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Editor's Foreword

Globular Amphora culture settlements make one of the most important systems of circulation of cultural patterns in the border zone between the drainage areas of the Baltic and Black Seas. One aspect of this problem, namely the „eastern exodus" mentioned in the title, has seemingly rich historiography. Under closer scrutiny, however, it reveals many intuitive opinions based on weak and insufficiently explored sources. This belief lay behind the present issue of the „Baltic-Pontic Studies". The papers presented in this issue open new areas of discussion of the problems in question. For the first time, the discussion is set against an incontrovertible scale of absolute chronology. This issue anticipates a broader synthesising presentation to be published in the not too distant future.

Editorial comment

1. All dates in the *B-PS* are calibrated [see: *Radiocarbon* vol.28, 1986, and the next volumes]. Deviations from this rule will be point out in notes.

2. The names of the archaeological cultures (especially from the territory of the Ukraine) are standarized according to the English literature on the subject [e.g. Mallory 1989]. In the case of a new term, the author's original name has been retained.

3. The place names located in the Ukraine have been transliterat from the versions suggested by the author (i.e. from the Belorussian, Ukrainian, Polish or Russian originals).

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INTRODUCTION

Marzena Szmyt

GLOBULAR AMPHORA CULTURE IN EASTERN EUROPE. PRESENT STATE OF RESEARCH AND POSSIBILITIES FOR FUTURE STUDIES[1]

The Globular Amphora culture (GAC) is one of the principal cultural units of the late and declining Neolithic of Central Europe. At the present state of research we have the main temporal and spatial data concerning GAC and we know its general characteristics against the background of transformations of European societies in the late and waning phases of the Neolithic. However, the latest findings show that both the chronology and periodization as well as social and economic structures widely differ from region to region [Szmyt 1996:224-238]. Now, therefore, it is of paramount importance to investigate regional groups of this culture and to determine the scope of their peculiarity [cf. e.g. Wiślański 1966; Nagel 1985; Beier 1988; Ścibior 1991].

Generally, synthetic descriptions of GAC use a triple framework of its spatial division distinguishing three territorial groups (Fig. 1): western, central (or Polish) and eastern [Wiślański 1966:86-91, 1970:183-221]. The first of them covers the area from the drainage of the Oder in the east to the drainage of the Elbe in the west and from the Baltic and North Sea in the north to the Vltava in the south. The Polish group is concentrated in the drainage of the Vistula and the eastern group occupies the expanses of Eastern Europe from the drainages of the Bug in the west to the Dnieper in the east and from the Baltic in the north to the drainage of the Seret and Prut in the south.

While assessing the state of research it must be stressed that the Polish group is relatively best known now. Within this group a number of local groups are distinguished. Gradually, researchers reconstruct sets of cultural traits characteristic of them and lines of their chronological transformations [Nosek 1967:340-348; Wiślański 1969:273-326, 1970:186-213; Kempisty 1970; Kirkowski, Sosnowska 1987; Ścibior 1991; Kukawka, Sosnowska 1994; Szmyt 1996]. Socio-economic transformations are documented only to a lesser degree. Research on the western group is less advanced. In this case, the development of a scheme of internal periodization has met with serious difficulties [Weber 1964; Nagel 1985; Beier 1988]. Our knowledge of the eastern territorial group of GAC is clearly the smallest. This has been manife-

[1] This article is financed by Committee for Scientific Research (project No. 1 H01G 018 10).

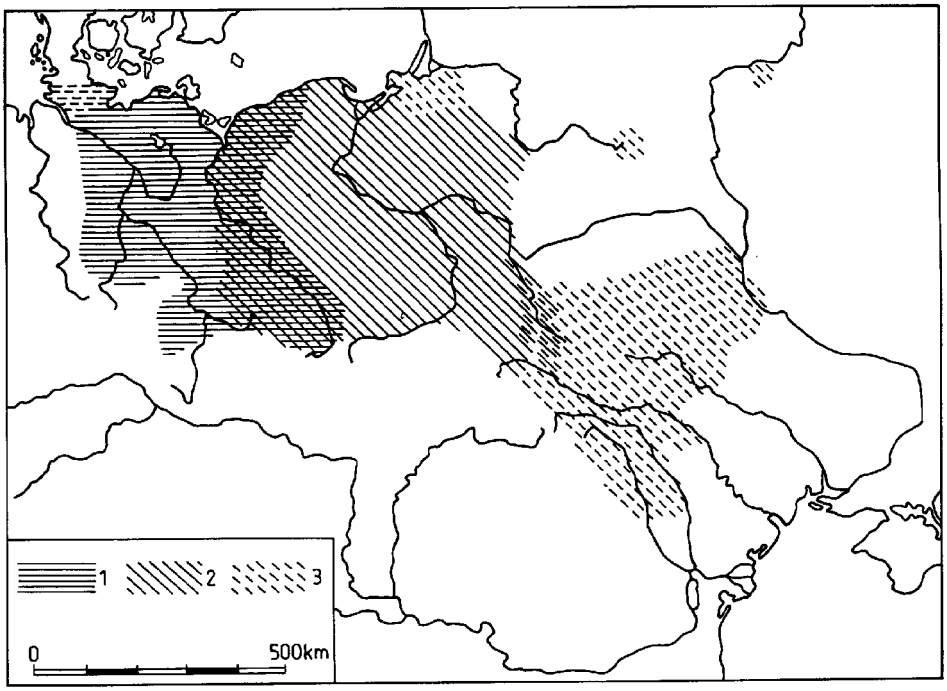

Fig. 1. Distribution of the Globular Amphora culture. Source: Wiślański 1970. Legend: 1 - the western group, 2 - the Polish (central) group, 3 - the Eastern group

sted until now by highly controversial chronology of this group exclusively based on imprecise comparative analyses. This deficiency is made up for by papers collected in this volume of „Baltic-Pontic Studies".

In the present paper I shall discuss the present state and possibilities for future research on the role of GAC communities in the cultural environments of Eastern Europe. From the point of view of both cultural and settlement phenomena, on one hand, and natural and geographic ones, on the other, Eastern Europe is a highly diverse area. Generally speaking, within the western portion of Eastern Europe, that is of particular interest to us here, four ecozones are distinguished: Baltic Coastland, forest, forest-steppe and steppe zones. Numerous works by archaeologists and historians justify the treatment of these zones as great eco-cultural units. In this context, a fundamental spatial observation should be stressed: traces of GAC in Eastern Europe are recorded in all the eco-cultural zones. Such traces are found on the south-eastern coast of the Baltic, in the interior of the forest zone (Polesie, drainage of the upper Dniester and in the forest-steppe and steppe zones — Fig. 1). Nevertheless, dense GAC settlement, being a nucleus of the eastern group, is situated on the border of forest and the forest-steppe zone, in Volhynia and Po-

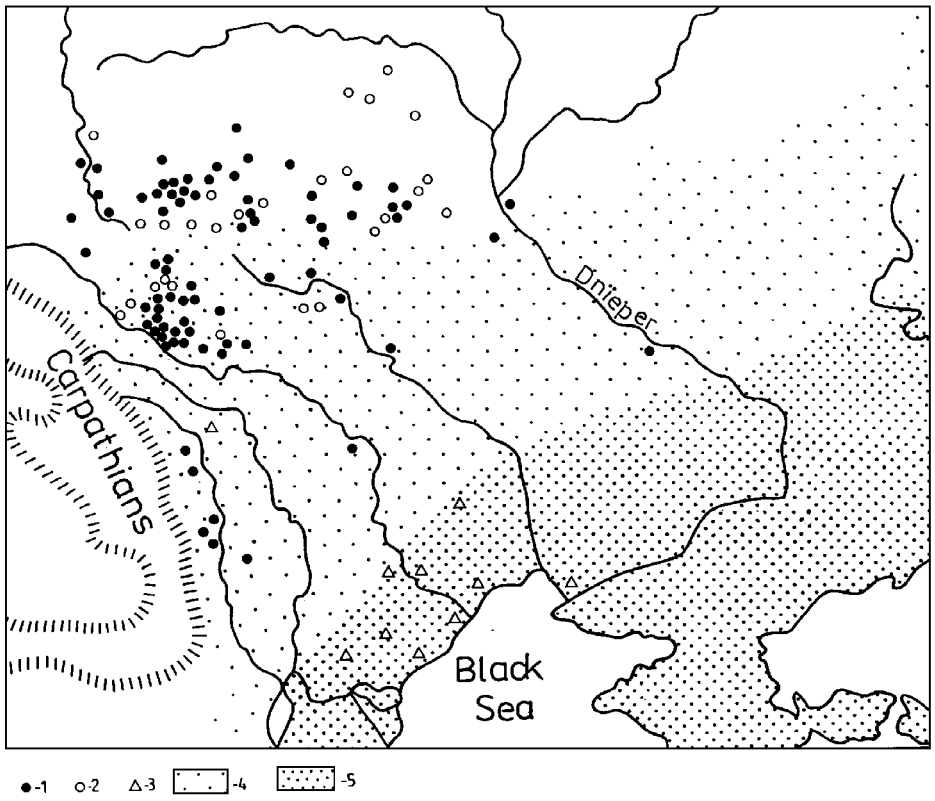

Fig. 2. Distribution of Globular Amphora culture sites in the southern part of Eastern Europe. Legend: 1 - site of GAC, 2 - hypothetical site of GAC, 3 - site of Yamnaya culture with elements of GAC, 4 - forest-steppe zone, 5 - steppe zone

dolia (Fig. 2). To the north and south of this nucleus, as well as to the south-east, dispersed relics of GAC are recorded. It is also important to note that „pure" GAC sites occur in the area from the drainage of the upper Dnieper in the north to the Moldavian Upland in the south. In the east, the area reaches to the middle section of the Dnieper. To the north, east and south of these limits, there are recorded only materials combining traits of various local cultures and GAC. These observations point out at least to the high development dynamism of the cultural system known as GAC. They also raise questions concerning the reasons, stimuli, scope and effects of the adaptation of GAC populations to extremely varied natural and cultural environments. It is these issues, unquestionably the most important though also the most difficult ones, that call for earlier organisation of information that is already known and hypotheses that have so far been formulated. This also applies to future research projects that have been suggested in this context. It is these very aims that the present paper attempts to attain.

1. HISTORY OF RESEARCH

Traces of GAC have been recorded in a scholarly manner in the area in question since the 19th century. They were correctly identified with specific cultures in the early 20th century [Kossinna 1910]. The first outline of south-eastern-European (specifically Podolia) GAC concentration (defined as „megalith grave culture"), a part of a larger collection, was published in 1921 [Kozłowski 1921:39; cf. repeated also in Kozłowski 1924]. A few years later a monograph of GAC („megalithic culture") was published concerning the eastern part of Volhynia [Levickiy 1929]. Successive years brought reports of new discoveries [e.g. Levickiy 1930]. Problems of the south-eastern branch of GAC were also discussed in broader, synthetic works [e.g. Antoniewicz 1938; Kozłowski 1939; Kostrzewski 1948:155-158; Bryusov 1952:220-227; Gimbutas 1956:140-152; Sulimirski 1959:271-282] and marginally in works on other cultures [e.g. Äyräpää 1933:120-123; Passek 1949:219-223]. Only a monograph by I.K. Sveshnikov [1957] lent back some order to the source base. Despite its misleading title, that work, together with later publications by A. Haüsler [1966] and T. Wiślański [1966:83-90], finally broke down the tradition of double nomenclature of the materials in question (of the two names „Globular Amphora culture" and „megalithic culture" the latter was used to stress the independent genesis of Volhynia-Podolia findings). At the same time, traces of GAC settlement were found in the eastern piedmont of the Carpathians, in the drainage of the middle Seret [Dinu 1960].

In successive years there were published works presenting new complexes of sources [e.g. Maleyev 1971, 1986]. I. Sveshnikov's successive approaches [1971, 1974, 1983] made clear by the then standards the questions of the range, spatial diversification and chronology of Volhynia-Podolia GAC materials. A different approach was taken by T. Sulimirski [1968] who also authored the most comprehensive synthetic description of the problems of the development and intercultural contacts of eastern groups of GAC [Sulimirski 1970:162-170]. The latest monographs [e.g. Chernysh 1982; Sveshnikov 1985a, 1990] by and large repeat I. Sveshnikov's older claims. However, one should also note the appearance of works expanding the hitherto body of knowledge [e.g. Berezanskaya, Pyasetskiy 1979]. Furthermore, reports of next discoveries of GAC materials on the Moldavian Upland were published [Miclea, Florescu 1980: Map 6]. In recent years a series of new publications by Polish scholars came out dealing with some aspects of the development of the south-eastern branch of GAC [Kośko 1990, 1991], including also its border zone with the Polish group [Kokowski, Ścibior 1990; Ścibior 1991; Ścibior, Kokowski, Koman 1991].

The studies of GAC in Volhynia, Podolia and the Moldavian Upland are closely linked with the exploration of the contribution of GAC elements to the development of steppe cultures. An extreme hypothesis concerning the issue was advanced by N.A. Nikolayeva and V.A. Safronov [1974]. Their view (see part 6.4.c) was criticised

[Maleyev 1980; Sveshnikov 1983:20]. Nevertheless, we note a continuous expansion of the catalogue of traits that are genetically related to GAC and are recorded in the context of steppe groups [e.g. Yarovoy 1979, 1981; Subbotin 1988].

The situation in respect of the northern (i.e. lying in the south-eastern portion of the Baltic Coastland) and central (i.e. in the forest zone, now in Belorus and Russia) parts of Eastern Europe is quite different. In respect of the former part, only recently was the information contained in old German publications expanded [cf. Rimantiené, Česnys 1990; Rimantiené 1992; see op. cit. for earlier works]. Also recently, new sources of GAC from the forest zone of Eastern Europe were presented [Charniauski 1972, 1992; Shmidt 1992 a, b]. They gave rise to new hypotheses on the contribution of GAC to the transformations of local culture groups [e.g. Miklayev 1992].

2. DESCRIPTION OF SOURCES

The information collected so far on GAC settlement in Eastern Europe primarily concerns cemeteries (Table 1) consisting for the most part of graves with stone structures. Far poorer is our knowledge of settlement of eastern GAC (in fact, only one such site has so far been explored Mezhireche) [Sveshnikov 1983:22-25]. This is mainly a consequence of a lack of appropriately planned research projects, since data given in the literature of the subject prove the existence of relevant sites [Berezanskaya, Pyasetskiy 1979]. The one-sidedness of sources has a decisive impact on a limited knowledge of many aspects of settlement of eastern GAC.

Table 1

Identification	Graves	Settlements	Undefined sites	Total
GAC	70	2	22	94
GAC?	28		2	30
with elements of GAC tradition	16	6	11	33
Total	114	8	35	157

Besides „pure" GAC sites, traits characteristic of this culture appear in contexts of other contemporaneous groups as Narva, Neman, Tripolye, Middle Dnieper, Yamnaya, Catacomb cultures and others. What is believed in such „mixed" complexes to be genetically related to GAC are primarily certain traits of pottery decoration (mainly stamp ornaments), some vessel shapes (e.g. amphorae), ritual features (graves with stone structures either with stone slabs set on edge or built of rubble; animal burials) and non-ceramic artefacts like some types of flint axes.

Similar traits were also identified in later complexes of Early Bronze dating (according to Central European periodization) or Middle Bronze (according to Eastern European periodization). I shall return to this issue later on.

3. ORIGINS OF GAC IN EASTERN EUROPE

In the literature of the subject there are two opposing hypotheses concerning the origins of the eastern branch of GAC. One of the hypotheses can be called (a) „eastern" while the other, dominating at present, (b) „western".

a. The „eastern" option, in various versions, was represented by L. Kozłowski [1921, 1924], V.G. Childe [1925, 1930], A.Y. Bryusov [1952] and M.Gimbutas [1956, 1977, 1980, 1991]. V.G. Childe places the origins of GAC on the steppes on the Black Sea [Childe, 1930]. L. Kozłowski [1924] and A.Y. Bryusov [1952:215] argue for the local (Volhynia-Podolia) origin of eastern GAC rejecting its possible links with the other groups (western and central). This is stressed by the name that both authors use: „megalithic culture". The best-developed version of the hypothesis claiming eastern (precisely south-eastern) connections of GAC was presented by M. Gimbutas in a series of her works [e.g. Gimbutas 1956, 1977, 1980, 1991]. Generally speaking, she related the origins of GAC to steppe influences. GAC is for her an element of the new cultural picture of Europe that came into being after the second wave of invasions by steppe peoples (Kurgan Wave #2) [Gimbutas 1991:381-384]. The population substratum of this culture, according to the quoted author, was twofold: in the west it was based on the population of the Funnel Beaker culture, while in the east on the Tripolye culture [Gimbutas 1980:293 and 301, Fig.13]. The appearance of GAC was decided by the influences of militant steppe groups that accumulated over the old population substratum. It is these influences that primarily manifest themselves in GAC rituals and in forms of material culture that are similar to phenomena encountered on the Black Sea steppes (e.g. in the Maykop culture) [Gimbutas 1980:292-296].

b. At present, in the literature of the subject, the „western" option is a dominating one stressing the close relationship of the eastern group of GAC with the other two groups of the culture, viz. the western group and especially the central one or Polish [Sulimirski 1959:277, 1970:162; Haüsler 1966:134; Wiślański 1966:128, 1970:209-212; Sveshnikov 1983:18-19]. This hypothesis seems to be best justified at present both analytically and conceptually. Its core is the assumption that GAC population (settling areas lying to the west of the Bug line) migrated to the south-east. Two migration directions are being reconstructed [Wiślański 1970:221]: from within the Polish group along the Bug and from Silesia and Saxony through Małopolska. The two directions supposedly crossed in Volhynia and Podolia where the centre

of the eastern group formed. However, it is believed that the GAC settlement in Volhynia is slightly older [Kośko 1991:246]. An effect of further expansion was the emergence of the Podolia agglomeration. The agglomeration's population is supposed to have headed further south, to the drainage of the Seret [Kośko 1991:246]. Volhynia (mainly?) and Podolia were also departure points for penetrations reaching to the Dnieper in the east. Also, from the area of the Polish group, few groups of GAC population are believed to have migrated to the south-east coast of the Baltic [Rimantiené 1992:123].

4. GAC CHRONOLOGY IN EASTERN EUROPE

The longest line of chronological and cultural changes was traced for one of the major agglomerations of the Polish group of GAC occupying Kujawy (Fig. 3) situated in the central part of the interfluvial area between the Oder and Vistula [Szmyt 1996:63-78]. Throughout the GAC settlement in Kujawy, spanning the period from 4000/3600 to 1950 BC at the maximum, one can distinguish six development phases making up three stages (horizons) of changes of the culture in question: early (4000/3600-3250/3100 BC, phases I and IIa), middle or classic (3250/3100-2400/2150 BC, phases IIb and IIIa) and late (2400/2150-1950 BC, phases IIIb and IIIc). At present, it is this sequence of transformations that is known in the greatest detail and hence may serve as the only reference for studying processes taking place in other regions of GAC settlement. This also refers to the East-European branch of this culture. An obstacle to comparative analyses is created by the different character of source materials. The Kujawy periodization was developed on the basis of settlement complexes. Its full application to grave complexes is hindered by a different pace of changes of the two source categories [Szmyt 1996:36-45].

The studies of eastern GAC chronology have so far been based exclusively on rather imprecise comparative analyses [e.g. Sveshnikov 1983:18; cf. criticism: Ścibior 1986:355-356]. It must be stressed that synchronisation with the Tripolye culture was of crucial importance. In the latest conceptions [Movsha 1985b:27-30], it is assumed that south-eastern GAC settlement existed partially parallelly to the late Tripolye groups of stage CII (see below part 6.3).

The most widely accepted view so far has been that GAC settlement itself in Eastern Europe was a short-lived phenomenon [e.g. Isayenko 1976:115]. It was believed to have existed from 100 years, i.e. two to three generations [e.g. Zakharuk 1962:51; Sulimirski 1959:278] to 250 years, i.e. five generations [Sulimirski 1970:165]. At the same time, however, it was believed that it had a marked impact on cultural transformations in Eastern Europe and that it affected much larger expanses that

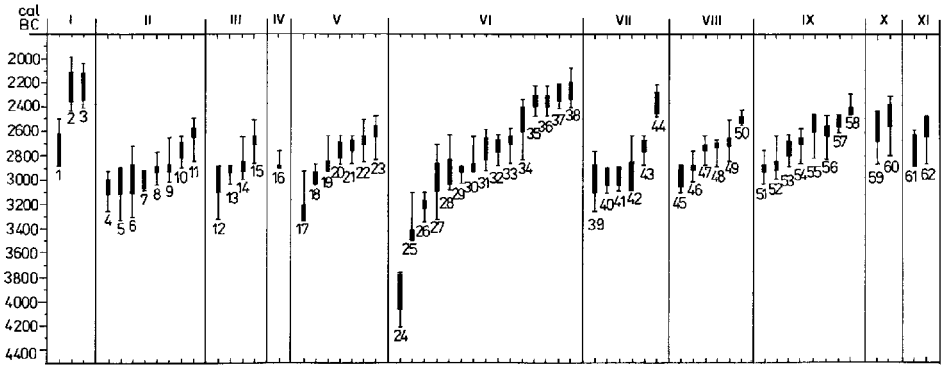

Fig. 3. Radiocarbon datings for Globular Amphora culture. Calibration after Stuiver, Reimer 1993 (1 sigma, areas of max. probability marked). Source: Szmyt 1996. Legend: I - Mecklenburg, II - Mittelelbe--Saale region, III - Altmark-Lüneburg, IV - Czech, V - Great Poland, VI - Kujawy, VII - Chełmno Land, VIII - Little Poland, IX - Volhynia-Podolia, X - forest zone, XI - Baltic Coastland; 1 - Serrahn (Bln-342: 4160±120 BP), 2 - Katelbogen (Bln-554: 3800±120 BP), 3 - Poggendorfer Forst (Bln-990: 3805±100 BP), 4 - Quenstedt (KN- 2418: 4420±45 BP), 5 - Halle-Dölauer Heide (Bln-838a: 4380±100 BP), 6 -Halle-Dölauer Heide (Bln-912: 4340±100 BP), 7 - Quenstedt (KN-2420: 4380±55 BP), 8 - Quenstedt (KN-2417: 4310±50 BP), 9 - Quenstedt (Kn-2419: 4280±50 BP), 10 - Wandersleben (Bln-2371: 4220±70 BP), 11 - Grossörner (Bln-1346: 4105±60 BP), 12 - Pevestorf (Hv-582: 4380±100 BP), 13 - Pevestorf (KN-2461: 4330±55 BP), 14 - Pevestorf (KN-2459: 4270±55 BP), 15 - Pevestorf (KN- 2460: 4130±55 BP), 16 - Homolka (GrN-4065: 4260±10 BP), 17 - Żuławka Mała 1 (4470±60 BP), 18 - Żuławka Mała 1 (4330±60 BP), 19 - Chodzież 3 (Bln-1549: 4265±50 BP), 20 - Żuławka Mała 1 (4200±60 BP), 21 - Żuławka Mała 1 (4180±50 BP), 22 - Żuławka Mała 1 (4130±40 BP), 23 - Żuławka Mała 1 (4080±60 BP), 24 - Krusza Zamkowa 13 (Gd-309: 5140±140 BP), 25 - Dęby 29 (Gd-2148: 4600±90 BP), 26 - Kołuda Wielka 13 (GrN-13593: 4525±40 BP), 27 - Opatowice 36 (Gd-6522: 4350±120 BP), 28 - Opatowice 3 (KN-3765: 4290±120 BP), 29 - Krusza Zamkowa 13 (GrN-14022: 4330±35 BP), 30 - Kierzkowo 1 (GrN-15412: 4270±40 BP), 31 - Opatowice 3 (Gd-4117: 4230±110 BP), 32 - Opatowice 36 (Ki-5136: 4180±70 BP), 33 - Kierzkowo 1 (GrN-15411: 4135±40 BP), 34 - Opatowice 36 (Gd-6438: 4010±100 BP), 35 - Opatowice 36 (Ki-5137: 3920±60 BP), 36 - Opatowice 1 (Gd-8035: 3900±60 BP), 37 - Opatowice 36 (Gd-8037: 3850±50 BP), 38 - Opatowice 1 (Gd-8036: 3820±60 BP), 39 - Wichorze 24 (Gd-2428: 4340±90 BP), 40 - Stablewice 24 (Gd-4019: 4380±60 BP), 41 - Bartlewo 21 (Gd-6093: 4350±70 BP), 42 - Bartlewo 21 (Gd-6092: 4300±90 BP), 43 - Bartlewo 21 (Gd-5572: 4170±50 BP), 44 - Linowo 25 (Gd-6755: 3890±80 BP), 45 - Sandomierz 78 (Gd-2452: 4370±70 BP), 46 - Klementowice 3(D) (KN- 1255: 4300±40 BP), 47 - Klementowice 3 (D) (GrN-5046: 4175±30 BP), 48 - Świerszczów 27 (Ki-5433: 4170±35 BP), 49 - Krasnystaw 8 (Ki-5841: 4120±30 BP), 50 - Łopiennik Dolny Kolonia 1 (Ki-5434: 4010±30 BP), 51 - Tovpyzhyn (Ki-5011: 4310±55 BP), 52 - Tovpyzhyn (Ki-5010: 4270±50 BP), 53 - Vorvulintsy (Ki-5008: 4220±70 BP), 54 - Loshniv (Ki-5006: 4150±55 BP), 55 - Dovge (Ki-5009: 4040±60 BP), 56 - Ivanye (Le-5021: 4090±70 BP), 57 - Ivanye (Ki-5141: 4030±50 BP), 58 - Peresopnitsa (Ki-5075: 3910±50 BP), 59 - Krasnoselsky (Gd-4080±140 BP), 60 - Turinshchina (Gd-10082: 4000±80 BP), 61 - Šventoji 6 (Vs-499: 4170±110 BP), 62 - Šventoji 6 (Vs-500: 4070±110 BP)

the settlement itself [cf. e.g. extreme views Sulimirski 1970: 169-177; Nikolayeva, Safronov 1974:193].

An analysis of a series of radiocarbon datings and corresponding source complexes, presented in this volume of „Baltic-Pontic Studies" [cf. articles by Charniauski; Kadrow, Szmyt; Maleyev; Maleyev, Pryshchepa; Shmidt, Szmyt; Shelomentsev-

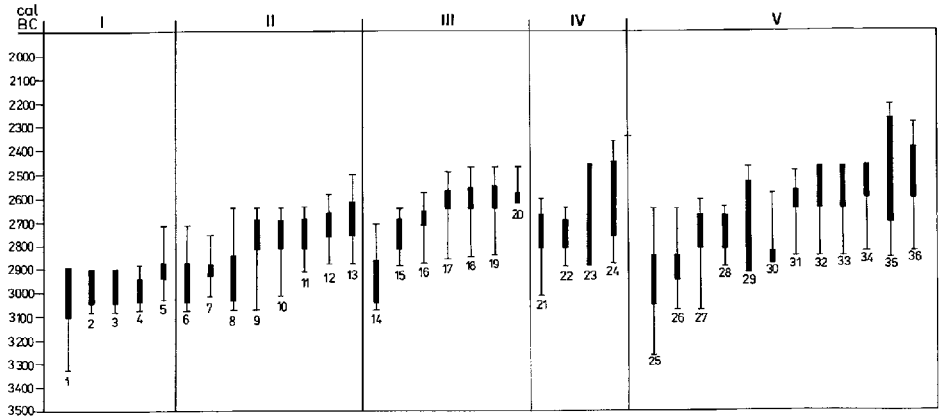

Fig. 4. Radiocarbon datings for selected east-european cultures. Calibration after Stuiver, Reimer 1993 (1 sigma, areas of max. probability marked). Sources: Gimbutas 1991, Miklayev 1992, Kovalyukh, Videiko, Skripkin 1995. Legend: I - late Tripolye - Usatovo type, II - late Tripolye - Sofievka type, III - Usvyaty culture, IV - Yamnaya culture - west, V - Yamnaya culture - east (selected datings); 1 - Mayaki (Bln-629: 4400±100 BP), 2 - Mayaki (UCLA-1642B: 4375±60 BP), 3 - Mayaki (UCLA-1642G: 4375±60 BP), 4 - Mayaki (Le-645: 4340±65 BP), 5 - Usatovo (UCLA-1642A: 4300±60 BP), 6 - Sofievka (Ki-5012: 4310±70 BP), 7 - Sofievka (Ki-5029: 4300±45 BP), 8 - Zavalovka (Ki-515: 4290±90 BP), 9 - Krasny Khutor (Ki-5038: 4280±110 BP), 10 - Sofievka (Ki-5013: 4270±90 BP), 11 - Zavalovka (Ki-5014: 4230±80 BP), 12 - Krasny Khutor (Ki-5039: 4160±90 BP), 13 - Krasny Khutor (Ki-5016: 4140±110 BP), 14 - Usvyaty (Le-243: 4310±80 BP), 15 - Usvyaty (TA-202: 4210±70 BP), 16 - Usvyaty (TA- 817: 4150±80 BP), 17 - Usvyaty (TA-633: 4120±60 BP), 18 - Usvyaty (TA-203: 4100±70 BP), 19 - Usvyaty (TA-203: 4090±70 BP), 20 - Usvyaty (Le-1007: 4030±50 BP), 21 - Cernavoda (Bln-62: 4260±100 BP), 22 - Varna (Ki-89: 4210±60 BP), 23 - Baia-Hamangia (Bln-29: 4090±160 BP), 24 - Baia-Hamangia (KN-38: 4060±160 BP), 25 - Pereshchepino (Ki-100/5: 4310±105 BP), 26 - Pereshchepino (Ki- 100/4: 4290±90 BP), 27 - Brilyuvata mogila (Ki-497: 4270±120 BP), 28 - Tsatsa (UCLA-1270: 4210±80 BP), 29 - Khristoforovka (Ki-578: 4170±170 BP), 30 - Ustman (UCLA-1271: 4150±80 BP), 31 - Ust Dzhegutinskaya (Le-693: 4110±60 BP), 32 - Brilyuvata mogila (Ki- 497: 4080±100 BP), 33 - Balki (Le-1168: 4080±90 BP), 34 - Ust Dzhegutinskaya (Le-687: 4040±60 BP), 35 - Svatovo (Ki-585: 4000±190 BP), 36 - Balki (Ki-601: 3990±110 BP).

-Terskiy], leads to a conclusion that GAC presence in the east was a long-lived phenomenon lasting for at least 2930-2380 BC. Thus it was contemporaneous among others with (Fig. 4 and 5):

- the last phase (CII) of the Tripolye culture or rather with its segment marked by the Sofievka type [Kadrow 1995; Kovalyukh, Videiko, Skripkin 1995], viz. with phenomena defined in other conceptions as epi-Tripolye [Jastrzębski 1989:110];
- the middle and late phases of the Yamnaya culture [Telegin 1977; Shaposhnikova 1985:351-352];
- the middle and late phases of the Middle Dnieper culture [Artemenko 1987:41];
- the early and partly middle phase of the Catacomb culture [Bratchenko, Shaposhnikova 1985:417-418];

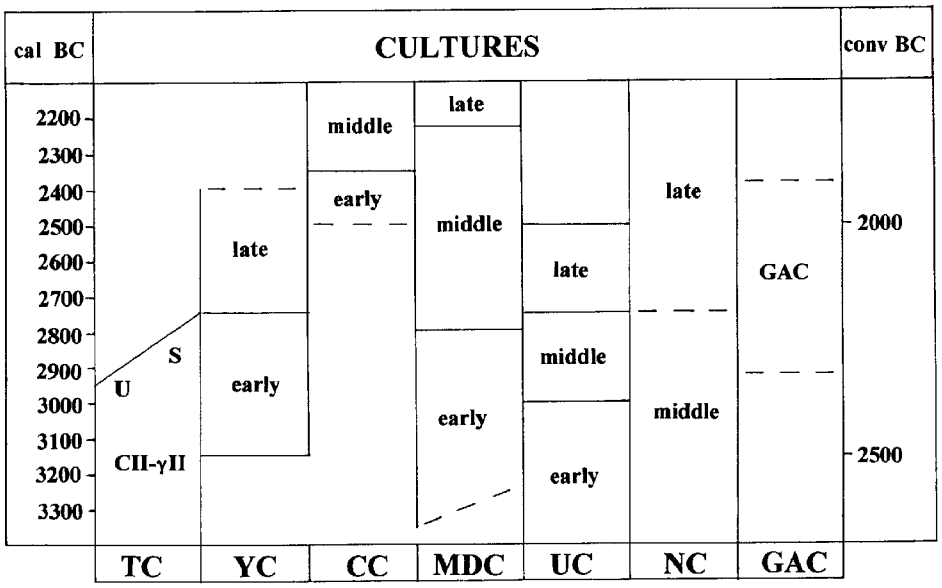

Fig. 5. Synchronization of the chronology of selected cultures from Eastern Europe. Sources: Charniauski 1979, Bratchenko, Shaposhnikova 1985, Movsha 1985a, Shaposhnikova 1985, Artemenko 1987, Miklayev 1992. Legend: TC - Tripolye culture, YC - Yamnaya culture (from Northern Pontic steppe), CC - Catacomb culture, MDC - Middle Dnieper culture, UC - Usvyaty culture, NC - Neman culture, GAC - Globular Amphora culture, U - Usatovo type, S - Sofievka type

- the early and middle phase of the Corded Ware culture in Volhynia and Podolia [Sveshnikov 1985:391];
- late phase of the Narva culture [Rimantienė 1992:100];
- late phase of the Neman culture [Charniauski 1979:61-67; Rimantienė, Česnys 1990:344];
- the middle and late phases of the Usvyaty culture [Miklayev 1992:28-30].

With reference to the GAC periodization in Kujawy discussed earlier (Polish territorial group), the East European settlement of this culture took place in the classic period, from the border zone of phases IIb and IIIa until the decline of the latter [Szmyt 1996:338].

The longest line of development of GAC in Eastern Europe is recorded within the Volhynia-Podolia concentration (Fig. 3). Both the oldest and the youngest complexes were, however, recorded in Volhynia in the form of the sequence of sites: Tovpyzhyn-Ivanye-Peresopnitsa. Somewhat younger seems to be the GAC settlement in Podolia (oldest date from Vorvulintsy), however it is difficult to determine its decline.

5. THE QUESTION OF SPATIAL AND TEMPORAL TRANSFORMATIONS OF GAC IN THE EAST

The literature on eastern GAC has devoted more attention to (a) its territorial diversification while giving far less attention to (b) chronological changes. The static treatment of GAC is characteristic of most works concerning both eastern and western groups. This may be a consequence of real difficulties resulting from the specific character of the corpus of sources (predominance of grave sources showing smaller dynamism of changes than settlement sources in the case of GAC) [cf. Szmyt 1996: 36-45] and of the commonly adopted hypothesis about the short-lived nature of eastern GAC (cf. item 4 above). A favourable exception in this respect is the state of knowledge on the middle territorial group and its local groups [Wiślański 1966:87-89, 1970:186-213; Nosek 1967:340-348; Szmyt 1996].

a. A preliminary analysis was undertaken in respect of the spreading of GAC in the central part of the eastern group, namely in the Volhynia-Podolia agglomeration. The works of I.K. Sveshnikov consistently outlined the twin nature of the concentration within which he distinguished two groups: Volhynia and Podolia [Sveshnikov 1983:10-16]. Each group was characterised by a slightly different set of grave-goods traits (ornaments and vessel forms) and burial ritual. Polish authors argued for more detailed versions of spatial division. T. Wiślański, relying on the analysis of co-occurrence of characteristics, distinguished three units: Podolia group consisting of two subgroups (western and eastern) and Volhynia group [Wiślański 1966:89-90]. On the other hand, the six spatial units distinguished by T. Sulimirski [1968:40-48] were justified exclusively by the geographical proximity of site locations.

As I have mentioned in the beginning, both to the north as well as to the south and east of the main Volhynia-Podolia concentration, dispersed „pure" GAC sites are recorded. They occur from the drainage of the upper Dnieper in the north to the Moldavian Upland in the south. In the east, they reach to the middle section of the Dnieper. To the north, east and south of the area so delineated, there are recorded materials combining traits of various local cultures and GAC. In some extreme analyses, bounds of GAC influences were set at the Ural [Sulimirski 1970:167-169] and Caucasus [Nikolayeva, Safronov 1974:193].

b. The dynamism of chronological transformations and periodization of GAC in Eastern Europe are virtually unknown at present. The only hypothesis was advanced by T. Sulimirski [1968:49-54, 1970:164-165]. The periodization scheme that he suggested consisted of three phases. Phase I was represented by complexes characterised by clear similarity of traits (mainly of pottery) to the state recorded in the Polish group. Phase II would be the period when local elements were adopted and secondary GAC centres were created. These were short-lived groups that quickly „melted into" the local environment. Phase III, distinguished only in Podolia and in the central part of Volhynia, would be actually a „post-GAC" phase. In complexes characteristic for it, the GAC tradition was represented only by the cist form of

grave accompanied by late Corded Ware materials, epi-Corded Ware and Komarów culture (Biały Potok group) goods. In the version of 1968, instead final phase III, the quoted author distinguished three states of transformations of the GAC tradition (designated as stages III-V) [Sulimirski 1968:54].

T. Sulimirski's suggestion was adversely affected in the first place by the conviction about the short-lived nature of eastern GAC settlement and the reliance on controversial data concerning relative dating. Nevertheless, the fundamental assumption of the presented scheme of internal periodization, viz. the growth of differences with time with respect to the original areas from where the migration took place, can be also used now.

6. INTERCULTURAL RELATIONS OF GAC IN EASTERN EUROPE

The spreading of GAC relics over the vast expanses of Eastern Europe makes it justified to consider their relations with other cultures in blocks corresponding to the eco-cultural zones of this part of the continent (see introduction).

6.1. TRACES OF GAC IN THE SOUTH-EASTERN BALTIC COASTLAND

Traces of GAC in the south-eastern Baltic Coastland are recorded in the context of Narva culture settlement.

Source evidence to support the hypothesis about the connections between the two cultures is supplied by the analysis of pottery and amber goods. In the case of pottery (Fig. 6:1-3), the presence in Narva materials (Šventoji 6) of vessels both totally (viz. technically and stylistically) foreign to the local tradition and forms combining traits of GAC and the Narva culture is stressed [Rimantienė, Česnys 1990:342]. The connections between the two cultures is also revealed by the use of the same types of amber goods, in particular V-perforated buttons [Gimbutas 1985:246-251; Czebreszuk, Makarowicz 1993:530]. Since the chronology of button finds in Narva assemblages is older [Loze 1988:45-46,100-105], it must be assumed that GAC communities adopted this type of goods from the south-eastern Baltic Coastland [Gimbutas 1985:246] and spread it to other cultural environments of Europe [Czebreszuk, Makarowicz 1993:531].

The above mentioned source evidence justifies the hypothesis about the direct contacts of GAC and Narva culture populations [Gimbutas 1985:251; Rimantienė, Česnys 1990:339; see there for older works]. GAC communities are supposed to have

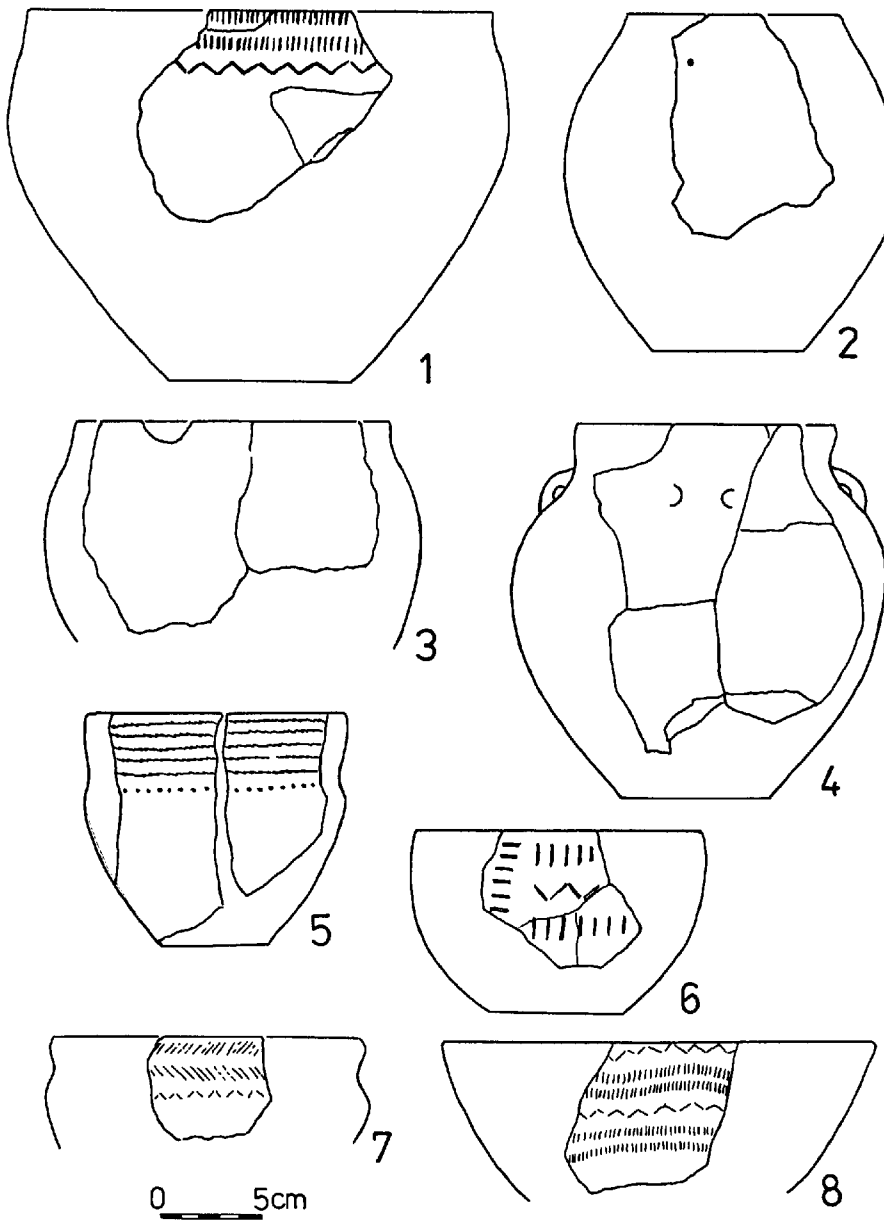

Fig. 6. Elements of GAC in cultures from the Baltic Coastland: Narva culture (1-3 - Šventoji 6), Bay Coast culture (4-5 - Šventoji 2A, 7-8 - Nida). Sorce: Rimantienė, Česnys 1990

penetrated the area of the Baltic Coastland in the „late" phase of its development [Rimantienė, Česnys 1990:339] and its „customers" were late Narva groups. These contacts resulted in the introduction of elements of developed agriculture into the subneolithic environment of the Narva culture. Among these elements were crops like hemp, millet and emmer and implements for their cultivation (e.g. a GAC related find of 3 wooden ards from Šventoji 6) [Rimantienė, Česnys 1990:342; Rimantienė 1992a:109-125, 1992b:375]. What is more, a possibility is accepted that GAC migrants may have functioned in the Narva environment [Rimantienė, Česnys 1990:342].

Chronology of these events is determined on the basis of radiocarbon datings (Fig. 4) for the Narva settlements containing elements connected with GAC (Šventoji 3B, Šventoji 23, and especially Šventoji 6) [Rimantienė, Česnys 1990:342; Rimantienė 1992b:369]. The datings define a time span of 3100-2550 BC; however, it can probably be narrowed down to 2900-2550 BC.

A separate question is the nature of GAC participation in the emergence of the Rzucewo culture (broadly: Pamarių or Bay Coast or Haffküsttenkultur). It is commonly believed that GAC traits, especially clear in pottery (Fig. 6:4-8), resulted from both direct and indirect connections with GAC. The former consisted in the participation of part of GAC population in the genesis of the cultural group in question [Machnik 1979:377], whereas the latter involved transposition through the Narva and Neman cultures [e.g. Rimantienė, Česnys 1990:346].

6.2. GAC IN THE INTERIOR OF THE FOREST ZONE OF EASTERN EUROPE

In the interior of the forest zone of Eastern Europe, there were recorded both (a) relics of GAC population settlement and (b) evidence of their connections with local cultural groups.

a. The penetration of the interior of the forest zone by GAC communities is evidenced by „pure" sites of this culture explored in the area of Grodno and Smolensk. In the area of Grodno, these are mainly cemeteries in the vicinity of the villages of Krasnaselsky and Maly Yodkavichi [see in this volume: Charniauski, Materials...]. The GAC site located farthest to the north-east is also a cemetery uncovered in the vicinity of the village of Turinshchina [see in this volume: Shmidt, Szmyt, Ritual...]. The chronology of these traces of GAC settlement is set by radiocarbon datings (Fig. 3) obtained for features in Krasnaselsky and Turinshchina [see in this volume: Kadrow, Szmyt, Absolute...]. The most probable dates thus obtained are from c. 2660 BC to 2480 BC (Krasnaselsky 2657±190 BC, Turinshchina 2476±126 BC).

The presence of GAC population in the area of Grodno is interpreted as a result of western migration from the so-called Mazovia-Podlasie group [see Char-

niauski, Materials...], which is also indicated by pottery traits. This migration may have been caused by the search for deposits of high quality flint. This is indicated by the location of a GAC cemetery in the area adjacent to the flint deposits on the Ros river in Krasnaselsky [Charniauski 1995:269; Charniauski, Kudrashov, Lipnitskaya 1996:24]. Intensive extraction of the flint in the mines of Krasnaselsky took place, admittedly, in the Middle Bronze Age (1900-1450 BC) [Gurina 1976:127], however, the presence of GAC traces seems to indicate the beginning of the working of the said deposits [Charniauski 1995:269; Charniauski, Kudrashov, Lipnitskaya 1996:24].

The cemetery in Turinshchina currently sets the extreme north-western limit of penetration of the forest zone by GAC communities. For the time being, it seems most probable that these people migrated to the drainage of the upper Dnieper from the south, along the river. However, a possibility cannot be excluded that these people migrated from the west, along the Neman-Pripet tributaries-Dnieper axis.

In Krasnaselsky, as in Turinshchina, which is specifically revealing, in GAC rituals is manifested the agrarian character of Central-European migrants. This is immediately made clear by assemblages of bones of domesticated animals (in Krasnaselsky mainly cattle, in Turinshchina pigs and cattle) [see: Charniauski, Materials...; Shmidt, Szmyt, Ritual...].

b. Elements that are genetically connected with GAC appear in the forest zone also in the context of local cultures. The most important among them are: (ba) Neman culture, (bb) Usvyaty culture, and (bc) Middle Dnieper culture. Attention is also drawn to possible affinities in vessel ornamentation between GAC and the Fatyanovo-Balanovo culture [e.g. Tallgren 1926:87-88; Äyräpää 1933:96; Sulimirski 1970:201-203], Pit- and Comb Pottery culture [Berezanskaya 1975; see also in this volume: Serdyukova, Contribution...] and the Dnieper-Donets culture [Isayenko 1976:115]. These questions, however, call for further studies.

ba. In the literature of the subject, stress is laid on the contribution of GAC (and then the Corded Ware culture — CWC) to the formation of the late stage of development of the Neman culture [Rimantiené, Česnys 1990:344], mainly the so-called Dobry Bor type, isolated in the drainage of the Neman and upper Pripet [Charniauski 1979:63, 1987a:40, 1987b:433]. Decisive evidence for this hypothesis is supplied by the analysis of vessel ornamentation, in particular the appearance of ornaments made with a rectangular die [e.g. Charniauski 1987b:433; Rimantiené, Česnys 1990:344]. The chronology of late Neman materials, determined exclusively on the basis of the comparative analysis of pottery, encompasses the period from 2750 BC to 1700 BC at the maximum [Charniauski 1979:78].

bb. In recent years attention has been drawn to the possible connections between the Funnel Beaker culture and GAC, on the one hand, and the Usvyaty culture, on the other. The last-mentioned culture developed in the interfluvial area between the Western Dvina and Lovat rivers from c. 3900 to 2500 BC (Fig. 4) [Miklayev 1992:28-30; cf. also Dolukhanov, Miklayev 1979]. In the opinion of its main explorer, the Usvyaty culture may be seen „as a distant eastern variant" of

the Funnel Beaker culture and GAC [Miklayev 1992:40-41]. During its whole development, cultural links connected the Usvyaty culture only with the western and south-western directions. There is no evidence of contacts with the sphere of the Pit- and Comb Pottery cultures which occupied the area to the north and east of the Western Dvina [Miklayev 1992:41]. Possible contacts with GAC are supposed to be evidenced by vessel ornamentation from the middle and late phases of the Usvyaty culture dated, respectively, to 3000-2750 BC and 2750-2500 BC [Miklayev 1992:29-30]. Because relevant information has not been published in full, it is difficult to comment on the quoted opinions. Nevertheless, it has to be pointed out that the possibility of contacts of local populations with GAC communities (rather in the late phase of the Usvyaty culture?) is validated by the presence of the latter in the drainage of the upper Dnieper (c. 120 km south-east of the eponymous site of the Usvyaty culture). Discovered in 1986-1987, the complex in Turinshchina proves the point [see above item a and article: Shmidt, Szmyt, Ritual...]. It can be added that it is in the late phase of the Usvyaty culture that small amounts (4% of contents) of bones of domesticated animals sheep, goats, pigs, cows appear [Miklayev 1992:43].

The related hypotheses fit in the broader conception of A.M. Miklayev in whose opinion, during the Neolithic, along the chain of lake districts stretching from the Polish border to the mouth of the Toropa and Western Dvina, a „corridor" functioned separating upper valleys of the Volga and Dnieper from the Baltic Coastland. Through this „corridor" cultural patterns from Central Europe were transmitted into the interior of the forest zone. Traces of GAC recorded in this „corridor" would be the third Central-European element, after Linear Band Pottery and Funnel Beaker Pottery cultures, flowing in from the south-west to the drainage of the Dvina [Miklayev 1992:44].

bc. The issue of relations between GAC and the Middle Dnieper culture has been only marginally touched on or neglected altogether [e.g. Rumjancev 1974; Artemenko 1987]. Curiously enough, a possibility of mutual interrelationships was alluded to in laconic mentions of GAC pottery being found in kurgans on the middle Dnieper [e.g. Lunevo – Artemenko 1987:41] and reported in already published materials [e.g. Kalechyts 1987:Fig.35,56]. Certain arguments are also offered by a grave complex from Prorva site 1 presented in this volume [see Kryvaltsevich, Grave...]. In respect of this complex we have two radiocarbon dates [see: Kadrow, Szmyt, Absolute...]. A joint calibration of both datings permits to place the dated event at c. 2620 BC. The feature contains a vessel whose ornaments combine GAC traits (impressions of a rectangular stamp) with those of the Corded Ware culture (cord decoration). It should be mentioned that it is only the second ^{14}C dated feature of the Middle Dnieper culture [Artemenko 1987:41, footnote]. So far, attempts at distinguishing three development stages of this culture have been based on comparative analyses [Artemenko 1987:37-42, see there for older literature]. Due to current controversies over the version of periodization of the Middle Dnieper culture proposed in literature, this question by no means can be elaborated.

6.3. GAC AND THE CULTURES OF THE EAST-EUROPEAN FOREST-STEPPE ZONE

From among groups developing in the forest-steppe zone of Eastern Europe by far of the greatest importance for the problems discussed here is (a) the forest--steppe facies of the Tripolye culture. It is also important to organise information shedding light on interrelationships between GAC and (b) the sphere of the CWC.

a. The nature of relations between GAC and the Tripolye culture has been assessed mostly on the dubious basis of co-occurrence of materials of both cultures in the same sites (in particular, the presence of GAC pottery in Tripolye settlements) [e.g. Passek 1949:222; Sulimirski 1959:279; Sveshnikov 1983:18]. The bare fact of recording sources of both cultures in the same place without a detailed analysis of conditions and nature of such a co-occurrence cannot be an argument for the contemporaneity of the two cultures [Zbenovich 1976:46; Ścibior 1986:355]. Drawing conclusions on the basis of such arguments led, for instance, to the erroneous synchronisation of GAC with the CI stage of the Tripolye culture [e.g. Sulimirski 1959:167; cf. a polemic: Zbenovich 1976:46]. Currently, the list of more convincing evidence is being extended. New items prove partial contemporaneity of both cultures and direct contacts of their populations [e.g. Movsha 1985b]. Among them are interborrowings in pottery and rituals. Of crucial significance is the occurrence of pottery combining traits of GAC (mainly ornaments) and the Tripolye culture (technology admixture of shells, possibly forms) in the late Tripolye sites of the Gorodsk-Kasperovtsy group (e.g. Tovtri, Velika Slobidka — Fig. 7:1-5) [Sveshnikov 1983:18; Movsha 1985b:28] and of the Sofievka group (Fig. 7:6-7) [Kadrow, Kośko, Videiko 1995:209-215]. Similarly, in GAC sites there are recorded vessel fragments displaying Tripolye technology (i.e. with an admixture of shells and flint) [Sveshnikov 1983:13-15]. I must add that some of the quoted opinions are obviously in need of correction (personal scrutiny of GAC materials in the Institute of Archaeology of the Ukrainian NAN in Kiev) [cf. also comments by J. Ścibior 1986:360], others, however, seem to be credible.

