grave 4 at Kołosy. The shaft leading to the principle chamber of this grave distinctly intersects the surviving layer of the mound of the barrow (cf. Fig. 2). The unusual, shaft construction of this grave, which has an extra niche for grave gifts dug out of the west wall of the shaft, is a unique form in Małopolska. Owing to the relatively abundant furnishings of grave 4, it provides good grounds for comparison.

An amphora discovered in this grave (Fig. 11a), which has been classed as type Id, has an analogy in a nearby object discovered at Witów, woj. Kielce (Rydzewski 1973, Fig. 4a). Between these two finds there are certain differences, especially in the shape of the rim; the handles, too, differ. But there is complete concordance of the most important characteristics, that is, the general shape of the vessel (which has a distinct bottom and a short neck) and the motifs and the placing of the ornamentation. Rydzewski (1973, 74) placed the Witów amphora in type IIb according to Machnik's classification. But I think it would be better to treat this vessel, as well as the similar specimen from Kołosy, as belonging to a separate category, d, within type I. The main reason for so doing, in my opinion, is the fact that the ornamentation of these vessels is completely different from that of the type II amphorae, and shows a very clear and close affinity with the very characteristic ornamentation of the amphorae in type I, especially sub-type Ia. In the vessels we have been discussing here, this ornamentation, which generally speaking is identical to that on the "Thuringian amphorae", is only an abbreviated version of it, transferred to a higher part of the belly. From the typological point of view it represents an intermediate form, transitional between types I and II, and very probably is a reflection of the process whereby one form becomes transformed into the other. The chronological sequence is also confirmed by the stratigraphy at Kołosy, where a type Ia amphora was discovered in primary grave 1, and a type Id amphora found in grave 4, which was dug into the barrow. This rare case, which provides us with an opportunity for tracing the development

of the pottery forms in a single site, deserves our close attention.

In grave 4 the type Id amphora was accompanied by a beaker which I have assigned to type Va-5 (Fig. 11b). This is a form which is also very rare in Małopolska, being represented only by this one specimen. In shape it resembles the type V beakers, particularly in that the neck is distinctly separate from the belly. But the ornamentation covering the neck is typical of the type II beakers. This second characteristic is important to our deliberations, for it means that this beaker can to some extent be compared to the specimen from grave 2 at Witów (Rydzewski 1973, Fig. 4b), that is, to the vessel found along with the amphora discussed above. This fact is of course important, in that it allows us to base our comparison of grave 4 at Kołosy and grave 2 at Witów on a cluster of traits, not just one. The two graves have other points of similarity, as well, such as the stone battle-axes and flint axes that form part of the grave furnishings. A battle-axe from Kołosy (Fig. 12a) is a classic example of the battle-axe of Ślęża type a (Smutek 1950, 157, Fig. 1a), with all the details characteristic of that type, including the material of which it is made (serpentine). A specimen from grave 2 at Witów also belongs to the Ślęża battle-axes, but since it is not so slim, and since it does not have a distinct butt it must be placed in type c (Smutek 1950, 157 f.). It should be stressed however, that it, too, is made of serpentine. And finally, the grave at Kołosy contained two flint axes; the type IV specimen found in the grave-chamber was made of Świąciechów flint (Fig. 12d), while one found in the niche belonging to type Id, was made of chocolate-coloured flint (Fig. 11c). At Witów there was only one axe made of Świąciechów flint, and it belonged to type Ia (Rydzewski 1973, 74, Fig. 4a). The discrepancies between the axes belonging to the various sub-types of type I are not marked; indeed, the similarities are more important — the square shape, and the thick butt, in which respects the Kołosy and Witów axes are analogous.

Possibly the similarity between these graves also extends, at least partially, to the construction of the grave and the characteristics of the skeletons there. As for the latter, there is total consistency in that they lie along a N—S axis, reclining on the right side, with their head to the S, and in a tightly crouched position. We know too little about the type of grave at Witów to be able to make an exact comparison. But in view of the depth at which the bottom of the grave was discovered (220 cm), we can rule out the pit-grave form. It must have been a shaft grave or a niche grave. From the description of it, it seems most likely to have been a niche grave ("...a trapezoid profile standing out only very slightly from the bedrock...", Rydzewski 1973, 74), with typical but scarcely visible traces of collapse of the

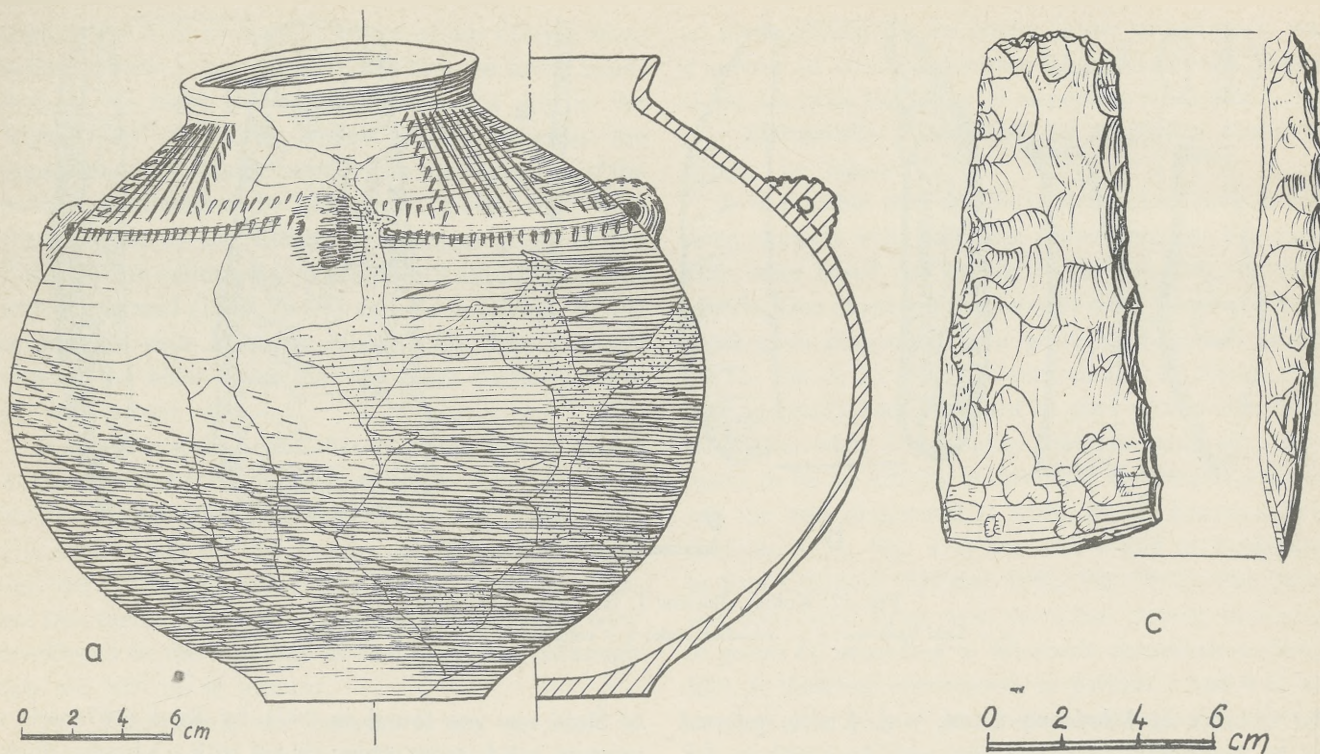


Fig. 11. Kolosy. Barrow I. Grave 4 — niche
 a — type Id amphora; b — type Va-5 beaker; c — type Id flint axe

vaulting of the niche. Its connection with the presumed barrow is not clear, but very probably there was such a connection, in the sense that it may have been dug into the presumed barrow mound, as was the case with grave 4 at Kolosy and grave 11 at Miernów II. We shall therefore await with all the greater interest the results of the search for the primary, central grave, which, Rydzewski (1973, 77) expects, exists under the surviving remains of the barrow mound.

Thus the syndrome of traits found in grave 2 at Witów is very similar to that of the grave at Kolosy. But we should not close our eyes to the differences between them, too. This applies both to the pottery and to

the stone artefacts. For instance, the Witów amphora gives the impression of being slightly more akin to type II than is the Kolosy amphora — principally because of its characteristic listel-like handles, which have vertical slits. The Witów axe, too, seems to be of a more developed kind, for it does not possess the classic features of the Kolosy specimen, that enabled us to place the latter in type a, according to Smutek's classification. Probably the niche type of the grave may be taken as another sign that the Witów one belongs to a rather more advanced phase of the Corded Ware culture than is represented by grave 4 at Kolosy.

