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ON THE STUDIES OF THE SOUTH-WESTERN PERIPHERIES OF THE GLOBULAR AMPHORA CULTURE

The paper centers on issues related to the south-western centers of the Globular Amphora culture, situated mainly on the Bohemian Plateau and in Moravia. Its purpose is (1) to systemize the knowledge by including the accretion of relevant source data and (2) to explore the cultural context in which populations of the Globular Amphora culture lived, what form basis for (3) describing relationships between the given unit and other cultural phenomena (Řivnáč, Cham and Horgen cultures) in the area stretching from the drainages of the upper Elbe and Morava rivers to as far as the Alpine foothills. The main subjects of the work are selected aspects of the archaeological taxonomy, but in the last part certain interpretations of the cultural relationships shall also be discussed.

KEY WORDS: Late Neolithic, Globular Amphora culture, settlement, chronology, cultural contacts

In the studies of the Neolithic, the Globular Amphora culture (GAC) could be found as one of the most interesting taxonomic units. This is so not just because of the particular combination of relics of human activity that it consists of, but above all because of its high regional diversity and the variety of cultural milieus in which it is recorded. This paper centers on issues related to the south-western centers of the GAC, situated mainly on the Bohemian Plateau and in Moravia. Against the backdrop of a significant advance in the study of the GAC in the major centers of its settlement in central and eastern Europe (Kujawy – Szmyt 1996; Middle Elbe-Saale region – Müller 2001; Volhynia and Podolia – Szmyt 1999), our knowledge of the south-western regions is far from being sufficient. This deficiency results from both meagerness of source materials, composed mainly of archival data or random finds, and only incipient state of taxonomic constructions (compare,

however, recent attempts to build systematic taxonomies: Zápotocký, Dobeš 2000) as well as chronological studies or settlement investigations (preliminary attempt: Rulf 1983). The deficiency is aggravated by a shortage of comprehensive studies of the model how GAC societies functioned in a regional cultural environment. The purpose of the present paper is (1) to systemize the knowledge by including the accretion of relevant source data and (2) to explore the cultural context in which GAC populations lived, what form basis for (3) describing relationships between the GAC and other cultural phenomena (Řivnáč, Cham and Horgen cultures) in the area stretching from the drainages of the upper Elbe and Morava rivers to as far as the Alpine foothills (Fig. 1). Therefore the main subjects of the work are selected aspects of the archaeological taxonomy, but in the last part certain interpretations of the cultural relationships shall also be discussed.

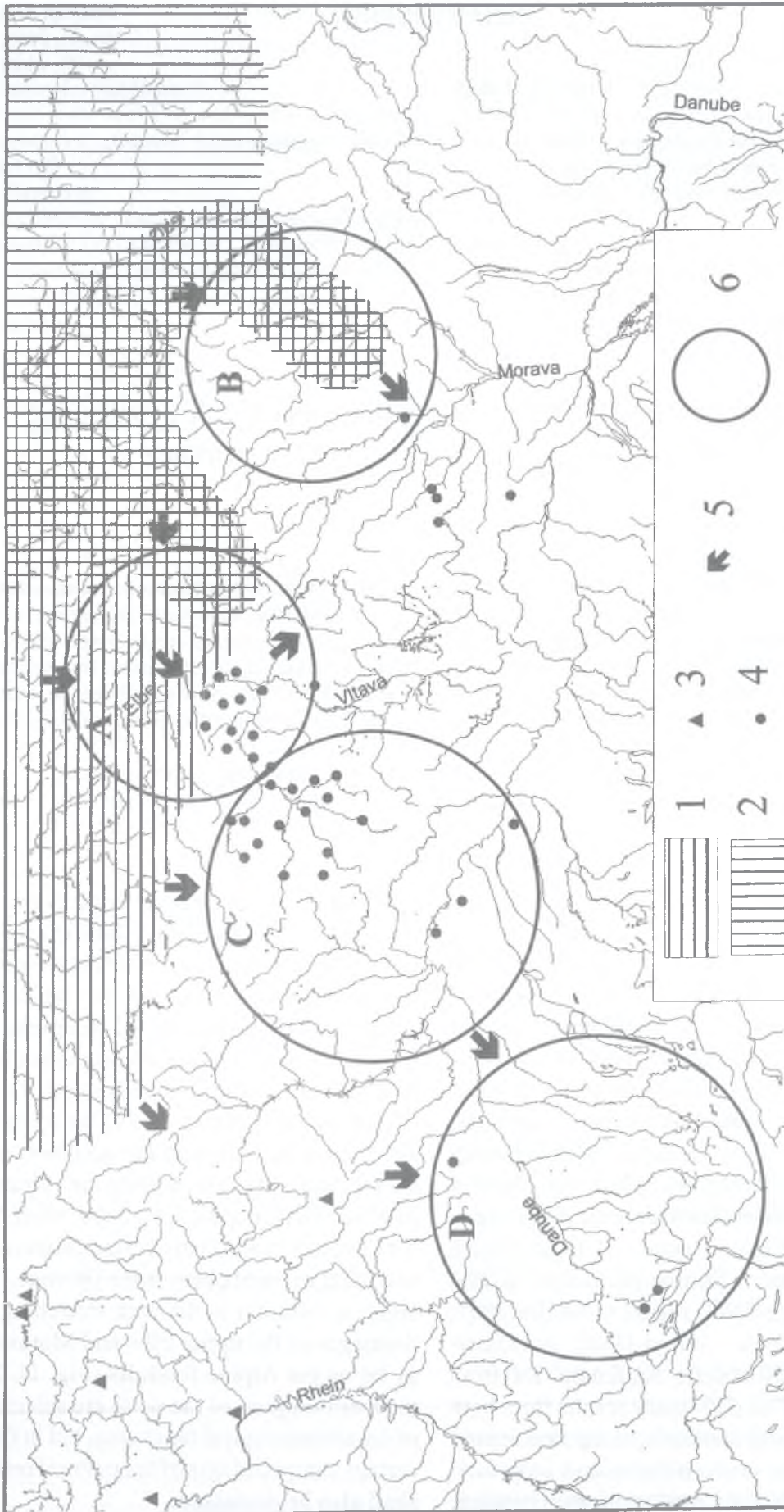


Fig. 1. GAC in the area discussed in the paper.

Key: 1 – the western GAC group, 2 – the central GAC group, 3 – single sites of the GAC, 4 – sites of the other cultures with the GAC traits, 5 – directions of the GAC influences, 6 – area discussed in the paper (A – Bohemian Plateau, B – Moravia, C – Danube-Berounka area, D – Lake Constance-Danube area).