On the basis of still rather few cases of co-occurrence of traits of GAC and the Tripolye culture and the current version of chronology of both cultures, it seems justified to adopt a thesis of partial contemporaneity of GAC and late Tripolye groups of phase CII [Movsha 1985b:29], or more precisely, of the late interval of phase CII [cf. however less adequately corroborated comments about the possibility of an earlier synchronisation taking place at the beginning of phase CII [Movsha 1985b:30] or in phase CI [Sulimirski 1970:176]. The difficulty in determining temporal relations with greater precision stems from relatively poor exploration of the decline of the Volhynia agglomeration of the Tripolye culture, i.e. the stage defined here as the Gorodsk type (Gorodsk-Listvin) [Shmagliy 1966; Jastrzębski 1989:14-16, 112]. In particular, it cannot be assessed at present to what degree it is probable to connect the end of stage CII in Volhynia with the critical date of 2950/2900 BC [e.g. Movsha 1985a:255] that is mechanically transferred from the southern steppe

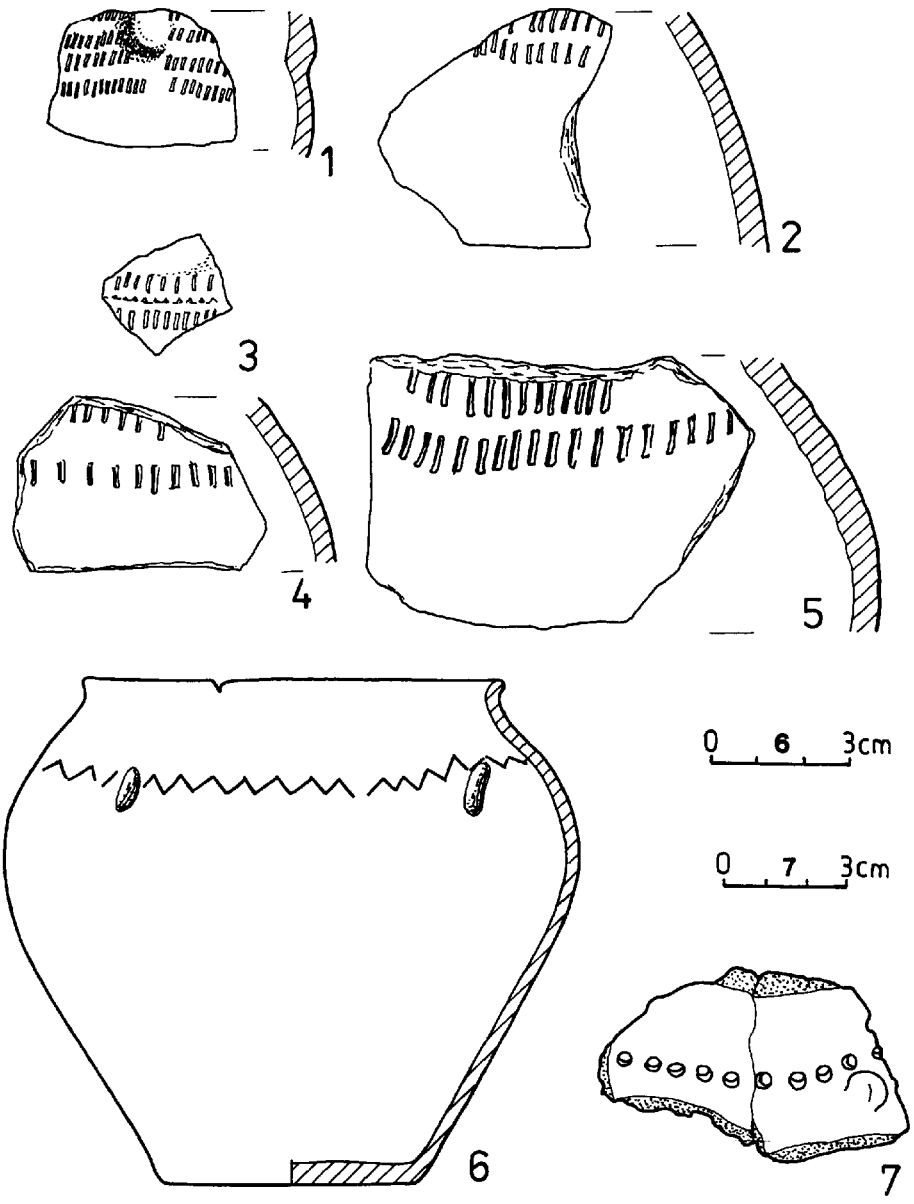

Fig. 7. Elements of GAC in pottery of late Tripolye culture (1 - Tovtri, 2 - Kosteshty IV, 3-5 - Velika Slobidka-Khreshchate II, 6-7 - Krasny Khutor). Sources: Movsha 1985b, Kadrow, Kośko, Videiko 1995

branch of the Tripolye culture (Usatovo type). Re-dating (relying on a local series of radiocarbon datings) of the Sofievka type [Kadrow 1995; Kovalyukh, Videiko, Skripkin 1995] commands great caution in this respect. Another misunderstanding is the equally mechanical connecting of the end of the Tripolye culture in Volhynia with the beginning of GAC settlement there. Decisive could be only the procurement of independent (radiocarbon) source evidence for structures like Gorodsk.

As it is stressed by T.G. Movsha [1985b:28] there was no neutral zone between the Tripolye culture and GAC. It is certain that areas of GAC settlement in the forest-steppe zone were earlier (or maybe at least for some time simultaneously) occupied by Tripolye groups. However, to look at the mutual relations between the two communities only from the angle of their possible competition (or even struggle) [e.g. Sulimirski 1970:166; Zakharuk 1971:179; Zbenovich 1976:46] would be premature. In this context, one should remember about far more complicated relations between GAC populations and people of other Late and Declining Neolithic cultures in the „departure" areas, i.e., for instance, in the drainages of the Vistula and Oder [Szmyt 1996; Prinke, Szmyt 1996].

b. The relations between GAC and the sphere of the CWC in the whole area of their occurrence are not known too well [cf., however, Szmyt 1996:245-254]. This also applies to areas located in Volhynia and Podolia. Only for the drainage of the upper Dniester, analysed in greater detail by J. Machnik [1979], do certain possibilities open for the evaluation of the chronological changes of these relations. In CWC kurgans known from this sphere, dated to its phase II (e.g. Kołokolin), there were recorded artefacts connected with GAC (pottery, fragment of an axe made of banded flint from Krzemionki Opatowskie) [Sulimirski 1968:142-143; Machnik 1979:58]. It is unclear, however, whether these finds were grave-goods or came from a secondary deposit, which makes their interpretation difficult. It is generally believed that „a barrier for the spreading of CWC to the east and north-east may have been formed by compact distribution of GAC at that time" [Machnik 1979:57]. The border zone between the two cultures is identified with the areas between Gnila Lipa and Zolota Lipa. The expansion of CWC to the north and east that took place in phase III, as distinguished by J. Machnik, led, in turn, to the decline of earlier GAC settlement.

The contemporaneity of development of GAC and CWC [see also Zbenovich 1976:52] is confirmed by the latest radiocarbon datings [see: Kadrow, Szmyt, Absolute...] which also point out to the longevity of the process. Because of the paucity of evidence of mutual contacts between both cultures during the development of „proper" CWC, alluded to above, of crucial importance is the higher incidence of GAC traits in groups included in the sphere of epi-Corded Ware cultures developing later in Volhynia and Podolia. Among them are: groups (cultures) of Gorodok-Zdolbitsa [Sveshnikov 1985b:381-384], a local (in Podolia and Pokucie) variety of the Early Mierzanowice culture (Chłopice-Vesele) [Machnik 1979:62-67; 1987:151-153]; or as proposed by I.K. Sveshnikov Podolia group of the sub-Carpathian culture [Sveshnikov 1985b:380] and the Strzyżów culture [Głosik 1968; Mach-

nik 1978]. In all the cases references to GAC are visible mainly in the burial rituals, more precisely in the construction of cist graves built either of stone slabs or stone rubble with the last type being foreign to the CWC tradition. References to GAC are also seen in pottery forms resembling GAC models [e.g. Machnik 1978:79]. In this context a thesis about (partial) assimilation of the eastern branch of GAC by CWC was formulated [Sveshnikov 1957:42; 1990:49]. It must be added that graves with stone structures survived until later being one of the distinguishing factors of the Biały Potok group of the Komarów culture [Sulimirski 1968:93].

6.4. GAC AND STEPPE ZONE GROUPS

The possibility of contacts of GAC communities with steppe groups was indicated by discoveries of „pure" sites of this culture in the Romanian part of the Moldavian Upland [Dinu 1960]. However, a breakthrough took place only in the 1980s. It was than that materials referring to GAC and originating with steppe cultures were published. Of primary importance among these cultures was the (a) Yamnaya culture. Separate attention should be devoted to the hypothetical contacts of GAC with (b) the Catacomb and (c) Kemi-Oba cultures and areas of Kuban-Caucasus.

a. From the eastern part of the Moldavian Upland, we know of graves in which vessels, undoubtedly deriving from GAC (Fig. 8B), occur in the context of both materials and the burial ritual typical of the Dniester variety of the Yamnaya culture [Yarovoy 1979, 1981, 1985:89; Dergachev 1986:79; Manzura 1993:34-36]. Characteristically, these are always single vessels faithfully preserving the form and ornamentation of GAC [e.g. Yarovoy 1985:Fig.26, 1990:219; Dergachev 1986:79; Manzura, Klochko, Savva 1992:Fig. 12,6]. They are believed to be imports from the area of the eastern group of GAC providing evidence for both partial contemporaneity and close contacts of both cultures [Yarovoy 1979, 1985:91; Dergachev 1986:79]. The interfluvial area between the Prut and Dniester would be thus a contact zone of both cultures [Yarovoy 1981]. These contacts took place rather in phase II of the Dniester group development [Manzura, Savva, Bogataya 1995:26].

A different set of traits is attributed to possible GAC impact in the steppe zone south-east of the Moldavian Upland, in the area stretching from the Danube's estuary to the estuary of the Dnieper [Subbotin 1988:129; see also in this volume: Rassamakin, On early...]. Among these traits are ones relating to the burial ritual and artefacts foreign to the steppe tradition, namely:

- stone cist graves, dug (as secondary burials) into the mounds of the Yamnaya culture kurgans (Fig. 8A), formally different from graves of the Kemi-Oba culture or Srubnaya culture [cf. also Serova, Yarovoy 1987:130],
- vessels (e.g. amphorae with handles), foreign to the Yamnaya culture, but which may be a transformation of GAC models,
- flint axes in the Yamnaya culture graves.

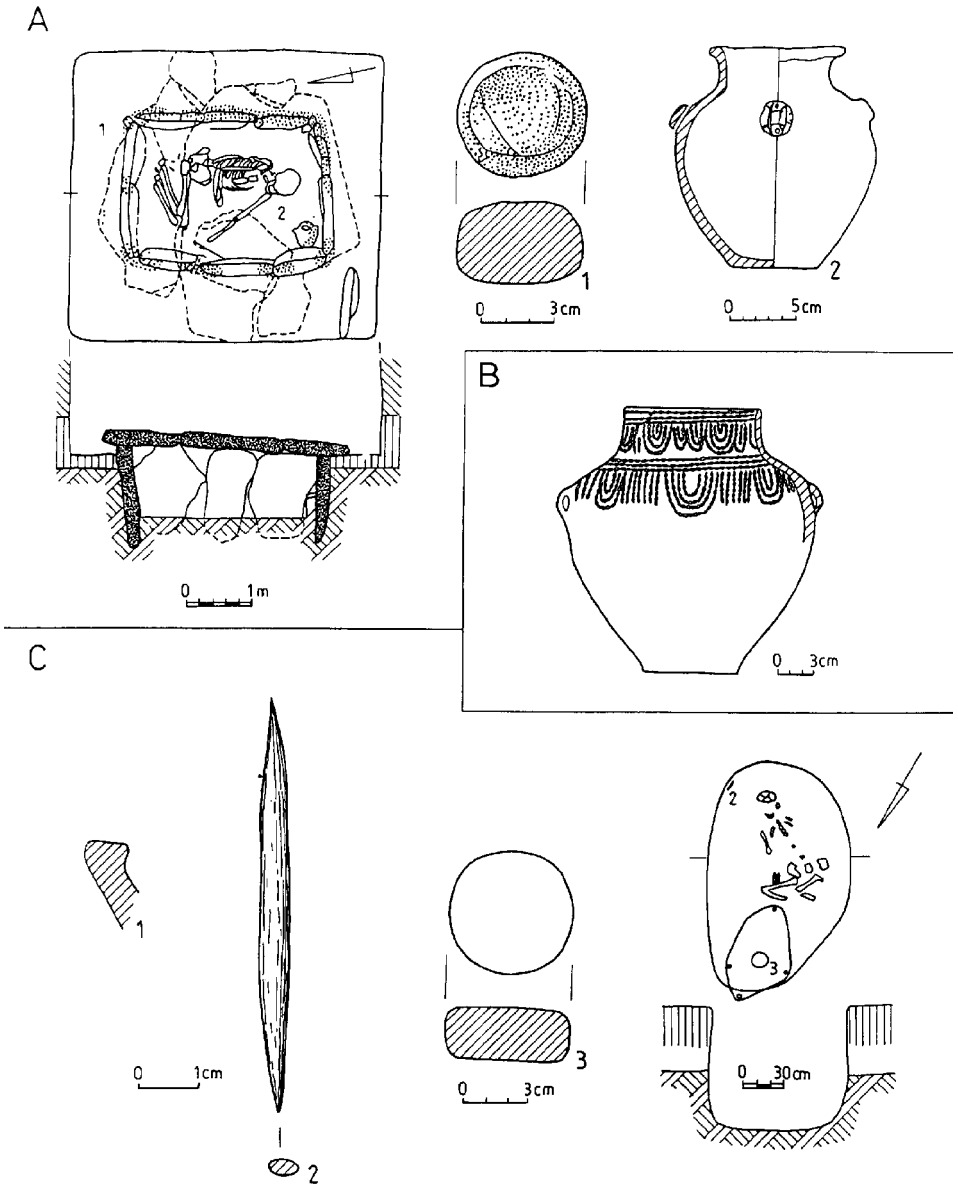

Fig. 8. Elements of GAC in Yamnaya culture (A - Tatarbunary: 1 - stone, 2 - vessel; B - Korpach) and Catacomb culture (C - Primorskoye: 1 - pottery, 2 - bone, 3 - stone). Sources: Dergachev 1986, Popandopulo 1992, Subbotin 1988

Differently from the situation encountered in the Moldavian Upland, in this case we have to deal with elements that are less unequivocal, both genetically and culturally [cf. e.g. doubts: Zbenovich 1976:48]. In all the cases the studied traits were connected to secondary burials, dug into the mounds of earlier kurgans. Stratigraphic evidence allowed to date them to c. 2500 BC [Subbotin 1988:130; on the possibility of an earlier dating cf. Rassamakin, On earlier...].

b. Certain traits hypothetically referring to GAC are revealed in materials of Catacomb culture groups [cf. old theses of A.Äyräpää 1933:121 and T.Sulimirski 1970:229]. An example of this may be a discovery of a double-edged stone blade, analogous to ritual objects typical of GAC [Wiślański 1966:42; see also: Charniauski, Materials...], in a Catacomb culture grave on the Konka river (Fig. 8C), a left tributary of the lower Dnieper [Popandopulo 1992:Fig.4:2]. Also in the ornamentation of the pottery of the Catacomb culture from the middle Dnieper references to GAC are observed [cf. Serdyukova, Contribution...]. It seems, however, that faced with strong regional diversification of the Catacomb culture sphere [Bratchenko, Shaposhnikova 1985:403], it would be more important, from the point of view of matters discussed here, to explore chronological and spatial relations of both cultures in the area along the Dniester, i.e. in the western portion of the area occupied by the Catacomb culture [Toshchev 1991].

c. Ambiguity of relations between GAC and the Kemi-Oba culture remains. The thesis of N.A. Nikolayeva and V.A. Safronov [1974:185-193] about the genetic relation of Kemi-Oba with the expansion of GAC has been subjected to criticism [Maleyev 1980; Sveshnikov 1983:20]. At present, there are no doubts about the contemporaneity of development of both cultures in the broadly understood Pontic zone [Shchepinsky 1985:336], however, with no direct spatial contact between their compact settlement [Arkheologiya 1985:Map 9]. It should be accepted, however, that it was possible for the influences of both cultures to meet in the area of the lower Dnieper.

Heated controversies are aroused by hypotheses about genetic connections of GAC and the Maykop culture [e.g. Gimbutas 1991: 381-384; cf. a critical review: Haüsler 1994]. This matter, however, calls for more research (cf. item 8 below).

7. THE PROBLEM OF SOCIO-ECONOMIC CHARACTERISTICS OF EASTERN GAC COMMUNITIES

A lot of attention has been devoted to the social organization and economy of GAC populations. For the most part, however, these problems have been dealt with in synthetic works whose authors intentionally formulated general opinions applying to the whole GAC oecumene. An extreme view was put forward by V.G. Childe defining GAC as a culture of hunters, shepherds and prowlers [Childe 1930:139]. Howe-

ver, a more moderate interpretation prevailed [e.g. Wiślański 1969:244-251,273-326, 1979:281-293; Kruk 1980:316], according to which the GAC people „were seminomadic herders living in small groups who practised limited seasonal movements (...) Agriculture (...) seems to have been only supplementary to an essentially stockbreeding economy in which cattle were of paramount importance" [Gimbutas 1991:383]. Relations within groups were based, in the opinion of most scholars, on the socio-organizational supremacy of adult males to whom women, children and adolescents were subjected [Wiślański 1969:312; cf. also Sulimirski 1970:166; Gimbutas 1991:383]. These recent interpretations took also into account information from the eastern group of GAC [e.g. the celebrated case of the tomb of Wojciechówka, now Kolodyazhnoye — Levitskiy 1930].

In the most recent interpretations an assumption is made concerning a possibility of regional and chronological diversification of the social organization and economy of GAC populations [Szmyt 1996]. And so, the only detailed analyses, carried out on the example of the GAC community in Kujawy [Szmyt 1996:201-216], allowed to distinguish three levels of social organization, namely: village, microregional (microlocal) and regional groups. The basic unit of social organization was the home group (family) numbering at least 4-5 persons. It was also this group that in most cases formed a village group. Under special circumstances (e.g. seasonally) a few families comprised one village group that would share one settlement consisting of a few houses. At least 3-5 basic families made up a microregional group whose domain covered 160-310 sq. km. A manifestation of a microregional group's unity and also a sign of their rights to the area was the ritual zone marked by a megalithic cemetery (or cemeteries). About 20 microregional groups made up a regional group. It was a communication community within the bounds of which marriages must have been arranged.

This multilayered structure of social organization reconstructed for a well researched region of the longest GAC settlement tradition [cf. part 4] cannot be directly transposed to any other fragment of the oecumene of the people in question. To test its adequacy for the eastern branch of GAC (or, for instance Volhynia-Podolia agglomeration) one would need first to chronologically stratify features and design a periodization scheme as well as to expand one's knowledge of settlement and economic microstructures (in particular settlements and camps).

At present, we have only fragmentary knowledge of the settlement structures and economic system of people of the eastern group of GAC [Sveshnikov 1983:16-17]. There are no doubts about the agrarian character of this economy, which is indicated by remains of domesticated animals recorded in GAC cemeteries located even in the most distant regions [cf. in this volume: Charniauski, Materials...; Maleyev, Pryshchepa, Grave...; Shmidt, Szmyt, Ritual...]. The knowledge (and cultivation?) of crops is evidenced by impressions of corn grains (barley or wheat and may be millet) in the bottom of one of the vessels found in the cemetery in Turinshchina, hence in the interior of the forest zone [cf. Shmidt, Szmyt, Ritual...]. The site in Mezhireche [Sveshnikov 1983:12] supplies proof for the existence of

settlements consisting of at least two homesteads. However, no single-house settlement, typical of Kujawy [Szmyt 1996:157], has been identified. In the source context presented here it is difficult to draw any conclusions going any further than the general evaluations quoted earlier.

8. GAC AND THE ETHNICAL TRANSFORMATIONS OF EUROPE

„At any rate, it is apparent even at this stage of research that the emergence of the Globular Amphora culture in the North European plain is a phenomenon crucial to the question of the Indo-European origin" [Gimbutas 1980:301-302]. This quotation expresses the view of those scholars, working on the problem of the indo-europeanisation of Europe, who relate main ethnical transformations of our continent to the late Neolithic/Eneolithic [cf. also e.g. Mallory 1991:250-251]. For competing options, e.g. the hypothesis identifying the beginning of the process of indo-europeasation with the advent of the Neolithic in Europe [Renfrew 1987], GAC population is already and simply Indo-European. Here, however, it is worthwhile to consider the questions related to the first of the above options.

In M.Gimbutas' version, the Proto-Indo-Europeans may be identified with the „Kurgan tradition", i.e. a series of cultures developing in the Pontic-Caspian steppe and forest-steppe zones. „Kurgan" people expanded to Central and partially western Europe from 4500 to 2500 BC This expansion occurred as three waves of people movements. In M.Gimbutas' opinion [1980:293-301; 1991:381-384] GAC is an effect of the overlaying of an older population substrate with East-European nomads representing „Kurgan Wave #2" [cf. above item 3a]. Due to such origins „the fundamental social, religious, and economic components of the Globular Amphora culture link it to the North Pontic area" [Gimbutas 1991:384]. The quoted author points out to analogies with respect to rituals (primarily the form of cist grave, animal burials, „human sacrifices", solar symbolism), certain forms of vessels and the type of economy. These analogies bring GAC and the Maykop culture closer together. In this hypothesis a special place is held by the eastern branch of GAC which supposedly came into being on the substrate of the Tripolye culture population, whereas the other GAC groups were connected to the substrate of the Funnel Beaker culture [Gimbutas 1991:381 and Fig. 10-13].

The legitimacy of the source evidence of the discussed hypothesis varies. In the first place, the area of GAC expansion is located in the broadly understood border zone between Eastern and Central Europe („Bug-Dniester limes") where beginning with the Mesolithic translocations of cultural patterns had been taking place in various directions (including along the SE-NW axis) [Kośko 1990, 1991]. During the 4th and in the early 3rd millennia BC, in this zone, population shifts occurred, which is well documented by archaeological sources. Unquestionably, in

GAC rituals in the whole area of its appearance, there are motifs which have precise analogies in Indo-European symbolism [cf. Kowalski 1988]. Analogies with respect to pottery, that supposedly are to link GAC and Lower Mikhailovka, however, are debatable. Controversies are also raised by the origins and chronology of the stone form of the cist grave that is present in the GAC and Kemi-Oba cultures as well as the Caucasian Dolmen culture [cf. item 6.4.c and the theses of Nikolayeva, Safronov 1974]. In the light of current knowledge it would be difficult to credibly justify the hypothesis about the (late-)Tripolyan population substrate of eastern GAC and its mixed (Tripolyan-Kurgan) character. Far more source evidence supports the view assuming the migration of people formed by GAC from the west with late-Tripolyan communities undoubtedly playing some (for the time being undefined) role in the process of local transformations of the culture. Finally, the type of GAC economy (the basic role of animal raising supplemented by land cultivation) and the mobile way of life must be seen in the context of broader, endogenous economic transformations of Central Europe [Kruk 1980:315-333; 1993], although Pontic influences in this respect cannot be excluded.

To summarize, the connection between GAC and the formation of the new ethnic structure of Europe seems well grounded. However, to determine the share of the discussed communities in the process would call for the broadening of knowledge of the dynamism of their transformations and thus for the abandoning of the static vision of culture that still dominates, particularly with respect to the eastern territorial group.

CONCLUSIONS

The summary of the present state of knowledge on the eastern branch of GAC presented here, in the author's intention is to set guidelines for research for the nearest future. Top priority should be given to two fundamental projects: (1) an attempt to work out an internal periodization of the GAC group in question, and thus to abandon its static concept (it is necessary to obtain more radiocarbon datings, also for GAC materials from eastern Poland), and (2) a revision of source evidence concerning relations of GAC with contemporaneous cultures of Eastern Europe. Far more time and especially systematic efforts are needed for the third project, i.e. a thorough investigation of the socio-economic core of eastern GAC transformations. This last mentioned project would require a change of the current structure of sources dominated by grave complexes. Such a change stands some chance of being implemented, which is evidenced by papers included in this volume [cf. Serdyukova, Contribution...; Shelomentsev-Terskiy, Settlement..., in this volume].

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SOURCES

Józef Ścibior, Wiesław Koman

GRAVE OF THE GLOBULAR AMPHORA CULTURE FROM SITE NO. 27 IN ŚWIERSZCZÓW (PROV. OF ZAMOŚĆ, POLAND)

In the early spring of 1984, the Stanisław Staszic Museum in Hrubieszów was notified about an accidental discovery of a new archaeological site in the area of Świerszczów. Large pieces of pottery that had been delivered to the Museum were identified as fragments of Glabular Amphora culture (GAC) pottery. In April of the same year, A. Kokowski and W. Koman, together with a group of UMCS archaeology students, carried out rescue excavation works [Kokowski, Koman 1984:19; 1985:38].

The site was discovered in the eastern portion of the lands belonging to the village of Świerszczów, about 1 km NW of the Hrubieszów — Strzyżów road (Fig. 1). The site is located at the summit of a small hump separating two valleys of small local streams and gently rising about 5 m above their level.

1. GRAVE STRUCTURE

The ceiling part of the site's damaged content was uncovered already at the depth of 0.15 m, directly underneath a thin arable layer of chernozem. Undisturbed soil was reached already 0.30 m below the surface. Due to long ploughing, the grave was seriously damaged. Uncovered under the layer of ploughable soil, the bones were placed non-anatomically in two groups. A certain amount of fine remains was scattered along the SE-NE line for about 3 m (Fig. 2). In the first group (from the west), there were identified cranial bones, ribs, vertebrae and bone fragments of upper extremities. Underneath, the explorers discovered three amber beads and a flint blade. A little further to NW, a discovery of another two amber beads and a large amount of pottery fragments was made. These were remains of two vessels: a vase and a pot. The second group (eastern one) was made up of damaged and moved pelvic bones and bone fragments of lower extremities. Underneath, two

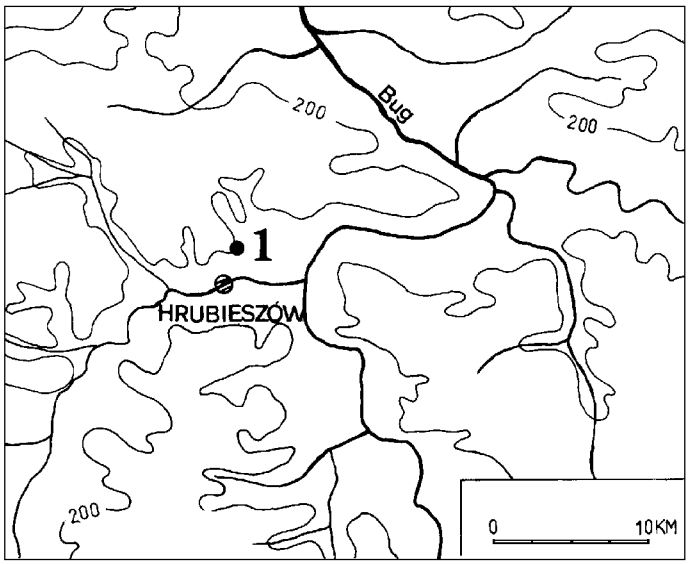

Fig. 1. Location map (1 - Świerszczów site 27)

more amber beads were found. Nearby, NW of the bones, the eighth amber bead discovered in the grave was found. Next to the group, a short distance to E, a discovery of fragments of a small amphora lying closely together and a flint axe was made. In the central portion of the grave, between the bone groups, archaeologists uncovered fragments of another four vessels (Fig. 2).

Due to the fact that the feature was located close to the surface, which caused damage, the outline of the burial pit could not be detected. It seems, however, that it was a flat, ground pit grave without any stone structures since neither in the explored area, nor on the surface in the immediate vicinity of the grave (within a radius of at least 20 m), have any stones, even in the form of small chips, been found. Neither can one definitely conclude how the burial was positioned. Considering the arrangement of the groups of bone remains, it can be assumed that the skeleton was most probably positioned along the NW-SE axis, on its right side with the skull pointing to NW. It must have been buried in a flexed position. It must be also added that the location of vessels in the grave, as shown on the map, has been reconstructed using planigraphy of the ceramic material.

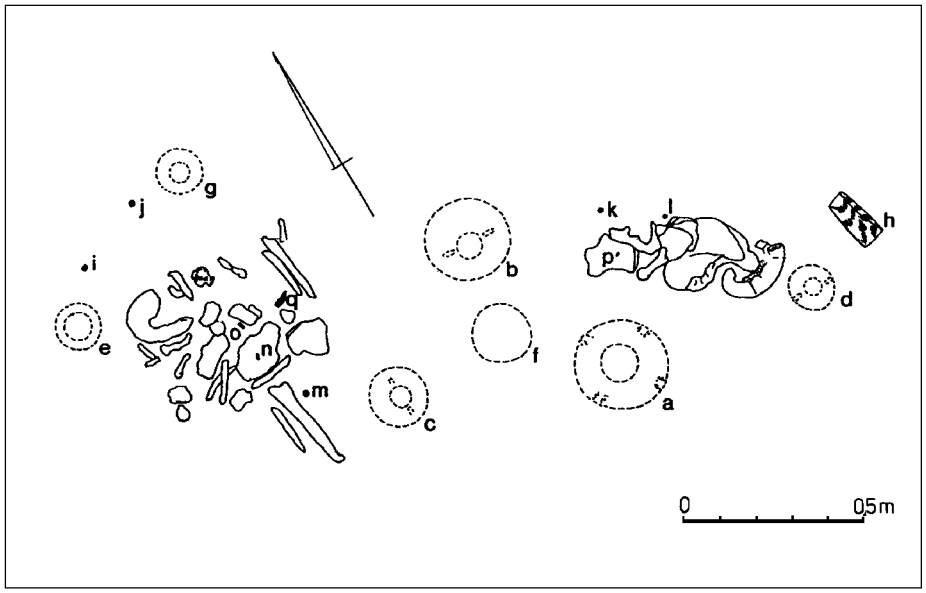

Fig. 2. Świerszczów site 27. Plan of grave at the depth of 0.15- 0.30m (a-q = elements of the grave inventory). Source: Ścibior, Kokowski, Koman 1991

2. DESCRIPTION OF MATERIALS

1. A large, wide-opening amphora with a flat bottom, resembling forms of type IIA1 [Wiślański 1966:28-29], viz. Kujawy type amphorae (Fig. 3a). It has four flat handles placed below a clearly marked root of the neck. The neck and the upper part of belly are covered with an ornament of homogeneous vertical patterns and alternately oblique impressions of a rectangular die. Below, there are a double line of impressed cord and vertical cord „loops". The vessel is made of clay thinned down with a small amount of granite gravel. It has been quite carefully burned. On the outside, it is smooth and light to grey brown while on the inside it is even, greyish--black and black. The fracture of walls (up to 0.8 cm thick) is two-coloured and compact. Dimensions: height (H): 28.0 cm; rim diameter (R_1): 16.0 cm; maximum belly diameter (R_2): 32.0 cm; bottom diameter (R_3): 12.0 cm.

2. A large, two- or four-handled, globular amphora resembling type IA1 [Wiślański 1966:25-26] preserved in fragments (Fig. 3b). The neck — very probably tall and cylindrical — has not survived. On those fragments that have survived no ornament has been found. The amphora is made of clay with a high content of medium and coarse granite gravel. The walls (up to 0.8 cm thick) are smooth, brown and reddish-brown on the outside and greyish-black and black with traces of burnishing

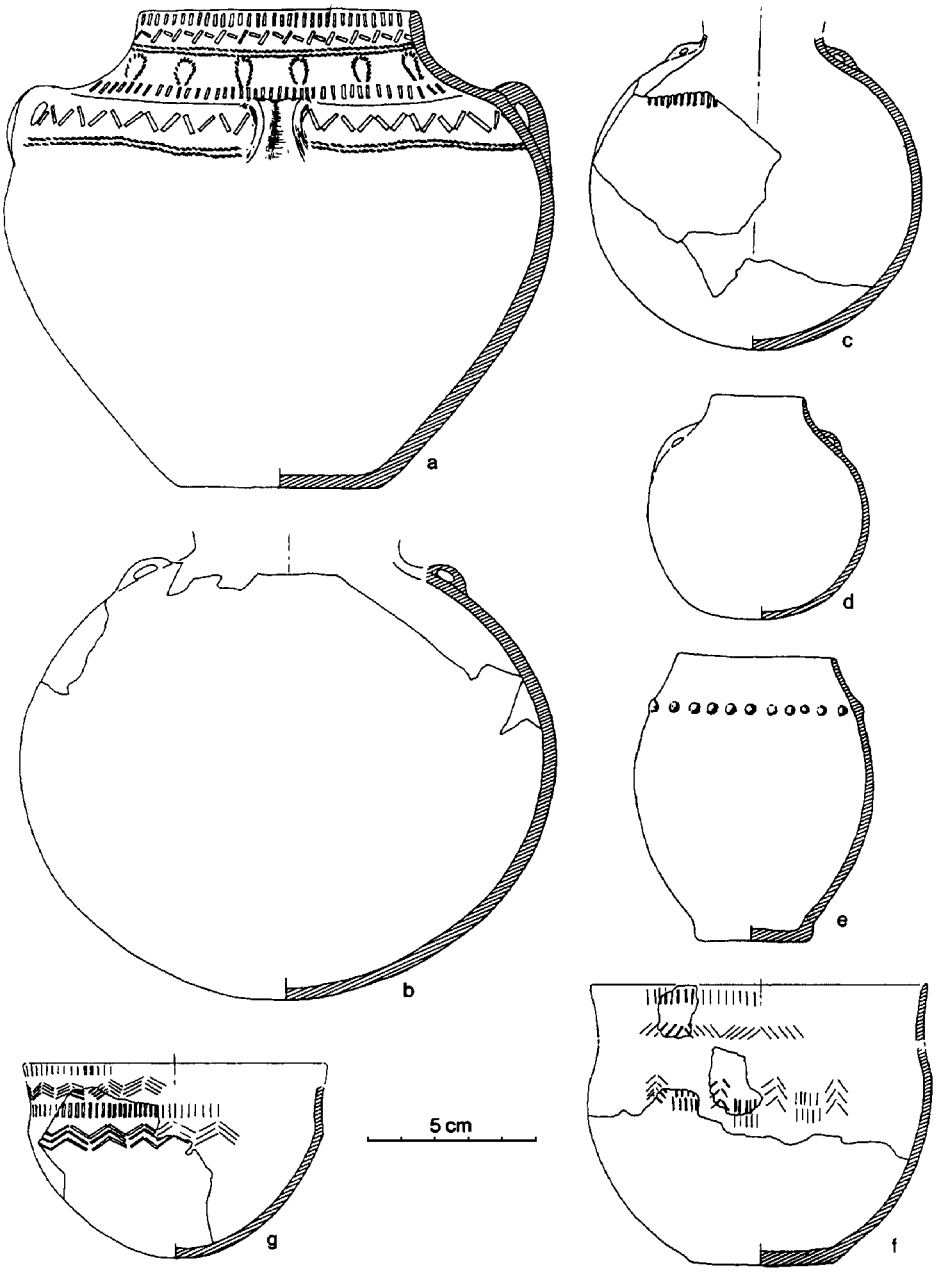

Fig. 3. Świerszczów site 27. Vessels from the grave. Source: Ścibior, Kokowski, Koman 1991

(with a tuft of grass) on the inside. The fracture is stratified with a tendency to separate. Dimensions: preserved H: ca 26 cm; R_2: 32.0 cm.

3. A middle-sized globular amphora, resembling type IA1, only partially preserved. It could have had two or four handles (Fig. 3c). On the upper part of the belly one can see an ornament of vertical impressions of a rectangular die. However, there is not sufficient data to reconstruct the original ornament. The vessel is made of clay thinned down with a large amount of coarse granite gravel whose grains pierce the outer wall surface. The fracture is stratified, rather loose and peels at places. The outer surface, despite smoothing, bears visible traces of light burnishing. It is grey and dark grey. The inner surface and fracture (ca 0.5 cm thick) are brown-grey. Dimensions: preserved H: ca 17 cm; R_2: 20 cm.

4. A small, two-handled amphora without any decoration. An asymmetrical belly is almost globular (Fig. 3d). The neck is short and poorly marked while the rim is clearly thinned. It is an intermediate type between forms IA1 and IA3 [Wiślański 1966:25-27]. It is made of clay with a low content of granite gravel. The surface of walls (0.3 cm thick) is smoothed and grey. Dimensions: H: 13.0 cm; R_1: 5.8 cm; R_2: 13.0 cm.

5. A small „barrel-like" pot (Fig. 3a) with a flat, marked bottom reminding of some forms of types VIIIA2 and VIIIB2 [Wiślański 1966:34]. Under the rim runs a circumferential row of unevenly spaced buttons. In the walls one can observe a large amount of coarse gravel. The outer surface is brown to red-brown, uneven and poorly smoothed, while the inner one is greyish-black and black and bears clear traces of burnishing, The fracture of walls is compact, black and red-brown. Dimensions: H: 16.5 cm; R_1: 9.5 cm; R_2: 14 cm; R_3: 6.3-6.5 cm.

6. A vase of type VB1 [Wiślański 1966:32] preserved in an odd dozen of fragments allowing a graphical reconstruction (Fig. 3f). The upper part of the vessel was covered with an ornament of vertical impressions of a rectangular die and horizontal groups of lines and incisions and similar vertical ones (herringbone), separated by groups of vertical incised lines. The vase is made of clay thinned down with a small amount of fine granite gravel and chamotte. Wall surfaces are even, quite carefully smoothed and red-brown-grey. The fracture is grey-red-brown. Dimensions: H: ca 16 cm; R_1: ca 20 cm; R_2: 20.6 cm; R_3: 8.5 cm.

7. Fragments of a tall bowl with a spherical bottom (Fig. 3g) resembling type IVA3 [Wiślański 1966:31]. The upper part of the vessel was originally covered with an ornament of horizontal patterns of impressions of a rectangular die and multiple, alternately oblique impressions of another die. Made of clay with a large content of coarse and medium-grain gravel, the vase's walls are of uniform dark grey colour (ca 0.4 cm thick) and are relatively well-burned. The outer surface is even and carefully smoothed while the inner one bears traces of burnishing. Dimensions: H: ca 20 cm; R_2: 17.5 cm.

8. A large, tetrahedral axe made of milky-grey chalk Volhynia flint (Fig. 4h) and very carefully smoothed on all sides. The cutting-edge is arched and slightly asymmetrical while the cross-section resembles a rectangle with rounded corners.

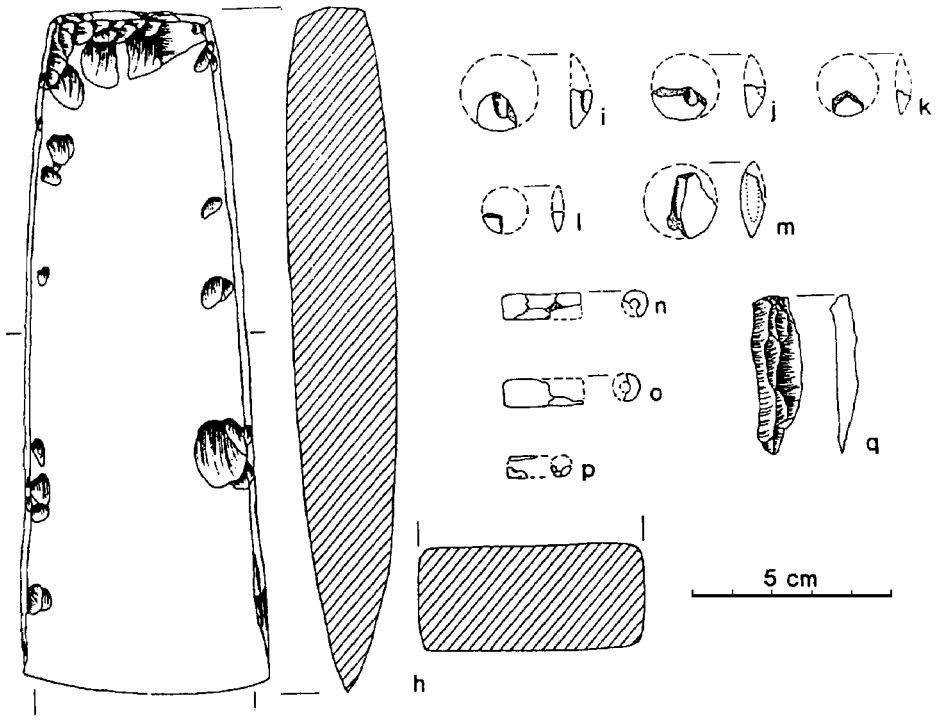

Fig. 4. Świerszczów site 27. Another grave-goods (h - a flint axe, i-p - amber ornaments, q - a flint blade). Source: Ścibior, Kokowski, Koman 1991

Dimensions: length (L): 17.0 cm; width of cutting edge (O): 6.6 cm; dimensions of butt (B): 4.2 x 1.7 cm; maximum thickness (P): 2.6 cm.

9. A fragment of a spherical amber bead (about 1/4 of the artefact). The cross--section is plano-convex with a V-shaped perforation. (Fig. 4i). It is subsumed within type 1BIb according to the division of R.F. Mazurowski [1983: Table I]. Probable diameter (R): ca 18 mm, thickness (P): ca 5 mm.

10. An analogous amber bead which is preserved in about 1/3 of the whole specimen. R : ca 15 mm; P: 5 mm (Fig. 4j).

11. A small fragment, about 1/5, of a similar amber bead; R: ca 15 mm; P: ca 3 mm (Fig. 4k).

12. A chip of a similar amber bead, about 1/5 of the whole specimen; R: ca 12 mm; P: 3 mm (Fig. 4l).

13. A fragment (about 1/2 of the specimen) of a damaged, spherical, amber bead with a perforation along its axis of symmetry (Fig. 4m); R: ca 18mm; P: up to 6 mm.

14. A pipe-like bead. — type 1AIa according to R.F. Mazurowski [1983: Table I] — partially damaged with parts missing or peeled off, and with considerable fracturing of the surface layer (Fig. 4n). Dimensions: length (L): 20 mm; R: 6-8 mm.

15. A pipe-like bead (Fig. 4o), partially damaged with many parts chipped or peeled off; L: 20 mm; R: 8 mm.

16. Tiny bits of a pipe-like bead (Fig. 4p); L: 7 mm; R: ca 5 mm.

17. A blade of chalk Volhynia flint, unretouched (Fig. 4q). Length (L): 40 mm; width (O): 12 mm.

Human bones from the western part of the grave were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

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Stanisław Gołub

GRAVE OF THE GLOBULAR AMPHORA CULTURE FROM SITE NO. 8 IN KRASNYSTAW (PROV. OF CHEŁM, POLAND)

In May 1981, an accidental discovery of a grave of the Globular Amphora culture (GAC) was made in Krasnystaw. A random selection of finds was presented to the local Museum by a history teacher. The finds were preselected and partially reconstructed by Sławomir Kadrow, at that time the Museum's employee.

In 1982, the present author verified the location of the grave and arranged for the pottery to be reconstructed. The site is located in area no. 83-87 and has been given number 8 within the locality. The area forms a part of the Dorohusk Valley. The artefacts were found in the slope of a high protruding terrace built of stratified loess of high thickness (Fig. 1). The inventory of the supplied artefacts is designated MK/A/173. Artefacts from surface exploration are in the District Museum in Chełm under call number MCH/A/389.

1. DESCRIPTION OF MATERIALS

Already in 1981 an entry appeared in the inventory book saying that there were two flint axes in the grave. Only on 27 August 1981 did the discoverer of the grave, J. Kluch, give more specific information about the find. It transpired that there had not been any axes but probably three flint chips.

It follows from the discoverer's account that the vessels and bones were found buried in loess soil 1.3 to 1.5 m below the surface. He is positive that there was not any stone structure. The vessels were located at the same depth next to each other. He remembers ash. While excavating foundations it seemed to him that the soil had been turned before. It could be an indication of the presence of the outline of a burial pit.

After reconstruction and conservation seven vessels have been obtained.

1. A medium-size, bulbous, flat-bottom amphora with a medium high, pro-

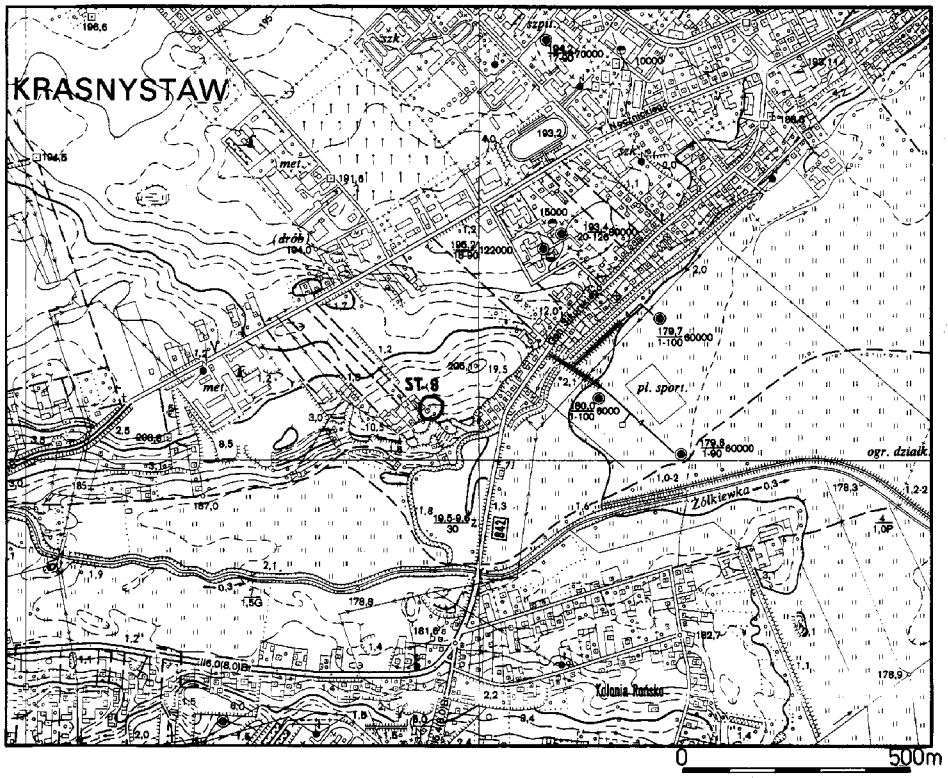

Fig. 1. Location map

minent neck (Fig. 2:1); completely reconstructed, similar to type IIA1 [Wiślański 1966:28-29]. The lip is slightly thickened and flared. The prominent bottom containing coarse, sharp-edged gravel has not been smoothed leaving it uneven on the outer side. It has four rounded handles with horizontal perforations (width 16-18 mm, diameter R about 7 mm). Undecorated. It is made of clay thinned down with mainly fine and also medium-size gravel of white, grey and pink colours. Small amounts of sand and mica are present as well. Outer and inner surfaces are uneven but well smoothed by smearing with slip. The colour has a patchy structure from bright yellow to greyish black. Wall fractures are invisible (thickness G: 6 to 6.5 mm). Dimensions: height (H): 222 mm, lip diameter (R1): 140 to 155 mm (form of ellipse), maximum belly diameter (R2): 285 mm, bottom diameter (R3): 115 mm.

2. A small amphora reconstructed up to the bend of belly, with a medium high, prominent neck (Fig. 2:2). The lip thins and slightly flares outwards. It has four rounded handles with horizontal perforations (R: 5.5-7 mm) placed at equal distances from each other and from the lip. The perforations were made with a

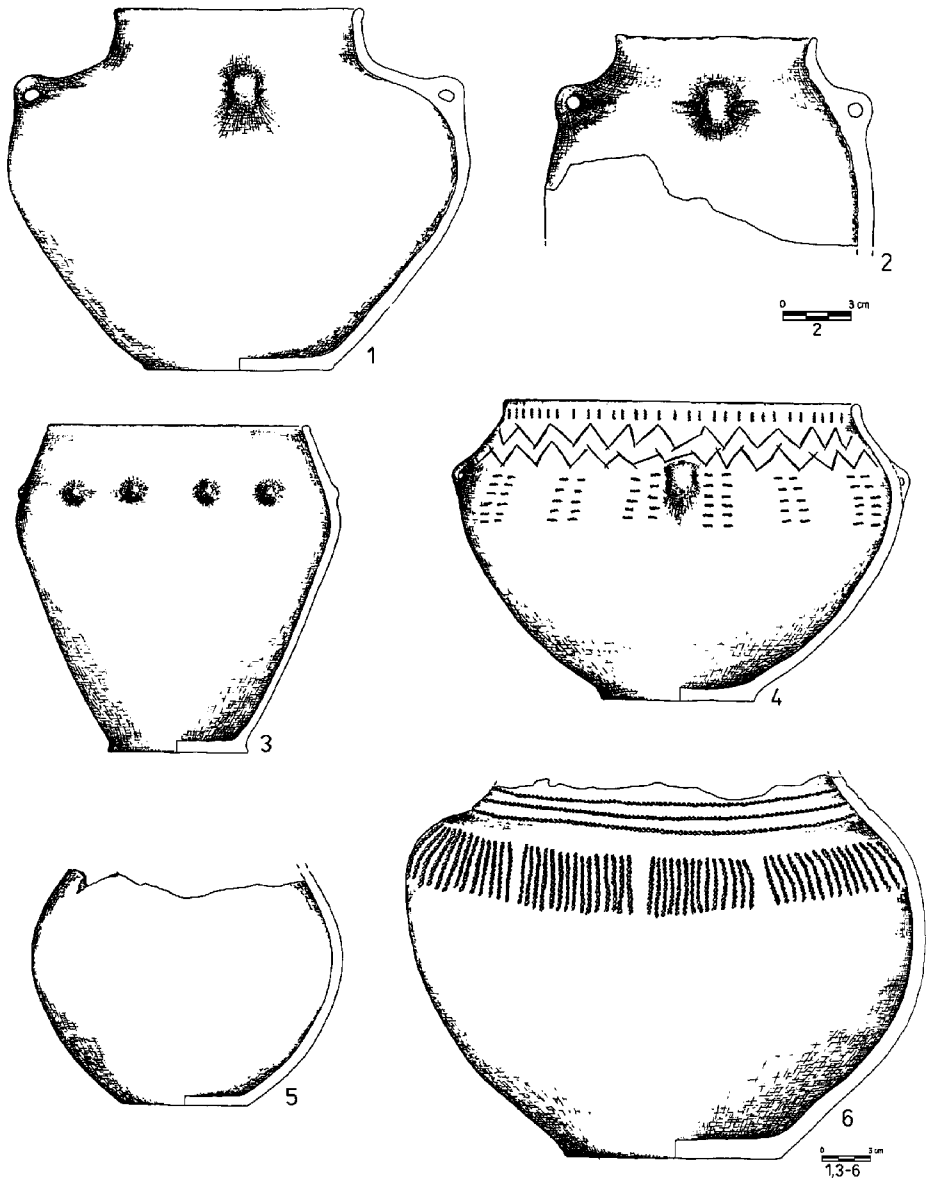

Fig. 2. Krasnystaw site 8. Vessels from the grave

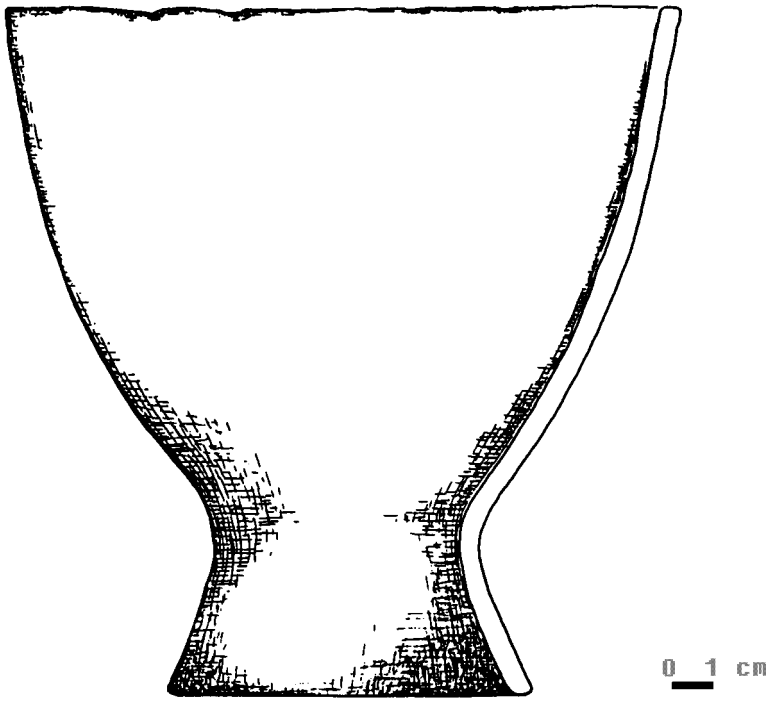

Fig. 3. Krasnystaw site 8. A ceramic drum from the grave

kind of round stick (?) which left a groove up to 40 mm wide and parallel to the lip. Undecorated. It is made of clay thinned down with fine and also medium-size gravel of white, grey, pink and black colours and with small amounts of fine sand. The outer surface is smooth and even with slight traces of burnishing. The inner surface, though, is very uneven and only slightly smoothed out. The colour is light and dark brown with patches of grey and black. Wall fractures are invisible (G: 6.5 to 7 mm). Dimensions: R1: 88-91 mm, R2: 144 mm.