The time interval between these two assemblages is possibly not big, but it is perceptible in the typology. In this connection we must also examine the question of the dating of the two assemblages, and comment on Rydzewski's attitude to that question. For his view regarding the "Lubaczów" character of the Witów assemblage (Rydzewski 1973, 78) can be criticized to some extent. The analogies he cites for the beaker are not convincing. Above all, the Witów specimen does not have the slimness characteristic of the Lipie and Łukawica beakers. For in the latter the bottom section becomes very narrow and separate from the main body — a trait which is absolutely alien to the Witów beaker. As far as the shape of the bottom is concerned, it is much more akin to that of the Kolosy beaker mentioned above. The upper part of the Witów beaker, however, really is similar to the "Lubaczów" specimens, but this characteristic is to be found outside the Lubaczów group as well —

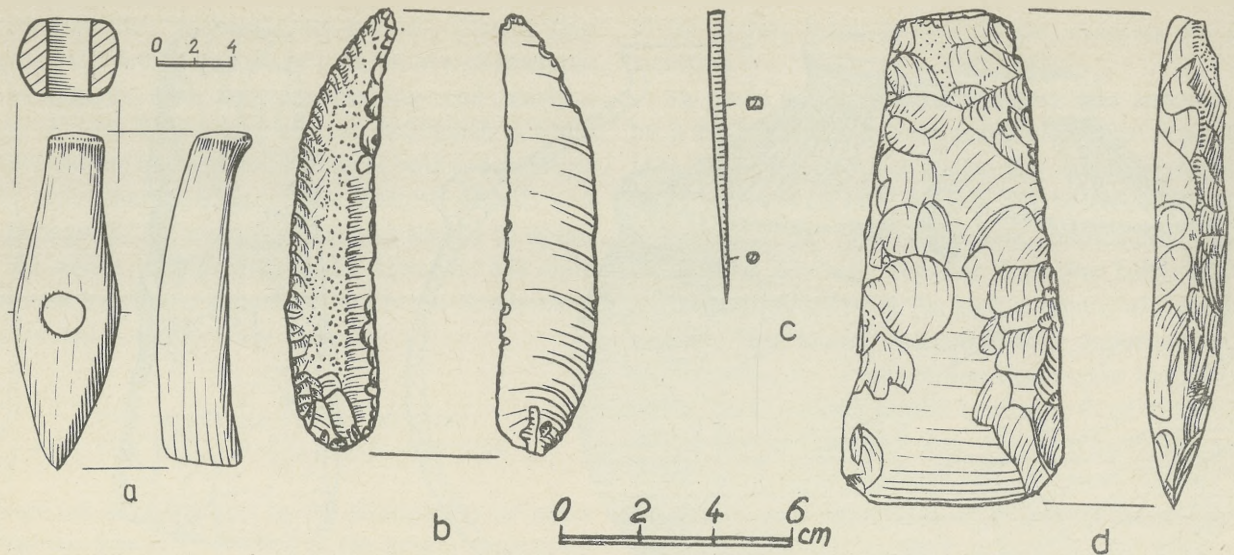


Fig. 12. Kolosy. Barrow I. Grave 4 — chamber

a — Ślęza battle-axe; b — retouched blade; c — copper awl; d — type IV flint axe

for instance at Młodzawy Duże, woj. Kielce, referred to by Rydzewski in connection with an amphora (cf. Machnik 1966, Plate VIII la), and also at Mierzanowice, woj. Tarnobrzeg (Uzarowiczowa 1970, Figs. 4a, 6a, 10a, 19a, 22a). It is hard, too, to accept that there is an analogy, as is suggested, with grave 6 at Książnice Wielkie, and with a find from Gruszów (Rydzewski 1973, 76). As regards burial customs, there is no similarity at all between grave 2 at Witów and the “Lubaczów” graves. In the Lubaczów group there are no Ślęza axes either. On the other hand Rydzewski is right in suggesting that there is a similarity between the Witów amphora and the amphora from grave 1 at Książnice Wielkie. To sum up, we cannot agree with Rydzewski’s opinion that grave 2 (and also grave 1) at Witów belongs to the same horizon as the Lubaczów assemblages; there are analogies to the latter in assemblages of a different type in the Małopolska Uplands and in the North Polish Plain (Miernów II, grave 2; Kęsocha).

Apart from the Witów assemblage and the similarities of pottery discussed above, grave 4 at Kolosy bears an affinity to at least two other graves in the Małopolska Uplands — through the Ślęza axe. One such axe was discovered in the course of Kozłowski’s excavations on a hill called Góra Klin at Iwanowice, woj. Kielce (Kozłowski 1917, 4, 17, Fig. 18; Machnik 1966, 44, 221); it belongs to Smutek’s type a. This specimen was discovered in a grave which, judging by the oval shape and considerable depth of the grave pit (about 100 cm), and the fact that the skeleton was lying in a N—S direction, in a tightly crouching position, on the right side, with the head turned S-wards, seems to have been of the niche type. The grave equipment included no pottery, but comprised also a flint axe and a bone chisel and awl (Kozłowski 1917, 4, 17 f., Fig. 19–21). Another type

of Ślęza axe was found in 1971 by Kruk (1973a) in a primary sub-barrow grave, ringed with a circular ditch, at Koniusza. This grave did not contain any pottery grave gifts either, but it was richer in flint, stone, and bone objects. In it was a tightly crouching skeleton, lying N—S, on its right side, with the head facing S.

Among the four grave assemblages that had Ślęza axes, only two contained pottery: grave 4 at Kolosy and grave 2 at Witów. Only one grave was in such a stratigraphic situation that it was possible to denote the lower boundary of its relative age. But the fact that all the skeletons lay in the same position and in the same direction, and the fact that on the whole the equipment of all four graves was similar, entitle us to conclude that the graves constituted a fairly compact chronological group. In the light of the stratigraphy a Kolosy, this group seems to be later than most of the sub-barrow primary graves. It is also later in date than the objects discovered in those graves, and than the battle-axes of type II. The group of graves referred to here is connected with the niche or shaft type of grave. Further, analysis of the pottery has revealed that the group of graves here dates from the period when the amphorae of type Ia (the oldest form) were in transition to the amphorae of type II. The Koniusza assemblage, on the other hand, tells us that the beginnings of this process can be traced to the period when the barrow graves with typical circular ditches aringing the central grave pit were in decline. This sequence of phases should not, however, be taken too rigidly. Undoubtedly these phenomena were to be found throughout a large area not simultaneously, but occurred within a certain time interval. The pottery in particular provides us with grounds for treating this whole phenomenon as a process in which the style of the oldest phase became modified

towards the style of the later stages of the Corded Ware culture. Hence it may be presumed that the lower boundary of the Ślęża Battle-Axe horizon lies still in the "statistically" preceding barrow period, whereas the upper boundary already extends into the beginning of the period characterised by the niche graves that were characteristic of the Cracow-Sandomierz group of the Corded Ware culture. So on this point I am in agreement with Rydzewski (1973, 76–77) and Kruk (1973a, 67 f.), as well as with Machnik (1966, 155), who strongly rejected the older views that the Ślęża battle-axes are of very recent date.

It should also be added that in the horizon of which we are speaking there are Ślęża axes not only of type a, but also of type c (Witów), which is typologically younger. This fact, in my opinion, brings out even more clearly that the Ślęża axes phase was one of short duration, but that there were signs of inner dynamism, which were manifested in the typology of the specimens, although they are still few in number.