1. THE GAC SETTLEMENT IN THE DRAINAGES OF THE UPPER ELBE AND MORAVA RIVERS

Two separate GAC concentrations are located on the Bohemian Plateau and Moravia. In both cases we deal, without any doubt, with the remains of once thriving settlements of GAC populations. Apart from this, however, the concentrations display significant differences both in respect of the source structure, and the origins and changes of the GAC.

1.1. The GAC settlement on the Bohemian Plateau

A more complex situation seems to be on the Bohemian Plateau (Fig. 2). Among traces recorded there one can distinguish 'pure' GAC sites and sites where GAC materials occur in the context of other cultural groups, namely the Řivnáč and Cham cultures. In this part of the paper, I rely only on the former category of sites, whereas the other category shall be discussed later in the text.

At present, on the Bohemian Plateau, we know of 40 certain GAC sites and six others probably belonging to that culture (figures quoted after Ehrlich, Pleslová-Štiková 1968; Vokolek, Zápotocký 1990; Dobeš 1993, 1998; Zápotocký 2000; Zápotocký, Dobeš 2000). The functional structure of the finds is shown in Table 1.

According to opinions prevailing in the literature of the subject, 'pure' signs of GAC presence occur in the north-western, central and eastern parts of the Bohemian Plateau. A clear majority of them (about 50%) are concentrated in the north-western and central parts of the area in question, in the drainages of the Bílina and Ohře rivers and in the segment of the drainage of the Elbe between the confluences of the Bílina and Jizera rivers. This is true both of graves and other GAC settlement traces that defy closer identification. It is also there that all the hitherto known settlement sites are located (4 in all), i.e. those where GAC ground features were recorded. By contrast, in the eastern portion of the upper Elbe drainage only a small number of such sites (graves and indeterminate finds) are located.

The settlement sites mentioned here (Fig. 3) include three cases of encampment remains where single pits were identified: Hrdlovka okr. Teplice (Beneš, Dobeš 1992, 67-74), Kopisty okr. Most (Dobeš 1995) and Vrchnice okr. Chomutov (Dobeš 1993, 572). Only in Hrdlovka, taking into account the spreading of GAC pottery in the radius of 12 m, one can estimate the area of the camps to be 400-500 sq. m. A different situation is presented by the site in Lovosice okr. Litoměřice (Zápotocký, Dobeš 2000, 123), where old amateur excavations resulted in uncovering a portion of a large feature, the maximum size of which is 7.5 by 3.1 m, while its density reaches 1.7 m. It contained a large number of finds and is interpreted as a semidugout¹.

GAC graves found on the Bohemian Plateau (Fig. 4) are for the most part stoneless features (possible exception: a grave from Nová Ves okr. Praha-východ (?); Dobeš 1998, 142). The graves contained single burials (exceptions: Blšany okr. Louny – an adult with an infant; Předmeříce okr. Hradec Králové: one adult individual and skulls of four other people; Dobeš 1998) and grave goods that included mostly vessels (usually 3-8) and only rarely other objects (weapons, tools, ornaments) or parts of animal carcasses.

Apart from functional differences, a genetic diversity of GAC sites on the Bohemian Plateau has long been observed. It is evidenced by differences in traits recorded here that give reason for associating (a) some sites directly with the western group of the GAC, while (b) others can be linked to its variety encountered in Silesia. Additionally, there is a group of materials (of a poor or equivocal structure of traits) that cannot be unambiguously classified.

¹ Similar features and similarly interpreted are found in Kujawy (e.g. in Tuczo 1 – Jażdżewski 1930 and in Brześć Kujawski 5 – Wiślański 1966). Features displaying such traits, which are explored now, are interpreted at some sites as natural depressions filled with settlement debris (Szmyt 2000, 155-165).