3. A wide-opening pot with a flat, prominent bottom reminding of group VIIIA2 forms [Wiślański 1966:34]. Fully reconstructed (Fig. 2:3). The lip thins towards the edge, although it is thickened at places; the bottom is prominent and uneven on the outer side. There is an ornament of 11 relief buttons placed at different intervals from each other and at a more or less even distance from the lip edge. The pot has an admixture of sharp-edged gravel of various sizes and of pink and white colours. The gravel is responsible for local fracturing of the pot and for its rough outer texture. There is a small content of fine sand and burnt potsherds. Outer and inner surfaces have clearly been burnished, especially in the lip part. The colours are light to dark brown and black of patchy structure. The fracture is stratified consisting of

Fig. 4. Krasnystaw site 8. A ceramic drum from the grave. Photo by S. Gołub

three layers (thin outer and inner slip smearing). G: 3.6 to 6.3 mm. Dimensions: H: 203 mm, R1: 163-170 mm, R2: 201 mm, R3: 84-87 mm.

4. A fully reconstructed ceramic drum (Fig. 3 and 4), group IX [Wiślański 1966:24]. The lip is uneven but only slightly marked. The bottom has been reconstructed on the basis of dimensions. No ornamentation. It contains an admixture of fine, medium (dominating) and coarse, sharp-edged gravel. At certain places, this causes roughness of surface. The grains of the rough gravel, sometimes 6-7 mm in diameter, cause fracturing on the outer surface. The colours of the gravel are white, yellow, brown and grey. The outer and inner surfaces are smoothed and burnished in various directions. The colour of the vessel is from light brown to greyish-brownish-black and has patchy structure. Wall fracture is invisible (G: 6.5-7 mm). Dimensions: H: 181 mm, R1: 170-179 mm, R3: 97 mm, R of neck: 70 mm.

5. A fully reconstructed bowl (Fig. 2:4) of type IVA1 [Wiślański 1966:30]. The lip is low, slightly marked and thickened (visibly rounded). The bottom is poorly marked and has rounded edges. It has four rounded handles, 10-18 mm wide, horizontally perforated with a narrow tool. The vessel is richly decorated with impressions of a stamp and incisions (up to 2-3 mm deep). Vertical sections of the stamp pattern (7 mm long) run around the vessel beneath the lip. They are placed more or less regularly 5-7 mm from each other. Underneath, there are two rows of incised zigzags ringing the vessel. The zigzags must have been incised with a narrow, sharpened stick

or a bone leaving a V-shaped trace. At the most protruding portion of the belly there are horizontal sections of stamp impressions forming altogether 13 groups, each group consisting of two columns which, in turn, in most cases have five impressions each. The vessel contains an admixture of fine, medium and coarse gravel of white, grey and pink colours and also small amounts of fine sand and mica. The outer surface is light brown in its lower part and greyish black in the upper. It has patchy structure and is well smoothed. The inner surface is of light brown colour and smooth. The fracture is stratified and consists of three layers (slip smearing). G: 6.5 mm. Poorly baked. An outer, thin film is peeling off. Dimensions: H: 176-184 mm, R1: 219-225 mm, R2: 275 mm (without handles), R3: 95-100 mm.

6. A bottom part of a reconstructed, bulbous vessel (Fig. 2:5). The bottom is flat and almost round. No ornament. It contains an admixture of fine gravel and a little sand. Sporadically, there are lumps of larger grain gravel. The admixture is well mixed with clay so that it is hardly visible from outside or inside. The outer surface must have been lightly burnished diagonally and smoothed. The inner surface, however, has been only smoothed. The colour is brown-grey-black and patchy. The fracture is three-layered with outer and inner slip smearing (G: 5-6.4 mm). Dimensions: R2: 192 mm, R3: 78 mm.

7. A partially reconstructed vessel (Fig. 2:6). The lip part is missing. The bottom is only slightly marked. The vessel displays an ornament of three circumferential corded lines. Below them, there are sections of corded ornament, vertical or oblique, each about 40 mm long. An admixture of fine, medium and mainly coarse gravel of white and pink colours is noticeable. A small amount of fine sand is present. The outer and inner surfaces are slightly uneven but are well smoothed. The colour of the vessel is light brown to greyish-black and has patchy structure. The fracture is three-layered. Dimensions: R2: 320 mm, R3: 134 mm.

2. RESULTS OF ANIMAL BONE ANALYSIS

The analysis was carried out by A. Lasota-Moskalewska.

The majority of remains comes from two young pigs. One of them was about one year old, while the other was 3 years old. Both of them were morphologically immature because the bases of long bones were not knitted with shafts. Despite their young age, these were large animals. The older one was 72 cm in withers.

The bones make up almost a full skeleton except for the bones of the cerebral and visceral parts of the skull and for vertebrae (Fig. 5). It seems that the missing of the axial portion of the skeleton is intentional. Since the bones are quite well preserved, it can be presumed that once placed in the ground all of them had the same chance of survival. Besides, they bear no signs of intentional chopping.

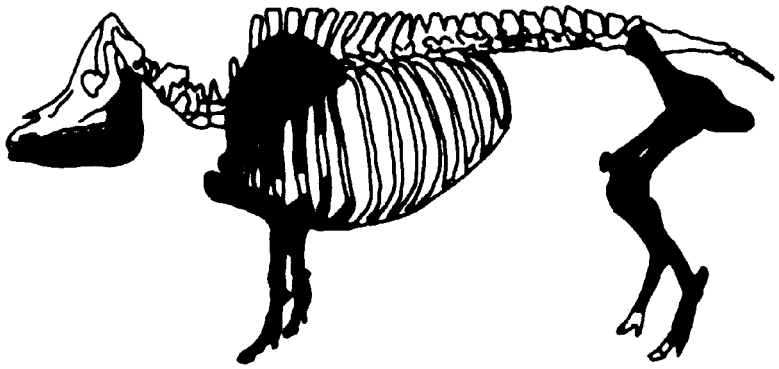

Fig. 5. Krasnystaw site 8. Diagram of selective interment of pig bones of two individuals. Black colour marks identified bones.

A small number of bones of a sheep or a goat were also identified. Among them were badly damaged fragments of two bones from a pelvic limb and a few ribs.

Bone catalogue

Pig: 6 frag. of teeth, 2 frag. of a metacarpus, a frag. of the scapula, 9 frag. of ribs, a frag. of the sternum, a patella, 3 bones of the instep, 8 frag. of the pelvis, 7 frag. of the mandible, 5 frag. of the radius, 3 frag. of tibiae, 4 frag. of femurs, a frag. of the talus, 3 frag. of ulnae, 8 frag. of humeri.

Sheep/goat: 4 frag. of ribs, 3 fag. of tibiae, 6 frag. of femurs.

Undetermined: 80 fragments.

3. RESULTS OF HUMAN BONE ANALYSIS

The analysis was carried out by W. Kozak-Zychman.

Bone remains of different structure and shape belonged to two adult individuals. Individual No. 1 was a man who died at the age of about 50 years (Maturus).

Survival body height reconstructed by the method of L. Manouvier was about 160 cm, which indicates that the individual was of a rather short posture.

Of the skull, a small, 6-7 mm thick fragment of the parietal bone has survived. A section of the lambdoid suture included in it is obliterated on the outside and completely sealed on the inside. The postcranial skeleton is represented by:

- right femur: the head, greater trochanter and medial condyle are damaged; physiological length (M-2 measurement acc. to R. Martin): ca 420 mm; maximum length (M-1 measurement): ca 425 mm;

- a fragment of the left femur: the upper part of the shaft and the lateral condyle are damaged; the head is separated from the shaft; diameter ca 44 mm;
- both tibiae: lower parts of the shafts and lower bases are damaged; in the right tibia the medial condyle and in the left tibia the lateral one are also damaged; a fragment of the lower base is separated from the bone;
- the middle parts of shafts of both fibulae and the lower base of the left one;
- fragments of both calcanei: in the left one, the lateral part is damaged; of the right one, the posterior part with the calcaneal tubercle has survived.

Individual No. 2. was a woman who died at the age of about 25 to 30 years (Adultus). Of the skull, fragments of both parietal bones with their plates remained. Of the right parietal bone remained four fragments (3 of them fit together); the parietal edge and frontal angle are damaged; thickness: 2 to 4 mm and 6 mm at the sphenoid angle. Of the left parietal bone remained three fragments that fit together and another four including the mastoid angle; the central part has survived, while the edges are damaged; thickness: 2 to 4 mm.

The postcranial skeleton is represented by:

– the middle portion of the left humerus shaft and its lower base,
– a fragment of the left ulna; the lower portion of the shaft and distal base are damaged,
– fragments of both femora: of the right one has survived the upper portion of the shaft; of the left one the damaged head, smaller trochanter and lower base; also a separate part of a head of femur;
– a fragment of the right tibia shaft with the lower base and the middle portion of the left tibia shaft;
– the middle portion of the left fibula shaft;
– a fragment of the left calcaneus with the surviving posterior ankle surface;
– the right talus and a fragment of the left one with the posterior talocalcanean surface.

Some bone fragments, which cannot be easily ascribed to a specific individual, have been excluded. Among them were:

– pieces of pelvis, including a fragment of the right (with part of hip joint) ilium and the left ilium (with ear-like surface), a piece of the iliac plate (possibly belonging to a male),
– part of a vertebral arch;
– two proximal foot phalanges, including toe no. 1;
– small pieces of long bone shafts.

Human bones were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

4. CONCLUSIONS

Due to a small amount of remains and the accidental discovery of the grave resulting in insufficiency of information, interpreting is particularly difficult. The find, because of the absence of any stone structure and the presence of a ceramic drum, is exceptional. In the dozen or so of GAC graves that have been already discovered in the Prov. of Chełm, stone structures clearly dominate. Nevertheless, several graves have been found that did not have any such structures — the closest is located in Stadarnia [Skibiński 1958:384], others in Wytyczno [Gurba 1957:160] and Raciborowice. Flat burials, as probably the feature in Krasnystaw, are believed to be typical of the western group of the GAC. However, their incidence in the area of Lublin (Lublin, Las Stocki, Strzyżów, Świerszczów in eastern Poland) has recently gone up. The number of vessels is relatively large, which distinguishes this grave complex from others [Nosek 1967:273]. Technologically, the vessels are quite uniform. Granite gravel is a dominant admixture, outer and inner surfaces are smoothed and colours have a patchy structure. The last mentioned characteristic testifies to uneven baking in open hearths. The ornamentation is also typical of complexes of the Polish territorial group of the GAC and of nearby complexes. Selected pig remains, with additions of goat/sheep bones, are also an observable phenomenon, whereas the presence of the ceramic drum, bearing a close resemblance to the form found in Pikutkowo at site 5B [Wiślański 1966:222-225] is an absolutely exceptional occurrence. It can be explained by treating it as an import from western Poland.

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Stanisław Gołub

GRAVE OF THE GLOBULAR AMPHORA CULTURE FROM SITE NO. 1 IN ŁOPIENNIK DOLNY KOLONIA (PROV. OF CHEŁM, POLAND)

On 7 February 1961, a farmer, F. Kosecki, excavating building stone or chalk rock with his brothers, discovered a stone grave about 55 cm below the ground. The discovery turned out to be a feature of the Globular Amphora culture (GAC) [Wieliczko 1961:232; Sztandar Ludu 1961]. The farmers removed the contents of the grave partially damaging some artefacts and their context.

A few days later J. Gruba arrived at the site and carried out emergency excavations [Nosek 1967:211-213]. The artefacts and stones were transferred to the Museum in Krasnystaw, where the grave was reconstructed under the direction of Z. Ślusarski [Opolowicz, Ślusarski 1962]. During verification, on 21 April 1988, a flint chip was found at the site (inventory no. 2902 in the Museum in Chełm). Previously found artefacts are permanently displayed in the Museum in Krasnystaw.

Physiographically, the area belongs to the Gieczew Plateau, the central part of the Lublin Plateau [Jahn 1956], and displays typical morphological features of this region. Among them are: elevated areas of a gently undulating plateau, steep and deep valleys, isolated hills and stretches of loess (Fig. 1).

1. GRAVE STRUCTURE

The feature was a cist grave covered, as it seems, with two stone slabs of which only one has survived (Fig. 2). The orientation of its longer axis was E-W. It was built of large slabs of Tertiary sandstone that does not occur in this area and that must have been imported. The E wall was made of one slab (Fig. 1 and 2), while the W wall was made of one slab according to J. Gurba [Nosek 1967:212] and of two following Z. Ślusarski's reconstruction. It is hard to say which version is true because the only existing photograph taken after the discovery of the grave is of poor quality. Still worse, it shows only one shorter wall, either E or W. There are

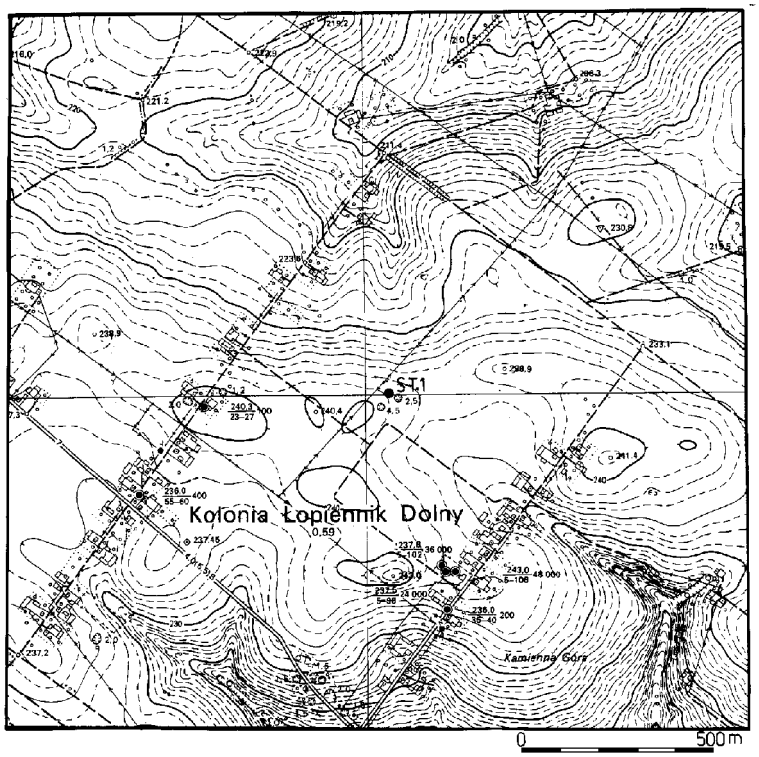

Fig. 1. Location map

more doubts concerning the dimensions and the number of slabs. Information of 1961 puts the number of slabs at 11 which rather agrees with the reconstruction (Fig. 1) and not with S. Nosek's account [1967:212]. The slabs were carefully fitted and fixed with wedges. Stone no. 8 is broken.

The walls were on the average 80-87 cm high (Fig. 3). The outer dimensions according to different sources were as follows: 2 x 1 m [Sztandar Ludu 1961], 2.35 x 1.20 m [Nosek 1967:212] and 2.05 x 1.16 m (reconstruction). At the bottom were hard clay with loess and scattered stones. In the E part was a large rectangular stone slab (no. 12) on which the deceased's head rested. There was also another small triangular slab (no. 13). In the SW corner there was one more stone. Bone remains belonged to a man who died at the age of 25-30 years [see Kozak-Zychman, Anthropological..., in this volume].

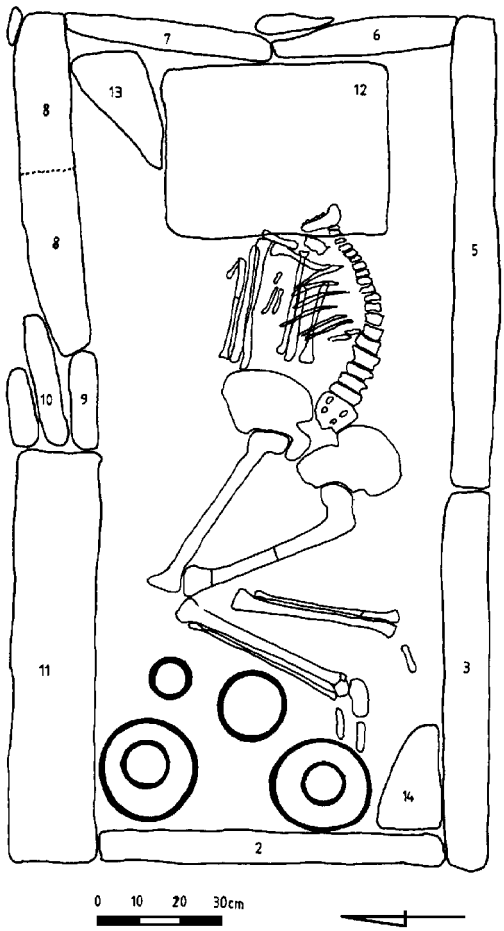

Fig. 2. Łopiennik Dolny Kolonia site 1. Plan of grave showing location of grave-goods

2. DESCRIPTION OF MATERIALS

Next to the head were found an axe and a chisel made of banded flint (Fig. 4:1,2).

The axe (Fig. 4:1) is large, tetrahedral and has a trapezoidal shape. Its cross--section is rectangular. The edge is curved while the butt is flat and rectangular. The surface is carefully smoothed. Dimensions: length (L): ca 147 mm, edge width (W e): ca 61 mm, butt width (W b): ca 24 mm, maximum thickness (T): ca 20 mm.

The chisel's edge is curved, while its cross-section is rectangular and the heel

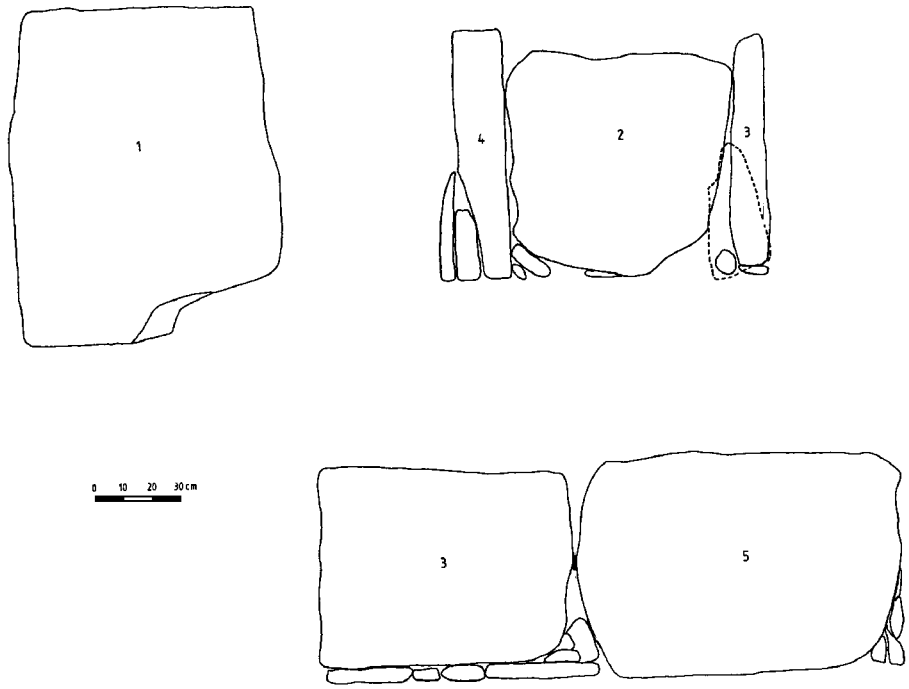

Fig. 3. Łopiennik Dolny Kolonia site 1. Wall cross-sections: a) southern b) western from the outside and plan of stone slab from grave cover. Hatching marks the stone slab that was added. Individual stones are 1 - 5 as in Fig. 2

is bevelled (Fig. 4:2). As the axe, it is also carefully smoothed. Dimensions: L: ca 108 mm, W e: ca 18 mm, heel width: ca 14 mm, T: ca 15 mm.

In one of the amphorae, a pig fang was found. „Sztandar Ludu" and M. Wieliczko mention an ornament made of a wild boar fang. At present, however, the museum's inventory contains two fragments of pig fangs (Fig. 4:3,4). Although they show signs of cutting, it is difficult to determine what their function was, whether they were tools or ornaments. Dimensions of the larger one: L: 63 mm, W: 11-12 mm, T : 6 mm. Dimensions of the smaller one: L: 49 mm, W: 15 mm, T: 7-8 mm. Both are badly damaged and incomplete.

Next to the lower limbs four vessels were found (Fig. 5). Data concerning their mineral admixture, colour, baking and fracture are hardly obtainable because of the complete reconstruction and colouring carried out almost twenty years ago. Loose fragments of only two vessels were found making it possible to describe these vessels in greater detail.

1. A large, bulbous amphora with four handles and an ornament (Fig. 4:2). Fully preserved, the vessel resembles the forms of type IIA1 [Wiślański 1966:23,

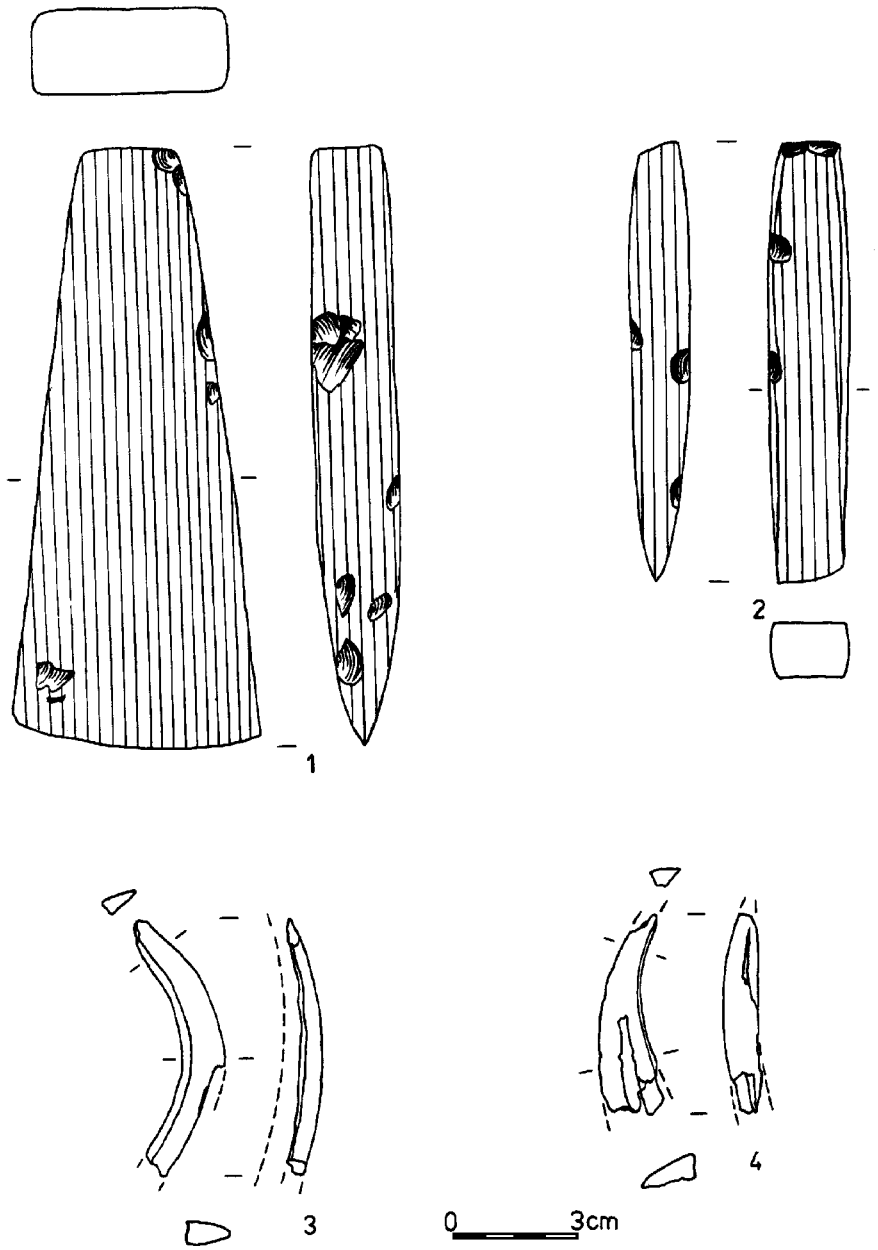

Fig. 4. Łopiennik Dolny Kolonia site 1. Grave-goods: 1 - flint axe, 2 - flint chisel, 3-4 - ornaments of pig fangs

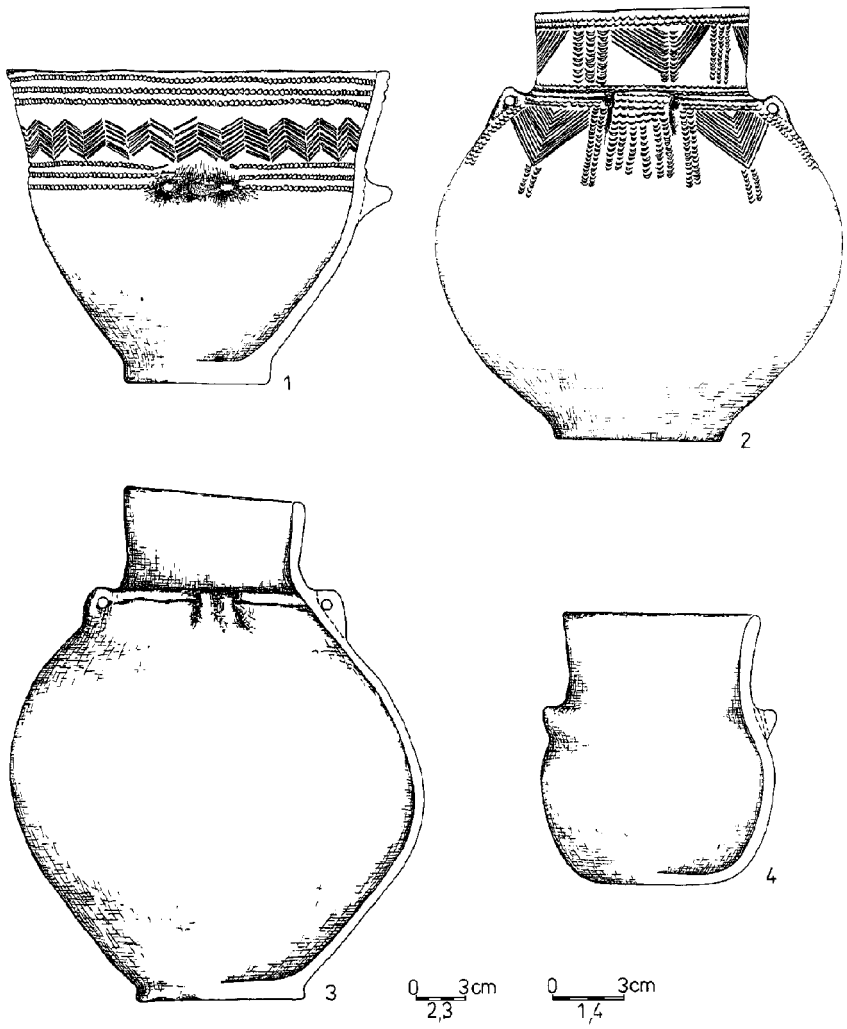

Fig. 5. Łopiennik Dolny Kolonia site 1. Pottery

28-29]. It has a high cylindrical neck and a clearly marked bottom. The lip is slightly rounded. It has a considerable admixture of fine and small-grained gravel of grey and white colours. Both inner and outer surfaces are uneven, smeared with slip and show signs of burnishing. The colour changes from light brown on the inside to dark brown and black. The fracture is stratified into three layers. The four, elbow--like handles are relatively wide and are symmetrically placed. They are horizontally perforated and joined by a relief moulding. The vessel is richly ornamented on the

neck and the upper portion of the belly. The ornaments are incised or impressed with a stamp and include a combination of overlapping triangles as well as vertical and horizontal rows of arches. Dimensions: height (H): 251-257 mm, lip diameter (R1): 128-129 mm, maximum belly diameter (R2): 244 mm, bottom diameter (R3): 100 mm.

2. A large, bulbous amphora with four handles and no ornament (Fig. 5:3). The vessel also resembles the forms of type IIA1 [Wiślański 1966:23, 28-29]. It has a high, slightly flared neck and a clearly marked bottom in the form of a small foot. The lip is cut almost flat. The vessel's upper portion is highly asymmetrical. It has an admixture of medium and coarse-grained gravel of white, pink and red colours. Both inner and outer surfaces are uneven and patchy light brown, grey and black. The fracture is clearly stratified into three layers. The four, elbow-like handles are symmetrically placed, horizontally perforated and joined by a relief moulding. Dimensions: H: 295-305 mm, R1: 104 mm, R2: 140 mm, R3: 102 mm.

3. A bowl or vase with a slightly flared lip (Fig. 5:1). It is ornamented and resembles the forms of types IVA1 or VB1 [Wiślański 1966:23, 30-32]. The bottom is clearly marked, whereas the lip is slightly bevelled. It has an admixture of fine and medium-grained sand and gravel of predominantly greyish-white colour. Both outer and inner surfaces are smoothed and of black and brown colours. A relief handle, in the form of a button with two dimples at the end, is present. The upper portion displays an incised and stamp ornament. Underneath the lip edge runs a triple row of impressions of an oval stamp forming continuous lines. Below them runs a multiplied pattern of incised zigzags (8-9 elements) followed below by a repeated pattern of stamp lines. S. Nosek mentions that the ornamentation patterns were inlaid with white paste [Nosek 1967:212]. Dimensions: H1: 130 mm, R1: 161 mm, R2: 142 mm, R3: 62 mm.

4. A small undecorated amphora with two handles (Fig. 5:4). It is related to the forms of type IB3 [Wiślański 1966:23, 27]. The neck is slightly flared, while the bottom is unmarked and rather flat. The lip is clearly rounded. It has an admixture of fine and medium-grained gravel (white, pink and black) and sand. The fracture is visibly divided into three layers with thin and dark outer layers separated by a greyish-pink inner layer. The colour of the vessel is dark brown to black. The two handles — relief buttons — are vertically perforated. Dimensions: H1: 113 mm, R1: 83 mm, R2: 100 mm, R3: about 60 mm.

Two human bones (the dextral femur and the sinistral tibia) were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

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Wanda Kozak-Zychman

ANTHROPOLOGICAL DESCRIPTION OF BONE REMAINS FROM A GRAVE OF GLOBULAR AMPHORA CULTURE IN ŁOPIENNIK DOLNY KOLONIA, SITE 1 (PROV. OF CHEŁM, POLAND)

The analysed bone remains are only slightly fossilised, have a massive structure and clear shape. Their total weight is ca 2950 g. There are no doubts that they belonged to a man whose age was estimated to have been 25-30 years (Adultus).

Of the skull survived the left side of the mandible body with a part of the branch (processes are damaged) and the denture from P1 to M3. Crown surfaces of molars are only slightly worn. There is an open socket of a missing C. A separate second premolar of the right mandible was found as well.

The postcranial skeleton is incomplete with the bones of the right side much better preserved. The following bones were identified:

- the right clavicle of about 155 mm,
- three fitting parts of the right scapula (upper angle, lateral angle with glenoid cavity — 27 mm wide — and acromion, lateral edge with lower angle),
- the first dextral rib and fragments of a dozen of others,
- the complete dextral humerus and ulna; the radius in two parts,
- fragments of the shaft of the sinistral humerus with distal base and of the ulna with proximal base as well as the complete sinistral radius,
- the 4th bone of the dextral metacarpus, the 2nd and 3rd bones of the sinistral one and a proximal phalanx,
- the axis, five damaged thoracic vertebrae (processes), five bodies and two fragments of arches also from the thoracic section, four lumbar vertebrae with partially damaged spinous and transverse processes,
- the upper part (two vertebrae) of the sacrum,
- both pelvic bones (small portions are missing from the central part of the iliac plate of the left pelvic bone, from both crests of the ilia on the outer side and from the junction of the dextral ischium and the pubic bone),
- the dextral femur (medial condyle is damaged), the complete dextral tibia and the fibula in two parts,
- three fragments making up the sinistral femur and two fragments making up the sinistral tibia and another two of the sinistral fibula,
- the sinistral calcaneus and talus,

– the 2nd and 5th bones of the dextral metatarsus and the 4th (?) bone of the left one with the proximal base damaged.

Survival body height reconstructed by the method of L. Manouvrier was about 167.9 cm (it was 167.8 by K. Pearson's method), which indicates that the individual was of a medium posture.

Translated by Piotr T. Żebrowski

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Yuriy Maleyev

SELECTED GRAVES OF GLOBULAR AMPHORA CULTURE FROM VOLHYNIA AND PODOLIA (UKRAINE)

1. TOMB FROM IVANYE

The feature was located on the right bank of the Ikva river, in the vicinity of the village of Ivanye (circuit of Dubno, district of Rivne). It was accidentally discovered during field works in the autumn of 1968. The finders removed the top slab and disturbed the contents of the feature. Objects found in the feature were subsequently transmitted to the museum in Dubno. In 1969, I.K. Sveshnikov [Sveshnikov 1973; 1983:25-26] took up excavation of the tomb.

The sepulchral cist was rectangular in form and measured 1.5 x 2.2 m. It was oriented along the E-W axis (Fig. 1). The tomb's cover rested 0.35 m below the today's ground level. The sides consisted of calciferous sandstone slabs about 0.2 m thick. The southern side was made of one block (0.54-0.67 x 1 m) supplemented by smaller stones. The northern side was made of two slabs 0.7 x 0.9 m and 0.9 x 1.0 m whereas both the western and eastern sides consisted of one slab each measuring 0.5 x 1.0 m. The cist bottom was about 1.0 m below the ground.

In the opinion of T.S. Konduktorova, bones discovered inside the cist belonged to two men: one aged 50 and the other 22. The skeleton of the younger one lay with his head pointing W. The skeleton of the older individual had been disturbed.

In the tomb, remains of seven vessels were discovered (Fig. 2), of which none was *in situ*. Five of them could be reconstructed while in the case of the remaining two the degree of destruction prevented the excavators from recognising their form. All the vessels have dark and smooth surfaces.

1. An amphora (Fig. 2:2) with an egg-like belly and flat bottom. It had two handles. The neck part is missing. The handles were placed on the neck, however only their roots have survived. The ornament, covering the upper part of the belly,

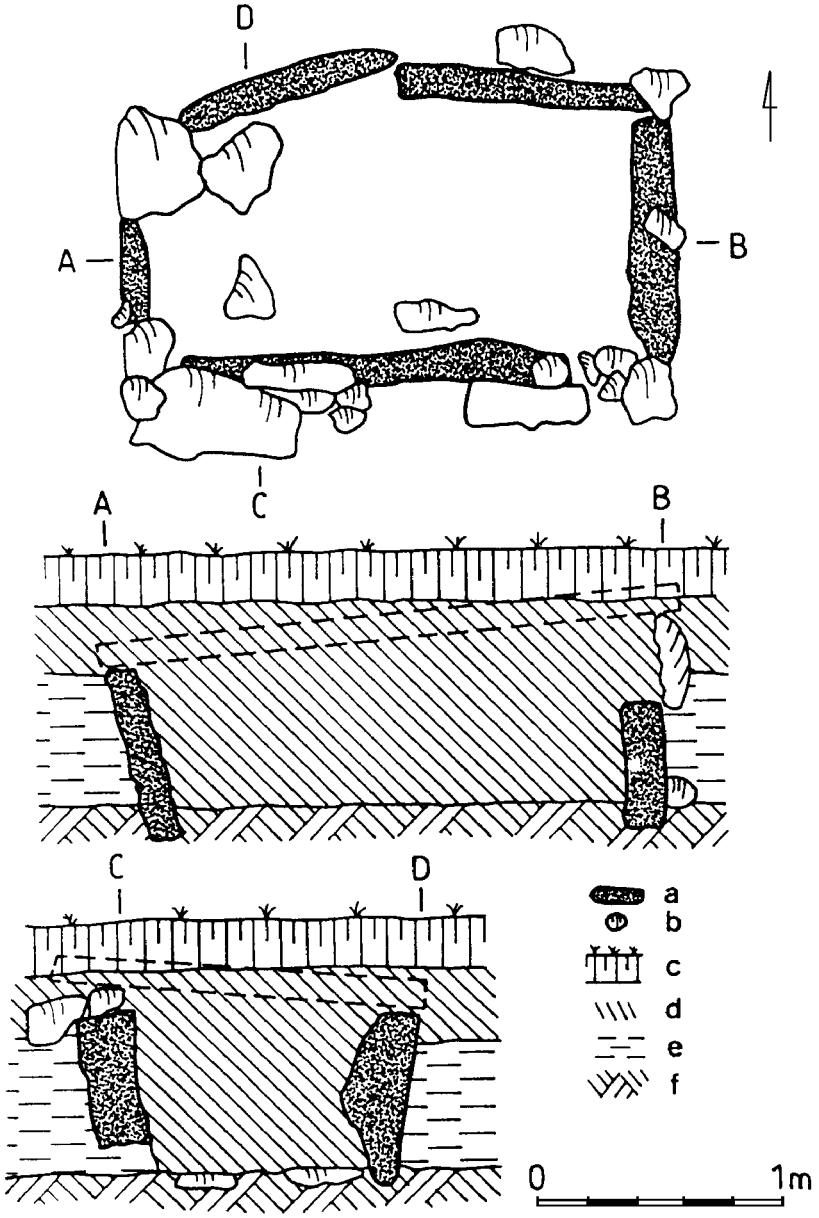

Fig. 1. Ivanye. Plan of grave. Legend: a - slabs, b - stones, c - arable layer, d - chernozem, e - sandy clay, f - rock-bed. Source: Sveshnikov 1983

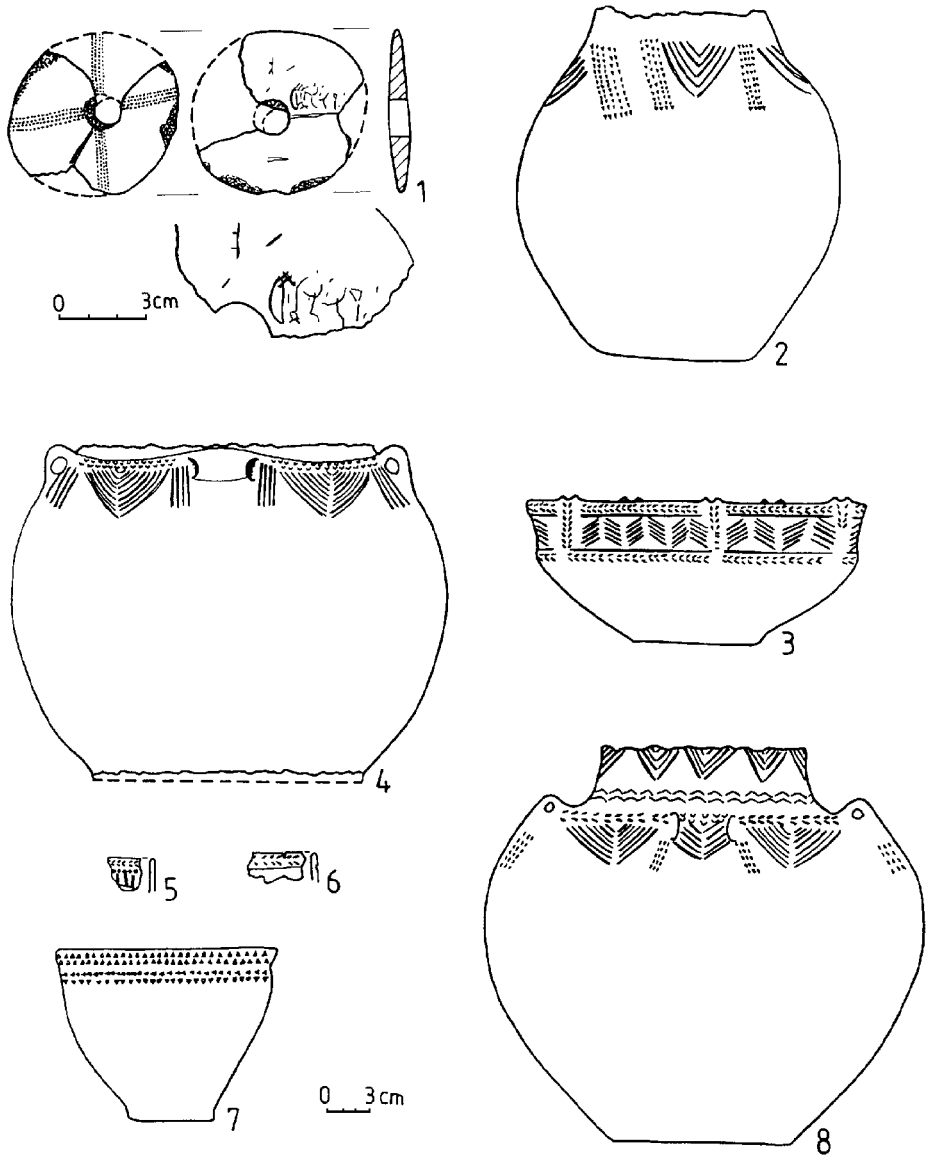

Fig. 2. Ivanye. Grave-goods (1 - amber, 2-8 - pottery). Source: Sveshnikov 1983

was made by impressing and incising to be later inlaid with white paste. It consists of herringbones flanked by slightly oblique bands made of four or five rows of dents. The clay contains sand. The height of the preserved part of the vessel is 24 cm and the diameter of bottom is 10 cm.

2. A vase (Fig. 2:3) with a flared neck, on the edge of which there are five double protuberances. An ornament, inlaid with white paste, covers the neck and the upper portion of the belly. The technique used was that of impressions. The ornament consists of segments of horizontal and vertical „leaf" bands as well as a segmented band of zigzags. The clay contains an admixture of sand. The height of the vessel is 10.5 cm, rim diameter is 23 cm and bottom diameter is 9 cm.

3. An amphora (Fig. 2:4), partially preserved (neck and bottom are missing). There are four handles on the upper portion of the belly dividing the ornament. The impressed ornament consists of a double row of arches with a herringbone pattern running below. The herringbone is flanked with triple horizontal lines. The clay contains an admixture of sand, potsherds and plant material. Maximum diameter of belly: 30.2 cm.

4. A vessel rim (Fig. 2:5) decorated with single rows of small zigzags placed vertically, impressions of a bird's feather and vertical bars.

5. A decorated vessel rim (Fig. 2:6).

6. A beaker (Fig. 2:7) with a slightly flared neck. An ornament covered the neck and the upper portion of the belly. It consisted of four horizontal rows of impressions of a triangular stamp inlaid with white paste. The clay contains an admixture of broken shells. Vessel height: 12 cm; rim diameter: 15.5 cm; bottom diameter: 6 cm.

7. An amphora (Fig. 2:8) with a cylindrical, partially preserved neck (rim is missing). There are four handles. The handles are placed on the upper part of the belly. The ornament, covering the upper part of the belly, was made by impressing a stamp to be later inlaid with white paste. Made of two bands of herringbones separated by horizontal rows of double zigzags, the ornament contains also arches. The herringbone covers also the handles. From handle roots, bands consisting of three rows of dents are obliquely suspended. The clay contains an admixture of sand and broken shells. The height of the preserved part is 27 cm and the diameter of bottom is 12.4 cm.

The tomb also contained a round amber disc perforated in the middle (Fig. 2:1). It has been reconstructed from two preserved parts. The cross-section of the disc is biconvex. On one side of the disc there is an image of a cross made of four bands of quadruple lines of dents. On the other side of the disc there is an anthropomorphous ornament. It is interpreted as an image of three human figures with raised hands and an accompanying bow and arrows. The diameter of the disc is 11.5 cm while it is 2.5 cm thick.

The materials are kept is the Natural History Museum in Dubno and the records of excavations are stored in the Institute of Ukrainian Studies of Ukraine's National Academy of Sciences in Lviv.

Human bones from the grave were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

2. TOMB FROM DOVGE

The feature was discovered in the autumn of 1964 during field tilling near the village of Dovge (circuit of Terebovla, district of Ternopol). Located on the south--western slope of a hill dominating over the left-bank floodplain of the Seret river, the tomb was found about 800 m from the river.

Discoverers removed the upper slab and disturbed the contents of the feature. Finds from the tomb (fragments of two vessels, a bone buckle and a flint stamp) were transferred to the Natural History Museum in Ternopol. The rescue excavations [Maleyev 1971; Sveshnikov 1983:40-41] that followed were carried out by I.K. Sveshnikov and Y. Maleyev (from Lviv University) and I.Gereta and E. Kharitonov (of the Natural History Museum in Ternopol).

The burial cist was oriented along the NW-SE axis and was almost rectangular in shape. Its dimensions were as follows: 0.74-0.98 x 2 m (Fig. 3). The cover consisted of a rectangular slab of pink sandstone 2.65 cm long, 1.4 m wide and 4-6 cm thick. It obliquely lay 0.18-0.42 m below the today's surface of the ground. The sides of the cist were made of slabs 4-6 cm thick. The bottom of the cist, too, was covered at the depth of 1.11 m with a slab 3-4 cm thick whose dimensions were 0.72-1.1 x 2 m. The slabs forming the sides of the cist sank into the ground 17-23 cm below the bottom. The shorter walls (NW and SE) were supported from the outside by smaller slabs. Similar slabs also buttressed the corners of longer walls (NE and SW). In the case of the SW wall, such smaller slabs were evenly placed between corners. Gaps between the bottom and sides were filled with small pebbles and smeared with clay.

Inside the cist there were three skeletons (Fig. 3). The first (1), occupying the NW part of the cist, belonged to a woman aged 35-40 years, placed in a flexed position with the head pointing W. The second skeleton (2) was found in the central part of the cist, along its SW wall. It lay in a flexed position on its left side with the head pointing SE. In this case neither sex nor age of the deceased could be determined due to serious damage to the skeleton. The third skeleton (3) was located in the SE part of the cist. It belonged to a man of undetermined age who was interred in a sitting position with his legs stretched W and with his back to E. His elbows were bent and hands crossed on his abdomen.

The grave-goods included two clay vessels, ten amber beads, two bone buckles'a flint axe, and a flint stamp. The majority of grave-goods were related to skeleton 1 (necklace, buckles, amphora). Individual 2 lacked any grave-goods while behind the back of skeleton 3, in the E corner of the cist, the second vessel was found.

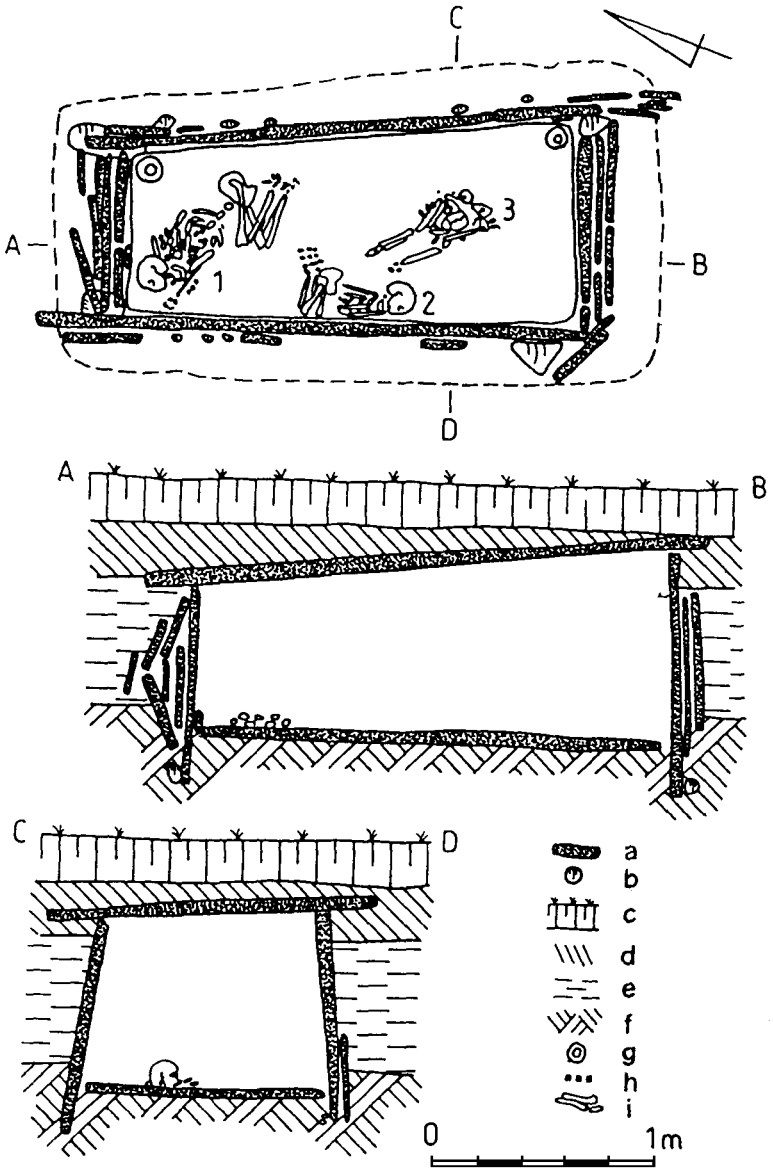

Fig. 3. Dovge. Plan of grave. Legend: a - slabs, b - stones, c - arable layer, d - chernozem, e - sandy clay, f - rock-bed, g - vessels, h - amber ornaments, i - bones. Source: Sveshnikov 1983

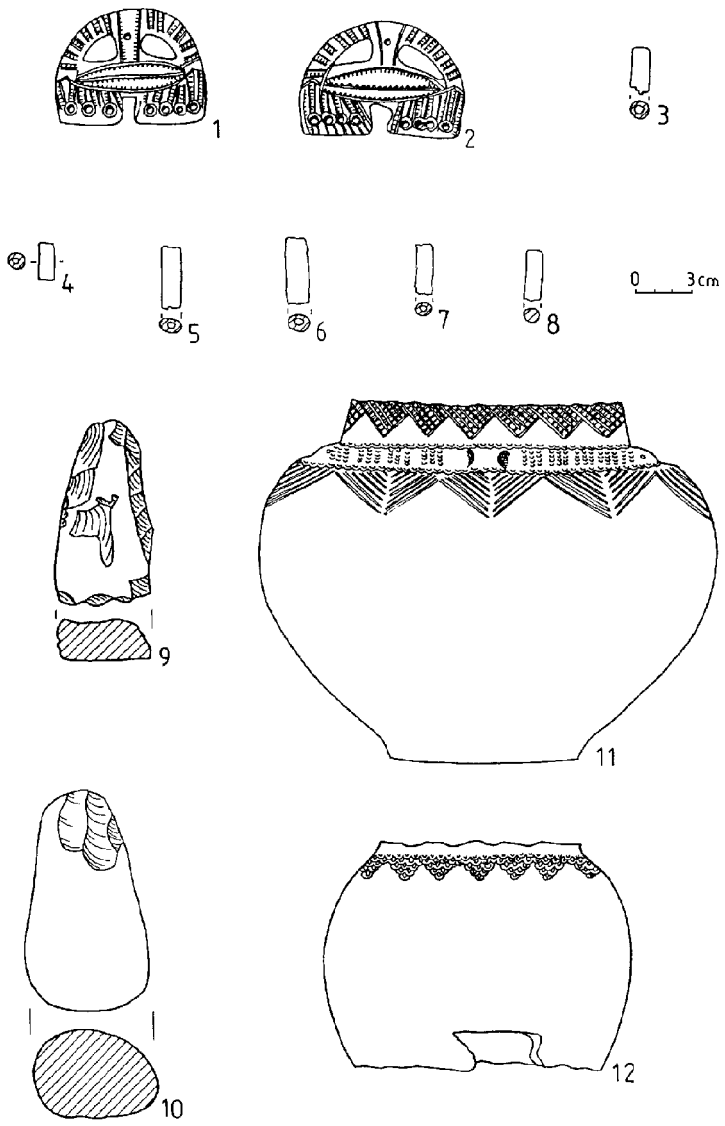

Fig. 4. Dovge. Grave-goods (1-2 - bone, 3-8 - amber, 9-10 - flint, 11-12 - pottery). Source: Sveshnikov 1983

Materials:

1. Two buckles (Fig. 4:1-2) were made of a bone plate 3-4 mm thick. They have a horseshoe shape with an almost rectangular indentation in the central portion of the base and two almost triangular openings in the upper part. On both sides of the rectangular indentations there are four (in one instance three) openings; there is also a hole placed between the triangular openings. One side of the buckles is covered with an incised ornament in the form of ladder. In the central part of the buckles, there is an elliptical decoration with notches and teeth pointing from the circumference to the centre. A similar line is made along the longer axis. The buckles differ only in minor details of workmanship. The dimensions of one item are 8.2 x 6 cm and the other 7.7 x 6.2 cm.