The Ślęża Battle-Axe horizon is not confined to Małopolska alone. It was noted in Silesia by Sołtykowska-Godłowska (1965), who thought it was only of local significance. Although she perceived an affinity between the pottery objects in the assemblages with Ślęża battle-axes (especially the type Id amphorae), and the pottery of the Cracow-Sandomierz group, she thought these were merely manifestations of single, isolated contacts of no great significance to the general development of the Corded Ware culture in Silesia (Sołtykowska-Godłowska 1965, 203). But it appears that among the sparse finds of the Corded Ware culture in Silesia, objects characteristic of the Ślęża Battle-Axe horizon form a considerable proportion. For apart from Kaszowo, woj. Wrocław (Nowothnig 1937, Fig. 1; Sołtykowska-Godłowska 1965, Fig. 1:8), which produced an amphora with analogies in Małopolska, and especially in Kolosy and Witów, this horizon includes not only amphorae from Wrocław-Kuźniki (Seger 1926, Plate XXX 2; Sołtykowska-Godłowska 1965, Fig. 1:10) and from Legnica (Seger 1926, Plate XXX, 2; Sołtykowska-Godłowska 1965, 202), but also amphorae not mentioned by Sołtykowska-Godłowska from Witowice, woj. Wrocław (Nowothnig 1937, 261, Plate 62:2) and probably from Łękanowo, woj. Leszno (Nowothnig 1937, 261 f.). The connection between this pottery and the Ślęża Battle-Axe horizon is corroborated by 1 — an assemblage from Kaszowo, in which a battle-axe of the Ślęża type was found, and 2 — analogies between this pottery and the type Id amphorae from the Małopolska Uplands, whose position in this horizon has already been discussed at length. Quite apart from the question of the directions from which the Corded Ware culture in Silesia drew its patterns and inspirations in both earlier and later times, it must be accepted that at least

at the beginning of the Niche Grave period there was a revival of contacts between Małopolska and Silesia, as we see from the influx of serpentine Ślęża battle-axes into Małopolska, while type Id amphorae began to appear in Silesia.

It is possible that the Ślęża Battle-Axe horizon had some contacts with still more distant regions, but these links were based not on the battle-axes, but on other objects. One object which I have in mind here is the bone cheek-piece discovered in a grave at Koniusza (Kruk 1973o, Fig. 3, 2), which is very similar to objects that have generally been regarded as pins with a side loop. No matter what their original function really was, there seems to be an affinity between the Koniusza specimen and the pins discovered at Ardu, in the Estonian SSR (Indreko 1938, Fig. 3:1) and one found at Linköping in East Götaland (Malmer 1962, Fig. 73:2). The latter was discovered along with the oldest pottery belonging to group G, according to Malmer's classification (1962, 300). It therefore corresponds to periods 3 and 4 in his six-stage time scale of the Swedish-Norwegian Battle-Axe culture. Grave II at Ardu did not contain any good, independent time-indicators. Hence I agree with Malmer that this grave can be dated through its links with the Linköping assemblage (Malmer 1957), and not the converse, as was suggested by Kaelas (1956). Synchronisation of the Ślęża Battle-Axe horizon with the group G pottery from Sweden would constitute evidence of a similar general rhythm in the development of the Corded Ware culture in Małopolska and of the Swedish-Norwegian Battle-Axe culture in Sweden.

THE NICHE GRAVE AT MIERNÓW II, AND THE HORIZON WITH POTTERY OF THE KSIĄŻNICE WIELKIE TYPE

Grave 11 at Miernów II is connected with the next phase of the Niche Grave period. It lies south-east of the primary grave, not only at some distance from it, but also separate from the pit grave cluster. Moreover, it differs greatly from the latter both in construction and in equipment. An object of particular note in this grave is an unusual beaker of the Książnice Wielkie type (Fig. 13a). True, its shape is slightly different from that of the vessels of that type found in graves I and VI at Książnice Wielkie and Sokolina, which served Machnik as a base for distinguishing that pottery group, with its characteristics rather different from the Corded Ware standard (Machnik 1964, 357, 361 f., 364, Plates I 3, III 2, 4; 1966, 38, Plate V 1a). But it has many features in common with them as well, especially the decoration of the neck (i.e. an applied band, covered with diagonal incisions, running round the vessel just under the rim). Other analogous characteristics are the bottom distinct from the rest of the vessel, and the slightly shiny, very smooth

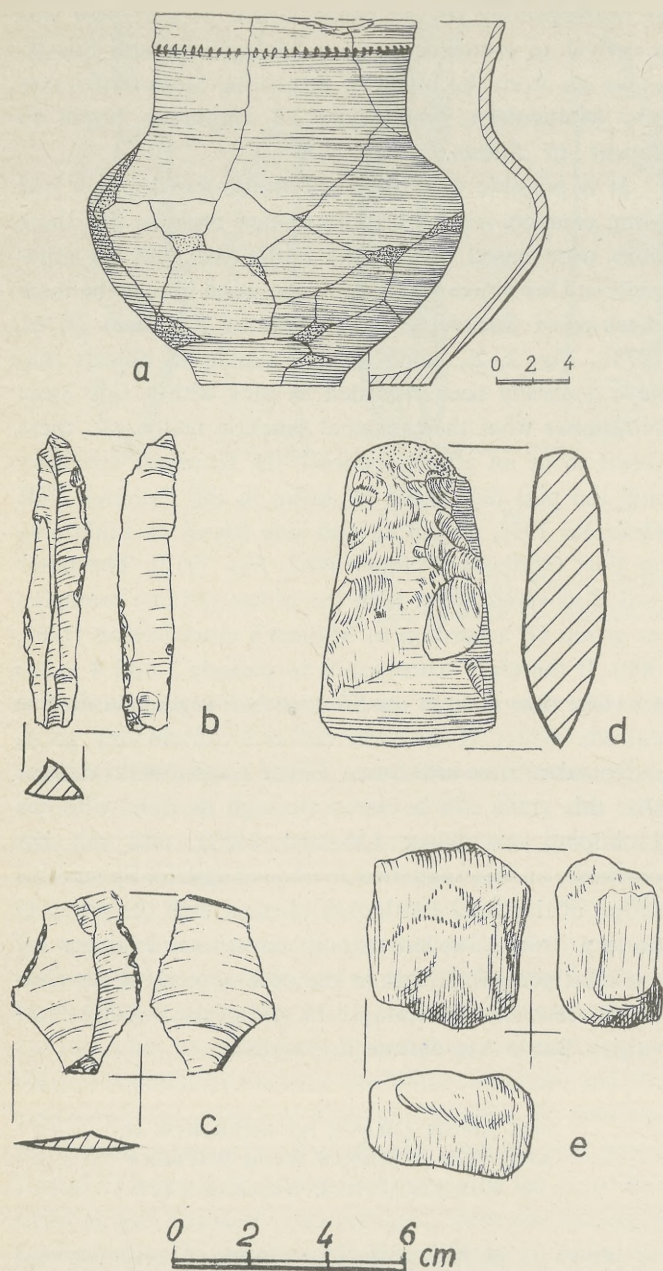


Fig. 13. Miernów. Barrow II, Grave 11

a — beaker of the Książnice Wielkie type; b, c — flint blade; d — flint axe;
e — whetstone (?) made of sandstone

surface similar to that of the pottery of the Funnel Beaker culture. The difference between the grave 11 beaker and the Książnice Wielkie vessels is that the former has no handle. Yet the Sokolina beaker has no handle either. Besides, it should be remembered that until recently the Książnice Wielkie type has been represented by a very small number of vessels. From the evidence of the vessels from graves 26, 78 and 81 at Żerniki Górne (cf. Fig. 4), it may be concluded that basically this type has a far bigger variety of forms than was indicated by Machnik (1964; 1966). It would seem justifiable, then, to extend the term "Książnice Wielkie type" to cover a wider range of pottery, including vessels such as the beaker from grave 11 at Miernów II and

the vessels from graves 26, 78 and 81 at Żerniki Górne, because very probably their appearance stemmed from the same historical and cultural base (discussed at length by Machnik 1964, 361–363). The common origin binding this whole pottery group together and stamping it with a common style can be seen in the vessels' technical characteristics and ornamentation. It would be hard to doubt here that they reflect the influence of the Funnel Beaker culture. The entire group of vessels of the Książnice Wielkie type is suffused through and through with the stylistic and technical heritage of that culture, and this differentiates it from the other vessels of the Corded Ware culture. This, in my opinion, is its most important characteristic. Identity of shape is, in my view, of less significance. A certain amount of variation in this respect only means that the Funnel Beaker tradition continued not just in a single form, but in a wider range of them, a fact which throws light on the extent of the continuation of this tradition. Indeed, as more and more objects become excavated it may be necessary to divide the group further into narrower typological sub-groups. But at present this would seem to be unnecessary, and the aforesaid principal stylistic features of this complex differentiate it adequately. In conclusion, my view is that grave 11 at Miernów II should be assigned to the horizon which has been indicated by graves I and VI at Książnice Wielkie, the grave at Sokolina, and graves 26, 78 and 81 at Żerniki Górne. It therefore corresponds to phase A of the Żerniki Górne cemetery.