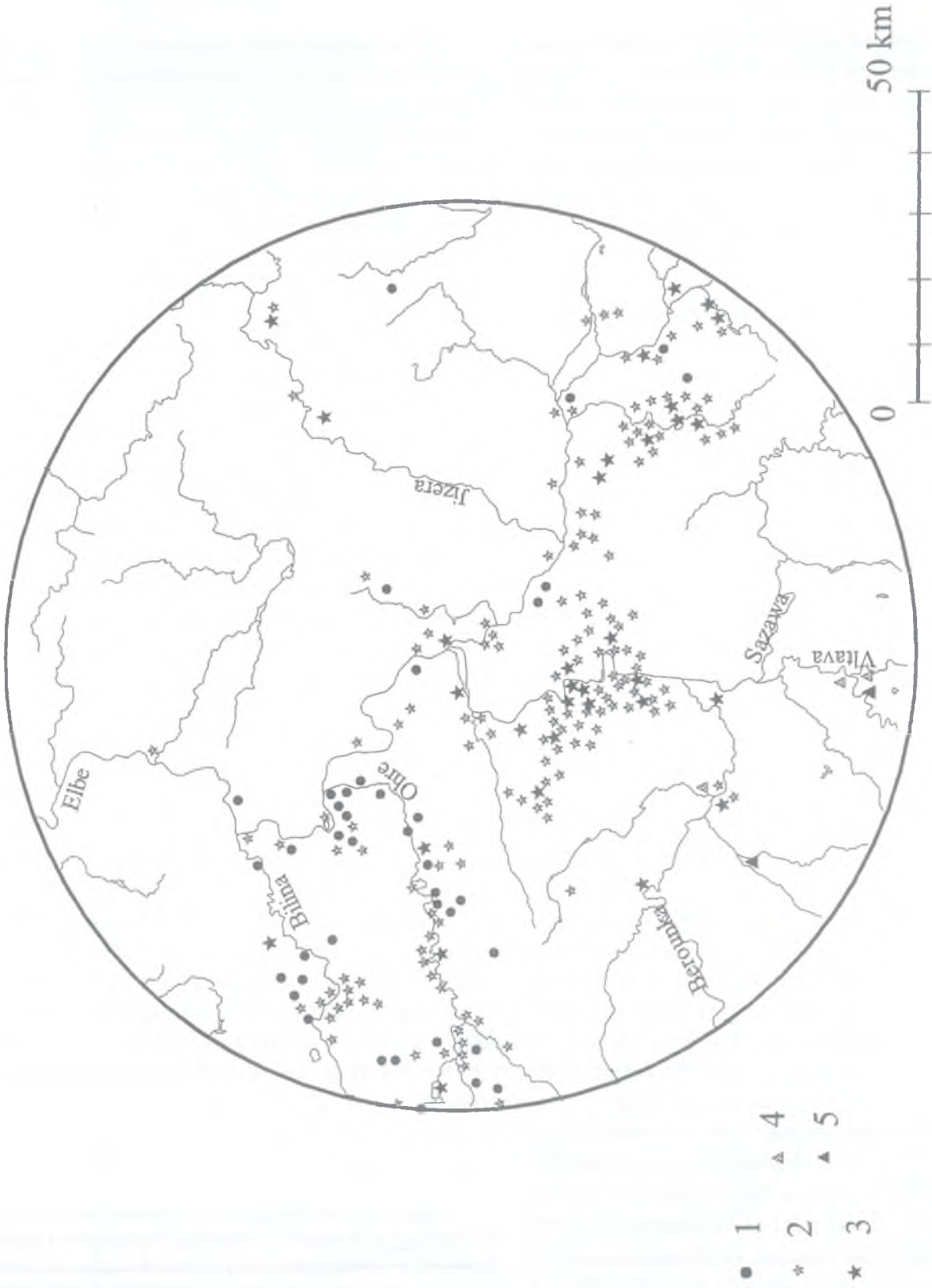


Fig. 2. GAC in the Bohemian Plateau.
Key: 1 – sites of the GAC, 2 – sites of the Řivnáč culture, 3 – sites of the Čalčice culture, 4 – sites of the Cham culture, 5 – sites of the Cham culture with the GAC traits.

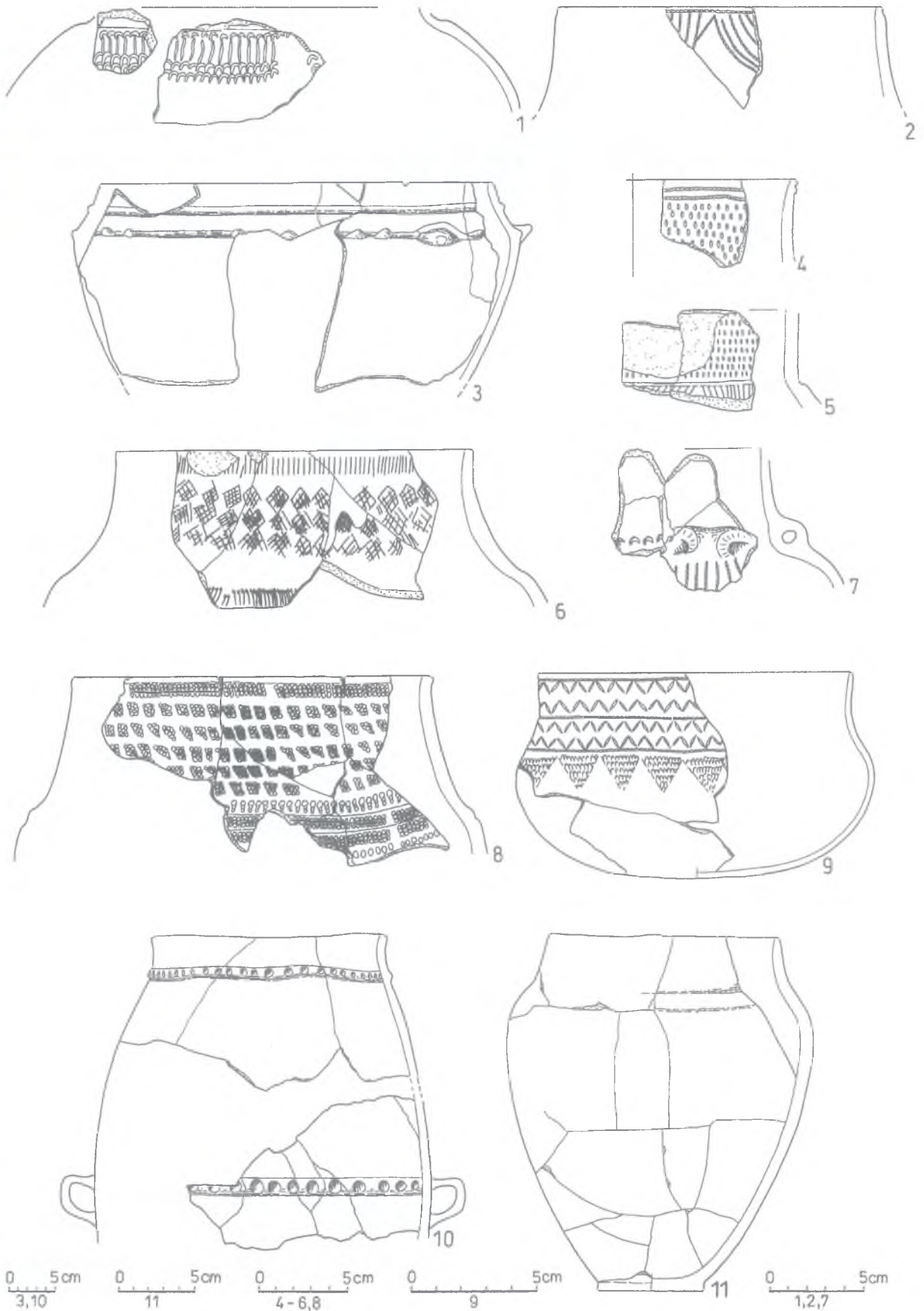


Fig. 3. Pottery of the GAC from settlements/camps in the Bohemian Plateau.
 1-2, 7 – Kopisty, okr. Most; 3-6, 8, 10-11 – Lovosice, okr. Litoměřice; 9 – Hrdlovka, okr. Teplice.
 Foll. Beneš, Dobeš 1992, Dobeš 1995, Zápotocký, Dobeš 2000.