2. Ten amber, pipe-like beads (Fig. 4:3-8) 2.7 cm long and 0.9-1.4 cm in diameter. Five of them were well preserved, the sixth only partially, while four others were destroyed during exploration. The beads, discovered next to the left arm, cervical vertebrae and mandible of the woman (skeleton 1) must have comprised a necklace.

3. An axe (Fig. 4:9) of milk-grey flint with patches of white; wedge-shaped. Its cross-section is rectangular. It is partly smoothed. Length: 10 cm, cutting-edge width: 5 cm.

4. Stamp (Fig. 4:10) of black flint, pear-shaped.

5. An amphora (Fig. 2:12) with a damaged neck and bottom and with a rounded belly. The upper part of the belly is covered with an ornament of suspended triangles built of „fish scales" inlaid with white paste. The vessel is made of clay with an admixture of broken shells. The outer surface is smooth of black colour with patches of grey, whereas the inner surface is light brown. The maximum diameter of belly is 17.2 cm.

6. An amphora (Fig. 4:11) with a rounded belly and a straight neck slightly tapering inwards. Where the neck meets the belly, there are four horizontally perforated handles. The ornament covering the neck and the upper portion of the belly was inlaid with white paste. The neck is covered with suspended triangles filled with oblique (rhombus) lattice. Where the neck meets the belly, there are two rows of arches separated by groups of bars also consisting of arches. On the upper part of the belly there is a pattern of herringbone The vessel is made of clay with an admixture of broken shells. The surface is smooth of dark brown colour. The height of the vessel is 20 cm with the maximum diameter of the belly being 25 cm.

The materials are kept is the Natural History Museum in Ternopol and the records of excavations are stored in the Institute of Ukrainian Studies of Ukraine's National Academy of Sciences in Lviv.

Human bones from the grave were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Analysis...].

3. TOMB FROM VORVULINTSY

The feature was accidentally discovered in the vicinity of the village of Vorvulintsy (circuit of Zaleshchiki, district of Ternopol), on the high bank of the Duna river. In 1967, I. Gereta and E. Kharitonov of the Natural History Museum in Ternopol explored the feature [Gereta 1970; Gereta, Kharitonov 1970; Sveshnikov 1983:46]. Excavations uncovered a rectangular sepulchral cist 1.2 x 1.7 m built of sandstone slabs. The tomb's cover, consisting of a few large slabs, lay 0.3 m below the contemporary level of the ground. The bottom was covered with thin stone slabs. The cist was oriented along the NE-SW axis.

Inside the cist, bones of five individuals were discovered. They were lying in a flexed position with their heads pointing towards NE. The skeletons had been placed one upon another. Outside the cist, by its northern wall, remains of a sixth individual were located.

The grave-goods included three globular amphorae, a clay vessel lid, and flint articles: a knife fragment, two blades and an arrowhead.

The finds and research documentation are kept in the Natural History Museum in Ternopol.

Human bones were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute...].

4. TOMB FROM LOSHNIV

The feature was located on the left bank of the Gnizna river, in the vicinity of the village of Loshniv (circuit of Terebovla, district of Ternopol). Excavations were taken up by I. Gereta and E. Kharitonov of the Natural History Museum in Ternopol in 1969 [Gereta 1970; Sveshnikov 1983:46].

The excavations uncovered a rectangular sepulchral cist 1.08 x 2.6 m oriented along the SE-NW axis. Cist walls consisted of large sandstone slabs while the cover was made of one large slab. The tomb's bottom was also covered with slabs.

In the grave, there lay remains of four individuals. The skeletons had been placed in a flexed position. The grave-goods included a smoothed flint axe, a decorated amphora and a pig's mandible.

The finds and research documentation are kept in the Natural History Museum in Ternopol.

Human bones were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute...].

Translated by Marzena Szmyt and Piotr T. Żebrowski

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GRAVE OF GLOBULAR AMPHORA CULTURE FROM TOVPYZHYN (DISTRICT OF RIVNE, UKRAINE)[1]

The tomb was accidentally discovered during field works in early October 1994. The finders damaged the western part of the structure by pulling a human skeleton, fragments of three vessels and two flint axes from the sepulchral cist. Later, the elements of assemblage were transferred to the museum in Mlynov. The same month, experts from the museums in Rivne and Mlynov took up the study of the tomb. In the autumn of 1995, B.A. Pryshchepa carried out additional excavations around the tomb that led him to the discovery of a pit located nearby and containing GAC material.

1. GRAVE STRUCTURE

Situated at the edge of the bank of the river Styr, between villages of Tovpyzhyn and Khrinniki (Fig. 1), the tomb was rectangular and oriented along the W-E line (Fig. 2). The cist was made of eight large hewn stone slabs 0.2-0.3 m thick. Six of them formed the sides of the cist while the other two served as a cover. The cover rested 0.3 m below the today's ground surface. The dimensions of the slabs of the cover were 1.6 x 0.9 m (E slab) and 1.45 x 1.1 m (W slab). The length of the cist measured inside was 2 m (at the bottom) to 2.3 m (at the upper part), while its width was 1.0 m (at W part) to 1.1 m (at E part). The sides of the cist were made of six slabs. The longer sides (N and S) consisted of two slabs each. The slabs of the N side were 1.6 m (W) and 0.7 m (E) long, while the length of slabs of the S side was 1.6 m (W) and 0.8 m (E). The shorter sides (E and W) were made of single slabs of 1.25 m (E) and 1.4 m (W). The slab of the E side was obliquely placed with its upper part leaning to the outside. The inner surface of this slab was smooth. To stabilise the W side, small stones had been placed in corners between the slab and

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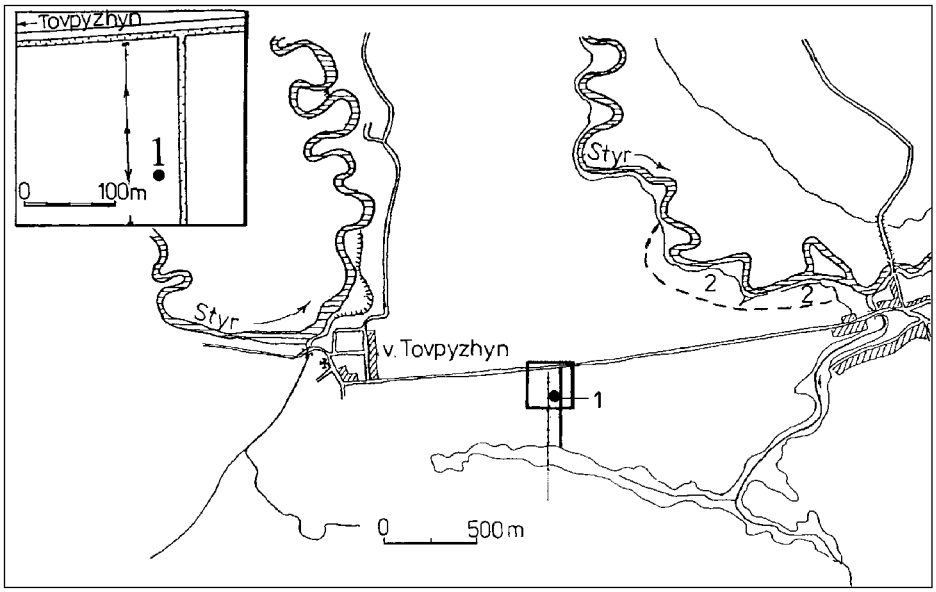

Fig. 1. Location of GAC sites in the area of Tovpyzhyn (1 - a grave)

the longer sides. Small stones filled also gaps between the sides and the cover. A larger amount of such stones was found on the outer side of the W slab of the N side. The bottom of the tomb had been dug in loamy sand (undisturbed soil) 1.3 m below the today's surface.

The slabs making up the longer sides of the cist were made of calciferous sandstone (containing 50-55% of sand), in which *Ezvilia* shells were present. Among small stones, filling the gaps in the structure, compact, fine-grained quartzitic sandstone of white colour was also identified. For the side slab coarse-grained, carbonate-free quartzitic sandstone, not too well cemented, was used[2].

The identified materials occur on the surface only in the central part of the Povcha upland, extending between the Styr and Ikva rivers, south of the Ikva mouth. Consequently, the western range of these materials is located about 20 km east of the place where the tomb was discovered. If it is assumed that for the construction of the cist surface materials were used, the shortest distance over which they could be transported was 20 km.

In the tomb only one body, that of a 40-50 year old man, was buried[3]. Due to the damages mentioned earlier, the human bones were not *in situ* during exploration. Hence, the placement of the corpse can be reconstructed only from the information

[2] Petrologic evaluation by Y.V. Popovich and V.K. Pyasetskiy (Exploratory Geological Expedition Rivne).

[3] Anthropological evaluation of Tatiana Nazarowa of the Institute of Archaeology of Ukraine's National Academy of Science.

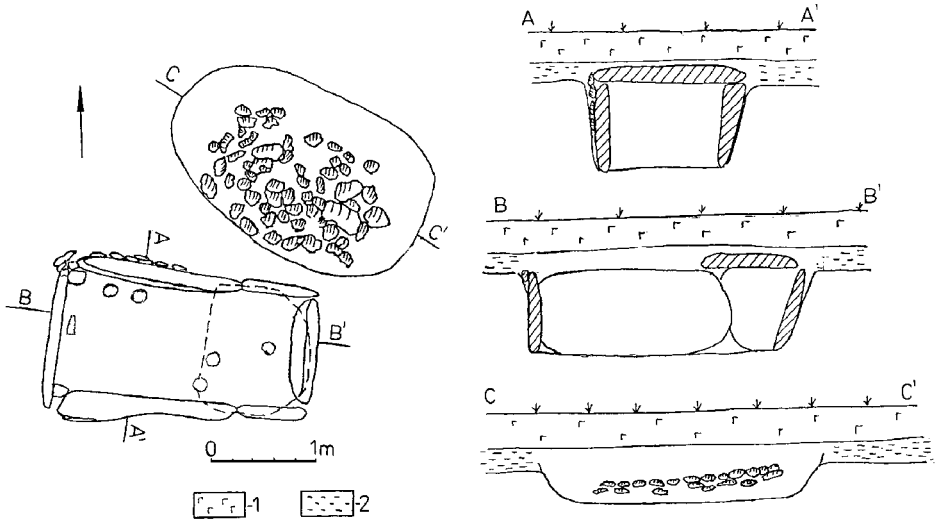

Fig. 2. Tovpyzhyn site 1. Plan and cross-sections of features. Legend: 1 - humus (arable layer), 2 - sandy clay

provided by the tomb's finders. According to their observations, the deceased was lying flexed on his side with the head close to the western wall of the cist. Over the deceased's chest, a pig's mandible rested. On the bottom, in the middle of the cist, fragments of two vessels, which were broken at the time of the tomb's discovery, were found lying *in situ* during the archaeological exploration (Fig. 4:1,2). In the western part of the cist, at the W side, two other vessels (Fig. 3:1,2) and two flint axes (Fig. 5:1,2) were found. The larger of the two axes was lying at the W side, next to the skull. In the same part of the cist and in the soil dug out from there, explorers discovered fragments of two broken vessels (Fig. 4:2,3), a bone chisel and fragments of a bone decoration (Fig. 5:3-4), four flint blades and animal bones. In the eastern part of the cist one vessel was found (Fig. 3:3).

Probably, a flint scraper found nearby was also connected with the tomb (Fig. 5:9).

Preserved grave-goods:

1. An amphora (Fig. 3:1) with a globular belly, flat bottom, cylindrical neck and four small, horizontally perforated handles on the vessel shoulder. The surface is carefully smoothed, shiny, black with patches of brown. The fracture is black. The clay contains broken sandstone. An ornament covers the neck and the upper portion of the belly. The ornament was made with impressions of a twofold cord forming multiple, horizontal lines and a herringbone pattern. Height of vessel: 29 cm, maximum diameter 26 cm, rim diameter 11 cm, bottom diameter 11 cm.

2. An amphora (Fig. 3:2) with a globular belly, flat bottom, cylindrical neck

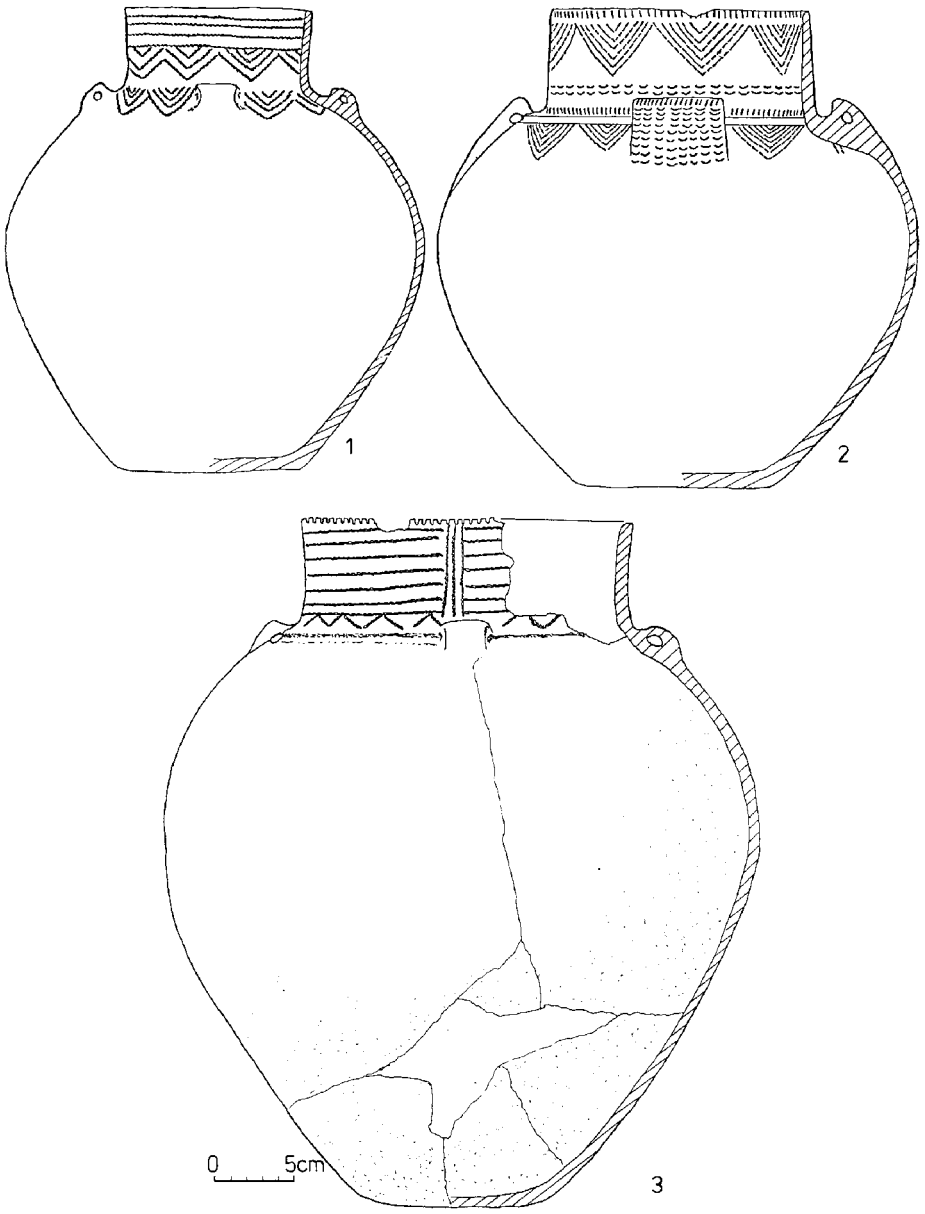

Fig. 3. Tovpyzhyn site 1. Vessels from the grave

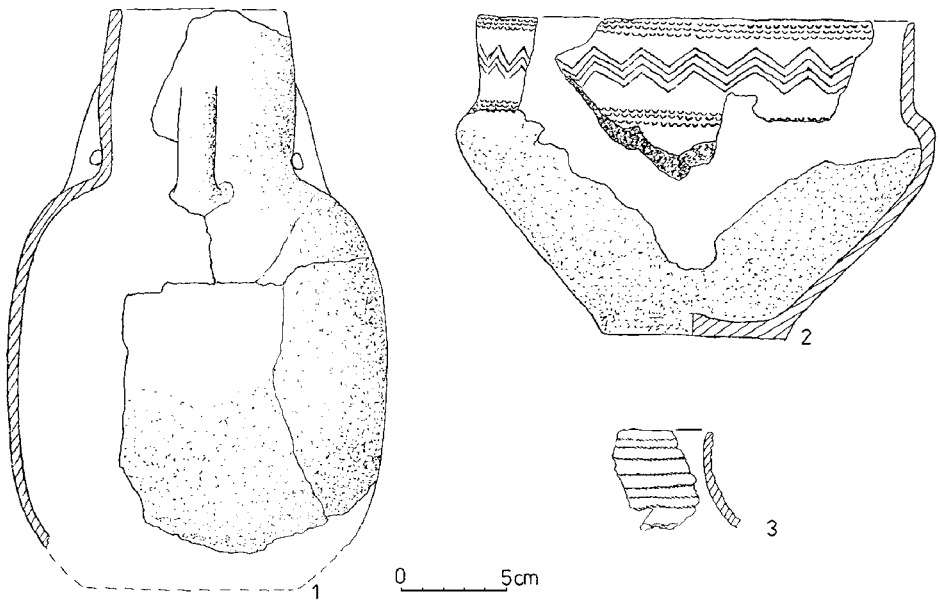

Fig. 4. Tovpyzhyn site 1. Vessels and a fragment of pottery from the grave

and four wide horizontally perforated handles on the vessel shoulder. The surface is carefully smoothed, shiny, black with patches of brown. The fracture is black. The clay contains sand and fine grains of sandstone. An ornament covering the neck, the upper portion of the belly and handles was made by impressing two dies, of which one left a straight mark (5 mm long) and the other an arched one. The impressions of the straight die form rows of columns and herringbones, while arches were used for multiple horizontal lines. The ornament was inlaid with white paste. Height of vessel: 30 cm, maximum diameter: 30 cm, rim diameter 16 cm, bottom diameter 12 cm.

3. An amphora (Fig. 3:3) with an egg-shaped belly, flat bottom, almost cylindrical neck and four small horizontally perforated handles on the vessel shoulder. The surface is carefully smoothed, shiny, black with patches of brown. The fracture is black. The clay contains coarse broken gravel of red colour. An ornament covers the rim and the neck of the vessel. The rim has deep incisions. The ornament on the neck consists of impression of a twofold cord forming multiple, horizontal lines that are crossed by triple vertical lines and a single row of zigzags. Height of vessel: 45 cm, maximum diameter: 37 cm, rim diameter: 21 cm, bottom diameter: 14 cm.

4. A fragment of an undecorated amphora (Fig. 4:1) with an egg-shaped belly and a neck slightly curved inwards. A long, narrow and horizontally perforated handle is located where the neck passes into belly. The surface is grey, carefully

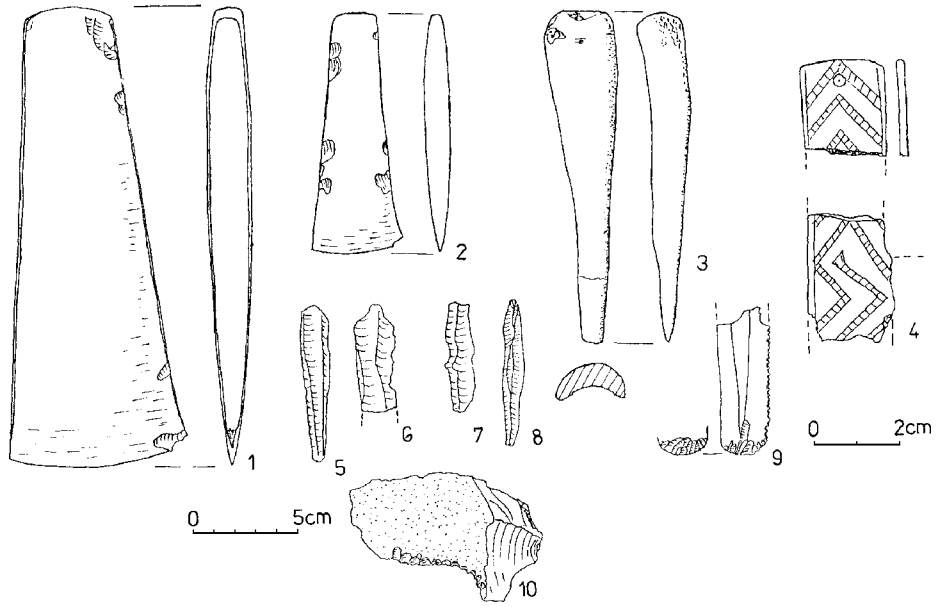

Fig. 5. Tovpyzhyn site 1. Grave-goods (1-2, 5-10 – flint, 3-4 – bone)

smoothed and shiny while the fracture is black. The clay contains a visible admixture of quartz and sandstone. The height of vessel is 29 cm, maximum diameter is 19 cm and rim diameter is 9.5 cm.

5. A fragment of a vase (Fig. 4:2) with a cylindrical neck and a protruding belly. The surface is light-brown, carefully smoothed and shiny. The clay contains an admixture of fine-grain gravel. An ornament covering the neck and the upper portion of the vessel s belly was made with impressions of two dies, of which one was straight and the other arched. The impressions of the straight die form a quadruple row of zigzags while arches are arranged in triple rows of horizontal lines. The ornament was inlaid with white paste. Height: 17 cm, maximum diameter: 22.5 cm, rim diameter: 21.5 cm.

6. A fragment of a vessel rim (Fig. 4:3) of dark brown colour decorated with multiple horizontal lines made of impressions of a twofold cord.

7. A flint axe (Fig. 5:1) made of dark grey material; wedge-shaped with a rectangular cross-section and a butt. Both cutting edge and butt are arched. The surface is carefully smoothed. Length: 22 cm, thickness: 2.2 cm, cutting-edge width: 9 cm, butt width: 4 cm.

8. A small flint axe (Fig. 5:2) made of grey material with black veins; wedge--shaped with a rectangular cross-section and a butt. The cutting-edge is arched while the butt is straight. The surface is carefully smoothed. Length: 11.5 cm, thickness: 1.3 cm, cutting edge width: 4 cm, butt width: 2 cm.

9. Two complete and two broken (effect of contemporary damage) flint blades, unretouched. Dimensions: 77 x 14 mm (Fig. 5:5), 52 x 21 mm (Fig. 5:6), 53 x 14 mm (Fig. 5:7), 72 x 10 mm (Fig. 5:8).

10. A blade scraper (Fig. 5:9) of black Volhynia flint; now broken. It is 24 mm wide.

11. A bone chisel (Fig. 5:3) with a widening butt (3.6 x 2.4 cm). The cutting edge is 1 cm wide.

12. Two fragments of a bone ornament in the shape of a flat „T" (Fig. 5:4) 2 cm wide and 2 mm thick. One of the surfaces is carefully smoothed and decorated with an angular pattern.

2. PIT

Immediately NE of the tomb a discovery of an oval pit 2.55 m x 1.6 m was made. The outline of the pit was uncovered 0.45 m below the ground against a clay layer of a light brown colour. This layer, about 20 to 30 cm thick, spread immediately below the arable layer at the depth from 0.3 m to 0.5-0.6 m (Fig. 2).Undisturbed soil, loamy sand of a light brown colour, was recorded at the level of 0.5-0.6 m. The bottom of the pit was excavated in the undisturbed soil and was located 0.9 m below the contemporary surface of the ground. In the content of the pit, there was a layer of stones about 0.2-0.3 m thick. The layer was made primarily of small bits sized ca 5 x 5 cm to 10 x 5 cm with only few of the stones reaching up to 20 x 30 cm. The layer spread 0.10-0.15 cm above the pit bottom.

At the pit bottom, the find included a few dozen animal bones, single human bones (mainly of the skull and mandible), five fragments of pottery, lumps of scorched clay and a retouched flint flake (Fig. 5:10). Technological characteristics of the pottery found in the pit were similar to those of the pottery discovered in the tomb.

The pit must have been dug when the tomb was built. When the ceremony was over unused stones were deposited in it.

3. COMPARATIVE ANALYSIS

Both construction features and the type of burial ritual, as well as grave goods, allow to relate the tomb, consequently the accompanying pit, too, to the GAC.

The construction of the tomb is typical of this culture. The closest territorial analogy is a tomb located in Ivanye, circuit of Dubno, district of Rovno [Sveshnikov

1983: 25-26, Fig. 4; see also Maleyev, Selected..., in this volume]. Similar structures were also found in other districts, e.g. Velikaya Slobodka, district of Khmelnitsk and Uvisla, district of Ternopol [Sveshnikov 1983: 42, 51, Fig. 11].

Amphorae with globular bellies and cylindrical necks have a wide range of occurrence. They are recorded both in the eastern group of GAC including Volhynia and Podolia (e.g. Ivanye, district of Rivne, Vilkhovye, district Lviv, Gorodnitsa, district Ternopol, Dovge, district Ternopol) [Sveshnikov 1983:Fig. 4, 6-7, 16:12, 17:11; Maleyev 1971:58, Fig. 2:19; see also Maleyev, Selected...] and in Belorus (Maly Yodkavichi) [Charniauski 1992:Fig. 1, 6-7; see also Charniauski, Materials..., in this volume], as well as in the Polish group of GAC (e.g. Inowrocław-Szymborze) [Nosek 1967:88, Fig. 36].

A similarly wide range of occurrence is shared by other types of pottery and ornament that were found in Tovpyzhyn. The closest analogy to the amphora with an egg-shaped belly and long, narrow handles is a vessel from a tomb in Aneta (district of Zhitomir) [Sveshnikow 1983:Fig. 9, 10]. We can find analogies to the same amphora and vase in Nikolayev, district of Lviv [Sveshnikov 1983:Fig. 3:5, 9, 10]. Ornaments analogous to the decorations of the vase from Tovpyzhyn occurred in tombs in Ivanye [Sveshnikov 1983:6,2] and in those of the Polish group (Kuczyna prov. of Włocławek, Smoszewo prov. of Płock, Chojewo prov. of Biała Podlaska) [Nosek 1967:Fig.108,3].

It is particularly often that smoothed flint axes are found in GAC sepulchral features. By contrast, it is very rarely that a bone chisel is found in the eastern group of GAC. A similar tool made of horn with a triangular cross-section and sharpened at one end occurred in a tomb in Khartonovtsy I (district of Ternopol) [Maleyev 1971:57, Fig. 2.5; Sveshnikov 1983:48, Fig. XXII, 4]. Other similar tools were found in Maly Yodkavichi (district of Grodno) [Charniauski 1992:Fig. 1,6,7] and in Mierzanowice prov. of Tarnobrzeg, which belongs to the Polish group [Nosek 1967:Fig. 118:2,3].

Analogies to fragments of the bone ornament in the shape of a „T", making possible its reconstruction, come from the area covered by the Polish group of GAC (e.g. Strzelce prov. of Bydgoszcz and Janiszewek prov. of Włocławek) [Nosek 1967:Fig. 44,2 and 63,4].

Finally, it should be mentioned that about 1 km to the north-east of site 1 there is (Fig. 1) a multicultural site (Tovpyzhyn site 2) where fragments of GAC and Corded Ware culture pottery were recorded (explorations of M. Peleshchyshyn) [Peleshchyshyn 1976:376].

The finds and research documentation are kept in the museum in Dubno.

Human bones from the sepulchre were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

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SETTLEMENT OF GLOBULAR AMPHORA CULTURE IN PERESOPNITSA, THE VOLHYNIA REGION (UKRAINE)

For almost a hundred and fifty years, the territory of the village of Peresopnitsa, Rivne district of the Volhynia region has been in the spotlight of archaeological study [Terskiy, Terskiy 1994:50]. Earlier excavations in the vicinity of the village discovered (Fig.1) settlements of the Lengyel and Strzyżów cultures; an embrional position of the buried of the Strzyżów culture on the hill near village Biliv; a mound of the Gródek-Zdolbitsa culture located to the North of the Pastivnyk ravine; a settlement and a burial ground of the Strzyżów culture on the left bank of the river Stubla in village Iskra; a ground mound of the Strzyżów culture at the Zamostya ravine near village Novostav Dalniy and Tripolye ceramics in the Shlikhter ravine in the territory of village Peresopnitsa [Sveshnikov, Nikolchenko 1982:89-100; Terskiy 1993:65].

1. THE FEATURE OF GAC

In August 1994 the Volhynia archaeological expedition organised by the Lviv Historical Museum and sponsored by the State Foundation for Fundamental Research of the Ukrainian State Committee for Science and Technologies continued the systematic exploration of the early medieval town in Peresopnitsa launched in 1974. The expedition conducted major excavation works on the eastern outskirts of village Peresopnitsa in the territory of a natural island created by branches of the Omeliana (Ustya) river nort far from the place where it flows into the river Stubla (tributary river Khoryn).

The area of the island is about 10 hectares occupied by arable land. An excavation site of the total area of some 100 sq.m was made near the western edge of the upper horizontal plateau of the island. Besides prevailing materials of the tenth to thirteenth centuries, the cultural layer featured individual fragments of ceramic pots, probably of the Komarów culture and stone retouched plates of the Bronze

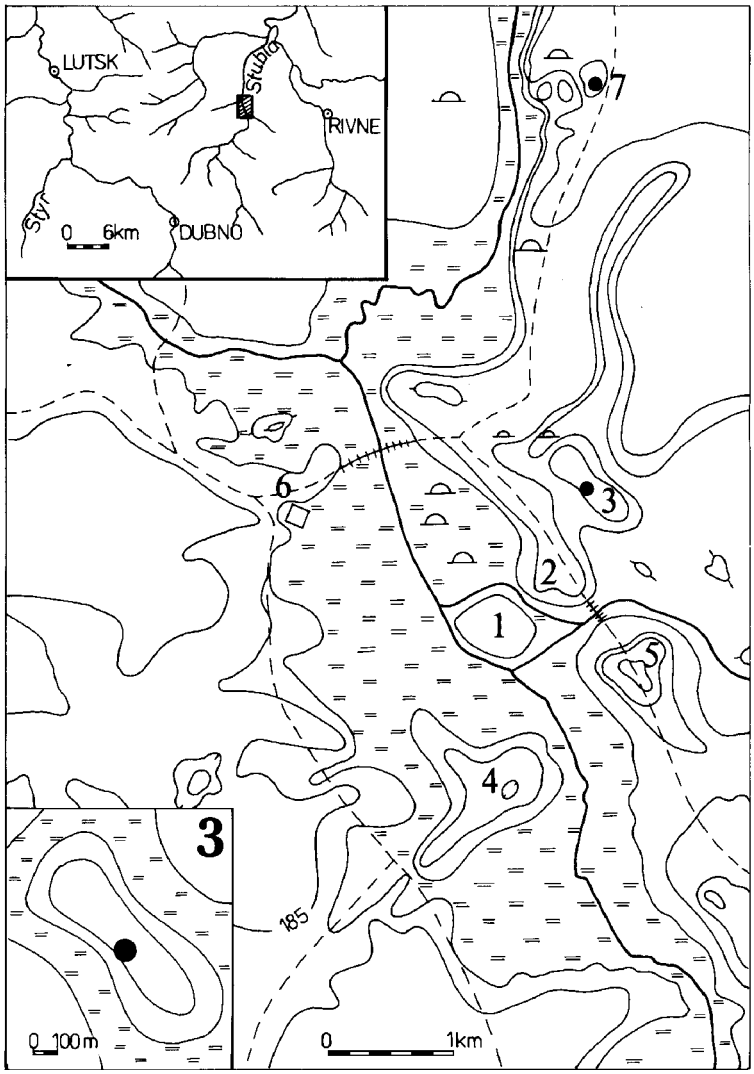

Fig. 1. Location of archaeological sites in the area of Peresopnitsa (3 - a GAC settlement)

Age. The subsoil loam was bedded 0.5-0.7 m deep from the present-day surface. Black soil was bedded down to 0.3-0.5 m deep. The cultural layer was unitype.

A pit of the Globular Amphora culture (GAC) was discovered 0.7-0.8 m below the present-day surface (Fig. 2) in the process of smoothing out the floor of a deepened dwelling dating back to the twelfth and thirteenth centuries. It was covered by a thin layer of clay analogous in colour to subsoil clay. The upper part of the

Table 1

Definition of fauna from structure no.1 (GAC) from Peresopnitsa (Pastivnyk Island) of the Rivne region. Performed by Professor Konstantin A. Tatarinov

No.	Fauna composition	Bones	Individuals	Notes
1.	Boar (Sus scrofa)	9	1	occipital bone, hoof phalanx vertebrae and fractions of tubular bones, a young animal
2.	Roe deer (Capreolus capreolus)	3	1	left lower jaw, ribs, a vertebra of a young animal
3.	Sheep or goat (Ovis sp./ Capra sp.)	20	2	two left lower jaws, fraction of an upper jaw, coronal bone, pelvis, tubular bones, a mature animal
4.	Carp (Cyprinus carpio)[1]	1	1	fragment bones of a mature animal
5.	Mustelids, probably weasel (Mustelidae - Mustela nivalis?)	12	1	breckchia (bones in rock), a small predator's lower jaw, bones of the extremities
6.	European beaver (Castor fiber)	2	1	fraction of incisor enamel
Total		47	7	

Note: 1. Rather Cyprinidae? (Editor's comment)

structure's filling up to 1.0-1.2 m deep consisted of an almost compact layer 30 cm thick with a high concentration of fragments of ceramics divided by a mixture of light subsoil clay (about 25%), darker clay with a dissemination of burnt clay, pieces of processed clay plaster, charcoal and white powder, probably ash. Osteological materials (Table 1) was concentrated mainly in the middle and lower parts of the filling mass. Besides three major broken pieces of sooth naturals flint pebbles, 25 flat flint pinches and four flint plates were collected at the levels of the feature filling.

The lower part of the filling consisted of a considerably smaller amount of ceramic fragments. There was a horizontal floor 1.4-1.5 m deep. Closer to the north-west corner of the floor there was a higher concentration of pieces of burnt clay with traces of twigs. Also, the find featured remains, possibly, of a hearth of a fine layer of firm ash.

The structure's floor did not have definite limits and was not rammed. The pit's walls were vertical, 1.35 x 1.75 m in dimensions (Fig. 2).

Bones from the pit were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

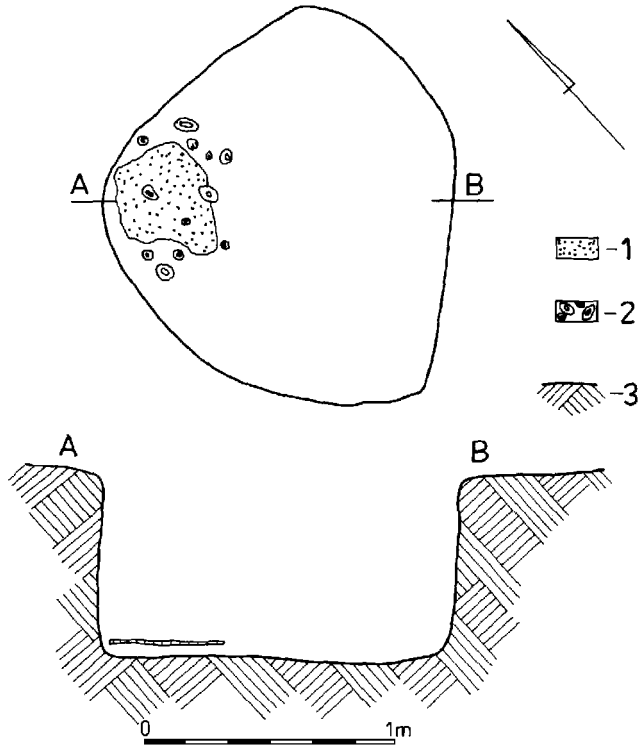

Fig. 2. Peresopnitsa site 3. Plan and cross-section of the feature. Legend: 1 - layer of a firm ash, 2 - fragments of burnt clay, 3 - rock-bed

2. CHARACTERISTICS OF MATERIALS

All 161 of the found items from the filling are stored in the Lviv Historical Museum (LIM A No 55011-55171).

Ceramics lay in the upper part of the pit in the complex and with bottoms down, only the best-preserved plate no.13 found almost on the floor had been turned bottom up. All in all, 17 intact and fragmented pots were collected in the structure.

Amongst the ceramic pots there was a group of thin-walled vessels decorated with in-cut lined filling with chalk paste (Fig.3:1-5):

1. Black, walls 3-4 mm thick, more smoothed from the inside, brims 29 cm in diameter, the dough contained an admixture of ground shells (Fig. 3:1);

2. Light-yellow, with a well-smoothed surface, the dough contained an admixture of finely ground shells, brims 17 cm in diameter (Fig. 3:2);

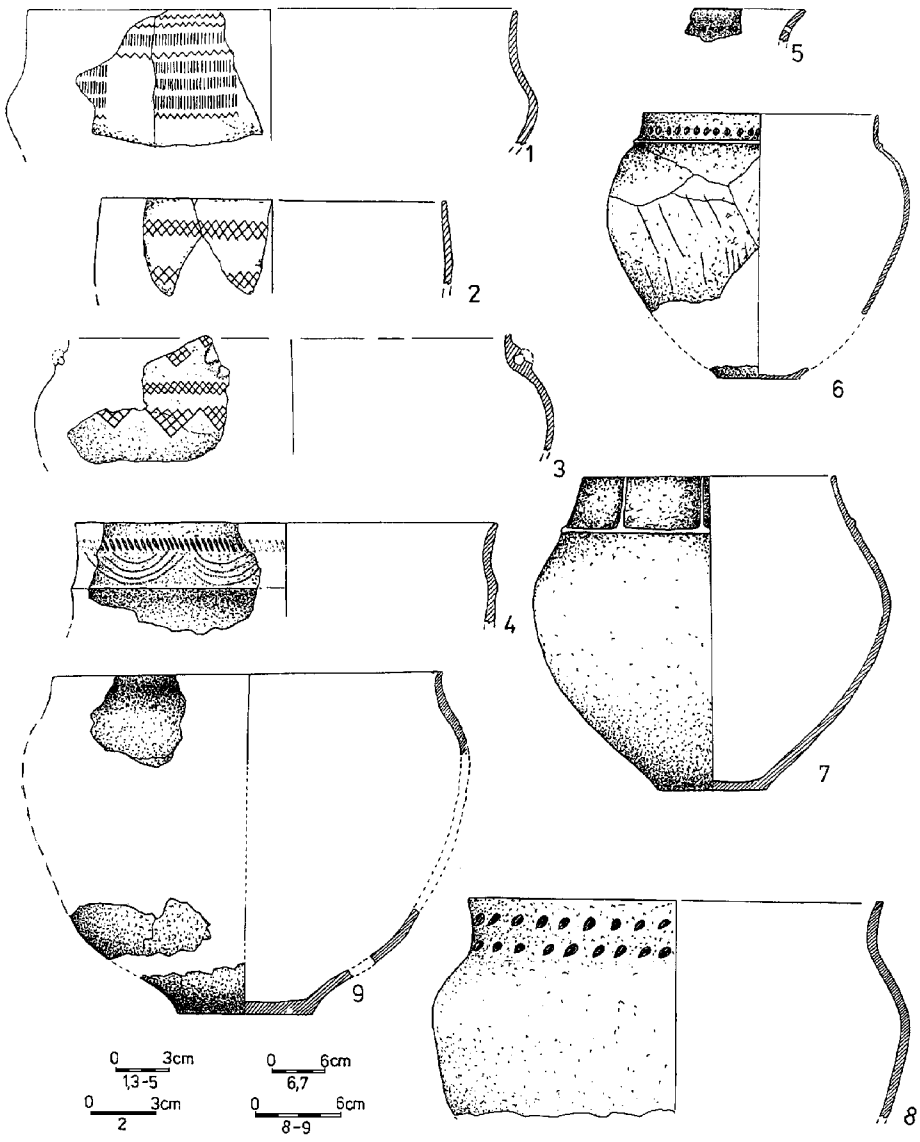

Fig. 3. Peresopnitsa site 3. Pottery from the GAC feature

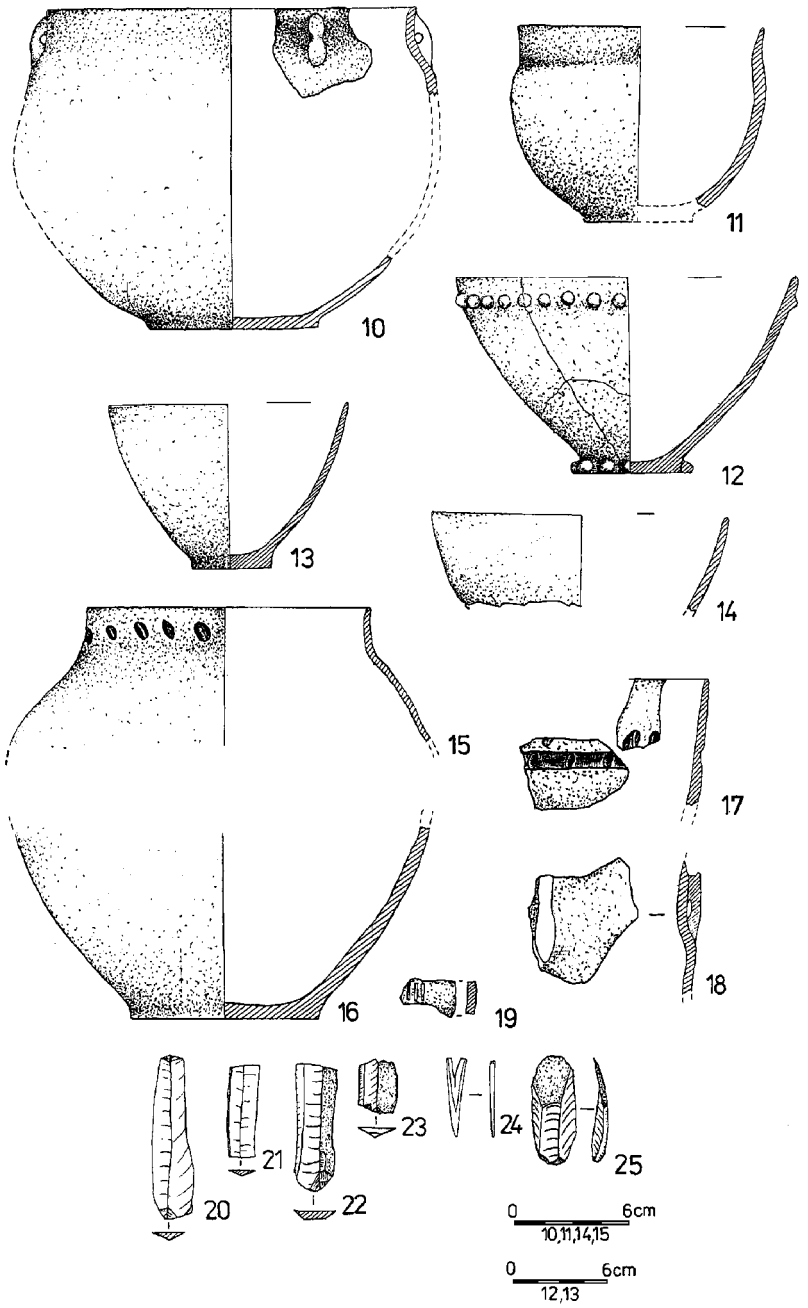

Fig. 4. Peresopnitsa site 3. Materials from the GAC feature (10-19 - pottery, 20-23,25 - flint, 24 - bone)

3. Yellow, the dough similar to that of previous pot, the inside surface polished much better than the outside, the largest diameter 31 cm (Fig. 3:3);

4. Decorated with cord shaped scallops, the dough features a rare admixture of finely ground shells, the fracture with three layers, the surface processed in a way similar to the previous vessel (Fig. 3:4);

5. A brim with a number of holes for a cord, the dough with an admixture of finely ground shells, with a smooth, black surface (Fig. 3:5).

Large pots:

6. A brim, decorated with nail imprints along the vertical rim and with a horizontal roller on the lower part of the brim, grey surface smoothed from the inside, outer walls bear traces of scratches, walls 5-6 mm thick, the dough with an admixture of flint; the vessel was 32 cm high with brims of 28 cm in diameter (Fig. 3:6);

7. The rim on the lower edge is accentuated by a continuous roller with vertical springs, a yellow smoothed surface, walls 6-10 mm thick, the inside surface is smoked, and the bottom is 16 mm thick; the dough with an admixture of ground flint; the vessel is 40 cm high, the diameter of the brims is 30 cm (Fig. 3:7);

8. A vessel decorated along vertical rims by two rows of nail imprints, the brown polished surface is smoked from the inside, the upper edge of the brim is cut down horizontally, with walls 5-6 mm thick; the dough contained ground flint; the brim diameter is 29 cm (Fig. 3:8);

9. A yellow polished surface, without ornaments, the dough with admixture of ground flint, 23 cm high, the diameter of brims 27 cm, the bottom is 9 mm thick with a minor cavity in the center from the downside (Fig. 3:9);

10. A plate with handles on the rims, the outer surface is better polished, brown, illburnt with crumbling walls, brick coloured in the fraction, the bottom inside is slightly salient in the center, with walls up to 4 mm thick, the vessel was 17 cm high, the dough contained admixtures of finely ground flint and shells (?; Fig. 4:10);

11. A severely burnt bowl with a heavily polished surface; the dough contains finely ground shells, the vessel is 10.5 cm high, with brims 13 cm in diameter (Fig. 4:11);

12. A hemisphere-shaped bowl decorated along the perimeter below the upper edge and along the perimeter of the bottom with plasters, the surface is smoothed and black, the dough contains a scarse admixture of finely ground shells, the vessel is 11.5 cm high, the brims are 21.5 cm in diameter (Fig. 4:12);

13. A cone-shaped bowl without decoration, the surface is smooth, the dough contains a considerable amount of ground shells (?), the vessel is 10 cm high, the brims are 15 cm in diameter (Fig. 4:13);

14. A hemisphere-shaped bowl with medium-smooth surface; the dough contains an admixture ground shells and the diameter of the vessel is 16 cm (Fig. 4:14);

15. A thin-walled pot, with a brick coloured smoothed surface, the dough contains admixtures of mica and flint; the surface is uneven (Fig. 4:15);

16. A pot with a vertical handle below the edge of vertical rims, the dough contains an admixture of sand, or occasionally ground flint which accounts for the rough surface of the vessel (Fig. 4:16);

17. A vessel's rim decorated with two rows of nail imprints (lower line in the continuous cavity), the surface is rougher, and an admixture of sand occurs (Fig. 4:17).

Among the above-mentioned ceramics one may distinguish decorated fine-walled vessels with ornaments characteristic of the Volhynia group of monuments. Therefore, similar elements of engraved ornaments (zigzags and groups of parallel vertical engravings similar to those on no.1 pot of Peresopnitsa) occur on decorated pots found in a nearby settlement of Gorodok of the Rivne region and Skolobov of the Zhitomir region [Sveshnikov 1983:Tabs.IV,3, IX,1,3,7]. An ornament of rhombs (similar to that on vessels no.2 and no.9 of Peresopnitsa) occurs on pots found in the Kamyany Brid settlement of the Zhitomir region [Sveshnikov 1983:Tab.XIV]. Hatched triangles (see the vessel no.3 from Peresopnitsa) one may found in the settlements of Uvisla and Ulashkivtsy [Sveshnikov 1983:Tab.XVII,7,8] and scallops similar to those on vessel no.4 from Peresopnitsa occur on pots from Mezhyriche of the Rivne region [Sveshnikov 1983:Tabs. VI:7, IX,3, X, XII].

Flint items (Fig. 4:20-23,25) are represented primarily by knife-like blades 8.5 and 5 cm long (the latter retouched by minor chops), and two sickle-shells. Another knife-shaped chip was found near object of GAC. All the flint samples are of local Volhynia origin. One of the chips used to be part of a polished axe.

Bone artefacts are represented by a polished fine head, possibly a needle for making nets or an arrowhead (Fig. 4:24).

3. CONCLUSIONS

The settlement of GAC discovered near Peresopnitsa so far has been the only one found in the Stubla river basin. Similar to it is a Didychi settlement in the Volhynia region, located approximately on the same latitude and discovered by author in 1988. As in Peresopnitsa, in Didychi, the widened river Putilivka made the location an attractive site for building the main settlement in the basin.

Considering the described material, conclusion can be made that the newly discovered settlement in Peresopnitsa provides prospects for further excavation of sites related to the GAC. Due to unusual types of vessel shapes, especially nos.6,7,12, as well as to predominance of ground flint as a dough admixture, more typical for cultures of the Bronze Age, the site described hereby may be referred to as from the late phase of GAC. The settlement dwellers were engaged mainly in hunting and fishing, as well as sheep and goat-breeding (Table 1). The local types of flint

were processed in the settlement. According to the amount and sizes of pots, the settlements was of a stable, permanent kind. Possibly it occupied the whole area of the Pastivnyk Island.

The GAC settlement in Peresopnitsa is one of a few settlements of this culture discovered so far to the East of the river Western Bug. The materials collected in the settlement provide ample new data for the study of the settled way of life of this culture in the territory of contemporary Ukraine.

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RITUAL COMPLEX OF THE GLOBULAR AMPHORA CULTURE ON THE UPPER DNIEPER BASIN (RUSSIA)

The Globular Amphora culture (GAC) ritual complex was discovered in 1986--1987 during excavations of an Old Russian kurgan cemetery situated 0.4 km west of the village of Turinshchina and 1.2 km east of Smolensk [Shmidt 1992a, 1992b]. The GAC features and kurgans were situated on the right bank of the Grybushchinka river (left tributary of the Dresna which empties to Dnieper), on a high sandy elevation (Fig. 1). Three GAC features were recorded around kurgans no. 4, 5 and 6. Feature I was located between kurgans 4 and 6, under their tumuli. It was partly disturbed when the kurgans were made in the 12th cent. A.D. When digging a gully around the tumulus a two-handle GAC amphora was broken. Other items could also have been damaged then. Feature II was discovered between kurgans 5 and 6, and feature III was found under the northern part of the tumulus of kurgan 5 (Fig. 1). Furthermore, on the surface uncovered after the kurgan exploration there were also found other traces of disturbing the virgin soil. However, the chronology of these traces could not be determined.