THE END PHASE OF THE NICHE GRAVE PERIOD (ŻERNIKI PHASE B)

From the results of the typological-planigraphic analysis described above, we know that there were two phases in the history of the Żerniki Górne cemetery. The oldest part of phase A was contemporaneous to the horizon with vessels of the Książnice Wielkie type. Phase B represents the youngest stage of the Corded Ware culture that we have succeeded in discovering during excavations of the cemetery. The time contact between phase A and phase B has already been discussed. We may take it there was continuity of development between them. Phase B's close time links with the Early Bronze Age is demonstrated by the pottery from grave 38 (Fig. 5). For that reason we may describe phase B as the end phase of the Niche Grave period, and also as so far the oldest known phase of the Corded Ware culture in Małopolska. But since the excavations have not been completed at Żerniki Górne, it is quite likely that the forms which are particularly characteristic of the pottery of this phase will not be confined to those shown in Fig. 5. Further investigation of this cemetery will, it is expected, tell us more about the Corded Ware culture in its end phase.

SYNCHRONISATION OF THE BARROW SITES IN MAŁOPOLSKA

We are now in a position to draw up a Table (Fig. 14), which shows in graphic form the time relationships between the Corded Ware culture graves investigated in Małopolska.

The sub-barrow graves containing amphorae of types Ia and Ie represent the oldest horizon. We also class in this horizon grave V at Książnice Wielkie. As a matter of fact to begin with this grave, too, may have been a sub-barrow one, as is suggested by the exceptionally small depth of its grave pit (Machnik 1964, 347, 357). That first phase of the Barrow period likewise represents a part of the "Pan-European horizon" of the Corded Ware culture in this area.

The sub-barrow graves ringed with ditches belong to the younger phase (phase II) of the Barrow period, as we can see from the typological characteristics of their inventories. But they also have a connection with phase I, as is proved by the fact that the stone battle-axes from grave 3 at Kolosy and grave 2 at Miernów II are

identical. On the other hand the grave at Koniusza bears evidence of contacts with the Ślęza Battle-Axe horizon, which at the same time corresponds to the earliest shaft graves and niche graves.

The horizon with pottery of the Książnice Wielkie type is equivalent to the very early stages of the classic, Cracow-Sandomierz group of the Corded Ware culture. Nothing has so far come to light that would point to direct contacts between the horizon with pottery of the Książnice Wielkie type and the horizon with the Ślęza Battle-Axes. Yet it seems justifiable to assume such a contact, because of the way the amphorae of type Ia developed through a Id stage (in the Ślęza Battle-Axe horizon) into type II, which is present in grave 26 at Żerniki Górne, along with an amphora of the Książnice Wielkie type. Simultaneously this amphora denotes the oldest chronological level of the Żerniki Górne cemetery, that is, the beginning of phase A there.

Phase B at Żerniki is the youngest link.

Miernów I	Kolosy	Gruszków	Książnice Wielkie	Miernów II	Bieżezinki	Lipie	Kesocha	Koniusza	Witów	Iwanowice	Żerniki Górne
											Phase B
			Gr. I i IV type Ks.W.	Gr. II type Ks.W.							Phase A type Ks.W.
				Gr. 1 4 i 10a					Gr. 2	Gr. 5	
				Gr. 10 Gr. 2	K. IV – centr. pit K. III centr. gr.	bottom of the pit	Gr. 1	Gr. 1			
Gr. 4	Gr. 3 Gr. 1	Gr. 1	Gr. V								

— Horizon with pottery Książnice Wielkie type
— Ślęza Battle-Axe horizon

Fig. 14. Synchronisation of sites of the Corded Ware culture

PERIODISATION OF THE CORDED WARE CULTURE IN WESTERN MAŁOPOLSKA

The diagram showing the links between the various barrow sites, which is given in Fig. 14, does not, however, embrace the entire history of the Corded Ware culture. For the tumuli have not so far provided evidence as to the chronological position of the type A battle-axes, which, apart from the assemblages of the Złota culture, consist of loose finds. Our own conclusions, which take into account not only the evidence of the barrows but of other sources too, and the results obtained earlier by other archaeologists, are given in Fig. 15. Since this scheme differs in several respects from that of Machnik (1966), I propose to discuss it in more detail.

There is a disparity between Machnik's concept of the "Pan-European horizon" of the Corded Ware culture and my own concept, which includes Strahm's

point of view on the mechanism that governed the formation of the Corded Ware culture and its settlement infrastructure. Strahm's views add a great deal to our understanding of the "Pan-European horizon" as a phase which is chronologically diversified, and in which the type A battle-axes represent the earliest stage (Strahm 1971, 132). His observation that the oldest phases of newly appearing cultures are very often characterised by scattered, loose finds is an important contribution to the theory of culture. It applies to the situation in this area, too. For it is a fact that in Małopolska the type A axes are known first and foremost from loose finds (Machnik 1966, 44, 177). Interpretation of that fact in terms of Strahm's theory seems most convincing. His scepticism as to the Złota assemblages with type A

J. Machnik 1966				
II-2	NICHE GRAVES PERIOD	Żerniki Górne, phase B		210 ± 100
II-1		Żerniki Górne, phase A Horizon with pottery of the Książnice Wielkie type		
I	BARROW PERIOD	Słęża Battle-Axe horizon		
		Sub-barrow graves encircled by ditches		
I	BARROW PERIOD	Sub-barrow graves with type Ia and Ib amphorae		Phase II
		Loose finds of the type A axes		Phase I
				„Pan-European horizon”

Fig. 15. Periodisation of the Corded Ware culture in the Małopolska Uplands

battle-axes (Strahm 1971, 72, 129) is in line with the views of Krzak (1969, 253), undoubtedly the greatest expert on this material, but is possibly a little exaggerated. For, as has already been pointed out (Machnik 1966, 116), Złota has produced more finds with characteristics of the “Pan-European horizon” of the Corded Ware culture than all the rest of Małopolska. The links which Krzak (1968; 1970a) perceived between the Złota culture and the Funnel Beaker, Globular Amphora and Radial Decorated Pottery cultures require us to treat seriously the signs which have been discovered of links between that culture and the “Pan-European horizon”. Consequently we are led inevitably to the conclusion that the Małopolska Uplands have traces of the entire history of the Corded Ware culture, and the course of that history was governed by the same general principles as have been discovered by archaeologists in other regions as well. The development of this culture took place in the following sequence: 1 — first there was a “Pan-European horizon”, the earliest phase of which was the type A battle-axe phase, followed by 2 — a stage of increasing consolidation, while simultaneously local elements were being absorbed, followed by loss of the “Pan-European” characteristics — the outcome of this was that a unique cultural unit (in our case the Cracow-Sandomierz group of the Corded Ware culture) broke off from the rest and acquired separate existence. It may be accepted, too, that the history of the Lubaczów group followed those same principles. Its history followed an identical course in the barrow period, but owing to the absorption of different local elements, it had different characteristics in the later stage.

The Złota culture no doubt represents a particular case. Krzak (1970a, 333) rightly terms it a “pheno-

menon”. The main thing, in my view, is that a mixed group came into existence, and that the earliest Corded Ware elements of the “Pan-European horizon” were embodied in it. The periodisation recently proposed by Krzak (1975) for the Złota culture does not take that possibility into account. Hence in my opinion the results obtained by him are incomplete. It is my belief that the four stages which Krzak perceives in the Złota culture not only do not cover its whole history, but hardly even the later part of it, which quite accidentally came within the scope of the stratigraphic surveys. As a matter of fact Krzak himself seems to be aware of this, for he says: “The question whether the proposed chronological division covers the whole cycle of the Złota culture’s development... has remained unanswered till now” (Krzak 1975, 218). I shall return to the question of the periodisation of the Złota culture in another place, and deal with it in greater detail. For the moment, I shall confine myself to saying only that in the light of our work on the history of the Corded Ware culture in Małopolska the ascertainment of elements of the Funnel Beaker culture in grave 14 at Złota, “on the Wawer”, merely shows that that assemblage was contemporaneous with the horizon containing vessels of the Książnice Wielkie type, that is, with an advanced phase of the Cracow-Sandomierz Corded Ware culture. On the other hand the beginnings of the Złota culture are associated with the presence, in that culture, of numerous elements of the “Pan-European horizon”. In Krzak’s scheme their position has not been defined.