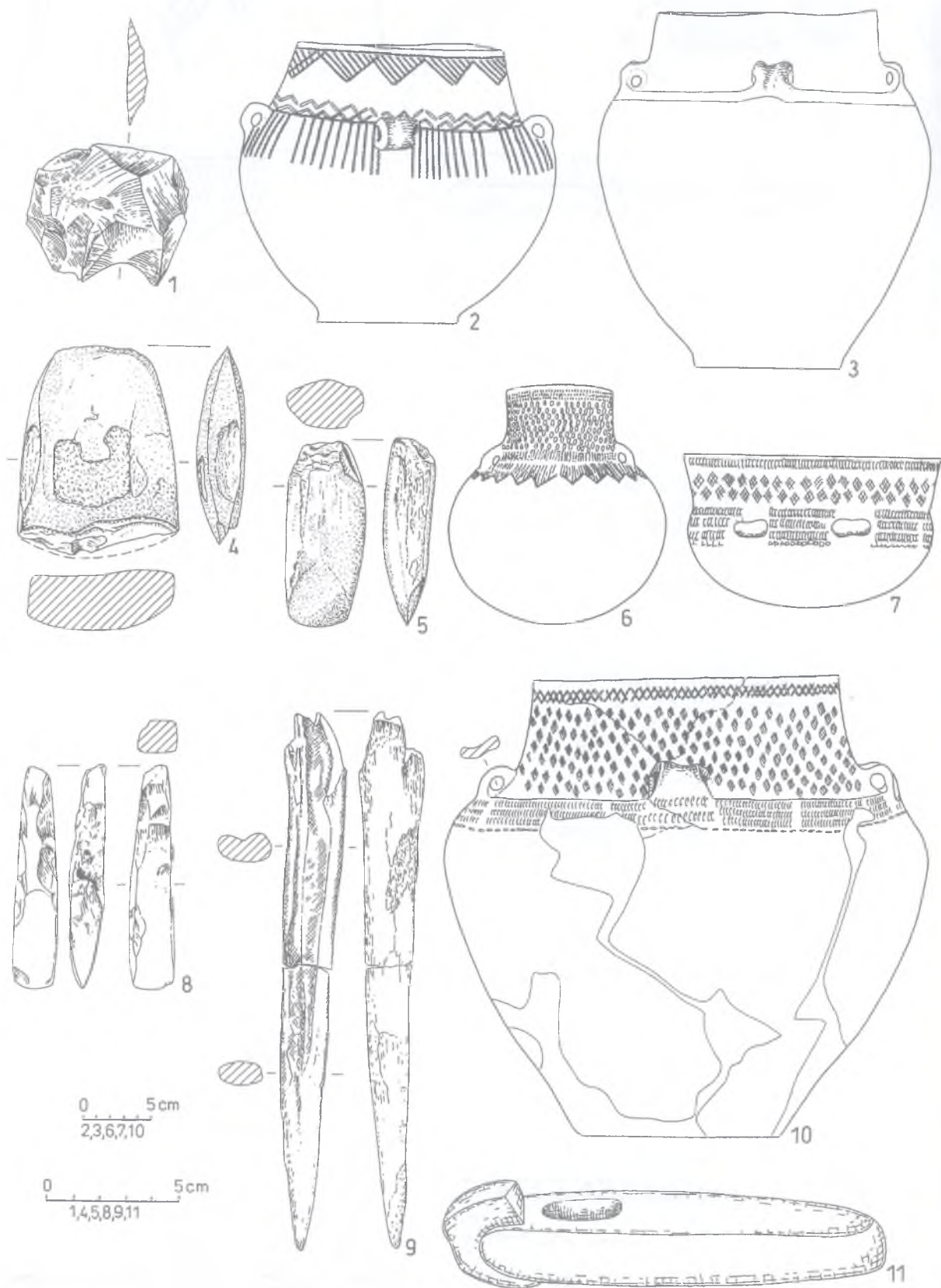


Fig. 4. Assemblages from the GAC graves in the Bohemian Plateau.
1-5 – Hrdlovka, okr. Teplice; 6-11 – Bešice, okr. Chomutov. Foll. Dobeš 1998.

a. In the first case we deal with the GAC remains that show traits known from its western group, e.g. forms of pottery (two-handled globular amphorae and four-handled wide-necked amphorae as well as round-bottom dishes) and its ornamentation (e.g. vertical bands, hatched triangles, multiple rows of pits and rhombi – Fig. 3 and 4), types of stone goods (e.g. „Nackenkammart” from Bešice – Fig. 4:11) and forms of sepulchral features (stoneless graves). Sites having this structure of traits occur in the north-western and partially in the central parts of the Bohemian Plateau more or less as far as the line of the Jizera and Vltava rivers in the east (Pleslová-Štiková 1968, 165-166; Dobeš 1998, 169). They are both graves and settlement sites as well as indeterminate ones.

Relying on pottery, the genetic search may be narrowed down above all to Saxony. It is there that we find the greatest incidence of vessel forms and ornamentation patterns known from the Bohemian Plateau (Weber 1964: Altenburg Kr. Altenburg, Börtewitz Kr. Döbeln, Cossebaude Lkr. Dresden, Rositz-Gorma Kr. Altenburg, Lohma Kr. Altenburg, Trackenau Kr. Borna, Zauschwitz Kr. Borna). They are much scarcer in the northern portion of the Middle Elbe-Saale region (Beier 1988) and Brandenburg (Kirsch 1993); ornamentation patterns typical of Bohemia are non-existent in Moravia or Silesia. It is believed that the materials in question testify to the influx of ‘western’ GAC societies from the north to the Bohemian Plateau along the Elbe or across the Ore Mountains (Pleslová-Štiková 1968, 165).

The chronology of the sources has been defined so far by referring to the periodization and chronology of the Řivnáč culture in which the presence of western GAC traits defines basically the classic stage (from the decline of phase Ib to phase IIb; Pleslová-Štiková 1981, 162-169; 1995, 166). Now, it is also feasible to attempt an assessment of the temporal position of these sources against the GAC periodization in the Middle Elbe-Saale region (Müller 2001, 199-213). Patterns known from Bohemia fit there mainly into phases SB-SC and C-D, i.e. they can be dated there after 3100 BC (Müller 2001, Fig. 140 and 141). A recently published ¹⁴C date – Bln-4165 3360-3090 BC (Table 2) – for a charcoal sample from the settlement feature in Lovosice discussed above (Zápotočský,

Dobeš 2000, 139), seems to be slightly too early in the context of materials found there.

b. In the case of sites associated by Czech explorers (beginning with A. Stocký – 1926, 94-98; see also Hájek, Vlček 1956) with Silesia, we deal with materials analogous to those known from the central group and from the so-called transitional zone between western and central GAC groups (Wiślański 1966, 87). Within the latter, materials mainly from the Silesian concentration of the GAC are meant (Wojciechowski 1967; Hendel 1993; Pogorzelski 1997). These are sites above all where pottery with developed corded patterns was found (Fig. 3:2). The patterns showed varieties alien to the western group, namely, ‘herringbones’ and festoons.