1. FEATURE I

The outline of the pit, both in horizontal and vertical cross-sections, was hardly perceptible against sandy undisturbed soil. Elements related to the feature were spread within a radius of 0.5 m (Fig. 2:1). About 1 m further to NE and 0.5 m higher a large, flat worked stone was recorded. It could have been related to the feature, too. Taking into consideration the dispersion of the discovered objects and the location of the stone, as well as the observed differences in ground cohesion, it can be claimed that the dimensions of the pit were about 2.3 x 1.5 m and that its depth reached to 0.67 cm from the preserved surface of the undisturbed soil. The feature must have been oriented along the NNW-SSE axis.

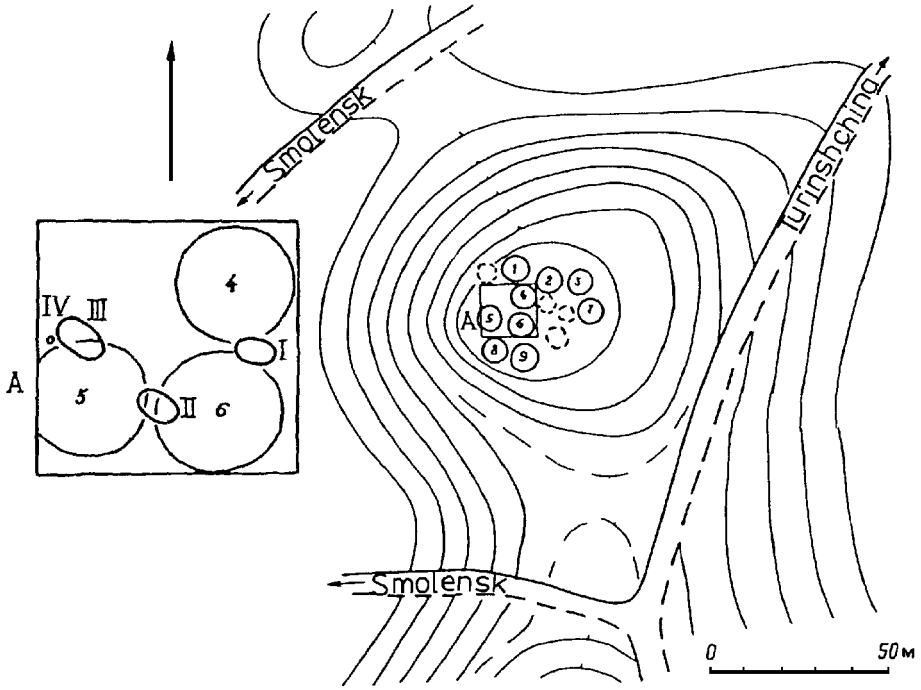

Fig. 1. Turinshchina. Location of GAC features (1-9 - Middle Ages kurgans, I-IV - features of GAC)

The feature included the following elements: remnants of four clay vessels, a flint axe and a flint arrowhead (Fig. 3).

1. A small amphora with two handles (Fig. 3:1) and a flat bottom. It is decorated with a pattern made of impressed bars, dents and zigzags. On the bottom, one can see impressions of grains of barley or wheat and possibly millet (Fig. 4).

2. A round-bottom beaker (Fig. 3:2), undecorated.

3. A flat-bottom bowl (Fig. 3:3), decorated with three rows of impressed bars and doubled zigzags.

4. A fragment of an amphora (Fig. 3:4), probably with two handles and undecorated. It could have been similar to the amphora from feature II (cf. below).

5. A flint shank arrowhead (Fig. 3:5).

6. A stone wedge axe (Fig. 3:6), smoothed.

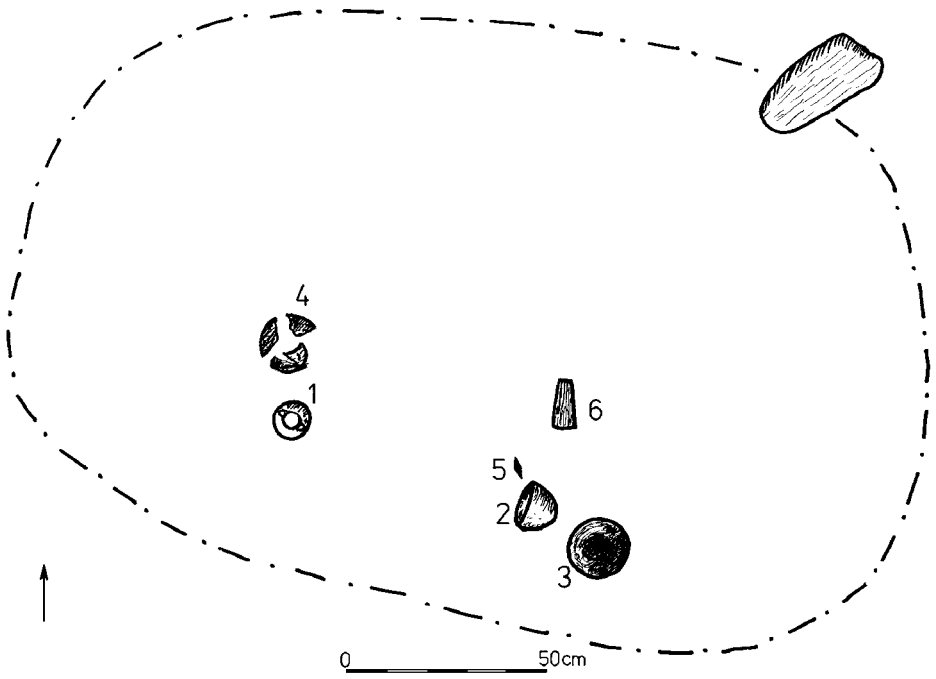

Fig. 2. Turinshchina. Plan of a feature I (1-4 - pottery, 5 - flint arrowhead, 6 - flint axe)

2. FEATURE II

On the surface of undisturbed soil, one could notice four flat stones located, as it was later determined, in the southern part of the feature. The outline of the pit was hardly perceptible at this depth, but became more visible when the excavation was deepened. The main feature that distinguished the pit contents from undisturbed soil was the lower cohesion of the former. Thus, it can be claimed that the dimensions of the pit were 2.8 x 1.6 m and that it was oval in shape and oriented along the NWW-SEE axis (Fig. 5). With respect to colour, the southern part of the pit, filled with dark and at places black sand, especially stood out. The depth of the pit, measured from the preserved surface of the undisturbed soil, was 0.68 m.

At the bottom of the pit, remains of seven clay vessels, a flint axe and animal bones were found.

1. An amphora (Fig. 6:1) with a rounded belly, a short slightly flared neck and flat bottom. There are four handles placed on the upper portion of the belly. This portion is also covered with an ornament of four oblique rows of impressed bars and single rows of the so-called bird's feather placed in between.

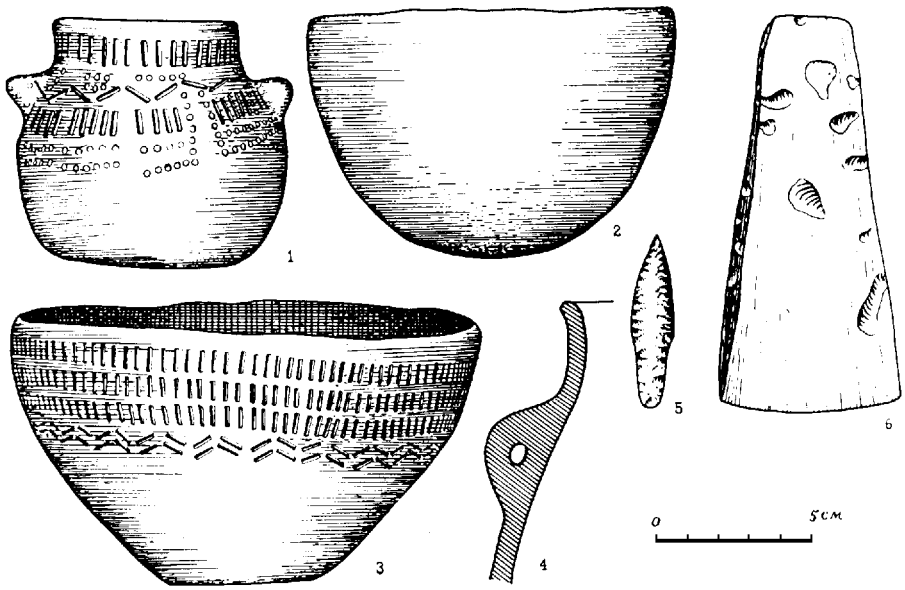

Fig. 3. Turinshchina. Materials from the feature I (1-4 - pottery, 5-6 - flint)

2. An amphora (Fig. 6:2) with two handles, an egg-like belly and flat bottom, undecorated.

3. A small amphora (Fig. 6:3) with four handles, an egg-like belly, unmarked neck and flat bottom, undecorated.

4. A vase (Fig. 6:4) with an arched belly and flat bottom decorated under the edge with a squeezed out moulding.

5. A bowl (Fig. 6:5) with an arched belly and flat bottom decorated with a row of fingernail impressions and three buttons that are asymmetrically placed.

6. Fragments of a bowl (Fig. 6:6) decorated with a zigzag pattern and bars, and poorly burned.

7. Fragments of a damaged, poorly burned vessel that could not be reconstructed.

8. A flint wedge axe (Fig. 7:7), smoothed.

9. A pig's mandible. (Fig. 5:9).

10. Bone fragments of domestic animals, mainly pigs (Fig. 5:10). These bones survived because they were covered with a layer of burned material.

The feature must have been a human grave. The skeleton, originally located in the eastern portion of the pit, has not survived.

Bones from the feature were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

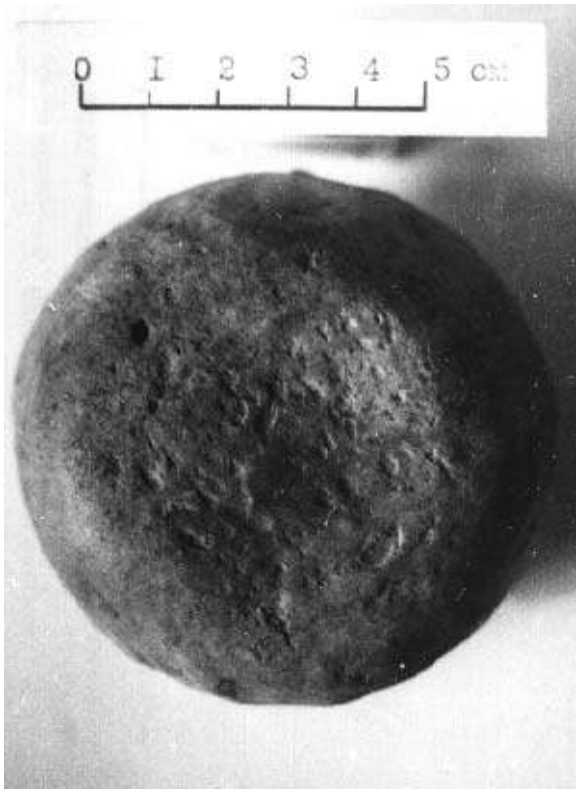

Fig. 4. Turinshchina. Impressions of grains of the bottom of the amphora from the feature I. Photo by E.A.Shmidt

3. FEATURES III AND IV

The feature III was located 4 m NW of feature II. It was an oval pit 3.6 x 2.0 m and 0.75 cm deep from the level of the undisturbed soil ceiling (Fig. 7). The pit contents clearly stood out in full against the undisturbed soil only at the depth of 0.5 m above the bottom. In the lower portion of the pit and at its bottom numerous bones of domestic animals were found, including pigs (several animals) and cattle. The type of bones and their chaotic location testify to the fact that these were not animal burials but remains of food.

Any definite grave-goods lacking, the association of the feature with GAC is supported by its stratigraphic position, the character of the pit contents similar to those of features I and II and its location in the immediate proximity of the GAC

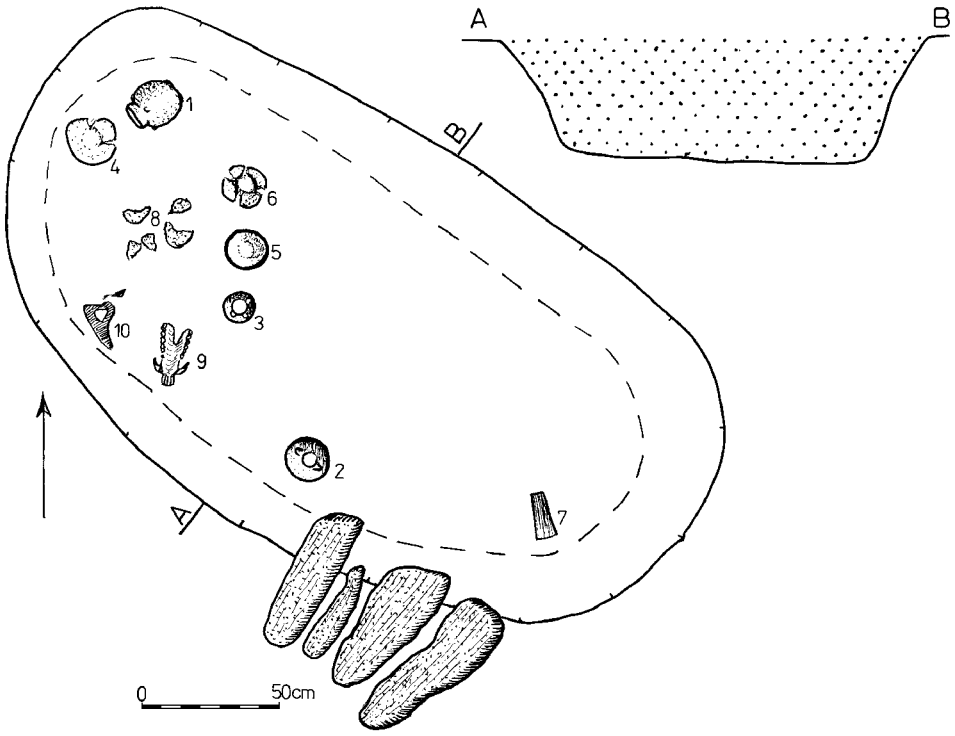

Fig. 5. Turinshchina. Plan and cross-sections of a feature II (1- 6,8 - pottery, 7 - axe, 9-10 - animals bones

pits analysed earlier. Furthermore, an important piece of evidence is its relation to feature IV.

At the western side of feature III, there was a posthole (feature IV) 0.52 x 0.43 m and 0.15 m deep whose contents included vessels fragments (also decorated with relief moulding) technologically similar to the pottery from features I and II.

Feature III and the posthole seem to be contemporaneous, which is evidenced by the identical character of their contents and analogous stratigraphic position.

East of the features described so far, several other postholes of unidentified chronology were recorded.

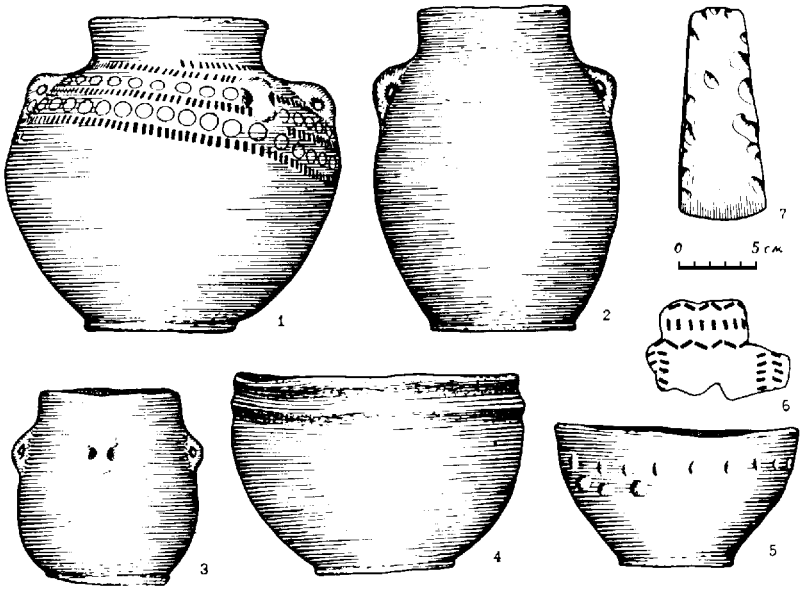

Fig. 6. Turinshchina. Materials from the feature II (1-6 - pottery, 7 - flint)

4. CONCLUSIONS

The majority of sources discovered in Turinshchina find many analogies in GAC materials from the area of its eastern group and more distant locations. Specifically, flint axes are frequent grave-goods of GAC graves [Sveshnikov 1985a:284; Neustupny 1966:652]. The two-handle amphora from feature I has analogies in Volhynia (e.g. Kikova) [Sveshnikov 1983:29, Tab. X, Fig. 2,7]. The same type of analogy applies also to the bowl from feature I [e.g. Sveshnikov 1983:35, Tab. IX, Fig. 3]. The fingernail ornament of the bowl from feature II is similar to the decorations known from Volhynia [Sveshnikov 1983:23, Tab. II, Fig. 7:14], while affixed buttons are primarily characteristic of the pottery from the area of the Polish and western groups [Kukharenko 1969:Tab. XII, Fig. 8; Hensel 1974:58, Fig. 43]. Analogies from Podolia are present in the ornament of the amphora from feature II [Sveshnikov 1983:54, Tab. XXIII, Fig. 9].

A rare find [Neustupny 1966:652] is the flint arrowhead from feature II. It is true that arrowheads are occasionally encountered in Volhynia [Sveshnikov 1983:35, Tab. IX, Fig. 5], but they are of a different form there.

In GAC rituals an important role was played by animal carcasses and parts of carcasses. Therefore, the presence in feature II, a presumed grave, of a mandible and other bones of pigs, raises no objections. We know also of special ritual features

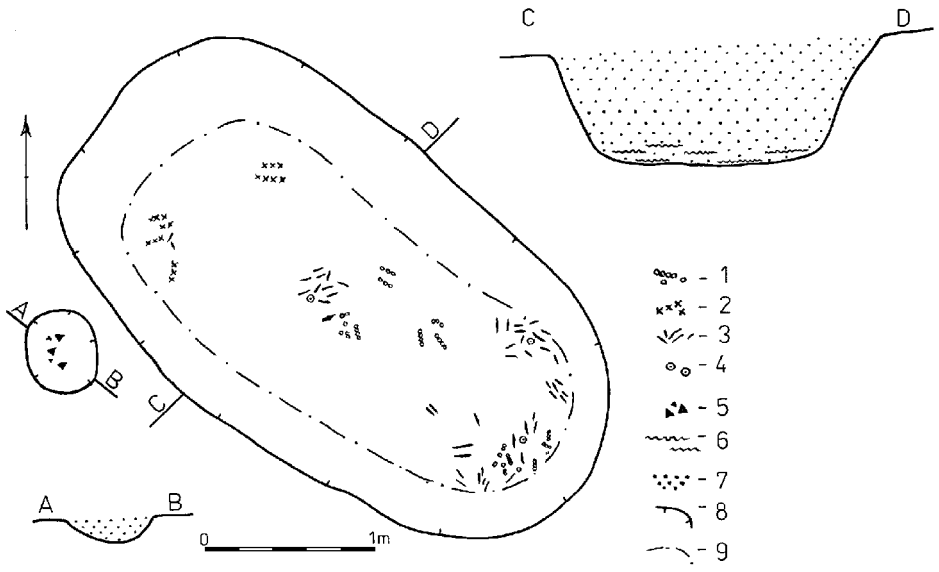

Fig. 7. Turinshchina. Plans and cross-sections of features III and IV (1 - pig's bones, 2 - cattle's bones, 3 - fragments of bones, 4 - location of bones sample for ^{14}C analysis, 5 - pottery, 6 - layer with bones, 7 - sand, 8 - range of the feature, 9 - hypothetical range of the bottom of the feature)

with burials of whole animals or parts of their bodies which are often located in cemeteries. Nevertheless, at least in the area of the eastern group, no pit with so great an amount of postconsumption animal remains as feature III has ever been recorded.

The discussed materials from the ritual GAC complex in Turinshchina permit us to suggest certain hypotheses concerning the directions of GAC population penetrations of the upper Dnieper basin. The site in question is equally distant from the area of the Volhynia subgroup as from the GAC sites from the eastern part of the Polish group (including the cemetery in Krasnaselsky in Belarus) [see Charniauski, Materials..., in this volume]. However, there is more evidence, following from the analysis of the assemblages, in favour of the association of the GAC population in Turinshchina with the northern areas of present day Ukraine (Volhynia subgroup).

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MATERIALS OF GLOBULAR AMPHORA CULTURE IN BELORUS

Until recently, no monuments of the Globular Amphora culture (GAC) had been known on the territory of Belorus. Although on some archaeological maps the area covered by this culture included the north-west of the Brest region and a small territory in the vicinity of Minsk [Wiślański 1979: Fig.153; Sveshnikov 1983: Fig.1], in the first case we are dealing with certain "territorial generalisations", while in the second case there is a burial interment of an indefinite culture, in a stone box discovered in Logoishchina, as probably classed among the Globular Amphora monuments [Zhivopisnaya Rossiya 1882:238]. In the early 1970s there were produced more definite pieces of evidence which proved the penetration of the GAC tribes into the territory of Belorus.

1. A CEMETERY IN KRASNASELSKY

A cemetery containing previously unknown materials was discovered and investigated near village Krasnaselsky, in the Volkovysk district of the Grodno region in the summer of 1971 [Charniauski 1972, 1992]. The cemetery was located two kilometres to the west of the southern end of the village, on the open chalk lens edge. Although chalk had been excavated in an open pit, the western part of the lens which contained the archeological monument remained. In the place where a student of local lore, M. Veratsila, had discovered small fragments of ceramics and splintered bones — most of the monuments had been destroyed by a bulldozer — the author cleaned out a chalk surface of 156 sq.km. He cleaned out selected adjacent strips of a total area of 500 sq.km., but found nothing. This work resulted in the discovery of remainders of three burial interments and traces of a fourth grave located in rectangular pits with slightly rounded corners (Fig.1).

Grave no.1 (southern) lay in a pit oriented from the south-west to the north-

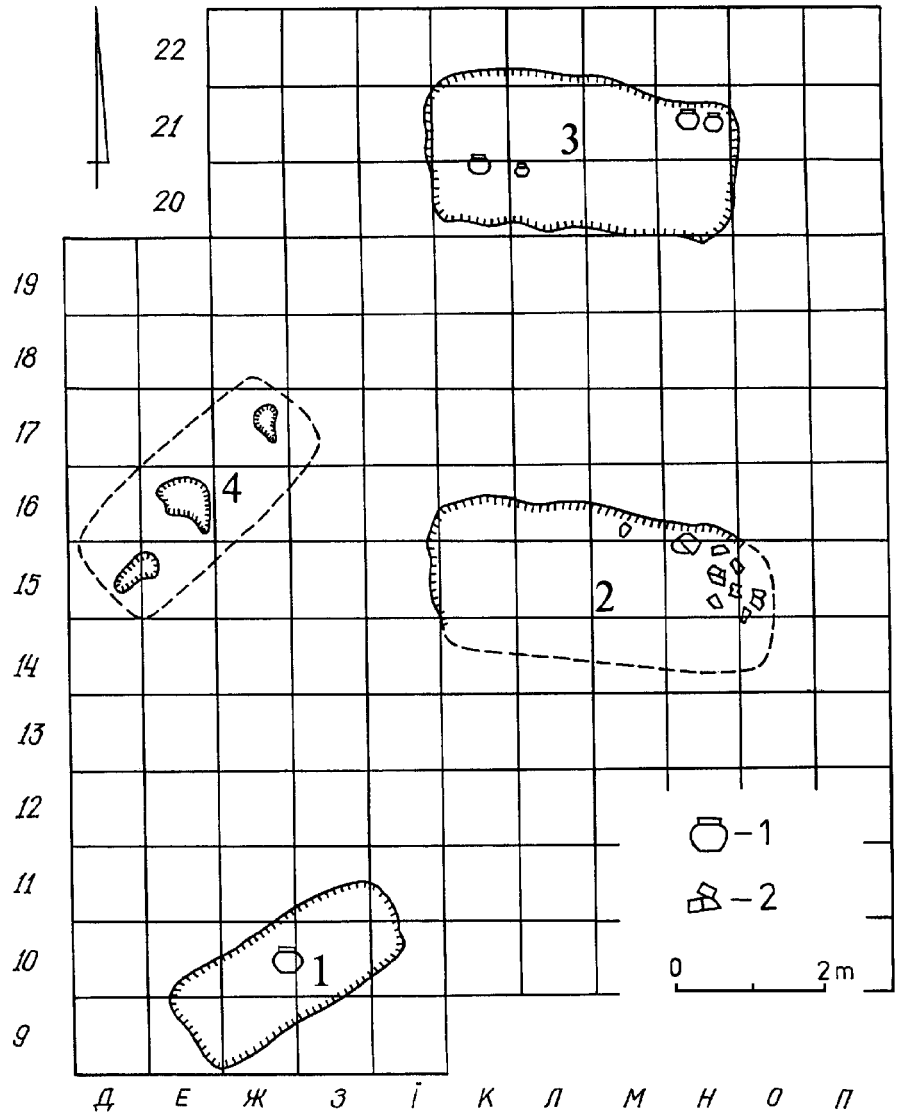

Fig. 1. Location plan of the GAC features in Krasnaselsky (1 - ceramics, 2 - stone paving)

-east, 3.0 m long, about 1.3 m wide, and 0.2 m deep in the chalk subsoil. It is difficult to define the precise depth of the pit, since the thickness of the withdrawn upper layer was unknown. According to workers at the open pit, it had been less than 0.5 m thick. The bulldozer bucket moved most of the grave materials to the dump.

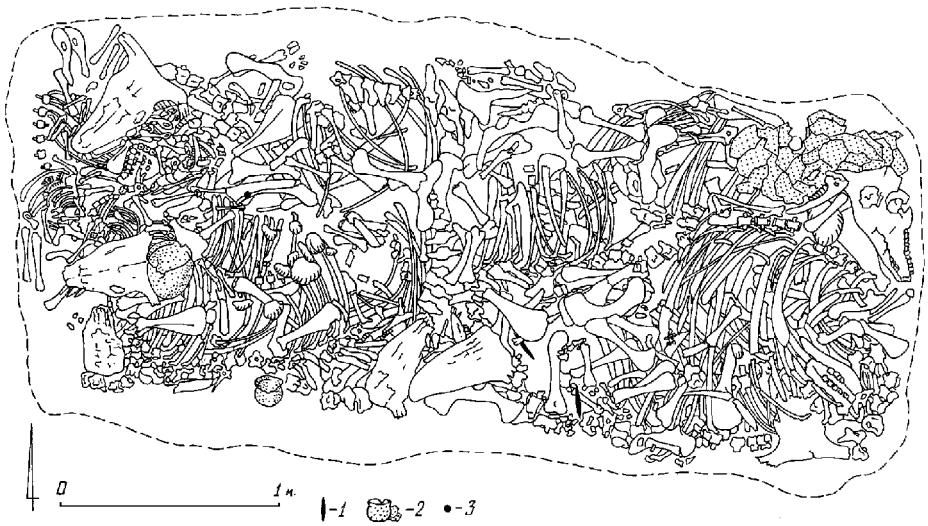

Fig. 2. Krasnaselsky, grave no. 3. Location of materials (1 - bone spearhead, 2 - pottery, 3 - amber)

The finds that remained were seriously damaged. Fragments of cracked amphora lied in the middle of the pit; small stones of 0.15-0.25 in diameter were found in the southern corner; shattered bones of a large and a small domestic bull and a pig were scattered about the pit.

Four metres to the north-east from the above-mentioned grave feature no. 2 (eastern) was almost completely ruined. It lay in a pit oriented from west to east with a slight deviation from the longer axis toward the south, 4.3 m long, up to 2 m wide and 0.1 m deep in the chalk subsoil at the northern edge of the pit. The southern edge was almost completely destroyed, and only parts of the bottom remained. The finds in the burial interments were scarce: about ten very small ceramic crocks, a flint pinch, a stone axe bore, and burnt fragments of human bones. In the north--western corner of the pit there were remainders of what once had been a large paving made of big pieces of rocks and stone tiles of 0.1-0.25 m in diameter, partially broken by the bulldozer.

Three meters to the north from the second grave there was grave no. 3 (northern). It was located in a pit 4.0 m long, 1.9-2.0 m wide and 0.4 m deep in chalk, oriented similarly to grave no. 2. The grave was very well preserved; only the upper part had been destroyed, which probably had contained no finds, as only the most projecting parts of some animal sculls had been damaged (Fig. 2 and 3). The burial interment was filled with remnants of 13 animals: cattle, sheep/goats, a pig and a horse. Skeletons of seven rather large bulls comprised the base of the filling (as defined by V.V. Shcheglova). Three of them lay in the western part of the grave, and their sculls almost touched the butt-end of the pit. The remains of two bulls

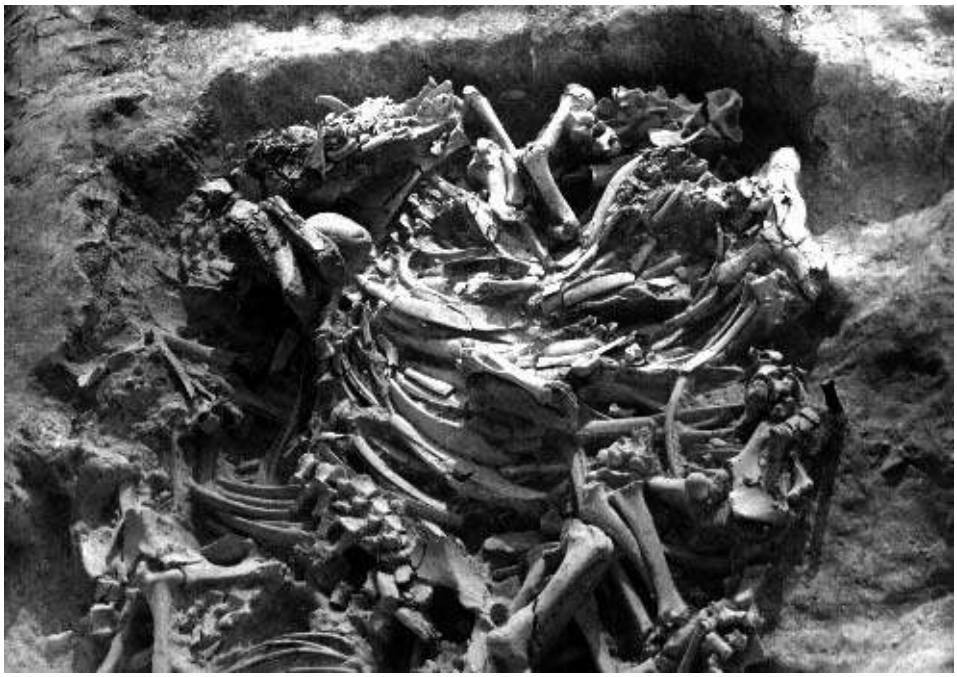

Fig. 3. Krasnaselsky. Part of the grave no. 3. Photo by M.M.Charniauski

occupied the eastern part, and their sculls were oriented toward the east. Skeletons of two large animals lay in the middle of the ravine with their sculls at the southern corner. Incomplete skeletons of smaller animals including two calves and bones of an extremity of a horse occupied the north-western edge of the pit. Two bone spearheads were found in the chest of one of the bulls (Fig.4).

Ceramic vessels occupied a remarkable place among the burial implements. Fragments of two of them were discovered in the north-eastern corner of the pit. Obviously, they had not been broken while the ritual was being performed, but rather later, so that with the decomposition of the animals' corpses the vessels were ruined by bones under the weight of the soil. To the south of the cracked vessels there was a small boulder of 0.2 m in diameter. The third vessel was cracked but had kept its shape; it was found in the south-western part of the grave. The fourth rather small vessel was damaged even more severely and stood at the southern edge of the pit. It should also be mentioned that the vessels were placed by the animals' heads.

The western edge of the grave presented a piece of amber 1.2 cm x 3 cm in size, strongly affected by corrosion. In section M-20 there were two minor lumps of brownish raddle, and in section K-20 there were unground flint axes.

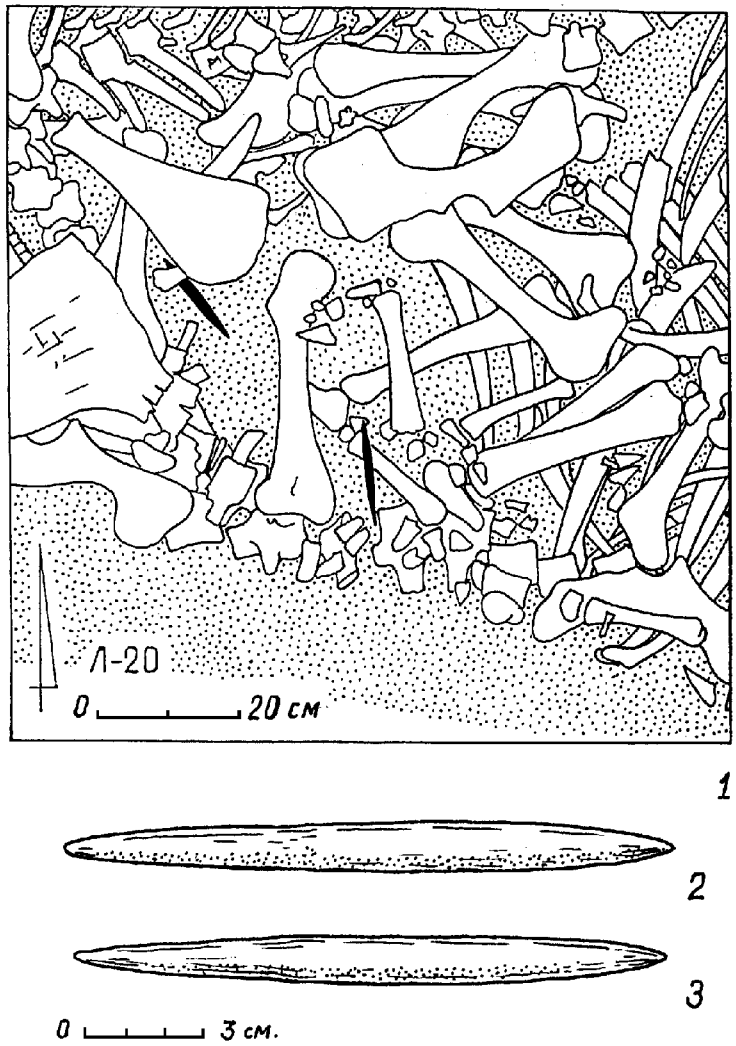

Fig. 4. Krasnaselsky. Part of the grave no. 3 with bone spearheads (1); bone spearheads (2, 3)

The burial pit, as well as the other pits, was filled with chalk crumb containing a slight admixture of sand. Also, there was a large lens of ashy sand which contained numerous small barnacles bearing no traces of processing. The origin of the lens remains unclear.

Grave no. 4 (western) was completely destroyed (Fig. 1).

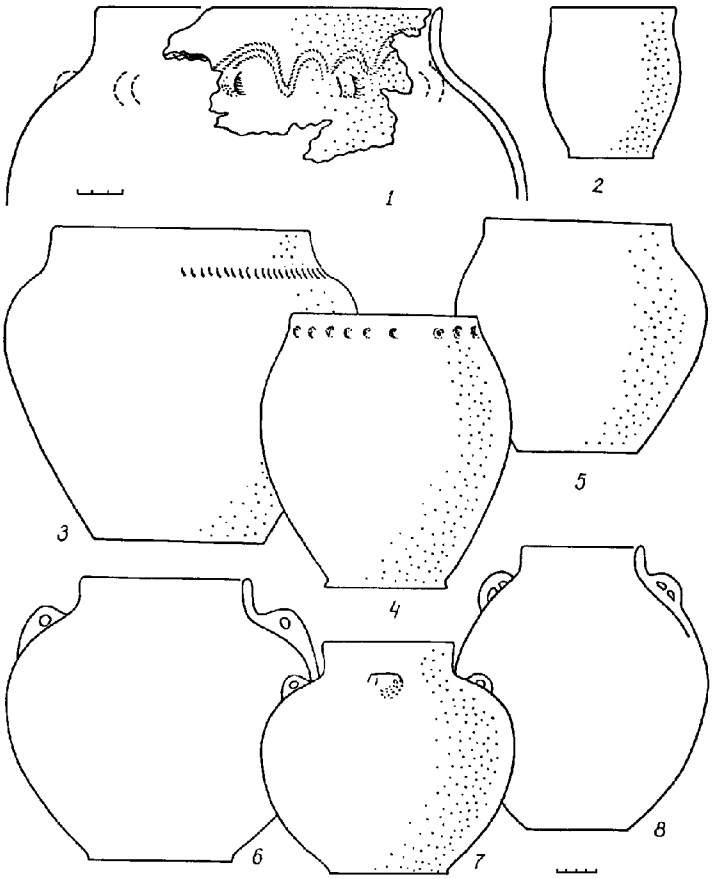

Fig. 5. Ceramics from GAC graves: 1-5 - Krasnaselsky, 6-8 - Maly Yodkavichi

In the monument near Krasnaselsky studied by the author, ceramics represented the best material available for culture definition.

The amphora from grave no. 1 was a grey-brown smooth-walled vessel with moderate admixtures of varied-granular gruss in the dough of the well-baked walls. The ornament comprised doubled or sometimes tripled wavy cord impressions running round the vessel on the level of lugs and slightly above (Fig. 5:1).

The ceramics of the northern grave (no. 3) were represented by pots. A fragments of the first vessel lay at the very edge of the pit, by the bull's scull. This was a flat-bottomed pot with small edges. Breaks of the crocks display moderate admixtures of different-sized granular breakstone. The upper part of the pot had slightly expressed traces of sub-horizontal hatches. The lower part was covered with vertical hatches, and in the middle of the pot those hatch zones overlapped. At the

very bottom, the walls bear sub-horizontal traces of smoothing, probably done with a wisp of grass. The upper part of the vessel was glossed, presumably by hand in the course of long-term usage of the pot. The bottom and inner wall surfaces also bear hatches, though disorderly and less expressive. This ceramic vessel was decorated with few ornaments: half of the shoulders' perimeter bears one raw of vertical nail impressions (Fig. 5:3).

A second vessel lay to the west from the previous one. This was a flat-bottomed pot with edges, a wide neck and convex sides (Fig. 5:4). Admixtures in the wall dough and the style of surface finishing repeated the previous case. In the place where the halo turned into sides there was a horizontal ring of impressions made by a finger-tip with a short-cut nail. In some parts, even impressions of skin lines were seen.

The undecorated vessel from the western part of grave no. 3 had a flat edgeless bottom, a wide neck and convex sides, which were largest in diameter in the upper part. Carelessly smoothed uneven walls were grey or grey-brown in some parts, hatched and contained admixtures of breakstone (Fig. 5:5).

The pot found at the southern corner of the pit had a flat bottom with abruptly cut edges and a small support and a slightly turned back rim (Fig. 5:2). The walls with an admixture of breakstone were grey-brown, with carelessly smoothed surface and fragmentary hatches.

Fragments of ceramics from the eastern grave no. 2 were grey-brown, and displayed signs of medium-quality baking; the dough contained traces of breakstone admixtures. The surfaces of almost all crocks were covered with slightly visible sub--horizontal hatches; some were decorated with horizontal rows of vertically placed impressions of a linear punch. There were two kinds of impressions, some rather wide and long with rounded ends and bottom, and others which were thinner and shorter. Those crocks probably had been parts of two different vessels decorated — as could be seen from the fragments — in their upper parts.

There were only single finds of flint articles in the graves. A pinch from the eastern grave had a coating on the percussive plate and retouch on the back side. An axe from the northern pit had a lens-shaped cross-section, a narrowed butt and a rounded blade finished by minor chops. The bore from the eastern grave belonged to the grey-green stone axe. Its flanks were uneven, which proves that it had been drilled before the implement's surface was polished.

The spearheads used for slaughtering the bull found in the northern grave were rather prominent articles (15.1 cm and 15.5 cm long, over 1 cm thick), needle--shaped with round cross-sections (Fig. 4:2,3). Their surfaces was smooth and their hefts slightly narrowed.

The bulk of bone remains rested in the northern grave no. 3 [Shcheglova, Charniauski 1976]. The majority of them — out of over 1000 bones of 9 animals — were cattle bones. There were also several bones of a very young specimen of domestic pig, a few bones of two young sheep or goats and a fraction of a horse's metapodius of relatively large size (lower edge 58 mm wide; diaphysis 36 mm wide).

Of nine cattle specimens two had been under 1.5 years old as suggested by non--adherent shoulder-bone epiphyses. Three larger specimens were bulls, the rest were probably cows.

According to dimensions of bones, domestic bulls from the Krasnaselsky grave were very similar to those found in GAC graves in Kujawy (Poland) [Świeżyński 1966]. Bulls reached a height of 113.8 (108.0-120.5) cm and cows 111 (104.8-116.0) in the withers. The breeds of livestock from the investigated monuments were typical for the whole territory covered by the GAC [Wiślański 1979:281; Sveshnikov 1983:16].

Bones from the feature no. 3 were submitted to the ^{14}C analysis [see Kadrow, Szmyt, Absolute..., in this volume].

2. ANOTHER SITES OF GAC FROM BELORUS

In 1971, remains of yet another grave associated with the GAC were discovered in the course of open-pit work near v.Maly Yodkavichi of the Berastavitsa district in about 30 km north-west of the Krasnaselsky cemetery. Unfortunately, the grave was almost completely destroyed, and the researchers managed to investigate only a part of one burial interment, collecting some casual finds in the open pit [Kavalskaya, Charniauski 1988].

The northern part of the grave was preserved in the open pit wall. It was located 1 m below the surface and most likely originally lay in a stone cist; a flat horizontally positioned stone served as the bottom, and vertically positioned stones represented the cist sides. Excavations were conducted by researchers from the Grodno Museum of History and Archeology who discovered a human scull with a pig's lower jaw lying underneath and a flint chisel placed near it. Several stones of the cist, vessel crocks and a whole amphora were found in the scree.

The amphora was preserved intact and had a globular-shaped body, a short vertical neck and a flat bottom. Four lugs with round horizontal holes were fastened to the vessel's shoulders (Fig. 5:7). The walls contained a substantial amount of quartz; they were well-baked and smoothly finished, without any ornaments, and with occasional slight impressions made by finger-tips. The second amphora had a similarly rounded body, a rather high, straight neck and a flat bottom with gently expressed edges (Fig. 5:6). The wall dough contained much large- and medium--granular quartz. Almost all surfaces were smooth with slightly visible subvertical hatches on the sides and sub-horizontal hatches at the very bottom.

Some of the collected fragments belonging to the third amphora also had no ornaments, but did have an egg-shaped body (Fig. 5:8). The walls contained much large-granular quartz sand. The walls were finished with gentle sub-horizontal hatches absent only on the neck.

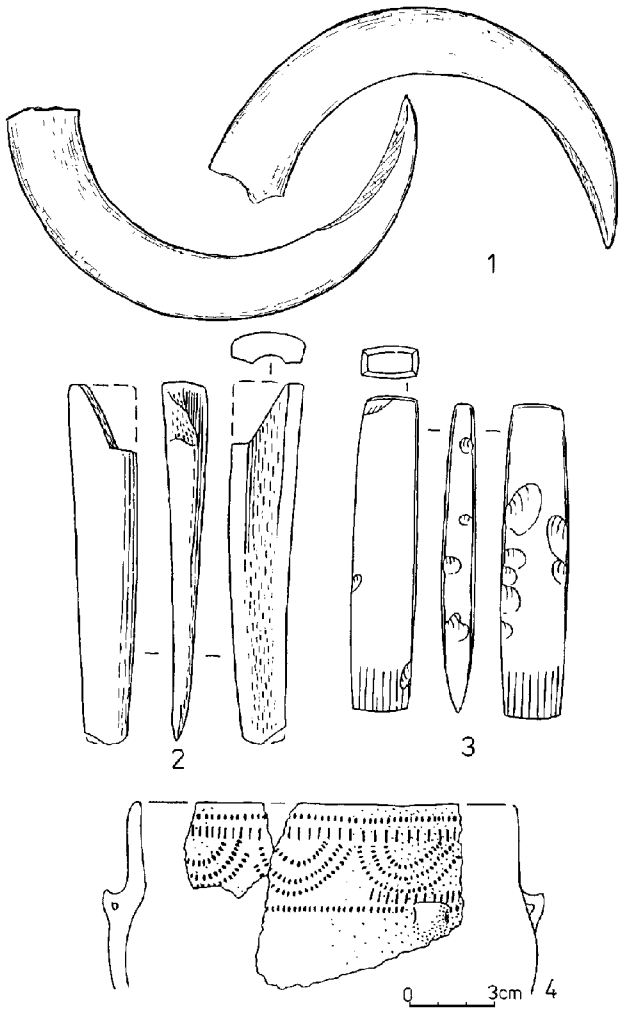

Fig. 6. Finds from Maly Yodkavichi (1 - wild boar or pig fangs, 2 - bone chisel, 3 - flint chisel, 4 - ceramics)

Two fragments of the upper part of the vessel belonged to a small amphora with a less rounded and convex body (Fig. 6:4). Between the lugs and the rim of the amphora there was a circle of a rather sophisticated ornament representing triple hanging bows of oval pit-like pricks fringed with rows of similar pricks and thin impressions of a linear stamp.

A narrow flint chisel with subrectungular cross-section had four parallel side facets (Fig. 6:3). Its surface was carefully ground and displayed only occasional

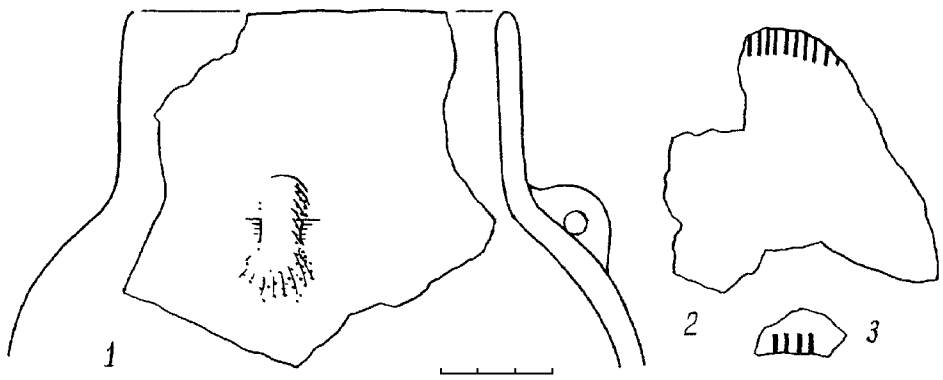

Fig. 7. Finds of GAC ceramics from the vicinity of Likhachy

minor chop marks. Another chisel was made of a large splitted tubular bone (Fig. 6:2). It also had relatively flat side facets and a smoothed surface. Finally, wild boar or pig fangs (Fig. 6:1) were also found in the grave.

The closest similarities to the materials of the GAC discovered in the Krasnaselsky and the Maly Yodkavichi were observed in the neighbouring territories of Poland and part of north-western Ukraine. In Podlasie and Mazovia (Poland) there occurred burial interments in stone cists or shielded by minor stones [Kempisty 1971:25]. The shapes of graves found in the Grodno region, their east-west approximate orientation, incomplete cremation of the dead body, common graves of people and animals, and animal graves were quite typical for the whole territory covered by this culture [Wiślański 1979:293-299]. Monuments of this culture relatively often display needle-shaped (or spindle-shaped) bone spearheads [Wiślański 1966:42]. Amber is most common along the Baltic shore; it is also found in rather large amounts in the GAC graves in north-western Poland; it is found less often in burial interments discovered in the Volhynia and the Podolia [Wiślański 1966:44-45; Sveshnikov 1983:14]. Ceramics found in the western part of the Grodno region is similar to analogous Polish and Ukrainian materials [Wiślański 1966:22-23; Kempisty 1971; Sveshnikov 1983:13].

Hence, finds from the Krasnaselsky and the Maly Yodkavichi graves prove that those monuments undoubtedly refer to the GAC and are very similar to materials of its Mazovia and Podlasie group [Wiślański 1966:88; Kempisty 1971].

Other monuments containing materials of this culture were discovered in western Belorus. Before the Second World War several fragments of ceramics arrived at the Grodno museum from the vicinity of village Lykhachy of the Grodno region. The largest of these fragments represented an upper part of a narrow-necked high-haloed amphora (Fig. 7:1). Two fragments of another vessel were decorated with rows of vertical impressions made by a linear stamp (Fig. 7:2,3).The ceramics

contain a moderate amount of breakstone admixtures; the interior presents traces of smoothing. Among the artefacts of the GAC one probably could class three axes found near Padgoryny of the Baranavichi district in the course of ploughing hills at a peat-bog. They were made of quality light-grey stone, had a rectangular cross-section, and all facets were accurately topped off. No traces of grinding were observed. Besides the axes, there was found a wholly ground narrow four-facet chisel. No settlements of the GAC have been found in Belorus up to the present. However, at the late Neolithic sites near the river Ros of the Volkovysk region, and particularly in the vicinity of Krasnaselsky, research has revealed a small number of fragments of smooth-walled ceramics sparsely decorated with impressions of a linear stamp.

3. CONCLUSIONS

The GAC in Belorus was not genetically linked to the local Neolithic culture represented by the Neman culture in the western part of the country. The GAC tribes had come from Central Europe and settled down in relatively small groups among local hunters and fishers. The newcomers were probably particularly attracted by the Middle Ros rich in chalk flint. Experienced in the art of mining, they could launch excavation at well-known Krasnaselsky flint mines. Newcomers and aborigines had different dominating forms of economy and thus could co-exist, exerting a mutual influence on one other. Representatives of the local Neman culture could borrow from the GAC tribes more developed cattle-breeding, and possibly farming with extensive forest cutting and mining flint from chalk massifs. The most important result of the penetration of the GAC tribes to western Belorus was the formation of a later Dobry Bor stage of the Neman Neolithic culture [Charniauski 1979:63].

It is hard to say how far individual elements of the GAC came to eastern Belorus. In the Upper Neman they occurred in local Neolithic materials. They also could be observed in remainders of a grave destroyed by the gravel open pit represented by a fragment of a human scull in a collection of bone chisels found in the northern part of the Minsk region near the town of Kuranets of the Vilia district [Charniauski 1969]. Moreover, M.A. Miklayev regarded the Usvyaty late Neolithic culture of northern Belorus and the south of the Pskov region as a „peculiar Eastern version of the Funnel Beaker Cup and the Globular Amphora cultures" [Miklayev 1992:30].

In this connection the GAC graves found recently near Smolensk gain remarkable importance [Shmidt 1992a, 1992b; see also in this volume: Shmidt, Szmyt, Ritual...].

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Mykola Kryvaltsevich

GRAVE OF THE MIDDLE DNIEPER CULTURE FROM PRORVA SITE 1 (GOMEL REGION, BELORUS)

Cemetery Prorva-1 was opened in spring 1993 by Igor Yazepanko in cooperation with Igor Mospan and Aleksader Rykunov. In June 1994 Mykola Kryvaltsevich and Igor Yazepanko made the first reconnaissance excavation of a total area of 45 sq.m.