Another phenomenon of this kind, apart from the Złota culture, was no doubt the Rzućewo culture. In other regions to which the Corded Ware culture expanded, such phenomena are not generally encountered. The

rule rather was that the Corded Ware culture fused with other culture groups but only in the later stages of its history.

Other divergences of opinion between Machnik and myself concern the Lubaczów group. In his periodisation (Machnik 1966, 177), it is true that he placed the Lubaczów finds chiefly in his phase II 1, but he has assigned some discoveries, such as barrow 1 at Lipie, to the "Pan-European horizon". To my mind, all the material of the Lubaczów group lay above that horizon. The type IIa beaker from barrow 1 at Lipie (Machnik 1966, Plate XXIII 3a) cannot belong to the "Pan-European horizon" because it occupies a higher stratigraphic position than the two amphorae of type Ib/II and beaker IV, which are clearly later in date than the finds of the "Pan-European horizon". On the other hand it is very probably that not all the finds belonging to the Lubaczów group come into phase II of the Barrow period. Some of them are certainly contemporary with the assemblages of the Cracow-Sandomierz group dating from the Niche Grave period, as was shown convincingly by Machnik (1966, 99–103, 144–146).

Thus in eastern Małopolska the custom of building barrows on top of the graves ringed with a ditch lasted longer than was the case in the Małopolska Uplands. The barrow encircled with a ditch, as a type, seems to me to be of little value as a chronological index. There are several clusters of these barrows. In German territories the main one is in Anhalt-Thuringia, where there are six barrows of the Kalbsrieth group (Fischer 1956, 110) — that is, as was agreed above, objects belonging at least partially to the older phase of the Corded Ware culture. Forming as it were a western extension of this cluster is barrow 3, discovered in 1952 in a group of barrows at Werl, at the foot of the Haarstrang in Westphalia. A beaker possibly belonging to type A, and a battle-axe which according to Glob's classification belonged to type A2, were found as grave gifts in the oval grave pit, as the accoutrements of a skeleton lying in the crouched position (Beck 1960). So among the reliably dated barrows containing a grave with traces of what seems to have been a circular palisade round it, this one would seem to be one of the oldest.

Many barrows found in northern and central Holland (van Giffen 1924; Holwerda 1909; Remouchamps 1923), which have graves ringed with single or double ditches, are similar to those of the Kalbsrieth group in that they have no, or very poor, furnishings. Some of them have grave goods that are probably indicative of the early phase of the Corded Ware culture. One of these is barrow 4 at Garderen, which contained a battle-axe akin to battle-axe A (Bursch 1933, 73–75, Fig. 70). The great majority of them, however, are not of the "Pan-European" type, but contain objects typical of the Bell Beaker culture: characteristic wrist guards and pottery

of that culture, or advanced pottery of the Veluwe type (Bursch 1933, 98–111). Nor are there any finds of the "Pan-European horizon" type in the barrows of the north-east region of FRG (Asmus 1954).

In Denmark, the graves ringed with ditches contained battle-axes of types B-1c, B-2b, G-3a and I-3a. Glob (1945, 170–172) dated them as belonging to phase I and II of the Single Graves culture (*Undergravstid* and *Bundgravstid*).

In Poland, so far, we know of only one grave of the Kalbsrieth type. It was discovered at Modliborzyce in 1931, but has only recently been published by Wiślański (1978). It had a grave pit encircled with a ditch, and the only equipment provided for the tightly crouched skeleton was a retouched flint blade. The stratigraphically defined time framework of this grave is bounded by the late phase of the Globular Amphorae on the one hand, and the Iwno culture on the other (Wiślański 1978).

The *kurhans* at Kęsocha and at Mochovoye represent an early phase of the Corded Ware culture in the Baltic region and in northern Mazowsze (Okulicz 1973, 105–119). It may be that further to the north-east at Kärsmäki, in Finland, there are other *kurhans* of this kind, but they have no mounds, and — judging from the cremated skeletons (Salmo 1930) — it is likely that they belong to a later phase of the Corded Ware culture.

And finally it should be borne in mind that graves ringed with ditches also occur in the Pit Grave culture, the Catacomb Grave culture, and the Middle Dniepr culture. But in the pit graves and catacomb graves — otherwise than in the all the other groups mentioned here — the circular ditches occurred at the base of the *kurhan*, and outside it, not under it. This is clearly visible in, for instance, *kurhans* 3 and 5 at Novo-Pilipivka, in obl. Zaporozhe (Vjazmitina et alii 1960, 30–33, 36–39), in *kurhan* 80 in the Berezhnievka II cemetery in obl. Volgograd (Sinicyn 1960, 79, Fig. 26:2), in *kurhans* 1 and 2 at Khutor Shevchenko in obl. Rostov (Jessen 1954, 66–72), also at Khutor Baryshnikova, obl. Ilek (Smirnov 1965, 158), and in many others (Šapošnikova 1971a, 272; Häusler 1974, 33, 62, 106). On the whole, no interpretations of these ditches are to be found in the literature, but it may be presumed that the ditches constitute a feature of the funeral ceremonies which was connected with the magic properties of the circle, symbolising limitation of the space assigned to the dead. This idea is confirmed by the interchangeability of the circular ditch and the stone circle that sometimes replaced it — as, for instance in cemetery I near the "Akkerman" Sovhoz, obl. Zaporozhe (Vjazmitina et alii 1960, 104–108, 112–117; Šapošnikova 1971b, 329), where one also encounters ditches whose construction is segmented, consisting of separate, elongated sections (Vjazmitina et alii 1960, 56–60).

We can take as belonging to the Middle Dniepr

culture a single stone circle round a group of graves in a flat cremation cemetery at Strelitsa, obl. Homel (Artemenko 1967, 89–91, Figs. 51 and 63), also a number of sub-barrow graves encircled by ditches or traces of palisades and covered with a mound, such as barrow 11 at Moshka, 1 at Palik, barrow 1 on Lake Dednoye, barrow 3 at the Sergeyeva Griva, all near the village of Hadasovitsy, obl. Homel, and *kurhan* 16 at Belinets, obl. Briansk (Artemenko 1967, 76–78, Plate 6; Kropotkin 1959, 106).

As we see from this list, the barrows with graves encircled by ditches are found over a very large area. This circumstance alone tells us that we must reckon with the fact that these barrows are among the very early features of the rituals of the Corded Ware culture. Yet they do not appear in different areas all at one time. Nor do they disappear all together. What is more, many of these barrows are to be found likewise outside the complexes said to belong to the Corded Ware culture in Eastern Europe. Neither the genesis nor the original function of these ditches is quite clear. The stone circles under the Baalberg barrows, and the same kind of rings found at the base of the mounds of the megalithic graves (Fischer 1956, 196) may possibly be prototypes.

There was a similarity, too, between the function of the stone circles and the function of the palisades. The stone circles in the megalithic graves may have served the same constructional function as the presumed palisades whose traces are still to be found in the Corded Ware barrows (Fischer 1956, 196), or the foundations of other grave structures (Holwerda 1909; Remouchamps 1923). This trail of thought cannot, however, explain the origin of the ditches round the barrows in the Pit Grave, Catacomb Grave and Middle Dniepr cultures. Nor has any trace of such a ring or trench been found in Eastern Europe during the Neolithic. It would be

premature, however, to conclude that the circular ditches and similar rings round the primary sub-barrow graves in the Pit Grave and Catacomb Grave cultures stemmed from, or were to any extent connected in origin with the megalithic cultures of Central Europe. Nor can we, in the present stage of our knowledge, prove the reverse: we cannot say that the appearance of those ditches and rings, etc. in Central Europe had their origin in the steppe cultures of Eastern Europe. This question cannot be solved at present because the archaeological evidence is inadequate, and because there have been too few analytical studies of this problem. If we were able to answer this question, we should, of course, be able to understand much better the part played by the Corded Ware culture in Poland during the Eneolithic. But as things are at present we must confine ourselves to the conclusion that in the Małopolska Uplands these ditches and rings first made their appearance in a later phase of the early (Barrow) period of the Corded Ware culture, and more or less at the same time in the area occupied by the Lubaczów group as well, where they existed for a much longer time than in the Kielce area or in the Proshovitse loess areas.