The sites occur mostly in the eastern drainage of the Elbe (as far as the line of the Jizera-Vltava in the west). As a rule, these are sepulchral features (e.g. Předmeříce okr. Hradec Králové, Ohrada okr. Kolín – see photos in: Hájek, Vlček 1956, fig. 1 and 2). The discussed ornamentation patterns only rarely can be found in the western part of the Plateau (Kopisty (?) – Fig. 3:2; Dobeš 1995, Fig. 2:2). They are also found in the settlements of the Řivnáč culture both in the eastern and central or even western parts of the Bohemian Plateau. They find the closest spatial analogies in Silesia and Moravia and are consistently interpreted by all researchers as evidence of the influx of GAC population groups from those regions. The trails of translocation are hard to trace because of poor archaeological exploration of the Sudetes, in particular, the Kłodzko Basin (Kulczycka-Leciejewiczowa 1993, Map 3; Bronowicki 1999, 23).

In this case, too, the chronology of the sources was determined on the basis of co-occurring Řivnáč culture materials. In the opinion of E. Pleslová-Štiková (1981, 165-169), the emergence of ‘Silesian’ traits precedes the arrival of ‘western’ patterns and – relying on the observations from the site at Klučov okr. Český Brod – may be considered parallel with phase Ia of the Řivnáč culture. An independent chronological assessment is not easily available because of a lack of ¹⁴C dates for the sources under discussion. Any references to the GAC chronology in Silesia are not very helpful for the time being, either. The only ¹⁴C dates from Silesia available now (two datings from Żukowice site 34 – see Table 2)

show that relevant structures of traits (see Hendel 1993) developed there already in ca. 2950-2900 BC, but neither the beginning of their occurrence nor its end is clear. In another GAC agglomeration, in Kujawy (the center of the central group), festoon and 'herringbone' ornaments indicate the beginning of phase IIb and are dated between ca. 3250 and 3100 BC (Szmyt 2000, 300).

In the area in question, practically no sites combining both trait structures, i.e. 'western' and 'Silesian', have been recorded². In this context, it is worth mentioning, however, that a GAC pottery found further south, in Lower Austria (Baierdorf-"Am Koran", VB Hollabrunn; Ruttkay 2001, 70, Fig. 9), bears traits of both structures in question.

1.2. The GAC settlement in Moravia

In Moravia (Fig. 5) GAC sites were identified in the drainage of the upper Oder River, in the vicinity of Opava (Kouřil, Pavelčík 1989; Pavelčík 1993; Peška 1999) and in the upper section of the Morava drainage, specifically in the areas around Olomouc (Hájek, Vlček 1956, 6-7; Pavelčík 1993; Peška 1998, 1999; Šmíd 1999). The southern frontier of their range runs slightly south of the Prostějov-Přerov line. Discoveries were made here of 17 GAC sites and one probably linked to this unit. A separate category of finds, the so-called loose ones, which can only hypothetically be linked to the GAC, is made up of flint axes made of streaked material, probably banded flint excavated in the northern fringes of the Holy Cross Mountains. From Moravia and Czech Silesia we know of seventeen such artifacts (Janák 1999 and personal communication of L. Šebela³).

The functional structure of GAC sites in Moravia is markedly different from that known from the Bohemian Plateau: there are no GAC graves whatsoever. Most of the materials found there form small assemblages of pottery, while three sites present settlement remains. At Opava-Palhanec okr.

loco, however, only one GAC pit was explored. There is no clear functional classification of the site at Neplachovice okr. Opava available, where complete GAC vessels were unearthed (Kouřil, Pavelčík 1989, 145). Undeniably the most important and already best researched, two sites in the vicinity of Olomouc-Slavonín okr. loco: „Horní lán” (Peška 1998, 1999) and „U hvezdárny” (Kalábek, Tajer, Vitula 1990), lie within 1 km from each other. At site „Horní lán”, 35 GAC features have been discovered so far (Turek, Dvořák, Peška 2003), while three assemblages from GAC settlement pits have been published (Peška 1998, 136 and Table 2). The pits are most likely remains of at least two separate camps (Szmyt 2002, Fig. 12). For the other site we have only laconic information about 25 GAC settlement features (Kalábek, Tajer, Vitula 1990).

Hence, the analysis of sources must be limited to pottery only (Fig. 6). In this case, there is a clear link between Moravian sources and the Silesian region of the GAC. Both vessel forms (especially the prevalence of two- and four-handled flat-bottom amphorae) and ornamentation (above all developed cord patterns including festoons, 'herringbones', filled triangles; also stamp and relief ornaments) find direct analogies in Silesia (e.g. Wojciechowski 1967; Hendel 1993; Pogorzelski 1997). Worth stressing is also the similarity of settlement types readily visible in the domination of settlement sites over sepulchral ones. The closest in space, a small GAC concentration is located between the Osobłoga and Oder rivers (region of Racibórz and Głubczyce) in the northern foreground of the Moravian Gate (Kulczycka-Leciejewiczowa 1993, Map 3). Therefore, it seems to be most logical to associate GAC settlement in Moravia with the Oder trail of translocation (Pavelčík 1993, 191).

Relying on the review of published sources from Moravia, one can see their high degree of uniformity and recurrence of ornaments used. This would suggest cultural or chronological homogeneity of studied structures, although it may also be a result of the specific manner of collecting sources⁴.

² A possible exception: Kopisty.

³ I am very grateful to Dr. Lubomir Šebela for his kindly information.

⁴ Domination of single fragments or small assemblages of pottery and overrepresentation of more impressive finds with corded ornaments.