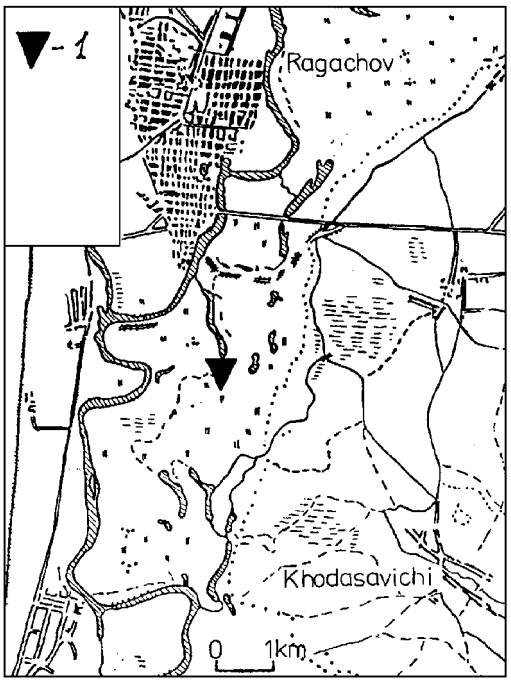

Fig. 1. Location of the Middle Dnieper culture cemetery at Prorva site 1

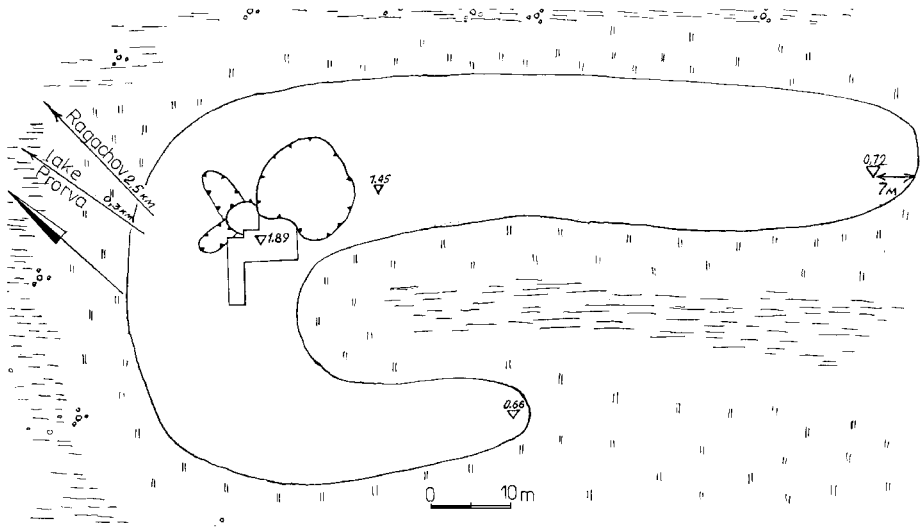

Fig. 2. Prorva site 1. Schematic layout

The monument is located (Fig. 1) in the valley of the left-bank of the Dnieper, about 2.5 km southward from the town Rogachev, on the southern bank of the Prorva lake, on a minor curve up to 1.89 m above the water level. The surface of the curve had been damaged by a minor open pit of about 10 m in diameter and pits (Fig. 2). The northern/north-eastern part of grave 1 together with a vessel and a large flint blade, located *in situ* at the bottom of the burial pit, was found during preliminary works at the sharp edge of the open pit. The whole grave 1 was opened in the course of excavation (Fig. 3), which started along the open pit in the highest part of the curve.

Traces of grave were found 0.67-0.82 m below the contemporary ground level (Fig. 4). The burial pit penetrated the ground more than 0.5 m deeper than the ancient surface and reached 1.34 m from the contemporary ground level. In the upper part, the pit was up to 1.10 m wide; on the subsoil level it narrowed and penetrated the subsoil sharply. Coals of burnt wood were found at the long edges of the narrow part of the pit. The coal remains represented burnt plates which, probably, were used to cover the walls of the grave. Ends of the wooden structures were slightly raised at the south-western edge of the grave (registered at 0.73 m and 0.83 m deeper than the contemporary surface). On the north-western part of the grave, judging from the disposition of the coal-like remains, the plate lay almost horizontally at the bottom of the pit under its sharp edge. Charcoal for radiocarbon analysis was taken from the burnt wooden structures of the grave at the depth of about and over 1 m [see Kadrow, Szmyt, Absolute..., in this volume]. Besides the coal remains in the south-western end of the grave-pit, there were traces of grey-

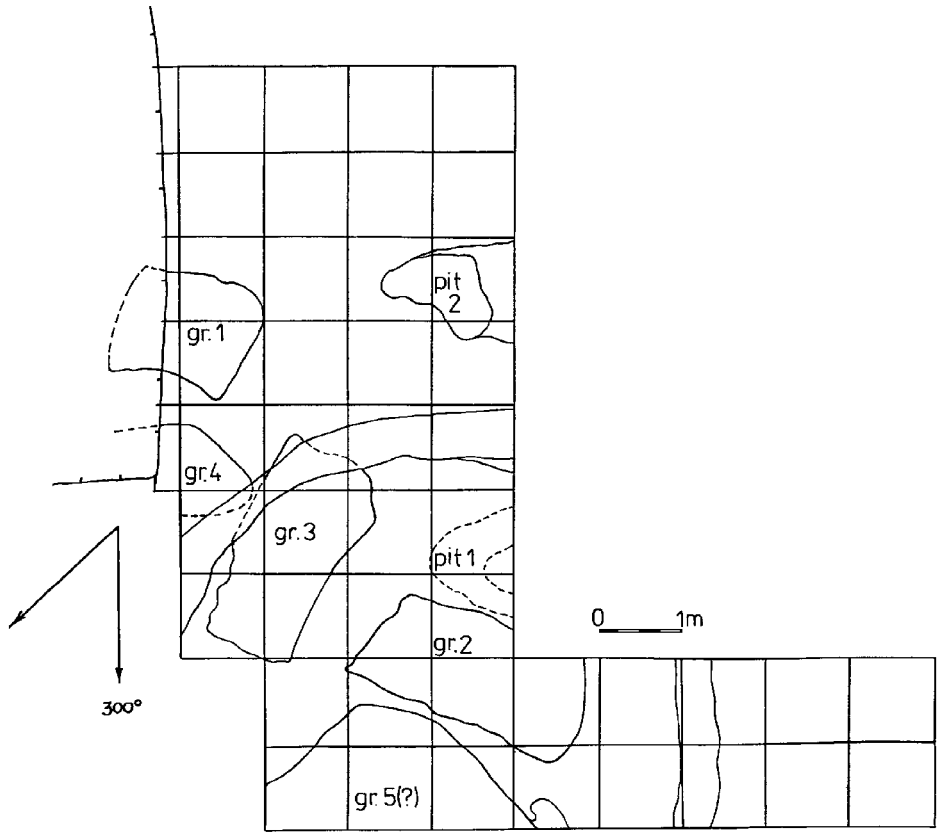

Fig. 3. Prorva site 1. Plan of location of graves and other features in the excavation site of 1994

-black patches (traces of a transversal plate?). Probably the grave was subrectangular in form and oriented along the SW/NE line.

In the upper part, the grave-pit was filled with alternating layers of grey-brown and lighter (light-brown, beige) sand. Below there was a relatively uniform grey--brown filling, which contained rare individual charcoals. The filling displayed several minor pieces of Neolithic ceramics and various fragments of vessels of the Middle Dnieper culture, which most probably had been brought into the pit while it was being filled.

The vessel (Fig. 5:1) from the burial complex was standing bottom up in the northern corner of the grave-pit. In this part of the grave there were patches of dissimilar grey-brown and brown colour with single charcoals. The vessel was filled with sand. It was 13.5 cm high, the diameter of the rim 15-16 cm, the diameter of the bottom 7.6-7.8 cm. The whole perimeter of the bevelled inwards rim is decorated

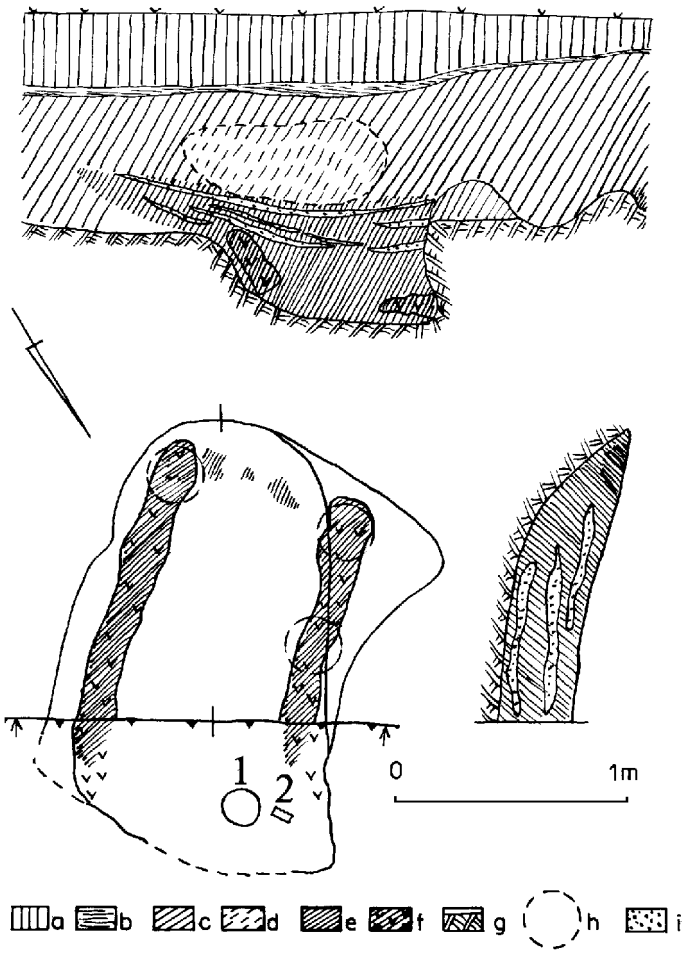

Fig. 4. Prorva site 1. Plan and cross-sections of grave 1 (1- vessel, 2 - flint pinch; a - soil, b - dark-grey soil, c - grey subsoil layer, d - dark-grey humus, e - dark-grey, black humus with charcoals, f - fox den, g - sand, h - places where charcoal samples were taken for radiocarbon analysis, i - subsoil)

with a cord imprint. The outer and the inner surfaces bear traces of retouching. The vessel was decorated with cord ornaments and imprints of a short liners stamp.

A lamellar blade of grey flint was found flat side up, 7 cm away from the vessel, in the direction of 330. Its upper and lower edges bear traces of fine retouching (Fig. 5:2).

Lack of cremated ashes in grave 1 allows us to assume that the ritual probably included the buried body. The skeleton might not be preserved.

In 1994, four more graves were found besides grave 1 in the Prorva site 1.

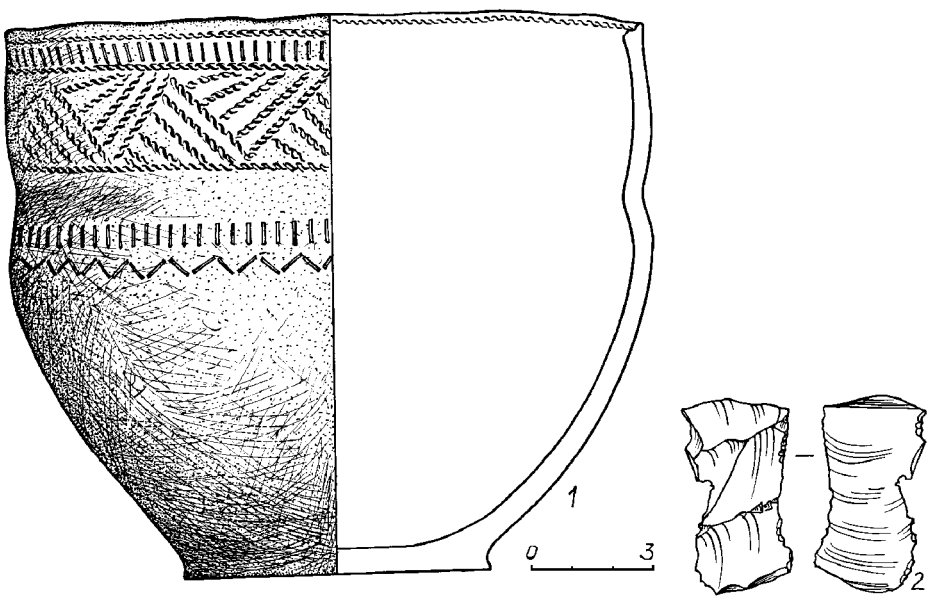

Fig. 5. Prorva site 1. Inventory of grave 1

Traces of burnt wooden covers and remains of cremation were recognised in graves 2 and 5 (the latter excavated only partially). Probably, a circular trench was made around graves 2 and 5 in ancient times. Grave 3 displayed traces of cremation. Grave 4 with a standing vessel of the Middle Dnieper culture has been investigated partially.

The vessel from grave 1 is similar to those found in other Middle Dnieper culture graves of the Upper Dnieper region, in particular, in Khodosovichi (ravine Sergeyeva Griva, barrow 1, grave 1; ravine Palik, barrow 1, grave 1), Lipoviy Brod (Siabrovichi) grave 34. Ornament motifs of the vessel are common for vessels of the Middle Dnieper culture.

Meanwhile, the combination in ornament of broken zigzags and vertical imprints of a linear stamp, as well as the shape of the vessel have close similarities to Globular Amphora culture. In particular, vessels of almost identical shape were found in graves of western groups of Globular Amphora culture [e.g. Wiślański 1979:Fig.160,12,13, Fig.164,5] and of eastern group in the Volhynia region [Sveshnikov 1983:Fig. XI,1].

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ANALYSIS

Sławomir Kadrow, Marzena Szmyt

ABSOLUTE CHRONOLOGY OF THE EASTERN GROUP OF GLOBULAR AMPHORA CULTURE[1]

In this article we intend to present an initial analysis of first radiocarbon dates obtained for Globular Amphora culture (GAC) features from eastern Europe (see in this volume: Maleyev, Selected...; Maleyev, Pryshchepa, Grave...; Shelomentsev--Terskiy, Settlement...; Shmidt, Szmyt, Ritual...; Charniauski, Materials...]. Basic information on the datings used is given in Table 1. By way of a spatial context we present a series of six ^{14}C datings (including three new ones) for GAC materials from south-eastern Poland [see in this volume: Ścibior, Koman, Grave...; Gołub, Grave...and Globular...] and two recently obtained dates for a feature of the Middle Dnieper culture from Belorus [see in this volume: Kryvaltsevich, Grave...].

I. ABSOLUTE DATING OF GAC FEATURES FROM EASTERN EUROPE

The calibration of the ^{14}C datings was carried out with the use of two computer programs: (1) *Radiocarbon Calibration Program, 1993 ver. 3.03, Quaternary Isotope Lab, University of Washington* by M.Stuiver & P. Reimer (US) and (2) *Radiocarbon Calibration <calKN> April 1993, Dendro and Archaeological Wiggle Matching* by Bernhard Weninger of Cologne University (Germany).

1. The program by M. Stuiver and P. Reimer [cf. Stuiver, Reimer 1993], similarly to another program called *Probabilistic Calibration of Radiocarbon Time Scale, Silesian Technical University, Gliwice, Poland, ver. 4.0, 1989*, by D.J. Michczyńska & M.F. Pazdur, is based on probabilistic interpretation of measurements. It means that for each dated sample a number of more or less probable readings of its calendar age are determined. Date ranges and corresponding areas of probability are given in two versions, precisely, at two probability thresholds (in M.Stuiver and P.Reimer's program — 68.3% and 95.4%).

[1] This article is financed by Committee for Scientific Research (project No 1 HO1G 018 10).

Table 1

List of ^{14}C datings

No	Site	Lab. No	Date BP	Material	Culture	Literature
1.	Tovpyzhyn	Ki-5011	4310±45	bones	GAC	Maleyev, Pryshchepa, in this volume
2.	Tovpyzhyn	Ki-5010	4270±50	bones	GAC	Maleyev, Pryshchepa, in this volume
3.	Vorvulintsy	Ki-5008	4220±70	bones	GAC	Maleyev, in this volume
4.	Loshniv	Ki-5006	4150±55	bones	GAC	Maleyev, in this volume
5.	Ivanye	Le-5021	4090±70	bones	GAC	Maleyev, in this volume
6.	Ivanye	Ki-5141	4030±50	bones	GAC	Maleyev, in this volume
7.	Krasnaselsky	Gd-9249	4080±140	bones	GAC	Charniauski, in this volume
8.	Dovge	Ki-5009	4040±60	bones	GAC	Maleyev, in this volume
9.	Turinshchina	Gd-10082	4000±80	bones	GAC	Shmidt, Szmyt, in this volume
10.	Peresopnitsa	Ki-5075	3910±50	bones	GAC	Shelomentsev-Terskiy, in this volume
11.	Sandomierz 78	Gd-2452	4370±70		GAC	Ścibior, Ścibior 1990
12.	Klementowice IV	Kn-1255	4300±40	charcoal	GAC	Kowalczyk 1969
13.	Klementowice IV	GrN-5046	4175±30	charcoal	GAC	Kowalczyk 1969
14.	Świerszczów 27	Ki-5433	4170±35	bones	GAC	Ścibior, Koman, in this volume
15.	Krasnystaw 8	Ki-5841	4120±30	bones	GAC	Gołub, in this volume
16.	Łopiennik 1	Ki-5434	4010±30	bones	GAC	Gołub, in this volume
17.	Prorva 1 grave 1	Le-5020	4150±80	charcoal	Middle Dnieper culture	Kryvaltsevich, in this volume
18.	Prorva 1 grave 1	Ki-5140	4060±45	charcoal	Middle Dnieper culture	Kryvaltsevich, in this volume

The results of calibration of radiocarbon dates, obtained with the program discussed above, are shown in Table 2. The maximum time of GAC settlement in eastern Europe determined in this way (including all the ranges at the probability level of 95.4%) covers the range of 3100-2200 BC.

2. B. Weninger's program [cf. Weninger 1986], thanks to a built-in statistical test, gives for each sample only one, the most probable, calendar age with a corresponding standard error. A significant new feature of this program allows to „fit" a series of dates from a specific archaeological context in the proper wiggles of the calibration curve [cf. Manning 1995:126-133]. Hence, this program allows to determine the age of dated samples with significantly greater precision.

Table 2

Calibration after Stuiver, Reimer 1993

Lab. No	BP	68,3% – 1 sigma		95,5% – 2 sigma	
		Ranges	Probability	Ranges	Probability
Ki-5011	4310±45	3026-3023	01	3095-3092	00
		3014-2980	27	3081-3068	02
		2968-2952	10	3045-2857	90
		2932-2883	02	2810-2789	03
		2766-2764	60	2779-2756	04
				2738-2732	00
				2722-2708	01
				2646-2644	00
Ki-5010	4270±50	2998-2994	02	3032-2978	09
		2922-2856	55	2972-2950	03
		2810-2787	15	2938-2833	46
		2782-2756	18	2814-2686	40
		2739-2732	03	2650-2638	02
		2722-2707	07		
		2646-2644	01		
Ki-5008	4220±70	2893-2836	30	3006-2984	01
		2813-2689	65	2923-2615	93
		2649-2639	05	2615-2573	05
Ki-5006	4150±55	2870-2828	20	2884-2572	97
		2822-2808	07	2510-2495	03
		2793-2774	09		
		2758-2718	20		
		2712-2662	26		
		2654-2625	14		
		2609-2601	03		
		2585-2585	00		
Le-5021	4090±70	2843-2811	13	2878-2806	16
		2751-2743	02	2802-2769	05
		2728-2723	01	2762-2468	79
		2701-2647	22		
		2642-2553	41		
		2524-2486	16		
		2483-2473	03		
Ki-5141	4030±50	2621-2611	06	2841-2812	04
		2599-2589	05	2745-2745	00

Lab. No	BP	68,3% – 1 sigma		95,5% – 2 sigma	
		Ranges	Probability	Ranges	Probability
		2580-2468	89	2726-2724	00
				2695-2647	06
				2641-2403	87
				2377-2349	02
Gd-9249	4080±140	2873-2807	17	3007-2983	01
		2796-2772	05	2958-2954	00
		2760-2715	10	2924-2199	99
		2715-2467	68		
Ki-5009	4040±60	2828-2821	03	2863-2810	07
		2664-2654	05	2785-2783	00
		2627-2608	10	2757-2736	02
		2602-2468	83	2734-2720	01
				2707-2645	10
				2644-2403	77
				2377-2349	02
Gd-10082	4000±80	2826-2824	01	2859-2810	05
		2657-2655	01	2757-2738	01
		2624-2609	05	2733-2720	01
		2600-2586	05	2706-2645	06
		2584-2402	79	2644-2271	86
		2379-2345	11	2250-2229	02
				2217-2211	00
Ki-5075	3910±50	2467-2398	48	2550-2556	03
		2389-2326	42	2486-2484	00
		2324-2311	07	2473-2264	87
		2297-2293	03	2263-2226	07
				2223-2204	03
Ki-5011	4310±45	3013-3006	10	3030-2968	24
+	+	2924-2889	87	2935-2880	69
Ki-5010	4270±50	2791-2789	03	2798-2782	07
Le-5021	4090±70	2854-2826	19	2864-2811	19
+	+	2656-2642	10	2744-2726	02
Ki-5141	4030±50	2618-2566	41	2697-2675	04
		2540-2501	30	2667-2476	75
Gd-2452	4370±70	3096-3091	02	3334-3316	01
		3083-3065	08	3314-3211	13
		3053-2893	90	3194-3178	01

Lab. No	BP	68,3% – 1 sigma		95,5% – 2 sigma	
		Ranges	Probability	Ranges	Probability
				3173-3151	02
				3136-2877	82
				2806-2801	00
				2770-2761	01
Kn-1255	4300±40	3010-2982	21	3077-3072	00
		2962-2953	05	3040-2858	88
		2925-2879	69	2810-2790	04
		2805-2804	01	2778-2756	06
		2769-2762	05	2738-2732	00
				2722-2708	02
				2646-2644	
GrN-5046	4175±30	2875-2837	26	2885-2827	24
		2813-2807	04	2822-2665	66
		2797-2772	18	2665-2663	00
		2759-2716	29	2654-2629	09
		2715-2689	17	2608-2601	01
		2649-2639	07		
Ki-5433	4170±35	2873-2835	24	2885-2825	23
		2814-2807	04	2825-2656	65
		2796-2773	15	2656-2624	10
		2759-2717	26	2610-2600	02
		2714-2677	23	2585-2585	00
		2649-2638	07		
Ki-5841	4120±30	2842-2812	19	2869-2809	21
		2748-2744	01	2790-2773	03
		2727-2724	01	2759-2716	10
		2699-2647	35	2711-2569	61
		2642-2618	17	2512-2493	05
		2614-2596	11		
		2593-2575	11		
		2507-2501	03		
Ki-5434	4010±30	2565-2516	73	2656-2654	00
		2489-2470	27	2622-2610	02
				2600-2588	02
				2581-2445	95
				2419-2411	01
Kn-1255	4300±40	2898-2877	45	2912-2869	45
+	+	2800-2780	47	2807-2773	41

Lab. No	BP	68,3% – 1 sigma		95,5% – 2 sigma	
		Ranges	Probability	Ranges	Probability
GrN-5046	4175±30	2712-2708	08	2720-2701	13
Le-5020	4150±80	2874-2826	20	2894-2549	93
		2824-2807	07	2525-2485	06
		2796-2772	10	2485-2473	01
		2759-2716	18		
		2714-2655	25		
		2655-2623	13		
		2610-2600	04		
		2587-2582	02		
Ki-5140	4060±45	2828-2821	03	2853-2811	08
		2664-2654	06	2756-2740	01
		2627-2608	13	2731-2721	01
		2602-2545	39	2704-2646	02
		2527-2473	39	2643-2466	77
Le-5020	4150±80	2862-2814	32	2869-2806	26
+	+	2735-2728	03	2774-2721	12
Ki-5141	4060±45	2695-2680	08	2701-2566	53
		2665-2631	22	2540-2502	09
		2629-2578	34		

Calibration results of individual ^{14}C dates are shown in Table 3. The impact of the results is lessened by large standard errors of absolute age measurements of samples (out of 16 dates as many as 13 have errors exceeding 30 years, including one with an error of 140 years). Generally speaking, the period of eastern GAC settlement, documented by radiocarbon datings, covers c. 2930-2380 BC and when standard errors are taken into account the period is extended to 2990-2310 BC at the maximum. These dates apply fully to the Volhynia-Podolia agglomeration of GAC (mainly to its Volhynia part). For the GAC group from south-eastern Poland respective age brackets are 2990-2520 BC and 3070-2480 BC. In this context traces of GAC settlement in the drainage of the Neman and upper Dnieper appear rather late — c. 2660 BC (Krasnaselsky) and 2480 BC (Turinshchina). Two datings obtained for a feature of the Middle Dnieper culture from Prorva mark the period of 2550--2740 BC (cf. however remarks below).

The results of the „wiggle-matching" analysis justify several specific conclusions.

a. Two datings from Tovpyzhyn [see Maleyev, Pryshchepa, Grave...] concerning the same feature and the same skeleton (Ki-5010 and Ki-5011), analyzed jointly, yield a point in time around 2895 BC.

b. Two datings from Ivanye [see Maleyev, Selected...] concerning the same

Table 3

Calibration after Weninger 1993

No	Site	Lab. No	Date BP	Std. dev.	cal BC
1.	Tovpyzhyn	Ki-5011	4310	45	2931±56
2.	Tovpyzhyn	Ki-5010	4270	50	2837±84
3.	Vorvulintsy	Ki-5008	4220	70	2788±98
4.	Loshniv	Ki-5006	4150	55	2741±106
5.	Ivanye	Le-5021	4090	70	2597±126
6.	Ivanye	Ki-5141	4030	50	2527±64
7.	Krasnaselsky	Gd-9249	4080	140	2657±190
8.	Dovge	Ki-5009	4040	60	2544±84
9.	Turinshchina	Gd-10082	4000	80	2476±12
10.	Peresopnitsa	Ki-5075	3910	50	2382±74
11.	Sandomierz 78	Gd-2452	4370	70	2987±87
12.	Klementowice IV	Kn-1255	4300	40	2980±47
13.	Klementowice IV	GrN-5046	4175	30	2772±81
14.	Świerszczów 27	Ki-5433	4170	35	2769±86
15.	Krasnystaw 8	Ki-5841	4120	30	2655±93
16.	Łopiennik 1	Ki-5434	4010	30	2522±39
17.	Prorva 1/gr. 1	Le-5020	4150	80	2736±119
18.	Prorva 1/gr. 1	Ki-5140	4060	45	2548±78

grave and the same skeleton (Ki-5141 and Le-5021), analyzed jointly, yield a point in time around 2568 BC.

c. When taken as a sequence, the datings of GAC features in Volhynia, viz. Tovpyzhyn (Ki-5010 and Ki-5011), Ivanye (Ki-5141 and Le-5021) and Peresopnitsa (Ki-5075) [see Shelomentsev-Terskiy, Settlement...], provided that their sequencing is correct, „fit" into the calibration curve in the following way: Tovpyzhyn = c. 2900 BC, Ivanye = c. 2580 BC, Peresopnitsa = c. 2420 BC.

d. Two datings from Klementowice (Kn-1255 and GrN-5046) [Kowalczyk 1968; Halicki 1970:308-311; Breunig 1987:170], analyzed jointly, determine the age of two pieces of charcoal from the same GAC grave. Because they do not „fit" into the calibration curve together, it has to be assumed that the samples come from two different pieces of burnt wood. „Fitting" into the calibration curve is possible on the assumption that the samples' age differs by at least ten years. Then we will obtain the following results: Kn-1255 = 2895 BC, GrN-5046 = 2885 BC. Assuming larger differences in age also yields favourable results.

e. A similar situation was revealed by a joint analysis of two datings of a Middle Dnieper culture grave from Prorva (Ki-5140 and Le-5020) [see Kryvaltsevich,

Grave...]. Both samples contained charcoal from the timbering of grave pit. Here, provided that both datings are correct, two hypotheses can be adopted:

(ea) the samples come from wood fragments from two different tress [see Kryvaltsevich, Grave..., Fig. 2] and the time difference between them was at least 30 years; then Ki-5140 = c. 2620 BC, Le-5020 = c. 2650 BC;

(eb) samples were taken from wood coming from the same tree, but one of them from a portion of the tree lying closer to the core (older date) while the other from a portion lying closer to the bark (younger date).

II. ABSOLUTE CHRONOLOGY OF EASTERN GAC AGAINST THE BACKGROUND OF DATINGS OF OTHER CULTURE COMPLEXES

The set of calendar age datings allows us to tentatively relate the eastern group of GAC to the absolute chronologies of selected groups that are spatially or temporally close to GAC.

Against the background of dates for various parts of the GAC oecumene, complexes from eastern Europe fit into the classical period of development of that culture, both in the Polish and western groups [see in this volume: Szmyt, Globular..., Fig. 3]. GAC settlement appeared in Volhynia somewhat later than in south-eastern Poland but, as it seems, it lasted longer. GAC features from the interior of the forest zone (Krasnaselsky, Turinshchina) can be synchronised with younger complexes from Volhynia.

The beginning of the Volhynia-Podolia concentration of GAC settlement took place in the same time as the functioning of the late-Tripolye Sofievka type on the middle Dnieper in the period from 2950 to 2740 BC [Kadrow 1995; Kovalyukh, Videiko, Skripkin 1995]. GAC structures in the forest-steppe zone existed at the same time as groups of the Corded Ware culture (Prof. J. Machnik, personal communication). In the steppe zone, at the same time, groups of the Yamnaya culture developed [see Szmyt, Globular..., Fig. 4] which at that time were expanding to the west.

In the forest zone of eastern Europe, GAC population appears in the time corresponding to the late phase of the Usvyaty culture in the interfluvial area of the Western Dvina and Lovat [cf. Szmyt, Globular..., Fig. 4] and the Middle Dnieper culture (cf. Table 2 and 3).

CONCLUSIONS

In the light of the presented information, the period of eastern GAC settlement, documented by radiocarbon dating, covers about 500 years. This conclusion is clearly in contradiction with frequently expressed views about the short-lived nature of GAC in eastern Europe [cf. in this volume: Szmyt, Globular ...].

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ON EARLY ELEMENTS OF THE GLOBULAR AMPHORA CULTURE AND OTHER CENTRAL EUROPEAN CULTURES IN THE LATE ENEOLITHIC OF THE NORTHERN BLACK SEA REGION

During the past decade, more and more researchers have been attracted to the issue of the relation between the development of the Central European group of cultures, traditionally referred to the Neolithic (i.e. the Funnel Beaker culture and the Globular Amphora culture), and the steppe cultures of the Northern Pontic region and the Azov region of the Eneolithic and the Early Bronze Age (i.e. the lower level of the Mikhailovka culture, cultures of Sredniy Stog region and the Yamnaya culture). Special interest evoked by the so-called „pre-Yamnaya" period is accounted for by the ambition to find correlation between the development of the prehistoric „European pre-Corded period" and ancient pastoral peoples in the period of the development of early forms of nomadic cattle-breeding and the emergence of the barrow ritual. As a typical example, one can mention recent investigations conducted by Aleksander Kośko [1985; 1991]. Research in this field is stimulated by several reasons: first, by the emergence of a substantial basis of sources in the steppe zone as a result of many years of mass study of barrows, as well as by efforts to reconsider, on this basis, many long-standing concepts of the steppe Northern Pontic Eneolithic; second, by active investigation of the development of the above-mentioned cultures, in particular, of aspects revealing the dynamics of relations with the Tripolye world. Furthermore, in the issue area of the genesis of the Northern Caucasian Maykop culture, there is a growing number of supporters of the idea of the descent of the Novosvobodnaya monument group under the influence of Central European cultures with the Pontic steppes acting as a link between these two distant regions.

1. CHARACTERISTICS OF THE ZHIVOTILOVKA-VOLCHANSK TYPE

Special interest of researchers is caused by the steppe zone monuments which could cast some light on the above-mentioned issues, e.g. displayed elements, features or „imports" suggesting their relation to the European cultures. Such monuments exist, and in our view, they can be lined up along a single chronological and cultural group in the territory from the Danube and the Prut to the Don and the Kuban region (Fig. 1). This case refers to a particular group of burial monuments with very steady features of the burial ritual, a definite, strictly observed stratigraphic position in the barrows and with specific categories of items primarily unusual for other Eneolithic steppe cultures. The specific features of the ritual include occurrence of rectangular grave pits, often with ledges, and niches; the dead body was in a writhed position on the right or the left side, with arms bent at the elbows and hands put in front of the face; it was oriented in a western or south-western direction; a moderate amount of ochre was used (Fig. 2 and 3). Stratigraphically, these graves were often made into earlier Eneolithic barrows and covered by later graves of the Yamnaya culture. Discovered major mounds never precede other Eneolithic cultures known in the steppe zone, but always precede the Yamnaya culture. The late Eneolithic age of the monuments is confirmed by the found items. Ceramics can be classed into several groups:

(1) The late-Tripolye vessels with and without painting which refer to general Tripolye forms or are similar to the Gordineshty (or, according to other terminology, to the Kasperovtsy) group of the lete Tripolye monuments of stage CII (Fig. 4,1-8). This kind of pot occurs in graves located in the territory from the Danube and the Prut to the Molochna river and the Dnieper's left tributary, the Samara.

(2) The second group is represented by biconic vessels with carved or glazed ornaments on the shoulders and often a minor groove in the base of the rim (Fig. 4,17-20). The vessels were found in graves in the territory from the Kuban region to the Ingulets river.

(3) The third group can be referred to as cups and cup-shaped vessels. These are smaller flat-bottomed round shaped artefacts, with a high, often bell-shaped rim. The cups' surfaces are well-smoothed and polished (Fig. 4:9-16). The cups occur throughout the whole territory, though with some local features, e.g. some formal differences in the dough texture with admixtures of sand, chamotte, flint and shells.

(4) The fourth group includes cup- and bowl-shaped vessles (Fig. 5:1-4). They are common for the whole territory and similar to the cups in their technological features.

(5) The fifth group united amphora-shaped vessels featuring flat bottoms, narrow round-shouldered bodies, high rims and vertical handles with horizontal holes (Fig. 5:5-7). These items are of different texture, as some contain admixtures of shells while other have admixtures of sand; the type of baking also varies.

(6) The most peculiar is the sixth group: small, often miniature items of various

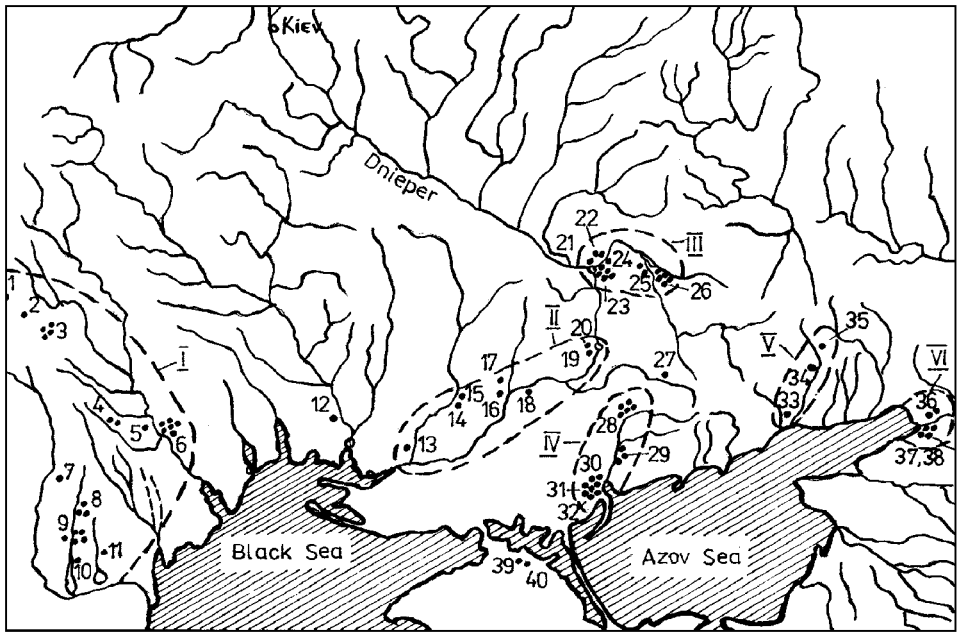

Fig. 1. Dissemination of the Zhivotilovka-Volchansk monuments. Legend: I - the Prut-Dniester group, II - the Dnieper-Ingulets group, III - the Samara group, IV - the Molochna group, V - the Kalmius group, VI - the Lower Don group; 1 - Kosteshty, 2 - Noviye Duruitory, 3 - Bursucheny, 4 - Roshkany, 5 - Gura-Bykului, 6 - Tiraspol, 7 - sarateny, 8 - Kazaklia, 9 - Taraklia, 10 - Bolgrad, 11 - Suvorovo, 12 - Kovalevka, 13 - Baratovka, 14 - Staroselye, 15 - Velikaya Aleksandrovka, 16 - Novovorontsovka, 17 - Ust'-Kamenka, 18 - Kamenka Dneprovskaya, 19 - Razumovka, 20 - Dneprelstan, 21 - Zhivotilovka, 22 - Podgornoye, 23 - Sokolovo, 24 - Novomoskovsk, 25 - Pavlograd, 26 - Boguslav, 27 - Pology, 28 - Vinogradnoye, 29 - Novofilipovka, 30 - Volchansk, 31 - Yurievka, 32 - Davydovka, 33 - Primorskoye, 34 - Vasilevka, 35 - Aleksandrovka, 36 - Rostov-on-Don, 37 - Koysug, 38 - Radutka, 39 - Bogachevka, 40 - Tselinnoye

forms. Most of them are cup-shaped vessels (Fig. 5:8-15). They are joined in this group because, in my opinion, they represent rather primitive imitations, unskillfully copying higher-quality traditional artefacts, or probably even made „by heart", e.g. cups, amphorae and the Tripolye vessels which occur in the whole territory where such graves can be found.

(7) Finally, I qualify the seventh group of ceramics as locally produced steppe artefacts which occur in the Lower Mikhailovka culture mounds. These vessels have steady forms and technological features and are represented by smaller round--bottomed vessels with high rims, smoothly translated into the body, or with a flute in the base (Fig. 5:16-20).

Other categories of objects include decorations: most typical are bone and bronze „pins" of a strongly curved shape; one of the ends being well-sharpened.

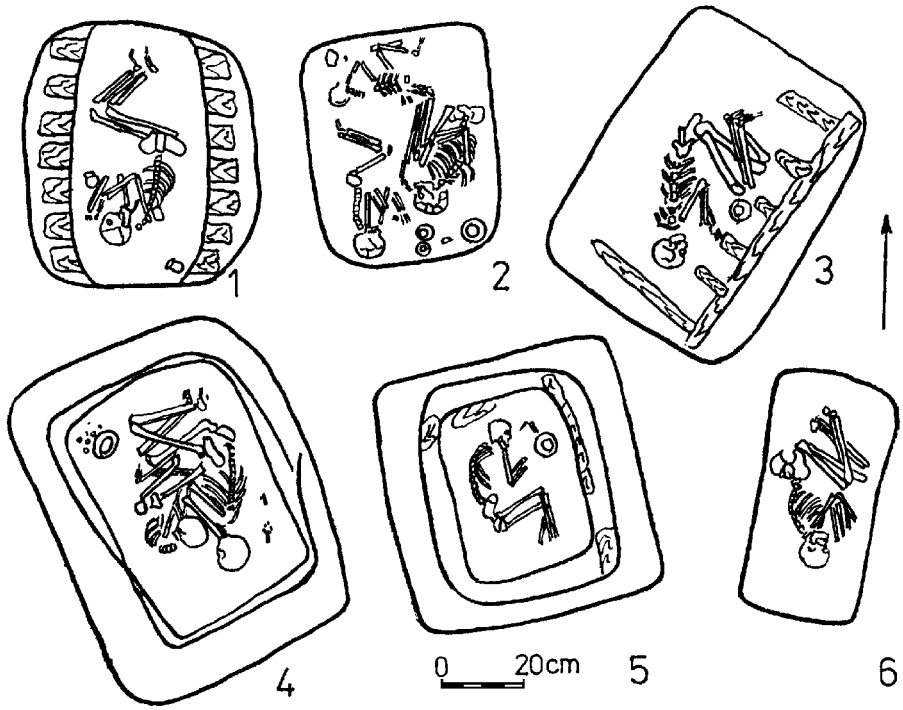

Fig. 2. Zhivotilovka-Volchansk type interments in pits. Legend: 1 - Taraklia 10/17; 2 - Volchansk I, 1/23; 3 - Velikaya Aleksandrovka 1/23; 4 - Koysug-Radutka, grave 4; 5 - Sokolovo 1, 6/4; 6 - Novofilipovka "Akkermen" 1, 2/4

The bone pins have a hole in the bend; the bronze ones have the second end wound in a ring instead (Fig. 6:1-10). These „pins" resemble well-known staff-shaped decorations of the Novosvobodnaya monuments from the Northern Caucasus. All in all, 11 items of this type have been found: 5 in the Danube-Dniester basin, 3 in the Samara basin, 2 at the Molochna river and 1 at the Don. The latter is the most similar to the Novosvobodnaya pins.

Another typical kind of decoration besides the „pins" are strings of shell and jet beads which occur in different amount in the whole territory (Fig. 6:13-16). Of most interest are two pendants — „seals" found in the Don and Samara basins. One of them is made of lignited and ornamented with carved lines and equipped with a hole for hanging. The second is marble, smooth, with a special protruding eye for hanging (Fig. 6:11-12).

Handles in the history of stock do not bear many characteristic features and are not often found.

Cartography shows that the monuments in question form several groups of

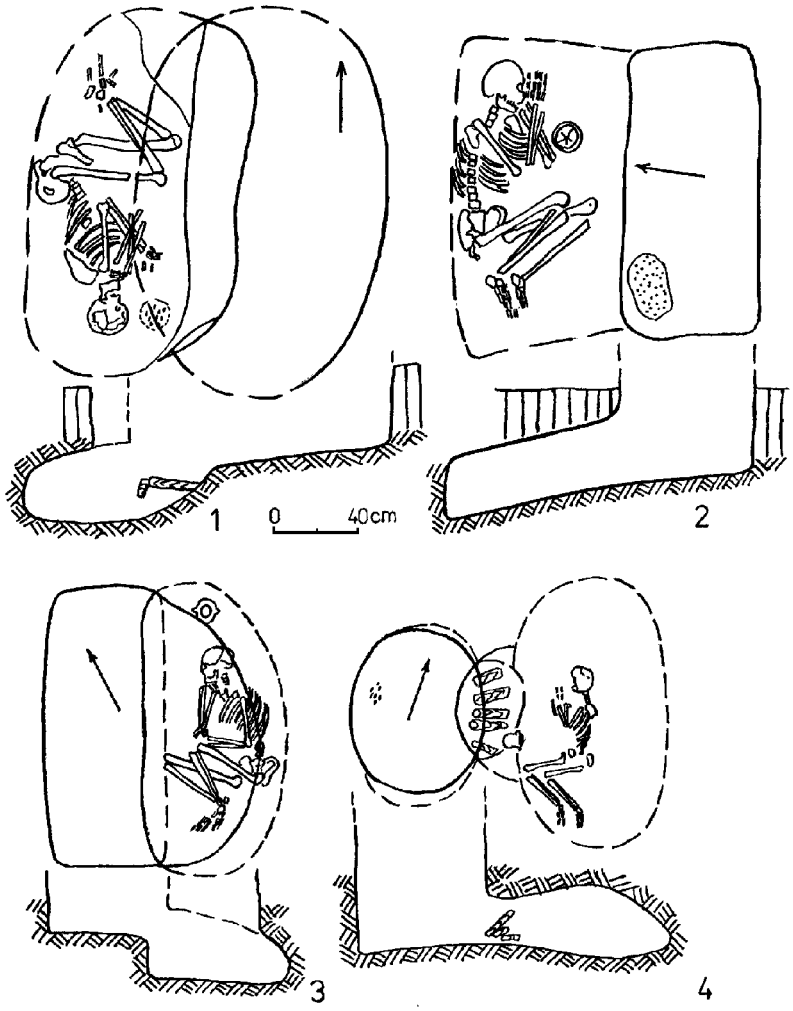

Fig. 3. Zhivotilovka-Volchansk type interments in niches. Legend: 1 - Vinogradnoye 2/14; 2 - Volchansk I, 1/30; 3 - Volchansk II, 1/6; 4 - Boguslav 23/12

major concentration in the Azov-Black Sea steppe zone (Fig. 1) which could be preliminarily defined by the names of the rivre basins, respectively. The largest area is covered by the Prut-Dniester group, the Samara and the Molochna groups are more compact, while the Ingulets-Dnieper group is rather vague. A number of mounds feature the Kalmius group. Individual graves were found in the Southern Bug basin and in the Northern Crimea. The eastern part of the massif is occupied by the Lower Don group; the pre-Caucasian region features the Kuban group,

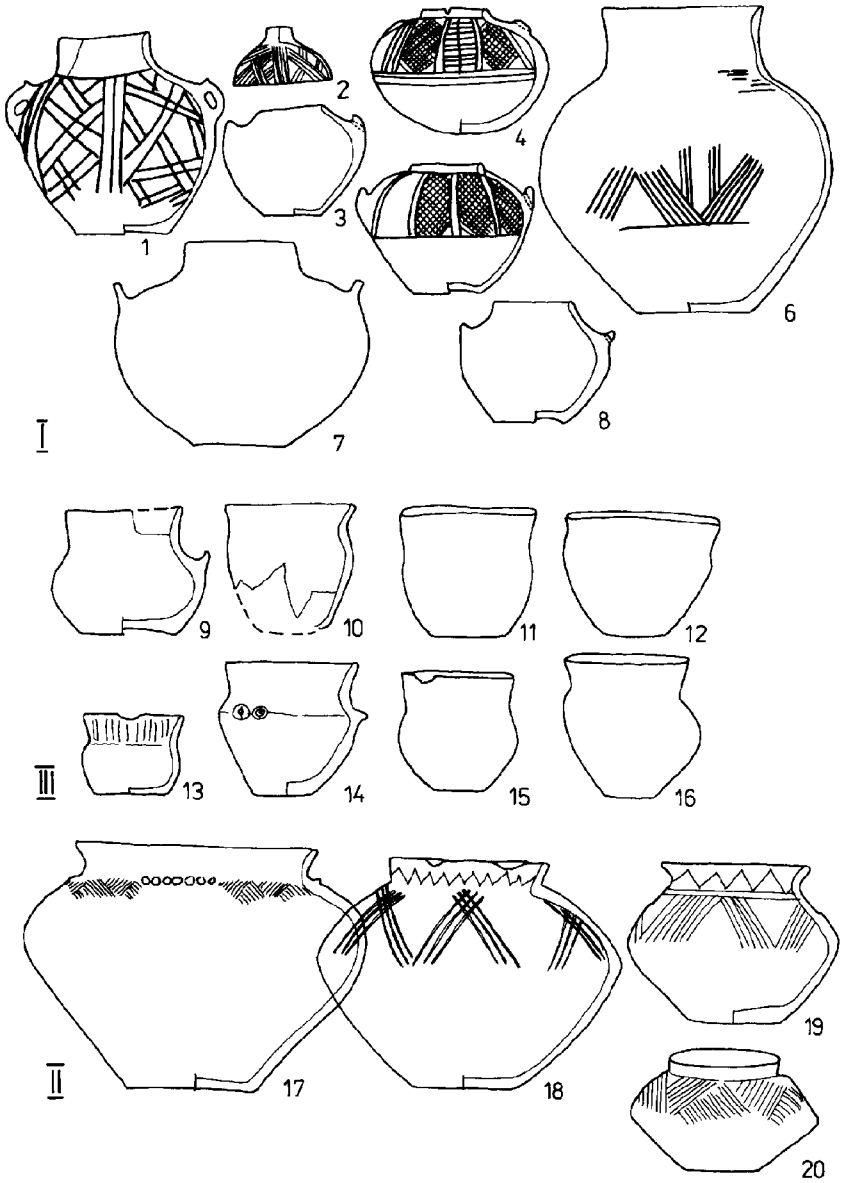

Fig. 4. Ceramics of groups I - III. Legend: 1, 2, 13 - Taraklia; 3 - Velikaya Aleksandrovka 1/23; 4 - Taraklia II, 2/4; 5 - Sokolovo 2/9; 6 - Zhivotilovka; 7, 11, 12 - Volchansk I, 1/21; 8 - Novomoskovsk 1/10; 9 - Roshkany 5/7; 10 - Vinogradnoye 14/2; 14 - Primorskoye 4/2; 15 - Rostov-on-Don 7/1; 16 - Volchansk I, 1/16; 17 - Pavlograd 1, 8/3; 18 - Zhivotilovka, the Maydan barrow, grave 5; 19 - Sokolovo 6/4; 20 - Shakhayevskaya 11, 3/8

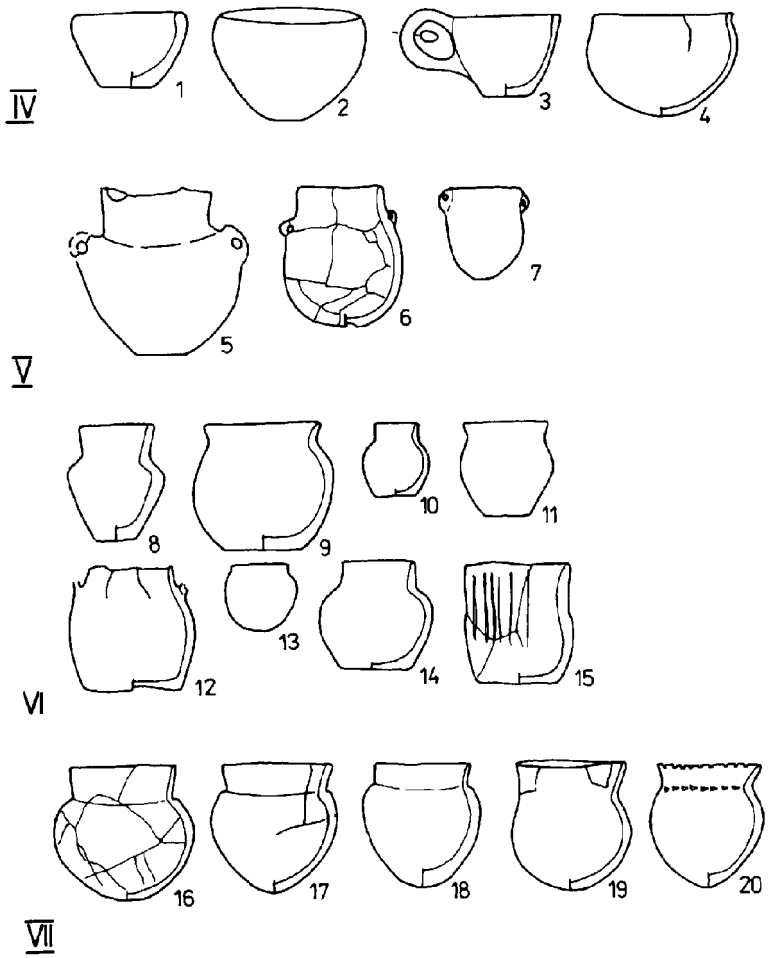

Fig. 5. Ceramics of groups IV - VII. Legend: 1 - Tiraspol 3/28; 2 - Volchansk I, 1/30; 3, 13 - Koysug-Radutka, grave 24; 4 - Bogachevka 8/5; 5 - Volchansk II, 1/6; 6 - Boguslav 23/12; 7 - Vinogradnoye 2/4; 8, 9 - Taraklia 10/16, 17; 10 - Kazaklia 17/22; 11 - Yurievka 3/5; 12 - Boguslav 23/3; 14 - Novomoskovsk 1/10; 15 - Pavlograd I, 7/3; 16, 19 - Kamenka Dneprovskaya 8/12; 17 - Tselinnoye 6/18; 18 - Vasilevka 2/10; 20 - Novofilipovka "Akkermen" 11/3

immediately close to the Northern Caucasian Novosvobodnaya group of monuments of the Maykop culture.