My classification of the later phases of the Corded Ware culture (Fig. 14) does not contradict the conclusions reached by Machnik. It merely suggests some amendments dictated by the new finds. One can, in my view, distinguish two separate horizons: a horizon with the Ślęza Battle-Axes, and a horizon with vessels of the Książnice Wielkie type. As for the latter, it must be emphasized that its existence was already noted by Machnik as early as 1964 (361 ff.). But at that time the finds from Żerniki Górne and Miernów I, which have enabled us to define precisely and correctly the chronology of that horizon, were not yet known.

ABSOLUTE CHRONOLOGY

Till now there have been only two sites of the Corded Ware culture in Poland whose age has been pinpointed by the carbon dating method: K-1836 Kęsocha (1930±100 B.C.) and K-1837 Miernów II (2010±100 B.C.). In both cases these dates apply to the sub-barrow graves surrounded by a circular ditch, so, these sites, one in northern Mazowsze and the other in Małopolska, tell us the age of phase II of the Barrow period.

We are in a position to apply a date to the end phase of the Corded Ware culture in Małopolska because we have a series of G14 datings for some graves of the Chłopicze-Veselé group and the Mierzanowice culture at Iwanowice, woj. Kraków. According to these datings, the beginning of the Chłopicze-Veselé group would be in the very early years of the 19th c. B.C. (Machnikowie

1973, 153), so we must reckon that the Corded Ware culture began to disappear about then.

In attempting to fix the lower age boundary of the Corded Ware culture we must have recourse to data from outside Małopolska. In the German Democratic Republic, if we omit the oldest data, that of the grave at Halle-Dörlauer, as being not very reliably connected with the Corded Ware culture (Behrens 1973, 141), it transpires that the other graves date from a period between 2160±75 (Halle-Dörlauer Heide) and 1785±60 (Dornburg). In Denmark and FRG the Single Grave culture ranges from 2200±100 (a grave at Wester Nobel, from the later period of the graves below the ancient surface, Tauber 1973, 99) to 1940±100 (a grave at Gasse Høje, containing a battle-axe of a late type, Tauber

1968, 306 f.). The date 2130 ± 100 of a grave at Gabøl is interesting, because a type B battle-axe was discovered in it (Tauber 1973, 99 f.). A series of ten dates at Auvernier lies within the limits 2230 ± 120 — that is if, following Strahm's suggestion, we reject the oldest date of one grave as being very different from the others (Oeschger, Riesen 1967, 30).

From this information we see that in the regions west and north of Poland the dawn of the Corded Ware culture took place about the years 2230–2160. We can therefore accept with some confidence the year 2000 as marking the earliest phases of this culture in Poland.

THE CORDED WARE PEOPLE IN MAŁOPOLSKA

Information about the people of the Corded Ware culture, about the whole vast realm of their spiritual culture, their occupations, their social structure, their

way of life, their contacts with other groups, and even their physical type can be obtained almost exclusively from one kind of archaeological evidence — the graves.

THE BURIAL CUSTOMS

In the course of this group's history its burial customs underwent a characteristic evolution. This is true of the construction of the graves, the skeletons and other objects buried there, and the lay-out of the cemetery. As for the first of these elements, a close connection may be observed between the early phases of the Corded Ware culture and the barrow form of the grave. That is why we have called this the Barrow period. The construction of the underground part of the graves varied in the course of this period. In phase I the skeletons mostly lay along an E–W axis, although the N–S direction is also found as well, e.g. at Książnice Wielkie. The skeleton is generally in a tightly crouching position, lying on its side, although in grave 3 at Kolosy the skeletons are in the extended, supine position.

The graves of phase II are either rectangular with rounded corners, or oval, or circular. Among the material that fills them there are nearly always traces of fire. Circular ditches surrounding the central grave, and sometimes the side graves as well, are an extremely characteristic feature of the graves of this phase. At Koniusza and in grave 2 at Miernów II the skeletons lay on their side, in a tightly crouched position, with the head facing S. In the other graves the skeletons had not survived. Moreover, in phase II signs of cremation appeared for the first time (Kęsocha, Brzezinki III? Łukawica J?). The cemeteries are small. Frequently one encounters barrows with only one grave under them (Miernów II, Brzezinki I, II, V, Lipie I, Łukawica I, J, K?), while occasionally a second grave, or several more, were dug into the mound. The barrows occur singly, or in groups which, though varying in size, are generally small in number. In some places the barrow would begin a burial tradition that continued for a long time, and that was still in force, evident in single graves, at the time of the niche graves.

The Ślęza Battle-Axe horizon marks the end of the

Barrow period and the arrival of the Niche Grave period. From the chronological position of grave 4 at Kolosy, it may be concluded that the dawn of the Niche Grave period was linked with a particular variant of these underground structures — the catacomb graves. Judging from the long series of niche graves at Żerniki Górne, by the difficulties connected with their discovery, and by the distinct differences between them and the pit graves, I presume that most of the graves with the following characteristics were of niche construction. These are: a) circular or oval ground-plan of the grave pit; b) considerable depth, below 70–80 cm; c) absence of distinct material filling in the grave pit, as is true particularly of the burials “discovered in the loess, with no grave pit”, which were discovered only accidentally, deep under the ground. But it should be added that as far as the cemeteries at the top of loess hills are concerned, the niche graves may have been very shallow, too. Severe erosion frequently caused the destruction of the top part of those graves, so that little has remained apart from their bottom parts. This has already been pointed out by Salewicz (see Uzarowiczowa 1970, 227), and many instances of it have been found at Żerniki Górne as well. Recently, as excavations are being conducted increasingly carefully, far more niche graves are being discovered than was the case formerly (Zemełka 1959, 85 f.; Prokopowicz 1960; Kempisty 1965b; Kamińska, Kulczycka-Leciejewiczowa 1970, 232–234). Naturally the niche graves were not the only ones used in this period. We also find, in addition to them, pit graves as well, but, as the cemetery at Żerniki Górne shows, they were in the minority, and used mainly for burying children. No doubt the niche graves went on being built right to the end of the Corded Ware culture, as is suggested by the fact that they occur with identical frequency in both phases of the Żerniki cemetery.

From the very beginning, the contents of these

graves of innovatory construction bore new characteristics. This applies above all to the orientation of the skeletons, which now lay oftenest in a N—S direction, whereas E—W orientation of the skeletons is to be found mainly in the pit graves. This holds good of the whole of Małopolska (Machnik 1966, 60, and Plate 1). The dead lay on their right or left side, and depending on which, their head was directed towards the N or S, so that the face was turned towards the E. A study of the connection between the sex of the dead person and the orientation of the skeleton revealed that males alone lay on their right side, with their head to the S. The opposite direction was found in both male and female skeletons.

Even by the Barrow period, collective, double burials were occurring sporadically. Their number increased steeply in the Niche Grave period. At Żerniki Górne, for instance, they were found in a third of all the graves. One must also reckon with the possibility that many graves discovered long ago, and not studied by anthropologists, may have contained more than one skeleton.

SOCIAL RELATIONSHIPS

We come now to the problems of wider interpretation of the evolution of the burial customs in this culture. One can hardly doubt that they reflect certain changes that took place in society, and thus that they mirror the inner dynamics of that society. But some of their features are easier to understand than others. Some (for instance, the increasing number of burials) may probably be regarded as direct evidence of real demographic changes, whereas others (such as the predominance of the E—W or the N—S orientation) are reflections of religious beliefs, and so any conclusions we may draw about the nature of society from these features must be confined to a description of their value as indicators. If we wished to probe further, and ask why, for instance, some skeletons lay in the E—W and others in the N—S direction, it would be impossible to find an answer, and it would be of such doubtful worth, that there is really no point in trying to answer it. Besides, Häusler (1974, 8–10) quite recently has given an account of what is known about this problem. Let us confine ourselves, therefore, to the information gained from the cemeteries, graves and burials — information which can be checked by objective criteria.