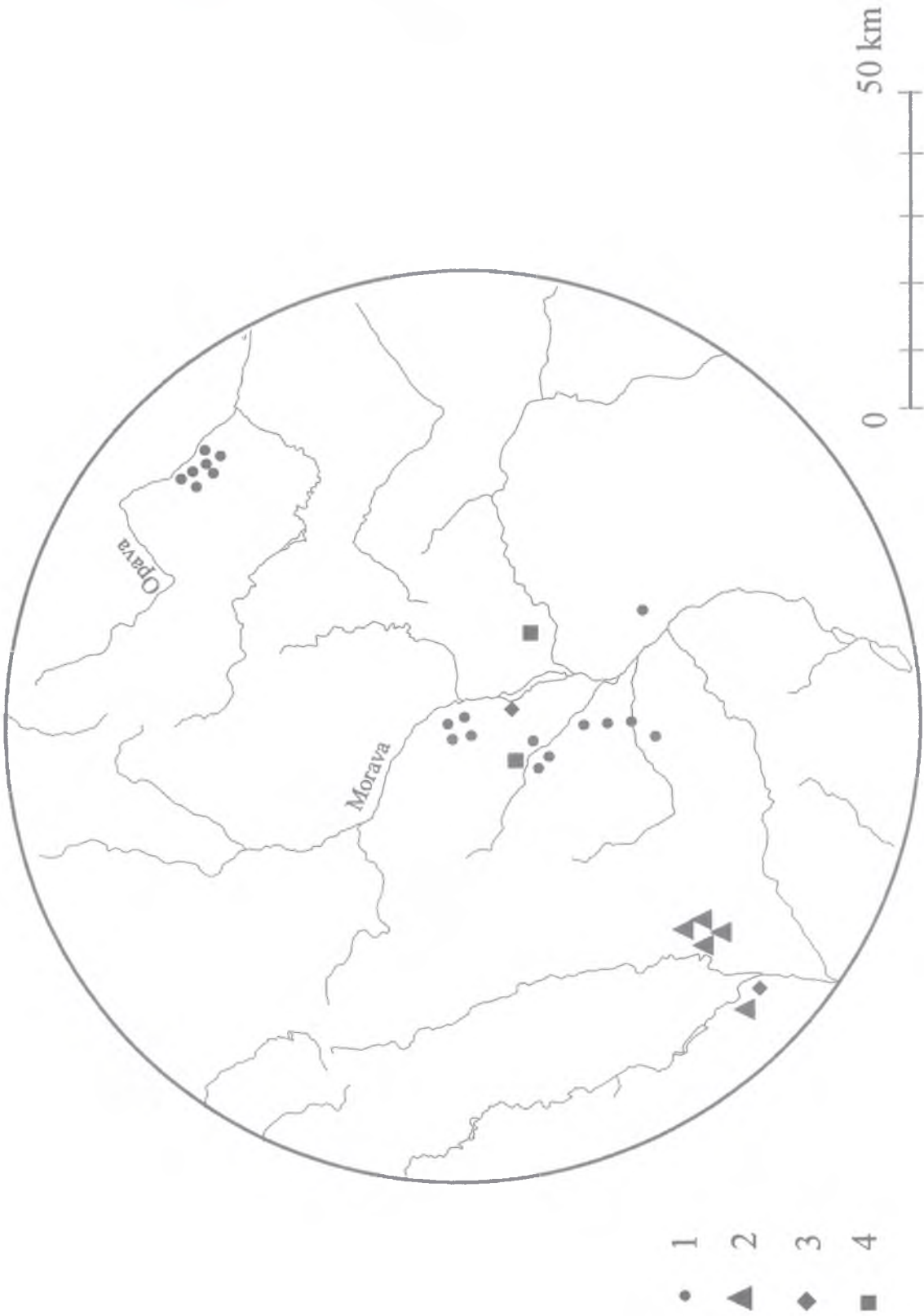


Fig. 5. GAC in the Moravia.
Key: 1 – sites of the GAC, 2 – sites of the Jevišovice culture with the GAC traits, 3 – sites of the Jevišovice culture with the GAC traits, 4 – sites of the so-called Strachotin-Držovice horizon with the GAC traits. Comment: any „loose finds” of the banded flint axes are marked.

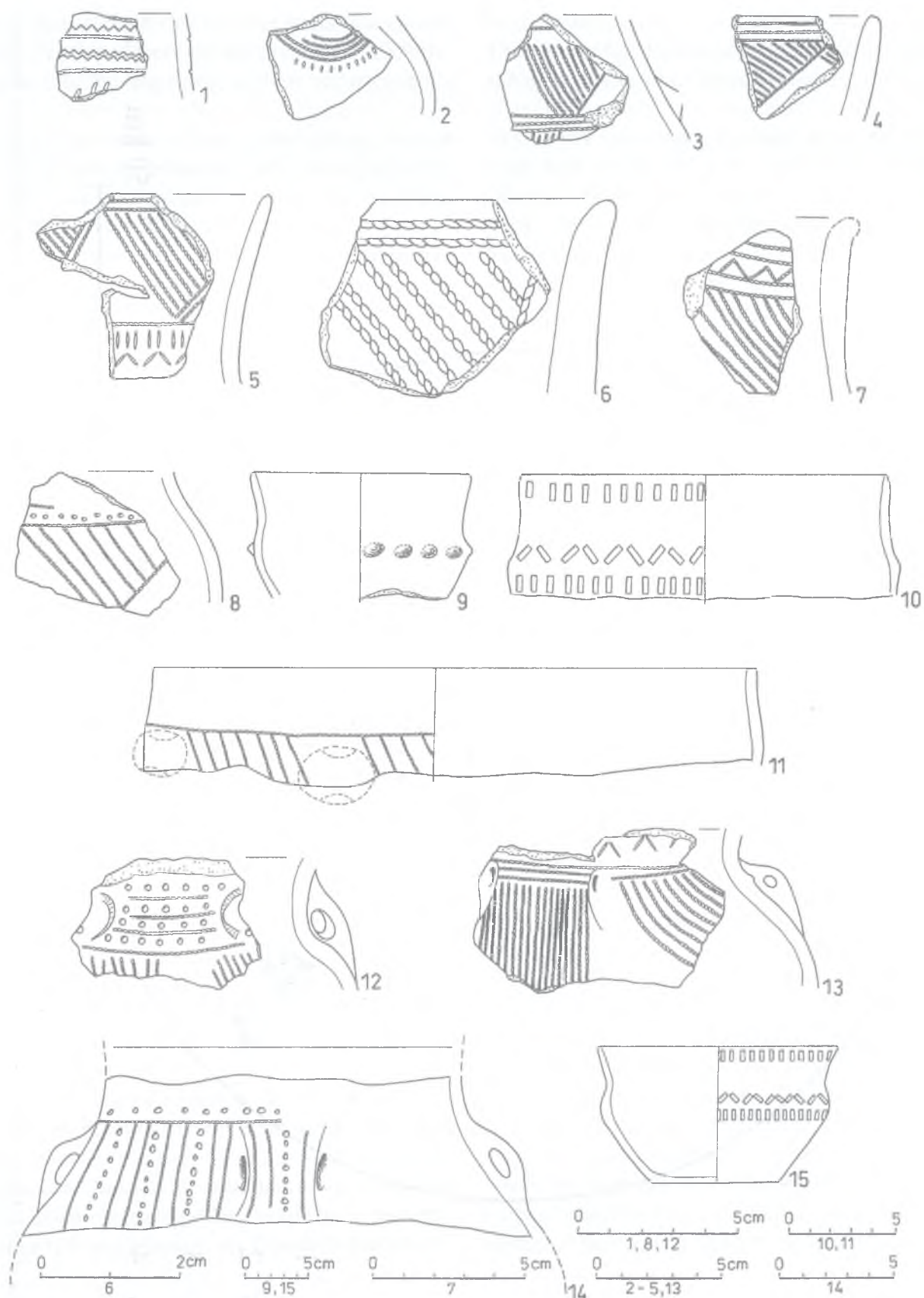


Fig. 6. Pottery of the GAC from settlements/camps in Moravia.