A group of similar mounds was first defined in the Lower Don region on the basis of materials from Koysug barrows [Maksimenko 1973; Kiyashko 1974]. Next, the Zhivotilovka group in the Samara basin on the left bank of the Dnieper [Kovaleva 1978] clearly demonstrated the late Tripolye component. Furthermore, investiga-

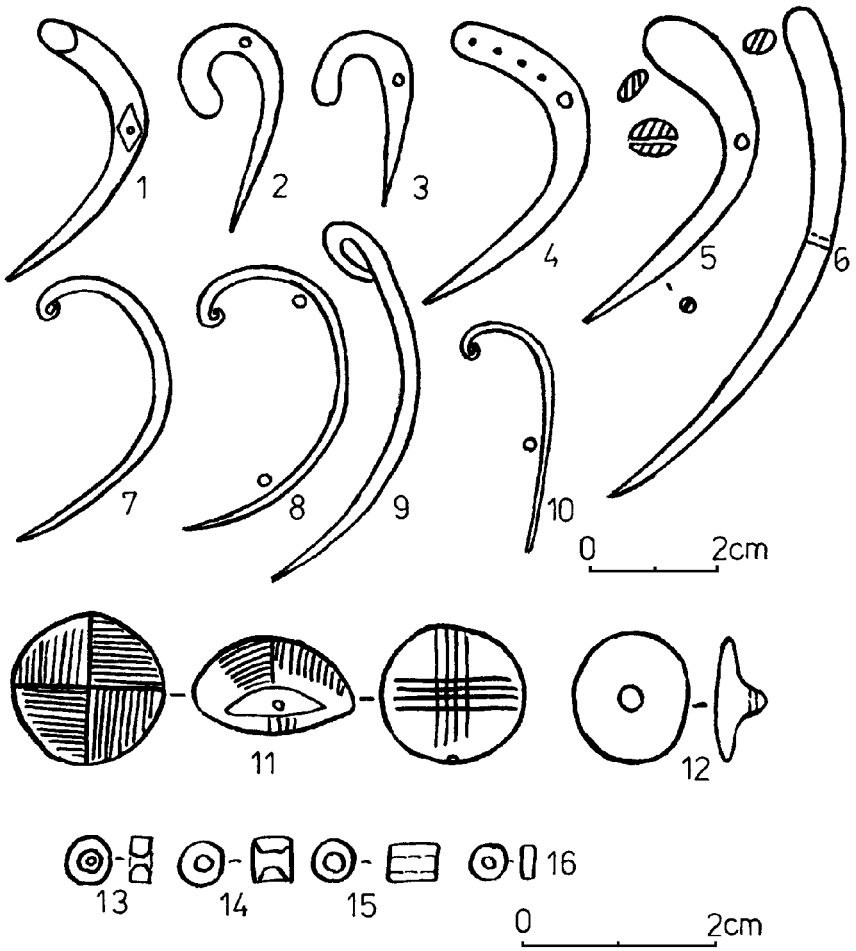

Fig. 6. Decorations. Legend: 1 - Tiraspol 3/27; 2 - Taraklia 10/2; 3 - Bolgrad 6/1; 4, 12 - Podgornoye X, 3/7; 5 - Kazaklia 17/22; 6 - Boguslav 23/7; 7, 13 - Volchansk I, 1/21; 8 - Pavlograd 7/3; 9 - Vinogradnoye 12/1; 10, 11 - Koysug-Radutka, grave 24; 15, 16 - Taraklia 10/2

tions in the territory between Dniester and Prut, as well as in the Azov region and the Kuban region, suggested the existence of common cultural-chronological groups of monuments due to similarity of forms and technology of ceramics, specific decorations and the rituals [Rassamakin 1986, 1987, 1988, 1990, 1993; Rezepkin 1987; Zaginailo, Chernyakov, Petrenko 1987; Manzura 1989, 1992, 1993; Petrenko 1989; Kovaleva 1991]. Each of the above-mentioned local groups has its own features, but there is little doubt about their synchronous character and common origin. According to known Tripolye vessels, this group of monuments corresponds with the

CII stage of Tripolye culture, particularly with its latest phases (which, according to calibrated data may refer to the first quarter of the third thousand BC [Chernysh 1982:175; Movsha 1984:76, 1993:46]. The main issue is the origin of this group of monuments which could be preliminarily named „Zhivotilovka-Volchansk" type, by the names of the most typical locations with the most representative complexes in the Samara and Molochna basins in the center of the whole area of occurence of this cultural group. They represent the synthesis of different traditions, suggesting, first of all, a lack of local steppe origin of the monuments. One, probably the main of these traditions, was brought in by the Gordineshty (Kasperovtsy) tribes of the forest-steppe version of the Tripolye culture (=first group of ceramics); the second, less specific group of ceramics with elements of the Tripolye, the Gordineshty ornamental tradition, was brought by the Maykop communities. The local steppe component is represented by ceramics of the seventh group, most typical for the late phase of the Lower Mikhailovka graves (Shirokoye-Baratovka stage, according to D.Y.Telegin). In our view, the search for origins of the ceramics of groups 3 to 6 brings us the Central European region. Such forms as cups, amphorae with various eyes, plasters, handles and special technology which included thick admixtures of chamotte, flint, and a well-glazed uneven surface have no prototypes either in earlier or in synchronous time. The reality of the selected direction of search for possible sources among Central European cultures synchronous to the late phases of the Tripolye culture is also confirmed by some burial complexes. Though the latter have not been widely referred to in scientific circles, they allow us to cast some light on events of that time. One of the most interesting of these complexes is a stone tomb, investigated in 1968 in barrow 1 at Baratovka of the Snegerevka region, the Mikolaiv district, on the right bank of Ingulets. Part of the material of this barrow was published, and since major interest is attracted by the earliest graves, we will provide their description and stratygraphic correlation based on the report data [Yelagina, Petrenko 1968] and our analysis [Rassamakin 1996].

2. BARATOVKA

Prior to excavation, the barrow was 5 m high and 60-70 m in diameter. the ancient layer was found 4.8 m deep. First, a small mound was made over an Eneolithic grave no. 5 (Fig. 7). Probably, graves nos. 16 and 17 were synchronous with grave no. 5, but had their individual mounds. Next, as shown by the profile of the only edge, was grave no. 6 in the stone tomb. The construction over it covered the remains of the mound over grave no. 5. Later a stone cist of the Kemi-Oba culture (grave no. 8) was installed on grave no. 6, and an additional mound was put on it.

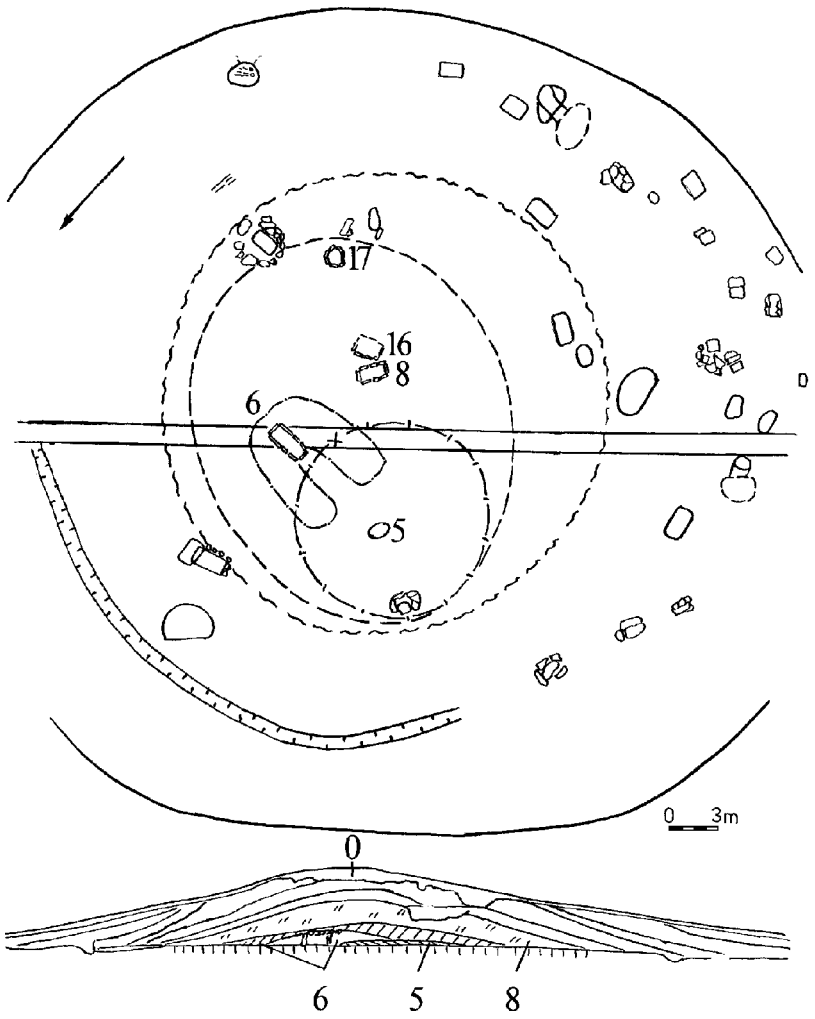

Fig. 7. Baratovka. General view and cross-section of barrow 1

Later on the barrow was used nad built up by the Yamnaya culture tribes as well as by later populations.

Grave no. 5 is the main one (Fig. 8). A stone base with dimensions of 0.8 m x 0.7 m was found 4.49 m deep. Underneath there were several more plates: one at the southern and two at the northern edges of the grave pit. The pit was oval in form, 1.25 m x 0.7 m, oriented along the NNE-SSW axis, with a filling of ashes with an admixture of small pieces of charcoal and a layer of pure ashes in the middle

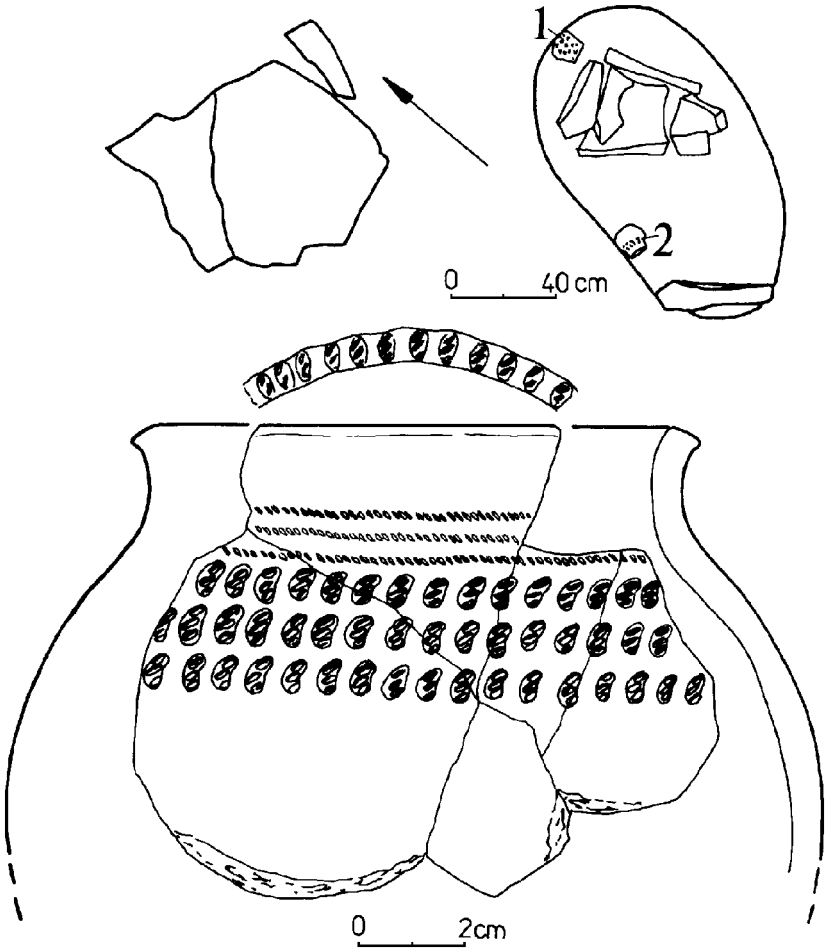

Fig. 8. Baratovka. Barrow 1, grave 5 (1 - piece of ochre; 2 - vessel)

part. The pit is 5.1 m deep (0.3 m from the ancient level). At the northern wall, on the bottom, there was a large unprocessed piece of red ochre (14 x 9.5 x 8.5 cm); at the western wall there was a moulded flat-bottomed vessel with a rich admixture of shells in the dough and an ornament around the rim, the neck and the shoulders. The ornament represented three rows of cord impressions and three rows of small caterpillars. Along with ashes, the pit filling contained calcinated bones and grains of ochre (Fig. 8).

Grave no. 16, the main one, was made on the ancient level (Fig. 9). Remains of a stone box represent individual plates, placed edgewise along the western, northern and partly eastern walls. The plates' surfaces are polished. The box of 1.5 m x 1.3 m

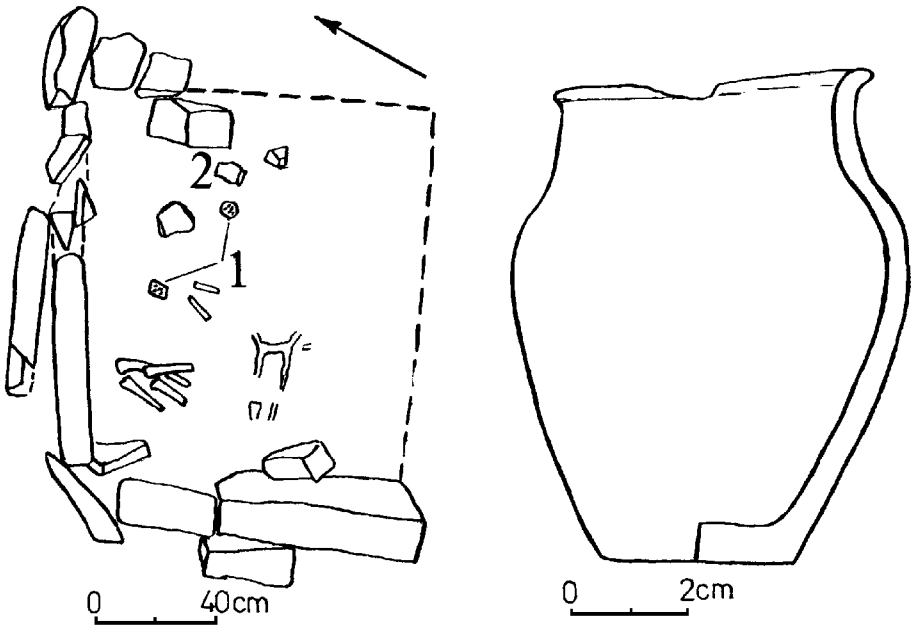

Fig. 9. Baratovka. Barrow 1, grave 16 (1 - piece of ochre; 2 - vessel)

in dimensions is oriented along the east-west axis. The plates' bases are deepened into the ground by 17 cm. The box contained very badly preserved remains of two children's bodies. The first of the buried lay at the northern wall, on the right side with bent knees and the head to the east. The second body was located to the south of the first one. Only fragments of the skeleton were preserved: a piece of the skull, individual fractions of bones which could hardly suggest the position of the body, oriented to the east. Pieces of ochre were found in front of the chest of the first of the buried and at the skull of the second. The floor displayed traces of sprinkled chalk. Between the skulls, a small, flat-bottomed vessel of slightly elongated proportions with well-defined, rounded shoulders was lying on its side. Its surface was well--smoothed, of a reddish-ochre colour. The thick dough contained lime; the upper layer partially exfoliated. The height of the vessel is 8.4 cm, the diameter of the rims is 5.4 cm and the diameter of the bottom is 3.3 cm (Fig. 9).

Grave no. 17, a major one, was made on the ancient level in a stone cist (Fig. 10). It was found 4.27 m deep. The cist was covered with a large plate (1.1 m x 0.85 m). It consisted of nine plates comprising a polygon. The inner side of the plates were hewed. The cist was 1.2 m x 1.03 m in its dimensions, oriented along the NNW--SSE axis. The western wall was represented by one plate (0.85 m x 0.52 m, 0.1 m thick). Other plates varied in length from 0.2 m to 0.5 m; the average height was 0.55 m and the thickness from 0.09 m to 0.17 m. The plates' bases were deepened

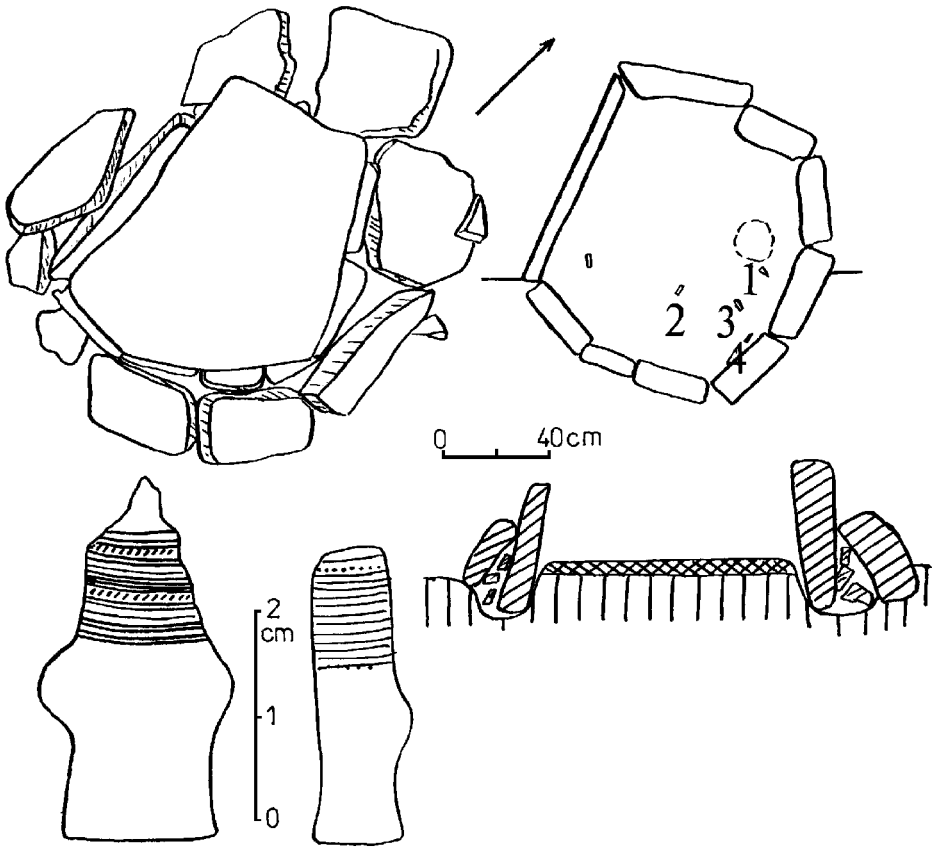

Fig. 10. Baratovka. Barrow 1, grave 17 (1, 2 - statuettes, 3 - pendant, 4 - pinch)

in the ground and strengthened by detritus and, on the outside, by additional minor inclined plates. The space between them and the cist's walls was filled with small stones. The bottom of the cist was plastered with earth mixture (Fig. 10).

The cist contained remains of an infant's interment, all the bones of which had mouldered. Traces of the skull could be observed at the north-eastern wall, and traces of a phalanx of toes were found at the south-western wall. The floor displayed patches of ochre and sprinkled chalk. To the left of the skull and in the middle of the cist there was a bone and a stone anthropomorfic statuette, decorated with notches and cut lines, 3.3 cm high and 2.7 cm high, respectively. Besides the statuettes, there was a coquina amulet-pendant of elongated-oval shape, 3 cm x 1.1 cm. At the eastern wall of the cist there was a massive shiver of grey stone with traces of fine retouching on one long edge. Dimensions: 5.5 cm x 2.4 cm, 2 cm thick.

Grave no. 6 was the first supplementary (when the dead body is „added" to the ashes buried in an old grave before) burial interment performed on the ancient level, at the base of the mound over grave no. 5, in a stone tomb (Fig. 11). The tomb was covered with a stone pile; the floor was of ground and partly covered the earliest main mound of the barrow. The pile of stones occupied a round-shaped space of about 4 m in diameter; sizes of stones and plates were an average of 0.4 x 0.7 m. The pile was 1.25 m to 1.0 m from the ancient level. Beneath the pile there was a box of elongated-rectangular shape with a slightly narrowed western part, oriented along the west-east axis. Inside dimensions were 2.65 m x 1.0 m. Long walls consisted of three plates each, while butt-ends were made of one plate each. The upper edge of the plates was located 4.0-4.18 m deep from the 0-level, i.e. it had reached the height of 0.62-0.8 m from the ancient level. The western butt plate is 0.3-0.4 m lower than the other plates. This was the entrance to the tomb, i.e. from the outside this plate was screened with a larger plate which covered a hole between the ceiling and the upper edge of the butt plate. The largest plate is the eastern one (1.25 m x 0.86 m) and the adjacent side plates from the south and the north (1.32 m x 1.18 m). All the plates were roughly finished from the inside. They were joined tightly, with the seams plastered by clay mixed with earth. The plates' bases were deepened in the soil by up to 0.2 m. Detritus filling was found on the bottom level along the plates. To strengthen the walls from the north, south and east, smaller plates were put horizontally in one to three layers along major plates; the spaces between them were filled with earth mixed with clay.

The grey light filling of the box contained individual human bones. At the bottom there were six badly preserved skulls: one in the north-eastern corner, four in the middle and one at the western wall. Most of the bones were found in the eastern part of the box. Here there were mixed bones of legs, pelvis, shoulder-bloades and ribs. In the western part, *in situ*, there were two skeletons. The first from the entrance, the skeleton of an adult in the embrional position on the right side, is oriented to SSE. The skull is missing; the right arm is strongly bent, hand on the chest; the left arm is bent under the right angle. The second was the child's skeleton. Probably, it was also put in the embrional position with the same orientation. The skull is missing. The left arm is bent under a sharp angle and put onto the chest; the remaining shoulder bone of the right arm was located along the body. Of the leg bones only the one of the fibulae, put to the right, remained. Both of the skeletons had been painted.

At the southern wall, in the middle, there was a piece of ochre shaped as a four-faced pyramid with a cut-off top, 14.3 cm high, with a base of 8.5 cm x 7 cm and upper part of 5.7 cm x 5.3 cm. Its surface was smoothed. At the base of one of the side facets there were three oblique notches, joined with the two on the bottom surface.

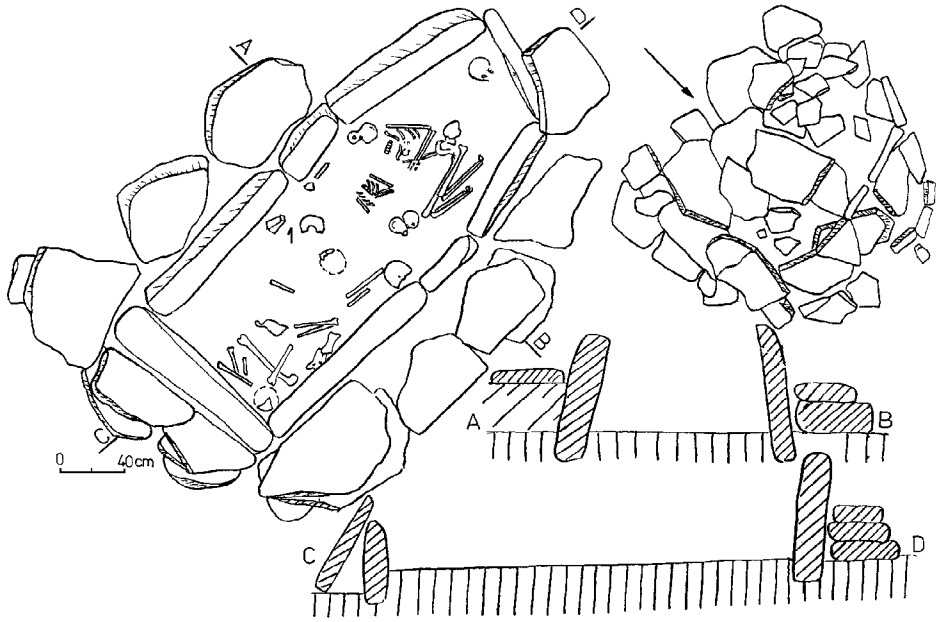

Fig. 11. Baratovka. Barrow 1, grave 6 (1 - ochre)

The bottom of the box is of earth, well-rammed, with a layer of ashes and ochre.

Considering the fact that in the profile of the barrow we have an assymmetric construction of a pile over an interment, in addition to which there is an easy--to-open entrance for later burial rituals, and the lack of an adjacent additional suppert of fletly put plates, one can assume, with a high degree of probability, that the construction of stones and earth over the tomb was not closed from the side of the entrance. Possible contours of the whole construction are marked on the general plan of the barrow (Fig. 7). Probably, only after the end of the functioning of the tomb the whole construction was covered with the ground mound. The next in time, the Kemi-Oba grave no. 8, was made on its surface.

Grave no. 8, the second „supplementary" interment, belongs to the Kemi-Oba culture (Fig. 12). 1.99 m deep from the 0-level there was a plate covering a stone box (2 m x 1.1 m) with adjacent smaller stones on the area of 2.5 m x 2.3 m. The box consisted of 8 plates: three on each of the long walls and one on each of the butt-ends. The length of the butt-end plates was 0.96 m and 1 m, of the side plates from 0.5 m to 0.66 m; height from 0.85 m to 1 m. Thickness varied from 0.1 m to 0.2 m. About one-third of the plates were dug into the ground. The inner surface was finished more roughly. The plates' bases, deepened in the ground, were not finished. From the inside, the butt plates have narrow vertical flutes on the edges

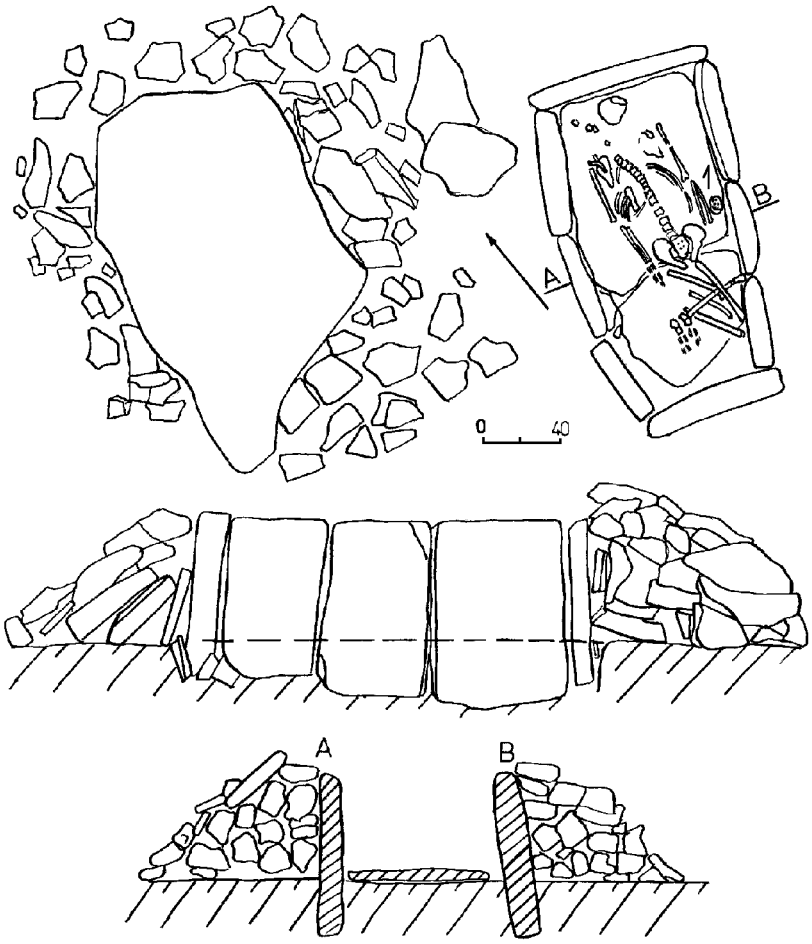

Fig. 12. Baratovka. Barrow 1, grave 8 (A, B - plates with images, 1 - piece of ochre)

so that they could be joint more tightly with side plates. The seams were plastered with clay mortar both from the inside and the outside. The inside dimensions of the box were 1.65 m x 0.8 m; it was oriented along the NNE — SSW axis. From the outside the plates of the box were strengthened with a filling of small stones. The box was surrounded with a pile of small and medium plates and stones. In the cross-section the whole structure represents a cut-topped cone with a flat summit of the box's ceiling. The total area of the pile's base is 4 m from north to south and 2.9 m from west to east (Fig. 12).

An adult skeleton is very poorly preserved. The remains of the skull are represented by a fraction of the occipital part and the lower jaw. It lay in a spinal position with legs bent up at the knees, head northward. The arms were stretched along the body; legs to the left. The bones had been painted with red ochre. To the left from the skeleton, at the forearm there was a piece of ochre representing a grating-stone with a smoothed surface, 7.5 cm high, the diameter of the base 10 cm and of the upper facet 7.3 cm.

The floor of the box consists of two coquina plates. The northern plate is quite well-adjusted to the box's shape, while the southern one does not reach the wall. The gap is filled with smaller plates. The seams between the plates of the floor are filled with clay mortar mixed with earth.

The barrow described above is interesting not only for the occurrence of the tomb complex unique for the steppe zone (grave no. 6), but also for the stratigraphic surrounding of the latter. In all versions of possible reconstructions of stratigraphy, the interment in the tomb overlays an earlier mound over a grave which contained materials of the late Tripolye culture, stage CII. The Serezlievka-type statues from the grave no. 17 are dated by this period, as well as the vessel from the grave no. 5, which, according to all dimensions, is similar to the late Tripolye kitchen ceramics, well-known, for example, in the Usatovo version and in the late Tripolye settlements of the Southern Bug. However, the latter feature an admixture of ground shells [Movsha 1972:9; Zbenovich 1972:16-18]. The tomb is overlaid by a Kemi-Oba grave and later Yamnaya graves. This situation is also typical for graves of the Zhivotilovka-Volchansk type, for example, in the Samara and the Molochna basins, where there was evidence of graves lowered into earlier Eneolithic mounds which contained burial interments, synchronous, according to the items found, with the Tripolye CII period, i.e. the Sofievka and the Usatovo variants. For instance, in the Samara basin, at Sokolovo, in barrow 6, a grave of the Zhivotilovka-Volchansk type (no. 4) was younger than the destroyed major grave no. 6, which contained a specific stone axe analogous to those found in the Sofievka-type barrows [Kovaleva 1978:52, Tab.1; Rassamakin 1988:23-24].

On the Molochna, at Vinogradnoye, in barrow 2, two Zhivotilovka-Volchansk graves (no. 4 and no. 14) in the pit and in the niche were inlet into the mound with the main „stretched" grave, which contained bone elongated figured beads [Rassamakin 1987:33-36] which earlier occurred in a grave in the late Usatovo complex in the Dniester basin, near Sadovoye [Malyukevich, Petrenko 1993: 25-29].

Besides proximity of stratigraphic position, in the tomb we observe a ritual very similar to the Zhivotilovka-Volchansk one. Probably, it is appropriate to include the grave in the tomb near Baratovka in a common cultural-chronological group of monuments with the Zhivotilovka-Volchansk graves.

3. ORIGIN OF THE ZHIVOTILOVKA-VOLCHANSK TYPE

A general view of the Zhivotilovka-Volchansk-type monuments, as well as analysis of the burial ritual and the most typical categories of the stock show that in this case we deal with a definite migration process, which united the Danube and Prut regions with the lower Don, the Kuban basins and the Northern Caucasus. The origins of this movement depend on how the question of direction of migration is answered. This is proved by the materials of the Samara and Molochna groups. Occurence among them of Tripolye ceramics, defined by experts as the Kasperovtsy (Gordineshty) type [Movsha 1984:68-69, 1993:42-45; Manzura 1990]; of bow-shaped „pins", most of which are now known in the Prut-Dniester basin, suggest the closest connection with monuments of the Dniester and Prut regions. Further eastward, in the Don group such a relation is not observed. Instead, more expressive are Maykop elements. The author has already pointed to this conformity [Rassamakin 1988: 21-22], but now „Western" impulses have become even more obvious, and the movement from the West eastward raises no doubt. Researchers of the Lower Don monuments also agree to this point of view [Kiyashko 1992:4-6, 1994:80]. Therefore, the search area of the movement's sources is narrowed to the Prut-Dniester basin, while occurrence of representative Kasperovtsy (Gordineshty) materials — not only in these graves, but in the steppe monuments in general (including the middle level of the Mikhailovka settlement) — allows one to agree with the position advocated by researchers of the Tripolye culture who point out to increased activity of the population of the Kasperovtsy (Gordineshty) forest-steppe Tripolye variant [Movsha 1984, 1993; Manzura 1990, 1993:33].

This leads us to the border between forest and steppe and the forest-steppe zone of the Prut-Dniester basin. Meanwhile, occurrence of glazed cups and cup-shaped vessels, amphorae, cups and bowls, suggest influence of Central European or Balkan-Carpathian cultures on the emergence of ceramics of groups 3-6. These cultures could include the Funnel Beaker, the Globular Amphora, and the Baden cultures. It is interesting to note that the ritual in the above-mentioned regions was similar, though mainly barrowless [Haüsler 1971, 1989]. It should also be mentioned that experts explain the formation of the late Tripolye ritual by the influence of Balkan-Carpathian traditions [Haüsler 1964:777, Zbenovich 1974:55]. Furthermore, the existent material prove contacts of, particularly, the Kasperovtsy (Gordineshty) variant with the Funnel Beaker and the Globular Amphora cultures [Movsha 1985b], though this problem has not been investigated sufficiently, especially with regard to relations with the Tripolye and the Globular Amphora cultures. It is very difficult to specify this process, to define the causes of migration. Moreover, the correlation between Central European and Balkan-Carpathian cultures is not clear enough. In our view, the question is in the time of the split of the Funnel Beaker culture, its „Badenisation" on the one hand, and „acculturation" by the later Tripolye, according to A. Kośko [1981:118] and, probably, the emergence of the Globular Amphora

culture. According to A. Kośko's periodisation, this time corresponds with stages D and partly E in the system of development of contacts between populations of the Vistula-Oder basins and the Northern Pontic steppes [Kośko 1991:242-248]. We believe this time could corresponds with Gródek III and Bronocice IV-V [Ścibior 1994]. Also, one could assume the existence of a relation between the active process of transformation of the Funnel Beaker culture under the influence of the Baden culture, emergence of the Globular Amphora culture and activity of bearers of the Gordineshty (Kasperovtsy) variant both towards the Vistula and the the steppe regions. The latter acted as intermediaries in the transfer of cultural elements which explains, for instance, the occurrence of the Łasin statuette, similar to the Serezlievka type [Kirkowski 1984]. Zhivotilovka-Volchansk graves suggest routes of migration and the of new cultural elements which gradually acquired a more syncretic character up to the Northern Caucasus; discussion of the European component makes the issue of formation of the Novosvobodnaya group of the Maykop culture more realistic [Dergachev, Manzura 1991:55-58; Rassamakin 1991:52-55].

Maykop elements in the Zhivotilovka-Volchansk-type interments in the Samara and especially in the Don groups can be explained only by investigation of the processes which began in the Northern Caucasus and the pre-Caucasian region after it was reached by the migration wave described above. The Maykop cultures are typical for a comparatively late period of cultural development. One of the vessels of the Samara group (Pavlograd I, barrow 8, grave 3) has a definite pumpkin-shape (Fig. 4:17), typical for late Novosvobodnaya dolmens [Rezepkin 1989]. This concerns the second group of ceramics specified above (Fig. 4:17-20). Some researchers consider it as purely Maykop samples [Kovaleva 1978:40, 1991:83; Nechytailo 1991:26-29]; others believe it is connected with the Tripolye traditions [Movsha 1984:69; Zbenovich 1987:115-116]. We are more inclined to accept the position of I.V.Manzura, who considers these vessels to be a synthesis of the Gordineshty (Kasperovtsy) ornament on morphologically alien vessels, thought often biconic features of the latter also resemble Tripolye shapes [Manzura 1990:32]. This position has its reason, since the emergence of Gordineshty (Kasperovtsy)-style retouched or polished ornament on typically Maykop ceramics also can be explained by the influence of the migrants' traditions. This phenomenon was observed in the steppe region, for example, on the right bank of the Dnieper (Shirokoye, barrow 1, grave 3), but on ceramics made according to the steppe Lower Mikhailovka traditions. Actually, V.I.Zbenovich did not reject the idea of imitated Tripolye artefacts [Zbenovich 1987:116].

The emergence of the Maykop elements can be accounted for by the process of interaction and population movement not only from the West eastward, but also in the reverse direction. This phenomenon suggests the existence of a certain bridge between the regions and destination territories of migration. This is also proved by a burial complex from Kosteshty (barrow 2, grave 2) on the left bank of the Prut — the most north-western point of the Zhivotilovka-Volchansk type [Dergachev 1982:10-12], in which, along with an original vessel and a flat flint axe, there was a set of asymmetric Maykop-type arrowhead (Fig. 13). This find even

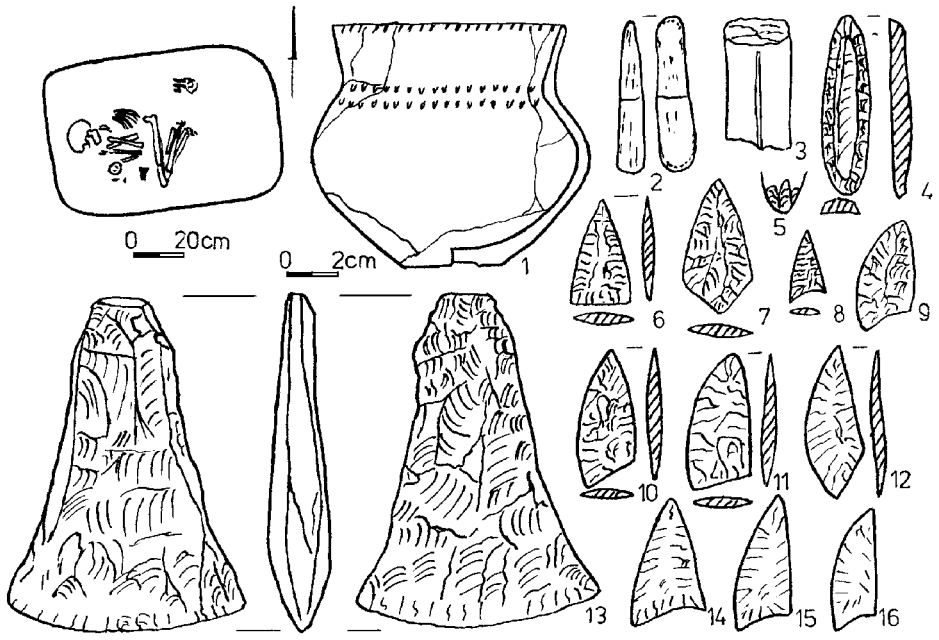

Fig. 13. Kosteshty. Barrow 2, grave 2

allowed V.A.Dergachev to assume the Northern Caucasian origin of the buried man [Dergachev 1982:127].

It should be noted that the assumed migration process, represented by Zhivotilovka-Volchansk type graves, in Azov-Black Sea region steppes coincided with the existence of local population groups: according to our terminology, the Lower Mikhailovka and Kvitanskaya cultures with typical for them embrional on the side and stretched position of the burial ritual [Rassamakin 1993, 1994]. The contacts resulted in the emergence of ceramics of Lower Mikhailovka traditions (group 7) in the Zhivotilovka-Volchansk graves and finds of small glass beads, a biconic vessel without glazed ornament in graves of local cultures.

4. CONCLUSIONS

Summing up, one should note that during the final period of development of the Tripolye culture a bridge between the forest-steppe Tripolye communities of the Gordineshty (Kasperovtsy) variant and the Northern Caucasian population was

formed as a result of migration processes. This connection found its specific archaeological representation in the monuments classed as the Zhivotilovka-Volchansk type. Meanwhile, the Tripolye population acted as a carrier of elements common for the Central European and Balkan-Carpathian regions: the Baden, the Funnel Beaker and the Globular Amphora cultures. Features of the Globular Amphora culture, probably, occured in the steppe earlier than most scholars thought before. As a rule, more expressive materials, in particular, imported ceramics of the Globular Amphora culture, are known in the period of the Yamnaya culture in the territory of Moldova [cf. in this volume: Szmyt, Globular...]. Probably they are reflected in the emergence of smaller amphorae (especially in the Samara group) as well as of stone tombs similar to the Baratovka tomb. The latter has much in common with stone grave structures of the eastern group of Globular Amphora culture, e.g. in the Volhynia and the Podolia variants [Sveshnikov 1983].

On the other hand, the Zhivotilovka-Volchansk type monuments concretise the hypothesis about an occidental origin of the Novosvobodnaya-type monuments, or, in any case, about the presence of European influences in the Maykop culture. Though the topic leaves much room for discussion, the direction being developed by N.A. Nikolayeva and V.A. Safronov [1974:17-22, 1991:189-197] obtains more specific meaning due to Zhivotilovka-Volchansk monuments, which require further investigation.

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CONTRIBUTION TO THE ORIGIN OF THE BRONZE AGE IN THE MIDDLE DNIEPER REGION

The subject of the present work was determined in connection with the lack of investigation of the given problem on even a level of the statement of a question.

Since the appearance of I. Sveshnikov's monograph [Sveshnikov 1983], it has been recognised as containing the fullest description of the Globular Amphora culture (GAC) objects to that time in the territory of modern Ukraine. Both a qualitative and quantitative increase occurred, which served as a base for an attempt to retrace the participation of GAC in the cultural genetic process that occurred in the Middle Dnieper region in the Middle Bronze Age (following the terminology employed by Ukrainian archaeologists). The presence of only indirect evidence of this phenomenon, expressed in the presence of definite traditions in the ceramic complex of late Catacomb culture (CC) and Middle Dnieper culture (MDC) objects of the region under review, they may be connected only with a characteristic sign, inherited in the ceramic of GAC, which in peculiar complicates the consideration of the problem of the contribution of GAC into the stated processes. The finds of new objects with ceramic of GAC in the territory of the Middle Dnieper region we may consider positive initial data for considering such a problem.

Unfortunately, the lack of reliable dating of the newly found objects, which contain the elements of GAC, prevents us from answering the question as to the time of their origin. And the assumption about the presence of earlier burials and settlements which could be synchronous to known burials and settlements of Volhynia and Podolia and those which may be considered as forebears of the MDC and Catacomb objects among them, must be left on the level of purely logical consideration for the present.

Such a situation is a reflection of the problem of cultural investigations of the Bronze Age in the Middle Dnieper region. In spite of a considerable number of found objects, the base of sources has not hitherto been systematised. Narrow regional investigations are absent from the literature. The consequence of this is the presence of „blank spaces" on the archaeological map. In particular, the objects in the territory of the modern Zhitomir district, in general, are known for excavations in the second half of the nineteenth and the first half of the twentieth century, while

its situation is of undoubted interest. The impulses of Western influences — which can be observed for a period of almost every primitive epoch — which reached Middle Dnieper region, must one way or another be reflected on archaeological objects of just that region.

But a principal complication in interpretation of the problem stated in title of the present article, is a lack of division into periods of the GAC objects in the Ukrainian territory. The conceptions „early, middle, and late stages of GAC", „the phases of development of GAC", and the „late level of GAC" are clearly enough defined in the investigations of Western archaeologists [e.g., Wiślański 1966; Czebreszuk 1990:149-168, etc.]. In the Ukrainian historiography the works establishing the periods of GAC are absent (with the exceptions of private observations); hence, it appears that regarding the criteria for chronological signs' dismemberment, these signs characterise the eastern group of GAC. This is connected with the fact that settlements' materials were published only selectively, due to the lack of extensive investigation. This fact hampers one in carrying out a thorough qualitative analysis of ceramic complexes.

Thus, the present work doe not aspire to the status of a generalised, systematising investigation, and it must be considered only as a substantiation of the statement of a question as to the contribution of traditional interment in GAC to the material culture of Bronze Age tribes in the Middle Dnieper region. Moreover, these traditions are found first of all in ceramic. Proceeding from the stated purpose, the tasks of the present article are seen as the publication of the objects, which were not a part of the traits of the GAC ceramic complex, which are fixed in ceramics of the Middle Bronze Age cultures in the territory under review. According to the thesis, the late signs of culture are, on the one hand, the elements which we can clearly retrace in the material set of later cultures, while on the other hand, they are not characteristic of its reliable early objects, an attempt was made to plan a final period of the elements GAC existence in the Middle Dnieper region. In this instance, one cannot speak of a late stage of culture, although it would be convenient for establishing a generally accepted scheme of development in view of the lack of the complex of cultural signs in the objects in which we are interested.

First of all, we will elaborate on the existing remarks, which are contained in the literature, dealing with, first — the problem of GAC surviving until the Bronze Age, second — this culture's participation in the genetic process in those territories, where its objects are represented either sporadically or quite absent. The question of GAC components' participation in the making of material culture of tribes in the Middle Dnieper region is considered in just these aspects.

1. EASTERN SETTLEMENTS OF GAC

The GAC objects, known on Ukrainian territory, are attributed to eastern cultural group [Sveshnikov 1983]. The fullest description of eastern objects group are in I.K. Sveshnikov's monograph. The following were taken into consideration: 116 cultural locations, including 7 settlements, 59 points, where burials are found (they formed burial grounds in separate places), accidental finds of things and insufficiently documented tombs.

The investigator has chosen two local variants of the eastern group of GAC — Volhynia and Podolia, which differ in peculiarities of funeral constructions, funeral ceremony, and accompanying stock, and ceramic in general.

The territory of the extension of the eastern GAC group constituted the western regions of Belorussian Polesie, Volhynia, forest and steppe on the right bank of the Dnieper, Podolia, northern Moldavia and eastern Rumania. A boundary line between these areas may be drawn along the watershed of the Western Bug and the Pripiat tributaries on the one hand and the Dniester and the South Bug on the other hand.

GAC's appearance in the territory of Ukraine is interpreted as a result of the eastward settlement of Eneolithic peoples.

The chronological framework of eastern group was defined on the grounds of a small amount of data of a joint finding of GAC ceramic with other cultures' materials. In Volhynia it is synchronous to the Funnel Beaker culture and late Tripolye. As to objects of Podolia, reliable chronological correlations are absent. Data about a joint finding of GAC and Subcarpathian Corded Ware Culture materials in early barrows of Subcarpathian culture [Sulimirski 1968: Figs.19, 21, 141, 142] may not be considered as evidence of their synchronicity.

In the upper stratum of the settlement of the Pit- and Comb culture near Grishevka in the Chernigov district, the vessels' fragments of GAC were found. On these grounds we can synchronise the objects of the eastern group of culture with a late display of Pit- and Comb culture on the Desna [Berezanskaya 1975:148-167]. However, the ceramic fragment which was found, cannot belong to the so-called „lid", which is known in the ceramic complex of GAC. This is, in fact, a fragment of a vessel of a later period. We can assign it to late CC ceramic. This form is widely produced in the settlements of state territory.

The Middle Dnieper region is not in the zone of the expansion of GAC objects. The finds, except for the above-mentioned fragment, which was found in Grishevka, are limited to a tomb in Losyatin in the Vasilkov district of the Kiev region, ceramic fragments, which were found in the Kiev region in the settlement of Tripolye culture and bone goods, probably, from a burial, which was destroyed through the presence of the Kanev HEPS foundation pit.

Thus, the objects of the eastern GAC group were produced in general in burials in Volhynia and Podolia in Ukraine, but they are not found to the east, in

the Dnieper region. The objects are dated within the limits of late Eneolithic, the materials of a small number of settlements corroborate that.

On the other hand, we have data which permit us to suppose that the eastern GAC group survived until a later period, namely the Bronze Age. Direct illustrations are lacking in Ukraine. The burials are known in Moldavia, where they are conducted according to a ceremony of the Yamnaya culture, but GAC pottery is in funeral stock [Yarovoy 1984:35; Manzura, Klochko, Savva 1992]. Indirect evidence may be considered to indicate that the tradition of burying the deceased in stone boxes was retained. This tradition is known to Corded Ware culture (CWC) tribes in Volhynia and Podolia. The genetic connection of separate vessels' forms of CWC in the stated territory with GAC ceramic is also indirect evidence. In Sveshnikov's opinion, the tribes of the eastern group of CWC assimilated into the GAC population, but their cultural traditions and customs remained up to the Middle Bronze Age [Sveshnikov 1957:42].

Opinions exist on GAC participation in the process of adding to Fatyanovo culture [Tallgren 1926; Äyräpää 1933:96], but this problem has not yet been worked out.

N. Nikolayeva and V. Safronov appear as the greatest proponents of GAC's contribution to a considerable extent to the cultural genesis of the northern region of the Black Sea and also the north-west Caucasus. They hold that the appearance of objects such as Novosvobodnaya of the Kemi-Oba culture, partly of the Kuban--Terskaya culture, which was distinguished by Nikolayeva and Safronov, is a result of GAC tribes' expansion in a south-easterly direction, under the western influence of GAC.

In spite of this idea's cause for amusement, however, the argument of the authors does not stand up to criticism. The authors demonstrate not more than tactlessness of analogies, operating with the names „Saksonian-Turingian" and „Kuyavian amphora" in conformity with an absolutely independent ceramic group [Nikolayeva, Safronov 1974:31-42; Nikolayeva 1981:77-100].

And that is all, in fact, as to attempts to determine the GAC contribution to cultural genesis in the territory of Ukraine. This problem is not well-enough defined for the Volhynia and Podolia districts. But as is generally known, the Middle Dnieper region was not at all considered in this light.

Now let us begin the examination of this question from the point of view of the description of the new materials found on the eastern end of GAC and on the Dnieper.

The materials can be divided into various groups. The first is the variant that the settlements were found on the east end of Volhynian. Their availability proves that GAC tribes cultivated the Volhynia lands. According to the small saturation of cultural stratum the tribes lived briefly in one place that was connected with seasonal cattle-breeding.

The descriptions of the ceramics are the main point because they represent a culturally defined trait and phase in the construction of periodization and appor-

tionment of local groups. The second group is to mark out as the result of cabinet work, and consists of a number of potsherds which were found in the Middle Dnieper region. The distinguishing feature of are that the ceramic contains traits of GAC and native cultures. The first group of the sites is situated in Eastern Volhynia, and in the territory of the present Khmielnitsk and Zhitomir regions. The small number of these settlements do not reflect the real situation of settlement on the right side of the Dnieper by the tribes of GAC. The main reason that the settlements of GAC are poorly explored was the poor investigation of these regions. The poor and small cultural stratum made the settlements subject to easy destruction by people and nature. The sand dune were these sites are situated had been settled by late cultures, which also contributed to their destruction.

Thus, the information about the settlement is incomplete.

Khmelnitsk region. In 1970 the site near Slavuta was found by V. Pyaseckiy. It was situated on the right bank of the river Utka. Some potsherds of GAC (Fig. 1:1,3) and flint bits and part of a flint axe were found there [Berezanskaya, Pyaseckiy 1979:75-82].

Zhitomir region. In 1973-1974 the traces of four settlements were found by V. Pyasetskiy.

Khichiv (Volodarsk-Voliynski district). The settlement was found one kilometre to the west of the village on the lower part of a sand cape, that extended forward to the bank of the right tributary of the river Irsha. The square where the cultural stratum was discovered was approximately 100 m x 50 m. A pit (1 x 1 m) was made where the largest number of artefacts were concentrated. The cultural stratum was in grey sand with a small amount of ashes. at a depth of 0.3-0.4 m and in with what appears to be slim tears dark-grey linse. Artefacts were presents of ceramic, flint bits, and some small animal bones (Fig. 1:2, 4-10). 200 m up the river from the named point some pieces of ceramic, similar to that described above, were discovered in pits.

Neverovka (Volodarsk-Volinski district). Two kilometres to the east of the village in the marsh's lowest part some dunes are situated. A small number of ceramic pieces (Fig. 2:1,3) and flint wares in particular, and the storage of a four-angle axe were found on one of them, namely on the highest.

Vorovskoye (Volodarsk-Volinski district). The traces of the settlement were found 0.7 kilometres to the south of the central seat, on the south of a small elevated slope of marshy lower land, today covered with drain channels. Some pieces of ceramic, a large number of characteristic grey flint bits, a part of a grey flint axe and an arrowhead were gathered (Fig. 2:2,4)

Gorbulov-2. The settlement is situated one kilometre to the east of the village on a low sand dune. The cultural stratum is poor. Bits, plates from characteristic grey flint, and some pieces of ceramic were found (Fig. 2:5, 6).