What differentiates most radically the cemeteries of the Barrow period from the flat cemeteries of the Niche Grave period is their scale. The quantitative change which took place in the course of time led also to important qualitative changes, in that, generally speaking, burial customs became uniform among a bigger and bigger proportion of the population, until in the end

During the Niche Grave period the cemetery went on developing as a permanent place used for a long number of years for burying the dead. Consequently the cemeteries dating from that period mostly consist of a larger number of graves. At Żerniki Górne, the only cemetery of this period to have been investigated on a large scale, 42 graves have been discovered, which do not yet make up the total number of graves here. No doubt the fact that only a small number of such cemeteries is known is due to the difficulty of discovering the niche graves.

It was during the Niche Grave period that the Corded Ware culture in the Małopolska Uplands reached its greatest inner cohesion. In diverse parts of the area where it occurred we may encounter similar, or even identical, forms whose repetition (either singly or in groups) enabled Machnik to distinguish a compact culture unit: the Cracow-Sandomierz group of the Corded Ware culture. Generally speaking it may be taken that the existence of that group corresponded to the Niche Grave period.

they became universal. This hypothesis is supported by following facts:

1. So far, only male skeletons have been discovered in the primary sub-barrow graves. This indicates that this form of burial was associated with certain privileges from which the women and children were excluded.

2. As a rule, apart from the primary sub-barrow graves, there are also other graves dug into the mounds. For the reasons already discussed above, it may be taken that these graves date from times very close to that of the primary graves. Thus they point to the existence of two categories of burial existing more or less at the same time. There are usually more dug-in graves than primary graves, a fact which emphasizes the unique character of the sub-barrow graves.

3. At this time there may also have been flat graves, such as grave V at Książnice Wielkie, or a grave at Samborzec (Machnik 1966, 109 f.). True, both were uncovered at a shallow level, and therefore one cannot exclude the possibility that originally they were covered with mounds.

One can take it, then, that the burial customs of the Barrow period mirror a certain social order, of which one feature is lack of equality among the various members of the cemetery. Privileged status was no doubt the prerogative, exclusively or mostly, of adult males, among whom a group with particularly high social prestige began to emerge. A large number of people must have taken part in making the graves of this elite group. The graves dug into the mounds point to the existence of

a lower stratum of society. It is important to note that these graves too, as we see from Miernów II, contained male skeletons. On the other hand absolutely nothing is known about the burial of women and children at this period. This opens the gates to a wide range of surmises, which, however, cannot be tested at present. Thus we can say no more than that the women and children must have been buried otherwise.

A second, and final stage in the evolution of the burial customs of the Corded Ware culture can be perceived in the Niche Grave period, in which the burial customs reflect the equal social status and equal rights of all adult members of the community, whereas the children were treated differently. I have based this hypothesis on the following facts:

1. In the Niche Grave period large cemeteries, containing several score graves, became established.

2. The age and sex structure of the people buried in these cemeteries was a natural one, corresponding to the normal composition of the human population. The high percentage of burials of children and juveniles — which is in line with observations of cemeteries belonging to other Neolithic cultures — provides additional corroboration of the hypothesis that the cemetery contained the graves of all members of the group using it, and that it probably is a true picture of the structure of the given population.

3. The identity of construction of the graves, and the basic homogeneity of their furnishings, indicate that the funeral rituals were based on egalitarianism. Deviations from this principle, consisting in the different way the children are buried, should be attributed partly to the system of beliefs which functioned at that time, and partly to the fact that young people occupied a lower rung on the social ladder.

These main characteristics of the cemeteries of the Niche Grave period confirm our theory that it was one of marked radical change, including changes in the nature of the burial customs, which may be regarded as objective reflections of the relationships obtaining in society. There are sharp differences compared with

the Barrow period. Yet it is quite possible that they will be blurred by later investigations. For even now we are aware of some facts which, though, few in number, are nevertheless important, showing that in the sphere of burial customs there was a slow, successive change-over to a new situation. This becomes abundantly clear in the case of the Żerniki cemetery of the Niche Grave period. For one is struck by the fact that the sites from phase I of the Barrow period (Miernów I, Kolosy and Gruszów) are represented by single graves, or they have only a small number of other graves dug into them (Kolosy), whereas in phase II the primary sub-barrow grave at Miernów II already had four other graves dug into it. In the Lubaczów group, and even in Mazowsze (at Kęsocha), the ditch-ringed graves each have several other graves dug into them. This is not, it is true, a strict rule. At Koniusza, for instance, there are no dug-in graves at all. Nor did some of the graves of the Lubaczów group have them. But these exceptions are of little importance, and would not be a serious objection to our hypothesis if more evidence were to come to the fore, showing that the graves of phase I of the Barrow period were solely or mostly single ones.

The work that has been done on social relationships in the Corded Ware culture reveals that during its older phase society was a stratified, patriarchal one, in which the dominant role of the male was firmly rooted. In the later phase, either the patriarchal groups became larger, or society became more egalitarian, for we find more graves dug into the mounds. In the Niche Grave period, all traces of inequality between the adult members of society disappeared completely. The fact that the children were buried in a different way indicates that they did not have full social rights. Probably young people acquired these rights when they were about 14, for that is the age of the youngest individuals buried in the niche graves and of the oldest individuals in the pit graves at Żerniki Górne. But there are exceptions to this rule.

THE ECONOMY

Of course the life of the community so described must have been founded on a given type of production. But in the main we can only reach indirect conclusions, which will be based on the social relationships already described, and some of our arguments will rest on the surviving material evidence as to the furnishing of the graves.

Here we come to the question of the economy on which the Corded Ware culture was based. It is well known that discussion of this problem became a very lively one when Malmer (1962, esp. 691–710, 715, 799–805, 809–817) severely criticized previous views on the origin

and economy of that culture. Malmer's work was mostly concerned with sites in Scandinavia, yet owing to the ingenious new research methods he introduced, he did a great deal to arouse wide interest in this problem and to encourage many attempts at reappraisal of work done elsewhere in Europe as well.

As regards Central Europe, the work of Neustupný — who, especially in two publications (1965; 1969), definitely supported Malmer's views — was of great importance. New research on the economy of the Corded Ware culture was also undertaken in the GDR and other

countries (Clason 1967; 1969; Schulze-Motel 1969; Schlette 1969). This led to the collection of a great amount of source material suggesting that the economy was based on arable farming and stock-rearing (Behrens 1973, 131–135). There is, however, no convincing answer to the basic question: in most of the areas where the Corded Ware culture occurred, why are there no traces of human settlements? Even if we agree with Neustupný that the settlements left no surviving trace because they were constructed in some particular way, and even if we agree that the Corded Ware people were not in the habit of making pits in the ground, where pottery could have survived in good condition, we still cannot answer the next question, namely: why should the Corded Ware settlements be of this type?, and, if so, do they not indicate that the economy of the Corded Ware people was of a specific type? Neustupný's opinion that "This was clearly not a matter of progressive development but of arbitrary cultural change" is, in my view, wrong. Quite the contrary is the case, for type of settlement is strictly determined by the way of life and kind of occupation of the people who created the settlements. Moreover, it is worth adding here that Neustupný is inconsistent, for on the one hand he asserts that the structures of the Corded Ware culture were of a kind that left no surviving traces, while on the other hand he asserts that structures did exist, citing for example grave structures discovered in the GDR (Neustupný 1969, 47), which are of a type which most certainly would leave surviving traces, especially as they include posts that formed part of the construction (Behm-Blancke 1955, 68).

The fact is, however, that archaeologists have sporadically discovered in the graves of the Corded Ware culture objects which can be interpreted as fragments of agricultural implements. Such objects which have been studied (Kempisty 1978) include: 1 — a flint retouched blade from grave 4 at Kolosy (Fig. 12b); 2 — a sickle-blade from grave 115 at Żerniki Górne; 3 — a stone pestle (?) from grave 85 at Żerniki Górne. Ignoring the various doubts that have been expressed about using

such finds as evidence of crop-growing (Neustupný 1969: 53 f.), we must point out that all these objects came from burials dating from the Niche Grave period, that is, from the later phases of the Corded Ware culture. Wiślański (1969, 107–109, 254–270, when studying the West Polish material, drew attention to the fact that stabilising tendencies in the settlements of the Corded Ware culture became much stronger at the time of its decline, and even more so in the Early Bronze Age "epi-Corded Ware" culture. He also drew a general, unbiased picture of the economy of the Corded Ware people, as one of the elements of the flourishing economic structure of the late Neolithic peoples. His idea that the various big and small human groups specialised in diverse types of production, and that this was an important stage in the development of the division of labour (Wiślański 1969, 255–261), is a convincing one. This theory holds good, too, when we examine it in the light of the Małopolska evidence, especially from the time when we have been aware of the contemporaneity of the Corded Ware culture in this region, with the Funnel Beaker culture and the Radial Decorated Pottery culture.