1, 8, 12 – Klenovice, okr. Prostějov; 2-5, 9, 13 – Olomouc-Slavinín – „Horní lán”, okr. loco; 6 – Olomouc – Křižkovská ul., okr. loco; 7 – Prostějov – TORAY, okr. loco; 10-11, 14 – Opava – Kolarska ul., okr. loco; 15 – Vavrovice, okr. Opava.
Foll. Kouřil, Pavelčík 1989, Pavelčík 1993, Šmíd 1999, Peška 1999.

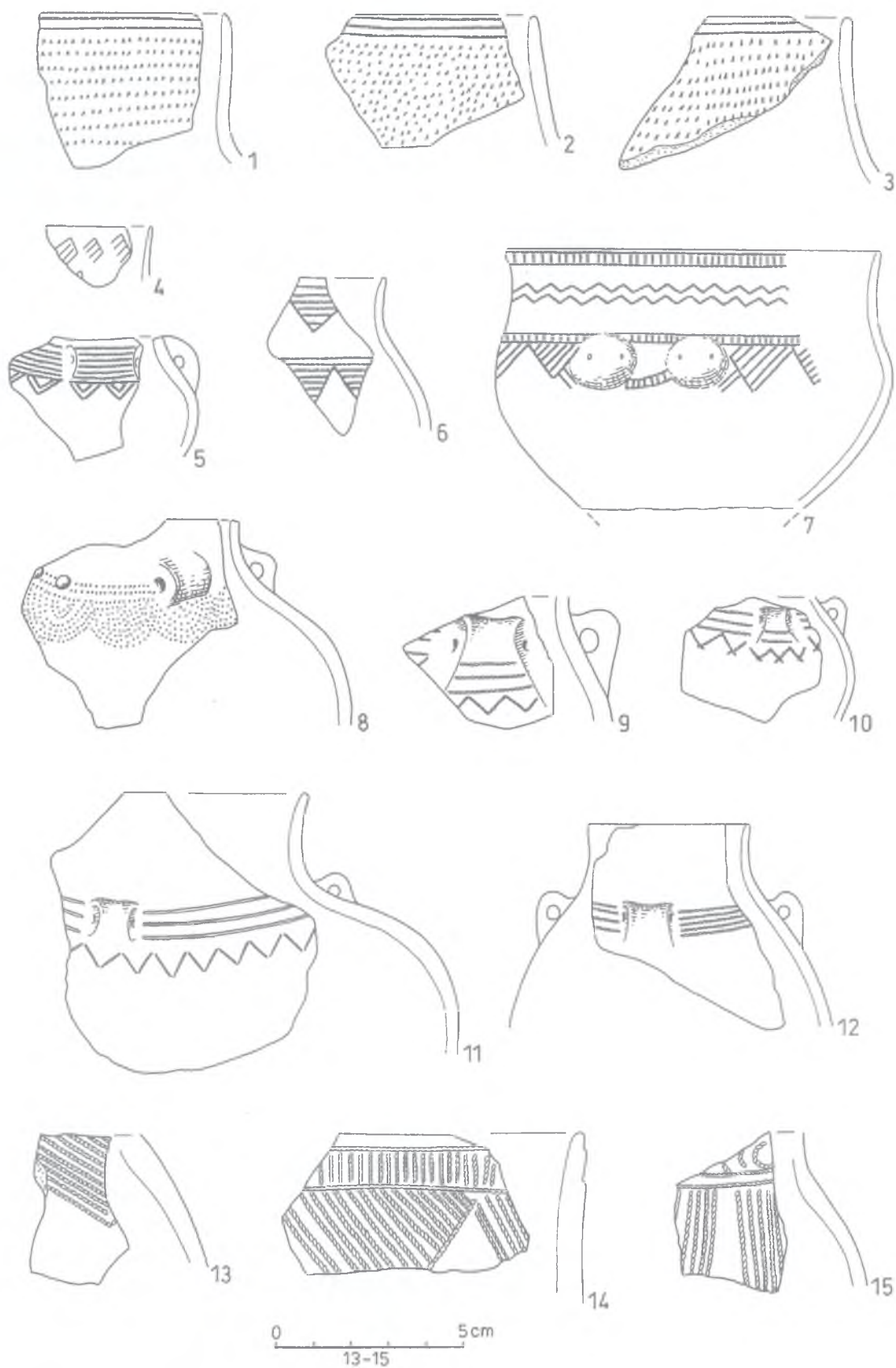


Fig. 7. Examples of the GAC traits in the Jevišovice culture (1-12) and in the so-called Strachotin- Držovice horizon (13-15).
 1-7 – Vysočany – Pallardiho hradisko, okr. Znojmo; 8-12 – Jevišovice – Starý Zámek, okr. Znojmo,
 13-15 – Prostějov-Držovice – „U hřbitova”, okr. loco. Foll. Medunová-Benešová 1977, Šmid 1999.

As I have already said, similar source assemblages to those from Moravia occurred in Silesia certainly ca. 2900 BC. The first dates for Moravian GAC assemblages (from Olomouc-Slavonín) indicate that analogous materials occurred there ca. 2800-2650 BC (Table 2 and personal communication of J. Peška⁵). Certain possibilities are offered as well by the observed co-occurrence of GAC traits (Fig. 7:13-15) and those of the Kosihy-Čaka group (Prostějov-Držovice okr. loco – U hřbitova, pit K508/98 and Předmostí-Díly okr. Přerov) within the so-called Strachotin-Držovice horizon (Šmíd 1999, 244-245; Peška 1999, 261). Relying on comparative definitions (Kadrow 2001, Fig. 9), the oldest possible date for such syncretic structures can be set at ca. 2450 BC. If these observations are corroborated, it would mean that at the time indicated the Moravian GAC must have

declined or – to put it more cautiously – its tradition declined.

A separate issue, which cannot be presented in any greater detail now, is the presence of GAC traits (Fig. 7:1-12) in southern Moravia within the Jevišovice culture (general description: Medunová-Benešová 1977 and 1993). GAC elements, analogous to those known from the Řivnáč culture, occur there in materials of both older (Fig. 7:1-7; Vysočany okr. Znojmo – Medunová-Benešová 1977, Fig. 10) and younger (Fig. 7:8-12; Jevišovice – Starý Zámek okr. Znojmo, layer B, Brno – Starý Lískovec okr. loco – Medunová-Benešová 1977, Fig. 9; Medunová-Benešová, Vitula 1994, Table 11:5-7, 14:5,6,8, 18:2, 20:10) phases. For the last of the cited sites, considered a single-phase settlement, we have five ¹⁴C dates setting a bracket of 2890-2700 BC (Table 2).