Gorbulov-4. The settlement is situated one-and-a-half kilometres to the east wavelooking height is stretch. The village road crosses at this height. The square of the height is 300 m x 100 m. During the brief excavation two pits, 1.5 m in diameter

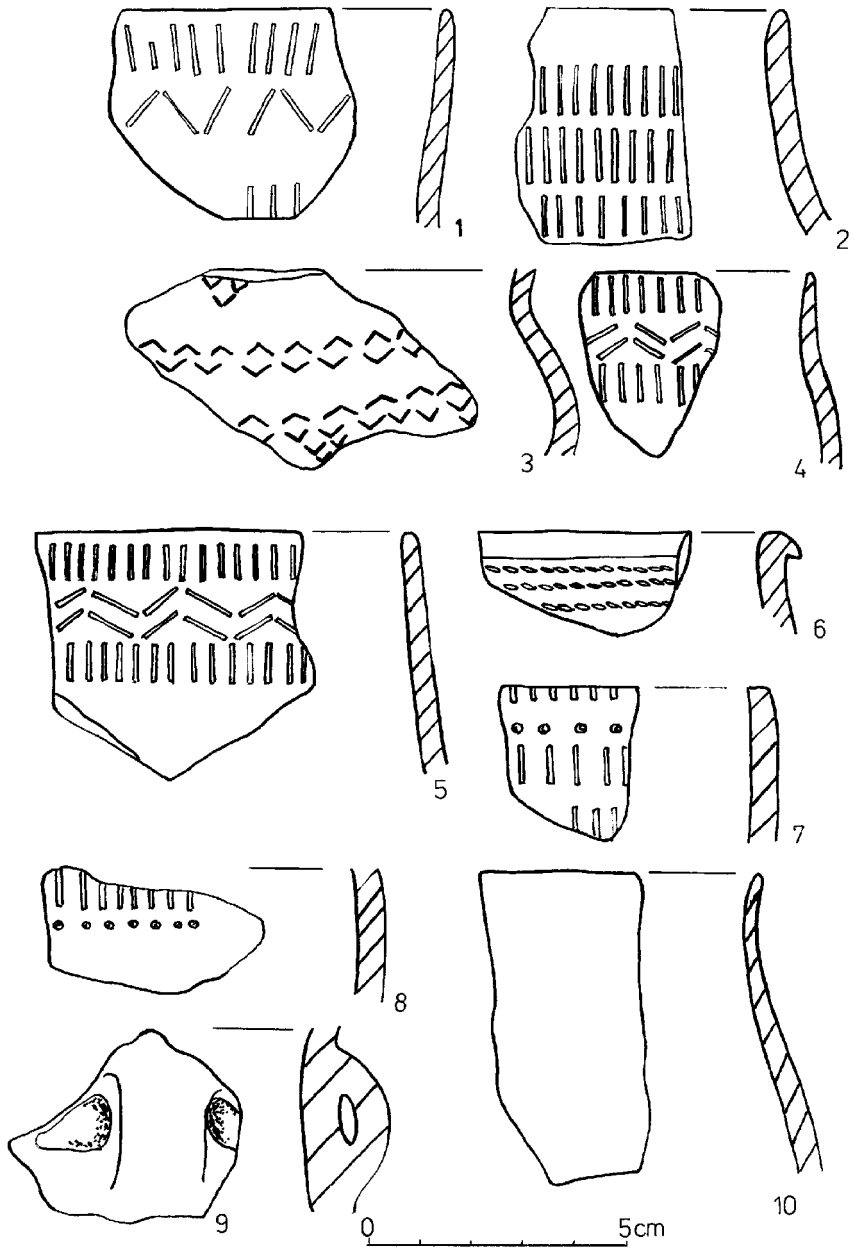

Fig. 1. Pottery from the eastern part of GAC territory. 1,3 - Slavuta, 2,4-10 - Khichiv

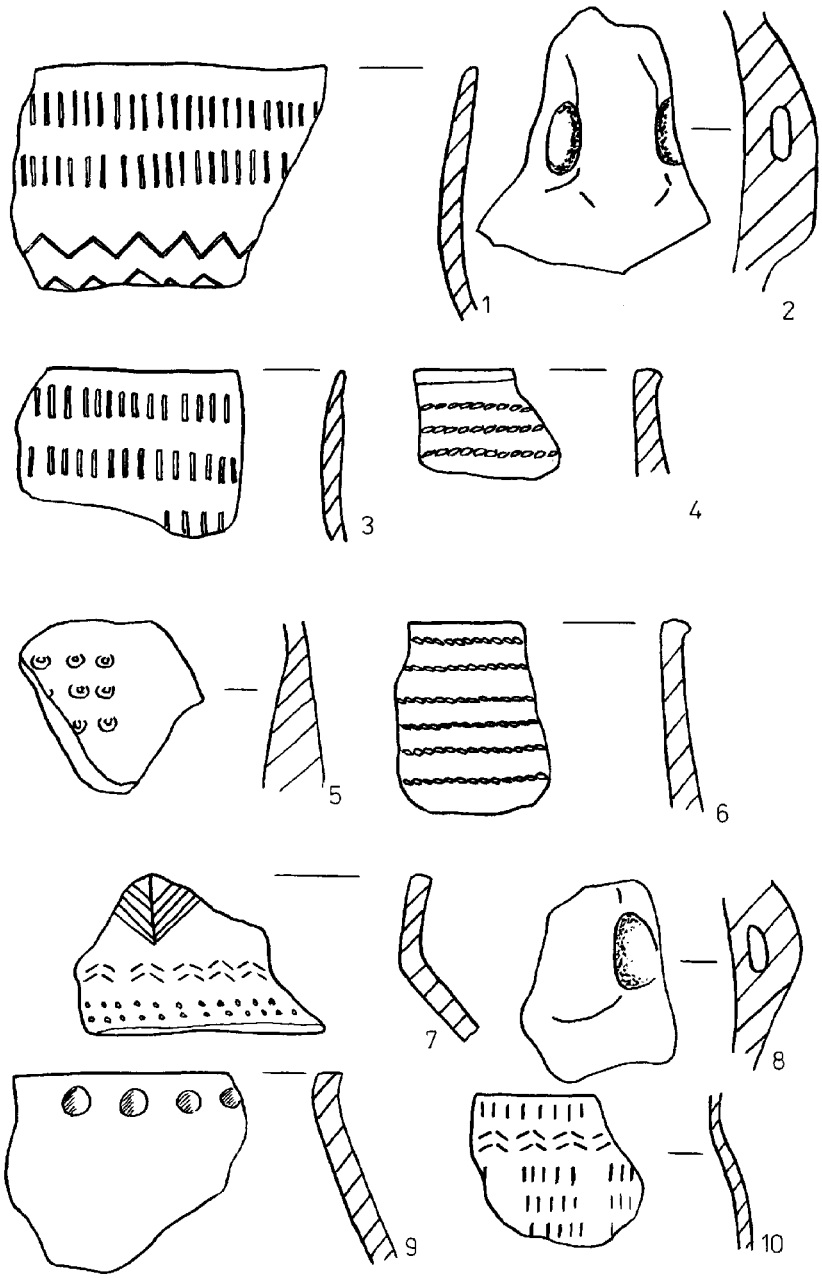

Fig. 2. Pottery from the eastern part of GAC territory. 1,3 - Neverovka, 2,4 - Vorovskoye, 5-10 - Gorbulov

were uncovered. They were filled with sand, ashes, and charcoal. The pieces of GAC vessels, flint axes, bits, and plates, were found in the pits. The half of a wheel, tooth--like in appearance, and made of clay (ceramic stamp) was found. The settlement was investigated many times, so the ceramic, except the pits, were discovered in weak cultural stratum, not more than 10 cm in strength.

The ceramic collection of the Gorbulov settlement although not large, but make presentation about shape of vessels from one side and show the identifical with materials of settlements, that were described before (Fig. 2:7,10;3).

All points settlements are situated in the same topographical conditions, in an environment of meadows, marshes, peateries, near water and pasture. The small number of cultural remnants and weak cultural strata prove that they were short--lived.

In terms of identification and chronology, the ceramics of the settlements display no discernible differences. Vessels are slim-walled, the thickness of walls usually being 0.3-0.4 cm. The admixture was quartzite and ilmenit, minerals that were widely spread in this region, and that proved the ceramics were produced here. Bare is unequal. The colour of the surface is from light-grey to black, although there were present some pieces with a red surface.

All ceramic is clearly divided into two groups. One of them is well-represented in the materials of graves and distinquished by its rich decorations. Most of the pieces belong to the amphoraes and amphoraes-looking vessels with a high narrow neck, convex body and flat bottom. The neck is usually sharpened. Many pieces have handles with oval across orifices. As we can imagine, the neck and upper-part of the vessel were covered with ornaments.

This ceramic group is decorated with imprints of a firmly straight-angle stamp (wooden or bone). It has a strict size: width — 1.5 mm, length 1-2 cm. With this stamp some (two-four) rows on the neck were decorated, parallel to the of neck. Often rows are interchanged with zigzag-looking lines or circles, done with a round--ended stick.

The rarist finds are those pieces that are decorated with „fish-scales", most part of them having been found near the town Slavuta in the Khmielnitsk region.

The second ceramic group, initially called kitchen, is decorated monotonously, with little pits under the halo and in the middle of the body. The pits have different shapes, and were impressed with fingers or sticks. The surface of these ceramics is rough, without any polishing [Berezanskaya, Pyaseckiy 1979:78].

It is necessary to dwell on the particular ceramic group decorated by a cord. There are pieces of necks decorated by horizontal rows of slim cord imprint. The walls of these pieces are a little thicker than others, the neck is decorated originally (Figs. 1:6; 2:4, 6; 3:3). The structure of the dough and the treatment of the surface are identifical to that of other items, but some morphological signs distinguish it.

This ceramic is representative of the contact area between the sites of the Podolia and Dnieper, that would be described later. S. Berezanskaya considered that this ceramic could not be included in the GAC ceramic complex.

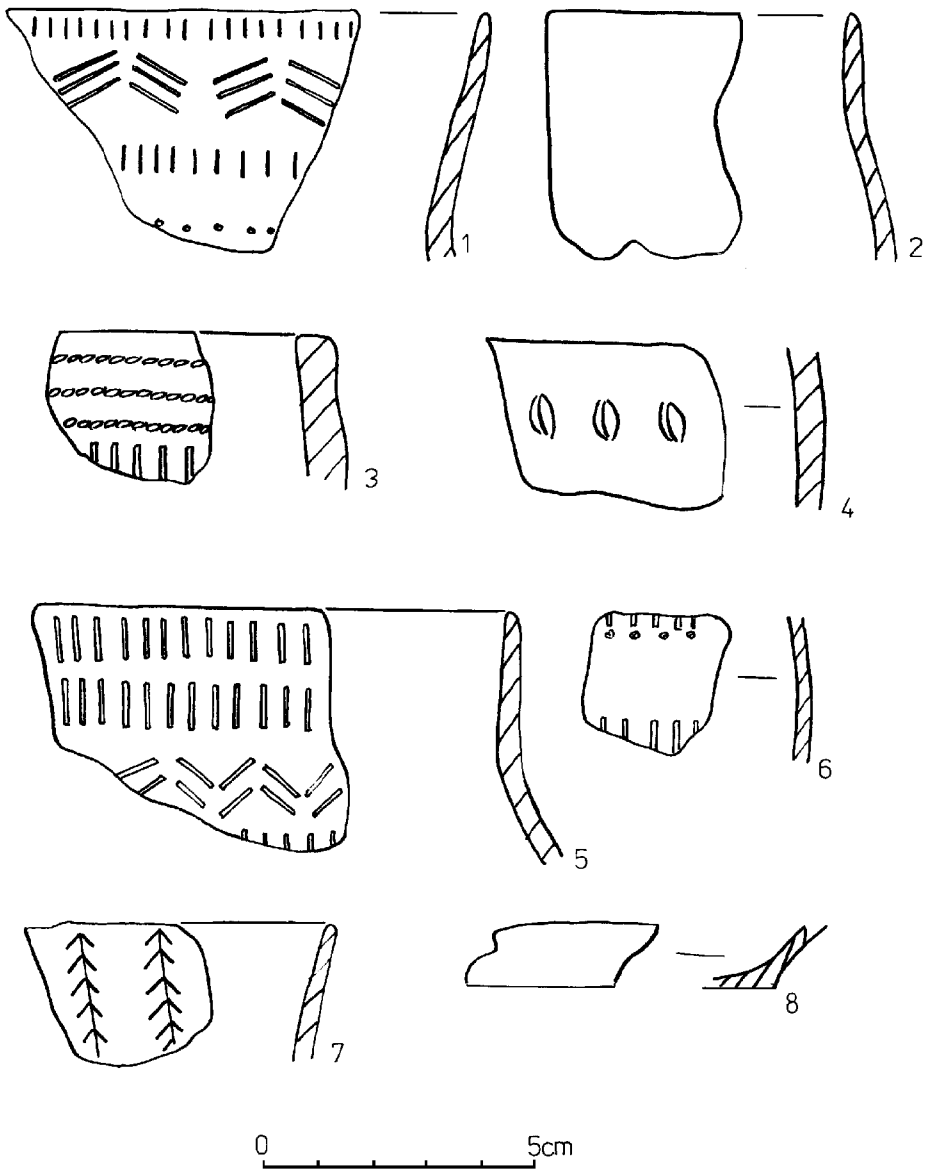

Fig. 3. Pottery from the eastern part of GAC territory. 1-10 - Gorbulov

The settlements could not be dated by the artefacts but they were synchronous with the cemeteries known in the Zhitomir region. Thus, this group of sites did not exist in time with the Volhynian and Podolian variants of the eastern group of GAC, which belongs to the late Neolithic period.

The settlement described above did not provide new information about the eastern group of GAC in the context of basic knowledge of this problem. It is interesting that the eastern part of the eastern group of GAC was well settled. This region took an active part in the economic life of GAC.

The next sites group is unique. This uniqueness is explained by two things. First, this group is situated in the main area of GAC — the northern part of the Zhitomir region, the Chernigov region, and the Kanev district of the Cherkasy region. Second, the features of pottery are distinguished and do not resemble classic GAC ceramic.

These sites were found in the territory of the Middle Dnieper region which was settled by the Yamnaya culture in the Early and Middle Bronze Age. The settlements of these tribes are unexplored, but sites with Yamnaya culture ceramic are well--known. Such a situation makes it impossible to describe the contacts of these tribes and the GAC population and to synchronised them in time. The pottery of these two cultures was never found together. The sites of this group are not well-presented in terms of information. They are mixed and usually have materials of different ages. Pottery that illustrates the independence of the named sites was chosen for its similarity with the classic eastern group GAC ceramics. But the question of its belonging to the GAC is open, so we may therefore label it „ceramic with GAC elements". The eleven sites with this ceramic were explored.

Zhitomir region, *Narodichi district*.

Khristinovka. Potsherds of four vessels which belong to the GAC ceramic.

1. A fragment of amphorae with lug. The thickness of the wall is 0.6 cm. It is pasty with a chamotte admixture. It was decorated with a classic right-angled stamp, but with some changes (Fig. 4:1).

2. Potsherd of a neck. The thickness of the wall is 0.5 cm. It is pasty with a chamotte admixture. It was decorated with right-angled stamp and prints of a round stick (Fig. 4:2).

3. A potsherd of a bowl.The thickness of the wall is 0.3 cm. It is pasty with a chamotte admixture. It is decorated with three rows of stamp that form a „fir-tree" (Fig. 4:3).

4. A potsherd of the bottom part. The thickness of the wall is 0.4 cm. It is pasty with a chamotte admixture. It is decorated with two rows of right-angled stamps (Fig. 4:4).

Zvizdale. Two fragments of GAC ceramic.

1. A potsherd with bend. The thickness of the wall is 0.4 cm. It is decorated with two prints of a cord and a row of stamps (Fig. 5:1).

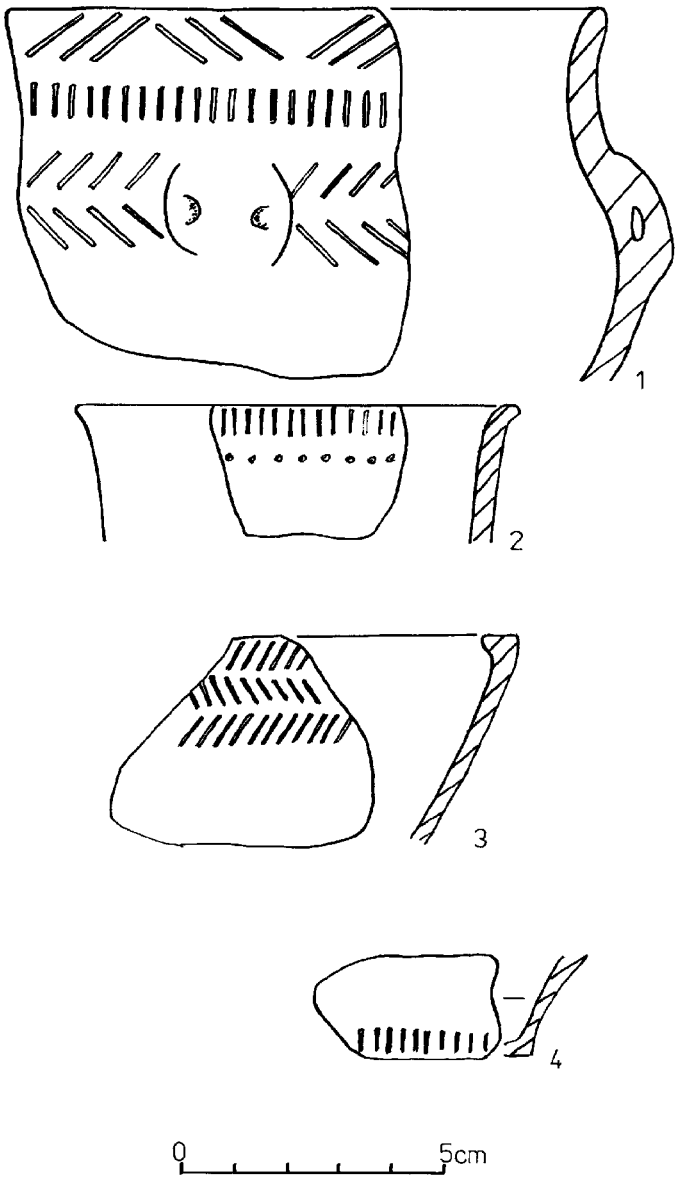

Fig. 4. Pottery with GAC elements. 1-4 - Khristinovka

2. A potsherd of a neck. The thickness of the wall is 0.4 cm. It is decorated with a right-angled stamp and a row of corded-crosses (Fig. 5:2).

Grezlya. Three fragments of GAC ceramic.

1. A potsherd of shoulder with lug. The thickness of the wall is 0.7 cm. It is pasty with a chamotte admixture (Fig. 5:3).

2. A potsherd of a neck. The thickness of the wall is 0.4 cm. It is pasty with a chamotte admixture. It is decorated with three rows of comb-stamps (Fig. 5:4).

3. A potsherd of the lid (?). It is pasty with a quartzite admixture. It is decorated with a right-angled stamp. (Fig. 5:5).

Kiev region. Konche-Zaspa. Two fragments of one vessel.

1. A potsherd of amphora (?). The thickness of the wall is 0.3 cm. It is pasty with a quartzite admixture. It is decorated with a right-angled stamp that forms the „parquet" pattern (Fig. 6:1).

Starosele (Baryshev district). Fragments of five vessels.

1. A potsherd of a neck. The thickness of the wall is 0.4 cm. It is pasty with a chamotte admixture, and 9 cm in diameter. It is decorated with a right-angled stamp (Fig. 6:2).

2. A potsherd of a neck (amphorae). The thickness of the wall is 0.3 cm, 12 cm in diameter. It is decorated with a row of right-angled stamps, a row of zigzag printed by a stamp, and on the body a row of right angled stamps (Fig. 6:3).

3. A potsherd decorated with rows of right-angled stamps, a round stick and comb-stamp zigzag (Fig. 6:4).

4. A potsherd of a neck. The thickness of the wall is 0.4 cm. It is pasty with a chamotte admixture. It is decorated with a right-angled stamp (Fig. 6:5).

5. A potsherd of a neck. The thickness of the wall is 0.5 cm. It is decorated with a nail-print (Fig. 6:6).

Kozintsy. (Pereyaslav-Khmelnytski district). On the Zagay site were found two potsherds of a vessel. The thickness of the wall is 0.3 cm. It is decorated with a comb-stamp and a row of round-sticks (Fig. 7:1, 2).

Cherkasy region. Kanev. A potsherd of a vessel. The thickness of the wall is 0.3 cm. It is pasty with a chamotte admixture. It is decorated with right-angled stamps and a comb-stamp zigzag [Bondar 1974] (Fig. 7:3).

Khmelna (Kanev district). On the Dubrovka site were found two fragments of a vessel with lugs, decorated with a right-angled stamp. The thickness of the wall is 0.5 cm. It is pasty with a chamotte admixture (Fig. 7:4).

Chernigov region. Obmachevo (Bakhmach district). Three fragments of GAC ceramic.

1. A potsherd of a neck. The thickness is 0.5 cm, and it is 14 cm in diameter. It is decorated with a row of right-angled stamps, zigzag with lines (Fig. 7:5).

2. A potsherd of a vessel decorated with rows of cord-stamps and right-angled zigzag stamps (Fig. 7:7).

3. A potsherd of a neck. It is decorated with cord-lines. The thickness of the wall is 0.4 cm (Fig. 7:6).

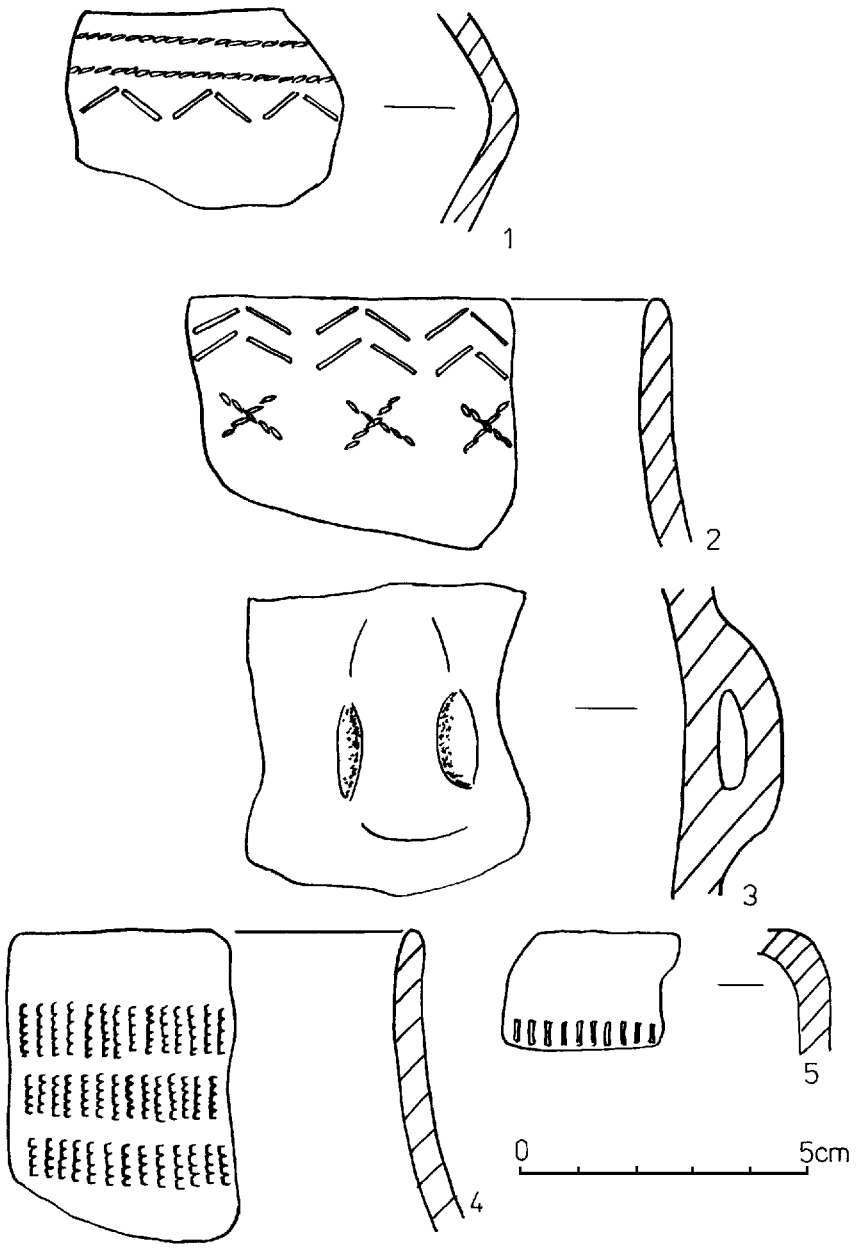

Fig. 5. Pottery with GAC elements. 1-2 - Zvizdale, 3-5 - Grezlya

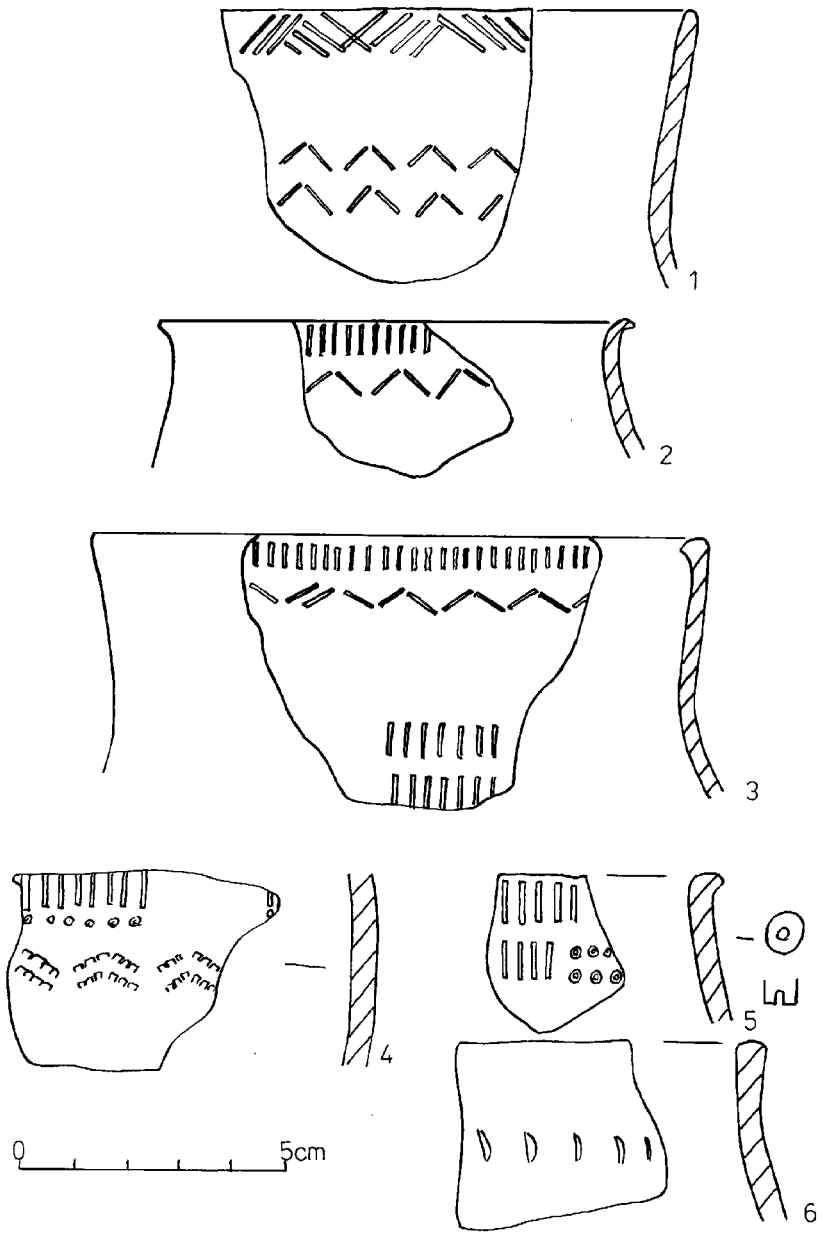

Fig. 6. Pottery with GAC elements. 1 - Konche-Zaspa, 2-6 - Starosele

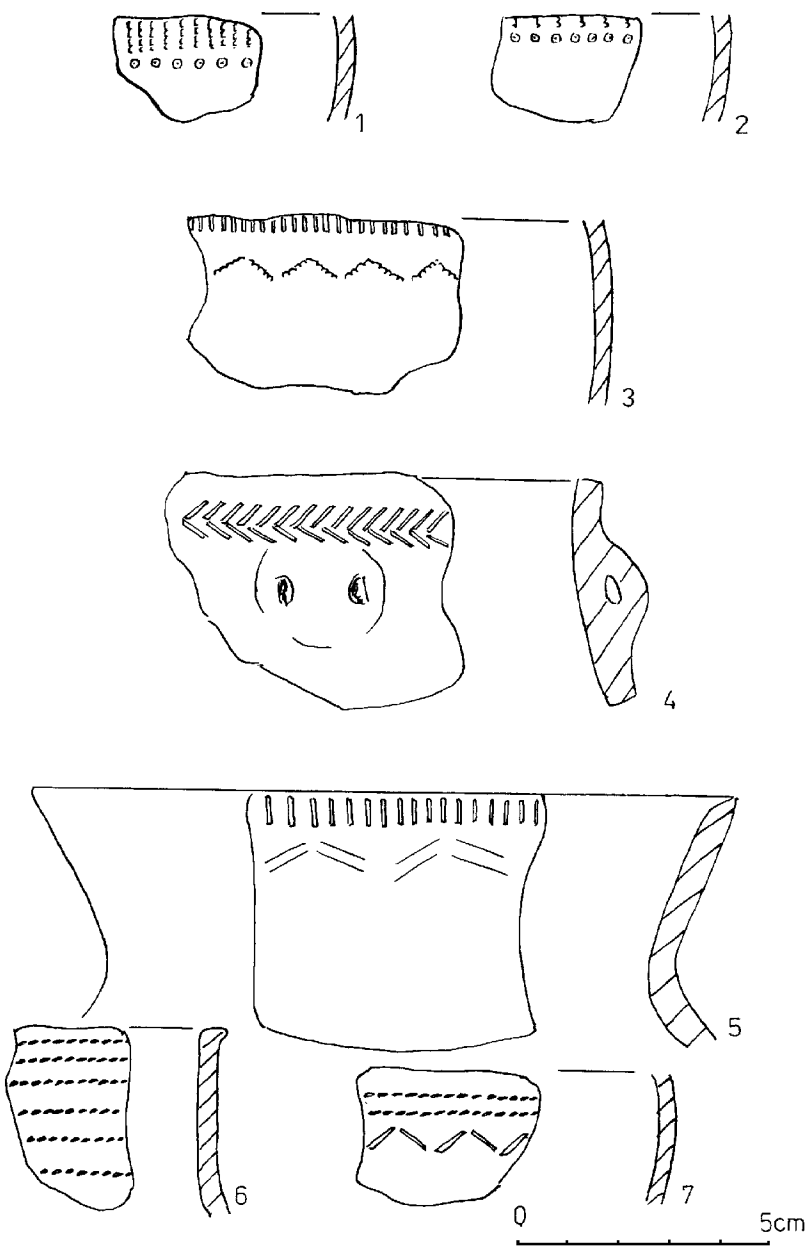

Fig. 7. Pottery with GAC elements. 1-2 - Kozintsy, 3 - Kanev, 4 - Khmelna-Dubrovka, 5-7 - Obmachevo

One-and-a-half kilometres up the river on the left bank of the river Seym one fragment of GAC ceramic was found. The thickness of the wall is 0.4 cm. It is decorated with a right-angled stamp and drown-lines.

The new sites force us to re-examine the processes that took place in the Middle Dnieper region during the Eneolithic-Bronze Age. All pottery was found in the same topographical situation as the settlements of the eastern group of cultures. But the character of these sites is not determined. Their context is also unknown.

Thus we could not name these sites settlements, but we can state that they were well-known in the whole territory of GAC.

The named artefacts also belong to the ceramic tradition of GAC. But they have some distinguishing features. Call them:

1. Moulding of the vessels: a/ Drawing off the end of the neck (Figs. 4:2; 6:2, 3, 5; 7:6); b/ Bend of the wall, forming the rib (Fig. 5:1); c/ Sadding of the neck, which makes it salient (Fig. 6:3); d/ Bi-conic body (Fig. 5:1); e/ Socket-neck of the vessel (Fig. 7:5).

2. Technique of decoration: a/ Comb-stamp (Fig. 5:4; 6:4; 7:1, 3); b/ Round--stamp with salient inside — „bird's feather" (Fig. 6:5).

Decoration: a/ Chosen composition by transposition of the links (Fig. 5:2, 6:1); b/ Horizontal „fir-tree" ornament (Fig. 4:1; 7:4); c/ Rows of oblique stamps (Fig. 4:1,3); d/ „oblique cross" (Fig. 5:2); e/ „parquet" ornament (Fig. 6:1); h/ Vertically drawn lines between squares formed with a right-angled stamp.

The technological features are present in a great number of vessels with chamotte admixture and red colour of pottery surface.

These materials very expressive, but not numerous, so any conclusions are premature. These sites need thorough archaeological exploration. We can assume that this ceramic represents the link between classic GAC and its ceramic tradition in the time of Middle Bronze Age.

Concerning the graves, we have no information. Possibly, some graves in pits did not belong to the Yamnaya culture (as we know in Moldavia). Only one GAC grave is known in the steppe zone of Ukraine.

In the forest-steppe and forest Dnieper investigations leading to the apportionment of different ethnic groups among the burials in its is only beginning. The possibility of determining such groups of burials, which may be connected with GAC's bearers, is not excluded. The finds of the axes made of grey stone, characteristic for the GAC in the territory of this region, are positive data for such a statement of the problem. Three such finds are known to the author: one axe is from the Cherkasy region, two of them are from the Kiev region. Unfortunately, the conditions of their discovery are not documented, goods are found by chance, and it is impossible to connect them with any complex. But the fact finds in themselves is evidence of the accuracy of the statement of the problem that the GAC's elements, probably, are not apportioned from the series of burials which are attributed to the Yamnaya culture at present.

2. ELEMENTS OF GAC IN THE BRONZE AGE STRUCTURES IN THE MIDDLE DNIEPER REGION

We turn to the description of objects in the Middle Dnieper region, which in our opinion have the elements inherent in the tradition of GAC in ceramic complex.

The question will be about numerous settlements of the Middle Bronze Age known in the Middle Dnieper region (they belonged to the Early Bronze period in the system of European chronology, according to dating of GAC in Europe).

The data about settlements were accumulated from the end of the last century, and systematic excavations and prospects began in the forest-steppe of the Dnieper region in 1945. T. Passek, investigating the locations in the Kanev area (Cherkasy district), dated them to the time of CC, taking into account specific forms and ornamentation of ceramic, with which one can consider Catacomb ceramic [Passek 1945:14-28]. At the same time, prudent opinion, obviously, was conditioned by the presence of particular elements of forms and pottery ornamentation not connected with the Catacomb tradition.

The number of those supporting the idea that the settlements belonged to the Catacomb tradition increased along with the accumulation of materials. T. Popova distinguished the particular Middle Dnieper variant of CC, where corded ceramic, ceramic with multi-rolled ornamentation, and pottery with the impression of right--angled stamps was considered as an indivisible complex [Popova 1955:67-73].

From the beginning of excavations on a wide-scale in the Kanev area in the nineteen sixties, the situation in the determination of the assignment of cultural monuments was changed. Excavations made at the object Iskovshchina (in Kanev) [Berezanskaya, Bondar 1964:32-51] served as a determinant in volte-face. In settlements the fragments of several potteries among more than 200 ceramic units were found. They are analogous to funeral stock sets of MDC, which were picked-out according to the materials of graves on right side of the Dnieper [Gorodtsov 1914]. Based on the finds of such ceramic in the settlement Iskovshchina, the leaders of excavations included this monument in the range of objects of MDC.

For the time being, the revision of cultural attribution of these monuments is continuing. The works of S. Berezanskaya, I. Artemenko, and N. Bondar, dealing with settlements such as Iskovshchina, are devoted to the evidence of their belonging to MDC. A similar point of view, however, was accepted only later by investigators of the Bronze Age in Ukraine.

O. Shaposhnikova did not agree with the unconditional assignment of monuments such as Iskovshchina to CWC [Shaposhnikova 1971:28-42], and she offered as a matter of fact a point of view aiming at a compromise. According to this point of view, the Middle Dnieper region was occupied by tribes of the CWC and CC during the Bronze Age. Paying attention to the similarity of several monuments and materials of CC on the Middle Dnieper and materials of settlements such as Perun in Nadporozhye, where the presence of Catacomb components is incontestable, the

author points out the ceramic's peculiarities in settlements of the Middle Dnieper region. She connects them with the presence of MDC elements.

S. Bratchenko recognised the presence of a Catacomb population in the forest Middle Dnieper region to a certain degree. This article dealing with the addition of Mnogovalikovaya culture (Babinskaya, following the author's terminology) is about the participation of a Catacomb component in this process. This component is noted for the monuments of the country between the Don and Dnieper. As a whole, the article was not dedicated to the evidence of Catacombs belonging to the monuments of the Middle Dnieper region and the author did not corroborate this thesis by detailed argumentation [Bratchenko 1977:36].

After the article had appeared languid discussion was discontinued. The following works, dealing with archaeology and the history of the region, including generalised editions and training aids, consider forest Dnieper as having been settled by tribes of MDC. The forest Dnieper was found excluded from the territory which the Catacomb population inhabited. The northern boundary of the CC was drawn along the frontier of steppe and forest-steppe [Bratchenko, Shaposhnikova 1975:403-420].

I. Artemenko offered a scheme of adding stages of cultural development, determined the chronological framework of its existence, and considered economic and social aspects of MDC tribes' lives [Artemenko 1985:364-375; 1987:35-51] in his concluding works dealing with the research of the monuments of the Early Bronze Age.

As to noticeable Catacomb indications of ceramic in settlements, the author settled the problem by means of choosing a contacting zone between Corded and Catacomb tribes in the southern belt of the forest-steppe. Since that time such a view has not been called into question, except for single corrections regarding chronology, and the cultural assignment of the monuments.

But the paradox of the situation is that archaeological material decidedly contradicts what previously seemed to be a harmonious and clear system of ideas about the archaeology of Middle Dnieper region during the period of the Bronze Age. It is necessary to revise almost all the field's theses: a monument's origin, chronology, division into periods, even assignment to a culture of all similar settlements. The task of investigators is one that can be worked out only by using new methods to approach the problem.

The materials of the settlements of the Iskovshchina-type are divided into groups. Ninety percent of the vessels belong to the CC — historical community — and the last group belongs to the MDC, pieces of which were found only in a few sites [Serdyukova 1989:206-207; 1994:1-17].

The appearance of Catacomb tribes in the Middle Dnieper region is necessary to make a connection with the population's advancement from Nadporozhye, reserving the objects of the Perun type, up the Dnieper. The riverside regions and left-bank tributaries are developed. The ceramic complex of the Catacomb population occurs in an already formed appearance in the territory of the Middle Dnieper

region, and it has no local prototypes. The funeral complexes which are found in the region, and numerous accidental finds of Catacomb goods, do not contradict the Catacomb categorisation of the objects under review. On the other hand, the CWC objects in the Middle Dnieper region are heterogeneous. There are such objects which may be attributed to the early CWC complexes among them. They are: burial with amphora of type „A" in Grishentsy, the complexes with Strzyżów ceramic, the burial of the Subcarpathian culture's early period at Volodarka, and also ceramic, found at the settlement, which may be attributed to the materials of the MDC [Serdyukova 1994:8].

Thus, the picture of the settlement process in the Middle Dnieper region during the time of our interest is more complicated than it seemed before. The complication of its perception is connected with the fact that the traits, looking alien both to the Catacomb, and to the MDC's ceramic traditions, are in the ceramic complex of the settlements. These traditions cannot be connected with Yamnaya culture, which is considered as having been present previous to the objects of the Iskovshchina type in the given territory. Some elements, inherent in Catacomb objects in the region to the north of Kiev, may be considered Maryanovka, which appeared owing to contacts of the alien Catacomb population and the Maryanovka tribes, living in Desna.

The other specific traits which in our opinion must be carefully regarded in light of the Catacomb interpretation of the objects should be connected, probably, with ceramic traditions of GAC.

Let us consider how such traditions became apparent in CC ceramic.

Four types of vessels are distinguished. These vessels are inherent in the ceramic complexes of settlements such as Iskovshchina: high-neck pots (the ratio of the neck height to the diameter of the rim = 1:6, 1:7), middle-neck pots (the ratio of the neck height to the diameter of the rim = 1:8 – 1:10), short-neck pots (the ratio of the neck height to the diameter of the rim 1:11 – 1:20), without neck pots.

High-neck vessels have a three-part profile, socket neck, and salient sides. Such pots are known in late Catacomb objects of the territory between the rivers Don and Dnieper and are distinguished by specific ornamentation, made by single-line and polyline cord, by different stamp impressions, pressing, and drawn lines. Their ornament is also original: horizontal lines on their necks, triangles, zigzag, and semi-circumference on the trunk. The vessels are often decorated by horizontal lines of impressions of different stamps, disposed like a „fir-tree" (Fig. 8:2). This system of picture and method of an ornament's placement are characteristic of all late Catacomb potteries. However, we also meet other graphic devices on the vessels of this type in the Middle Dnieper region, and these devices are not known in the other territories occupied by Catacomb tribes.

The distinctive peculiarity is an application of a right-angled stamp, standing vertically. It is also characteristic that the frequency of its placement on the pottery reiterates the traditions, known in GAC ceramic. Both compositions, especially those

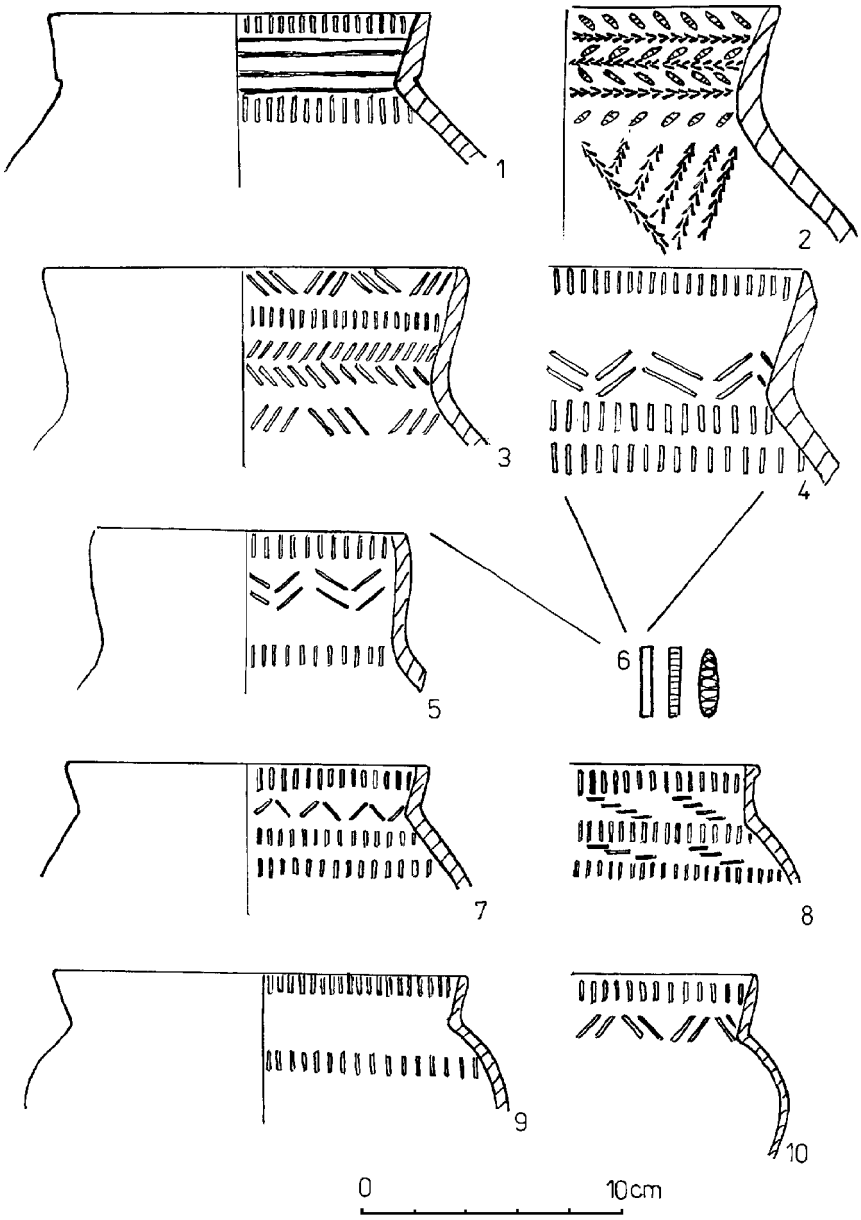

Fig. 8. Elements of the tradition of GAC at the Catacomb culture's pottery from Middle Dnieper region

peculiar to the Catacomb graphic style, and those which reiterate the peculiarities of the GAC style, are imprinted with this stamp (Fig. 8; 9:1-9).

Wide-spread composition of GAC amphorae — the alternation of vertically standing impressions of a right-angled stamp and the lines of zigzags — both single and double all become characteristic of the graphic manner of Catacomb objects in the region. It should be noted that such a transmission of an imprint is taken by Catacomb ceramic complex so much that the subject is implemented by a right-angled stamp interwoven by thread, a comb-shaped stamp, or a so-called „caterpillar". The ornamentation with a vertically standing stamp is used for other subjects — all surfaces of the pottery or part of it is covered with this stamp.

The same graphic methods become characteristic of other types of vessels, especially for the pots with a short neck. We observe different modifications of the subject which is popular in GAC — the alternation of vertically standing right-angled stamps and zigzags (Fig. 9:1-8). It should be noted that the manner of decoration by the stated subjects is not peculiar to Catacomb ceramic, and it has the characteristic horizontal placing of elements alternating with the motif „fir-tree", also disposed horizontally.

Some less but expressive-enough such methods of imprint are represented on the short-neck and without neck (Fig. 8:7-10; 9:9).

The application of the graphic methods described above is distributed unevenly throughout the Middle Dnieper region. It is represented to a lesser degree in the objects of the Kanev group than in the objects of the Kiev group.

In the Kiev group we meet a modification of high-neck vessels' type — these pots have straight, at times somewhat salient sides. Vessels are ornamented also in a manner which shows the development of graphic methods, ascending to the GAC tradition (Fig. 8:5). As a rule, these pots are thin-walled (the wall thickness is less thab 0.5 cm), and their surface is smoothed, at times to a polished state.

To a far less degree we meet another motif, characteristic of the GAC graphic tradition: alternations of lines with vertically standing right-angled stamps impressions below (Fig. 9:6).

MDC ceramics are found a little at the settlements of the Iskovshchina type. However, we observe some elements of the GAC ceramic style on the glass-shaped vessels found in the settlement Kozintsy and Trakhtemirov. Such an application of a right-angled stamp, standing vertically, the character of the stamp's dimensions and impressions (their frequency) are those most closely co-ordinated with GAC traditions (Fig. 9:10, 11).

There are such elements in the ornamentation of Catacomb ceramic which are general for many Eneolithic cultures in the Bronze Age in Europe, including GAC — these are triangles, the lines of inclined lines, framed by fringe. There is no point in connecting them genetically, but the community of imprint, probably, reflects also the community of ideology. Therefore, the adoption of seemingly alien subjects in the ornamentation of pottery looks to be an organic occurrence.

Thus, on the one hand, we have substantial evidence as to the presence of

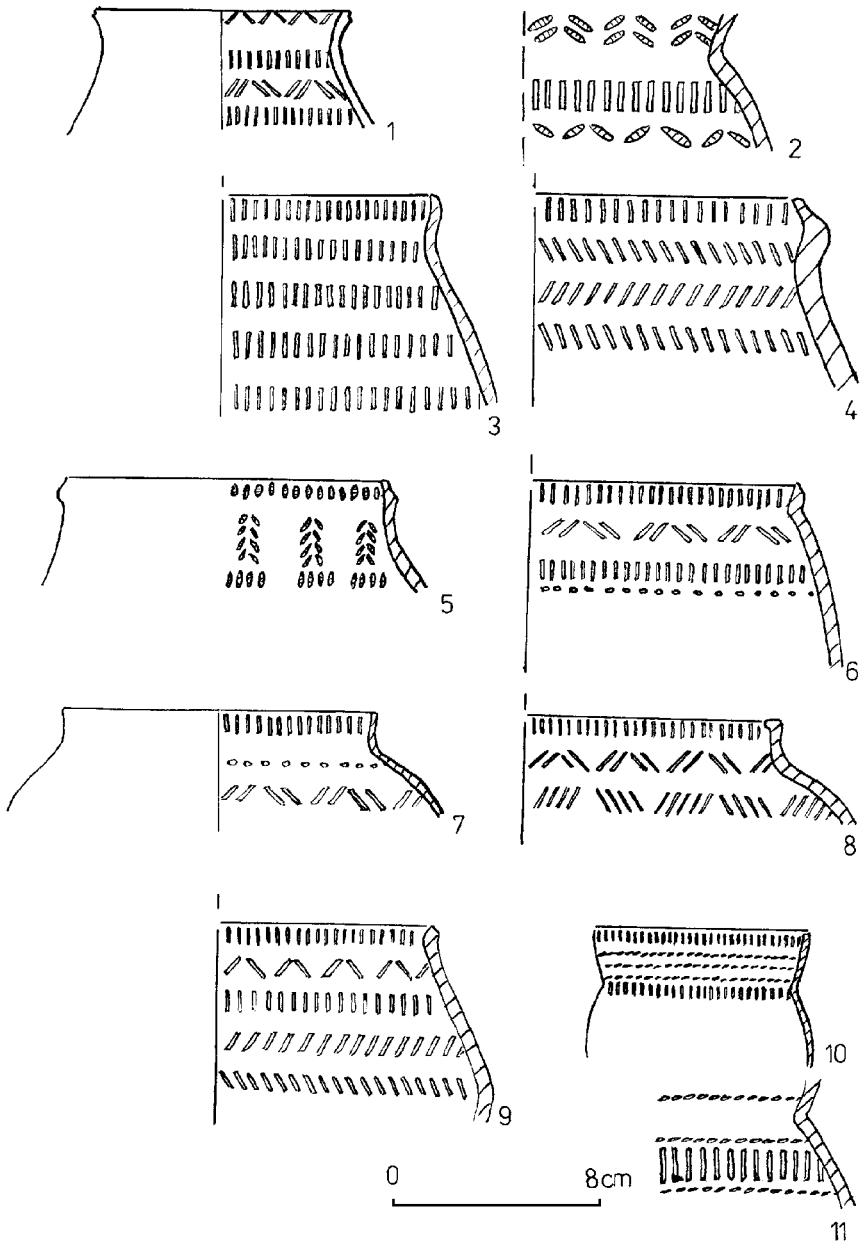

Fig. 9. Elements of the tradition of GAC at the Catacomb culture's pottery from Middle Dnieper region

GAC ceramic elements among a small number of finds in the Middle Dnieper region (the second group of the objects, described above); on the other hand, we see how graphic traditions of GAC are grasped and interpreted in the ceramic of the settlements in the Middle Bronze Age in the region under review. The confusion as to the concepts Early and Middle Bronze Age is connected with the fact that, for the present, MDC objects are considered as having formed the range of GAC objects, as they were included in the European system of division into periods, and they should be attributed to the division into periods in Ukraine and included in the middle period of the Bronze Age in the presence of the view of them as belonging to the Catacomb culture-historical community.

3. CONCLUSIONS

The problem of the inclusion of GAC ceramic traditions into the ceramic complex of cultures in the Middle Dnieper region is open for the present. The fortune of GAC tribes living in on Ukrainian territory is not completely clear. As is generally known, GAC objects extended to the upper reaches the Dnieper [see in this volume: Shmidt, Szmyt, Ritual...]. Probably, the influence on Ukrainian regions should be connected with Belorussian territory, where the settlement of GAC were found. The presence on the ceramic fragments of GAC elements of signs, known in the ceramic complex of the Bronze Age cultures in the Middle Dnieper region (the application of a comb-shaped stamp, the design of a halo's brim by different bulges, biconic form of the profile and the rest), is probably evidence of the coexistence of separate GAC groups with bearers of the Middle Bronze Age cultures. In such a case, subsequent efforts to solve this problem must be connected with the search for criteria for the apportionment of the late period of GAC existence. It is necessary to conduct systematic investigations of this type in the stated territory.

Translated by the author and James Grossklag

ABBREVIATIONS

AAC	– Acta Archaeologica Carpathica, Kraków.
AO	– Arkheologicheskiye otkrytya, Moskva.
BPS	– Baltic-Pontic Studies, Poznań.
JIES	– The Journal of Indo-European Studies, Berkeley.
KSIA	– Kratkiye soobshcheniya Instituta Arkheologii, Moskva.
KSIA AN USSR	– Kratkiye soobshcheniya Instituta Arkheologii AN USSR, Kiev.
MIA	– Materialy i issledovaniya po arkheologii, Moskva.
SA	– Sovetskaya Arkheologia, Moskva.

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