A very similar standpoint is represented by Hensel (1973, 107, 111), who, however, stresses that these people were above all herdsmen. He draws full logical conclusions from the fact that no, or very few, traces of permanent settlements of the Corded Ware people remain. It should be borne in mind, however, that Hensel was led to this conclusion by other, more general arguments which to him were just as important — namely, that in his view the Corded Ware culture came from Eastern Europe (Hensel 1973, 106 f.).

Kruk, too, who recently (Kruk 1973a, 195 f.) published work on the Neolithic settlements of the loess areas of Małopolska, has commented very aptly on the attempts to reconstruct the economy of the Corded Ware culture, and is critical of Malmer's and Neustupný's hypothesis, which has been rejected, too, by Sveshnikov (Svešnikov 1974, 142 f.) as regards the western Ukraine.

THE BASIS AND PROCESS OF CHANGE

Still another question, which has been illuminated to some extent by the excavations at Miernów II and Żerniki Górne, is connected with the problem of the genesis and economy of the Corded Ware culture. This is the question of the chronological relationship between that culture and the Funnel Beaker culture in particular. As far as both Malmer and Neustupný are concerned, the key to their general conception that the Corded Ware culture developed in stages from a local Neolithic base is the view that this culture was later than the Funnel Beaker culture. For this enabled them seriously to undermine the invasion theory which, especially in

Denmark, had gained strong ground since it was asserted that these cultures existed simultaneously in different ecological regions (this was interpreted in Denmark as proving not only that these cultures had quite different types of economy, but also that the cultures themselves were quite foreign to each other). Consequently since the Funnel Beaker culture undoubtedly represents the local substratum, the Corded Ware culture is regarded as a new one, unconnected with the previously existing line of development of the Neolithic people of Scandinavia, and therefore as an incomer.

This standpoint is of course of importance to research

on the origin of the Corded Ware culture in the Małopolska Uplands. The appearance, in the early phase of the Niche Grave period, of Książnice Wielkie type vessels, whose typology and technical characteristics point to direct links with the Funnel Beaker culture, shows that the Corded Ware culture was contemporary with the later groups of the Funnel Beaker culture. Machnik (1964, 364; 1966, 117–118, 120–127, 191 ff.), Krzak (1968, 98–101, 109–111; 1970b, 186, 195 f.; 1970a, 340 ff.) and Kruk (1973b, 192 ff.) have earlier expressed their support for this view. I believe, however, that particular importance should be attributed to the horizon with pottery of the Książnice Wielkie type, as fixing the date of previously hazily dated evidence that these two cultures — the Funnel Beaker and the Corded Ware cultures — were at least partly contemporaneous. The establishment of the fact that this horizon does not correspond at all to the earliest period of the Corded Ware culture in the Małopolska Uplands, but to the beginning of the Niche Grave period (that is, the early phase of the local Cracow-Sandomierz group) is an important discovery. This horizon may be taken as representing a situation in which new elements rose to significance in the Corded Ware culture, and steered it in a definite direction — that of the Cracow-Sandomierz group. The chronological position of the horizon with vessels of the Książnice Wielkie type proves that in the earlier phases of the Corded Ware culture it did not absorb any influences from the local cultures, but that it succumbed to these influences after a not inconsiderable period of separate, parallel existence. Very probably the Corded Ware culture took elements from the Funnel Beaker culture which were not confined to the pottery alone. These borrowings should be attributed to much deeper changes, particularly in social relationships and in the economy. For we can see from the increasing size of the cemeteries in the Niche Grave period that a certain degree of stabilization of settlement and of numerical growth of the population must have been reached (Kruk 1973a, 197).

The matter is complicated by the fact that a large number of new factors came into play at this same time, and in the present state of our knowledge we are unable to say how important each of them was in leading to those changes. The main novelty here was the niche grave. It was a completely new constructional form, without prototypes in either the earlier local cultures or the older period of the Corded Ware culture. There

are no grounds for thinking that it was a local form. Probably it took root in Małopolska as a result of incoming influences from the east, from the region of the Catacomb Grave culture, although the possibility of other influences cannot be excluded — e.g. from the area occupied by the Vučedol culture (Schmidt 1945, Fig. 24–26, 28)¹. On the other hand there are no signs of the latter culture having expanded into Małopolska. Difficulties are encountered, too, when we try to trace the origin of the niche graves to the Ukraine, for the Małopolska Uplands and the territory occupied by the catacomb graves were not direct neighbours. Between the most western reaches of that culture and the Cracow-Sandomierz Group there was a space of nearly a thousand kilometres where no niche graves occurred (Šapošnikova 1971b, 320–326 and Map 7). This fact may likewise explain why the new forms of pottery and other artefacts from that culture centre did not simultaneously appear in large numbers in Małopolska, along with the niche graves — especially if we assume that the new form of grave testified to the acceptance of a new system of religious beliefs, which would not necessarily presuppose the existence of large groups of people living for long periods as close neighbours and mingling. It would be by no means an isolated case of the transfer of ideology. For many archaeologists accept, for example, a similar interpretation of the wide spread of the megalithic graves (Childe 1950a, 208, 214; 1950b, 88 ff.; Chmielewski 1952, 13–15; Kostrzewski, Chmielewski, Jazdzewski 1965, 88).

For apart from the niche graves there is no lack of other manifestations of eastern influences, as has already been pointed out (Hensel 1973, 107). To the list of eastern traits it is possible we should also add, as far as the pottery is concerned, the type VIc beakers, and, as regards metal objects, the copper awl from shaft grave 4 at Kolosy (Fig. 12c; Černych 1966, Fig. 34 and 36), and maybe also the axe made of Volhynia flint, discovered in grave 90 at Żerniki Górne. Copper awls have also been discovered, it is true, in other European culture centres of this period, but we should note that their expansion from the east is confirmed by a discovery at Bleckendorf, Kr. Stassfurt, where it came to light in an assemblage that included a bone pin and a copper dagger of the “Catacomb” type (Behrens 1952, 53 ff.).

¹ This possibility was first pointed out to me by Z. Krzak, to whom I express my indebtedness.

THE PEOPLE

It is hard to reject entirely the possibility that a wave of new people arrived here, particularly in the Niche Grave period, and from the south-east especially. This

is suggested by Wierciński's work (1976) on the racial composition (and variations in that composition in the course of time) of the people of the Corded Ware, Mierza-

nowice and Trzciniec cultures who left their traces at Żerniki Górne, Miernów I and II, and other Małopolska sites (Wierciński 1973). For he declares that the people of the Corded Ware culture and the Mierzanowice culture were characterised by a large proportion of Berber and oriental racial elements (Wierciński 1976, Table 5), which, in his opinion, "clearly points to the south-eastern, steppe origin of those people" (Wierciński 1976, 10). Moreover, the fact that the Mierzanowice culture has a higher proportion of these elements than does the Corded Ware culture may be regarded as a kind of chronological indication that this process began in the Corded Ware population, and continued and grew in intensity in the Mierzanowice population. The series is too small in number to enable us to probe this question in greater depth, and try to discover the

differences, if any, between the racial composition of the people of the Corded Ware culture in the various phases and periods of its existence. At any rate we know that these two components — the Berber and the oriental — were most evident at Żerniki Górne and Złota, that is, in the later phases of the Corded Ware culture.

A. Wierciński (1976, 11) warns us that the results he obtained from material from the Kielce region may be applied solely to the population of that area, and, for the time being at least, cannot be applied more generally. Hence we may treat them only as a signal, or pointer, which, however, seems all the more remarkable in that it would appear that at least some of the archaeological data discussed above can be corroborated.

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 MIA — *Materialy i Issledovanija po Archeologii SSSR* Moskva—Leningrad
 PArch — *Pamatky Archeologicke, Praha*
 SA — *Sprawozdania Archeologiczne*, Wrocław—Warszawa—Kraków
 SZB — *Sprawozdania Zespołu Badań nad Polskim Średniowieczem UW i PW*, Warszawa

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