2. THE GAC AND THE ŘIVNÁČ CULTURE

The Řivnáč culture is defined as a unit grown from the underlayer of the classic phase of the Baden culture (Pleslová 1978a, 253-254). Comparative analyses place this unit in the period from the turn of the 4th millennium BC at the earliest to the middle of the 3rd millennium BC (e.g. Matuschik 1992, Table G), however, most of the time it is located in the older segment of this period, namely from 3100 to 2800 BC (Hanykýř, Maryška, Buchvaldek 1997, 9). We have now only one radiocarbon date for the unit in question from Stehelčevy-Homolka okr. Kladno: GrN-4065 2930-2690 BC (Table 2). No chances for particularizing the chronology are offered by relatively frequently encountered exogenous elements originating with the Vučedol culture which is dated at the first half of the 3rd millennium BC (Stadler 1995, Fig. 9). Such possibilities, although controversial, are presented by the analysis of the chronological position of GAC elements in the Cham and Horgen cultures (see part 3 and 4). The results of such an

analysis suggest that the beginnings of the Řivnáč culture should be moved slightly before 3100 BC (generally within the 32nd century BC).

The range of the Řivnáč culture (Fig. 2) covers mainly the central and northern Bohemian Plateau and to a smaller extent its eastern part as well (Pleslová 1978a, 253; Vokolek, Zápotocký 1990, 44-46). Its settlement network was chiefly based on fortified, hilltop settlements, while other types of settlements were far less frequent. Graves of Řivnáč populations are few and far apart as well (Ehrich, Pleslová-Štiková 1968, 145-146; Dobeš 1998, 145-151).

From among the two stages of the unit in question, the older has a broad set of Baden traits of which some are also noticeable in the so-called classic period. The younger portion of the classic stage, in turn, is marked by exogenous elements originating with the GAC and the Vučedol culture (Ehrich, Pleslová-Štiková 1968, 183-185; Pleslová 1978a, 254). The question of a possible, the third and youngest stage of the Řivnáč culture continues to be unclear (Pleslová 1978a, 254, note 12; Zápotocký 1994, 43). A more accurate periodization schedule was developed only on the basis of sources from the hilltop Homolka site at Stehelčevy (Ehrich,

⁵ I am very grateful to Dr. Jaroslav Peška for his kindly information.

Pleslová-Štiková 1968, 100-119; Pleslová-Štiková 1995, 166). In the lifetime of this fortified settlement (Fig. 9), two phases and within them three subphases were distinguished (Ia, Ib and IIa). Subphase IIB is distinguished on the strength of Řivnáč sources younger than Homolka (Pleslová-Štiková 1981, 162).

At about 30 percent of the sites of the Řivnáč culture, including more than a half of hilltop sites⁶, GAC materials were discovered consisting as a rule only of pottery (Fig. 8). At Řivnáč settlements, GAC pottery is usually recorded in far smaller numbers than materials typical of the former (Pleslová-Štiková 1995, 163). It is found both in the so-called cultural layer and – which is particularly important – in ground features (Fig. 9), specifically in pits and dwelling structures (Ehrich, Pleslová-Štiková 1968; Pleinerová, Zápotocký 1999, 286). The co-occurrence of these materials is not a rule though: from the same regions (e.g. the vicinity of today's Prague) we know of Řivnáč settlements with a very high GAC component (Praha-Sárka – Šestáková skála okr. loco; Mašek 1971, Tables 1-2; Pleslová-Štiková 1978a, 253) and others where it is only slightly marked (Praha-Bohnice – Zámka okr. Praha 8, Březno okr. Louny, Kutná Hora-Dänemark okr. loco; Mašek 1971, Table 13; Pleslová-Štiková 1978a, 253; Zápotocký, Zápotocká 1990; Pleinerová, Zápotocký 1999, 286; Zápotocký 2000, Table 43,5-6) or where it is absent altogether (Praha-Vyšehrad okr. Praha 2; Zápotocký 2000, Table 25). The last of the findings is usually interpreted in terms of chronology (i.e. sites without GAC component as typical for the early stage of the Řivnáč culture), which, however, in the light of observations indicating rather early appearance of GAC elements in the Řivnáč environment, may be misleading (np. Pleslová-Štiková 1995, 163; Dobeš 1998, 170).

Relying on available data, two varieties of GAC traits present in the Řivnáč context can be distinguished. The first, more widely spread, is represented by the sources from Homolka (Ehrich, Pleslová-Štiková 1968, 165-166), while the other is

present in the materials from the Klučov site (Pleslová-Štiková 1981, 165-9). The first variety (Fig. 8: 2-8,10-12) comprises above all ornament patterns typical of the western group of the GAC (discussed in greater detail in 1.1). Besides the Homolka site, relevant materials were found at other sites, e.g. at Kutná Hora-Cimburk okr. loco (Zápotocký 2000, Table 43,5-6), Praha-Šárka okr. Praha 6 (Stocký 1926, Table LXXXVI) or Žalov-Řivnáč okr. Praha-západ (Stocký 1926, Table LXXXV). The other variety (Fig. 8:1,9,13,14) is characterized by corded ornaments in the form typical i.e. of Silesia and Moravia. Pottery with such traits is present also at other Řivnáč sites as, for instance, Bylany-Okrouhlik okr. Kolín (Pleslová-Štiková 1981, 169, note 11), Praha-Bohnice (Hájek, Vlček 1956, Fig. 3,7) and Praha-Zlíchov okr. Praha (Hájek, Vlček 1956, Fig. 3,5). According to the findings by E. Pleslová-Štiková (1981, 165-9; 1995, 166), the presence of the GAC component in its 'western' variety at Řivnáč sites is observed in phases Ib-IIB⁷, whereas in the 'Silesian' variety it is found already in phase Ia. Making the absolute chronology slightly more accurate is possible owing to the already mentioned ¹⁴C date from so-called hut X in Homolka

⁷ At Homolka GAC pottery occurs in features dated to the transition period of phases Ib and IIa and phase IIa (Pleslová-Štiková 1995, 166). In the opinion of E. Pleslová-Štiková (1981, 162; 1995, 167), a particularly high share of exogenous pottery associated with the GAC and the Vučedol culture is a characteristic trait of some largest dwelling features (huts B, I and R) at Homolka which also happen to contain the 'richest' collection of artifacts. However, a verification of this observation with the data presented in the monograph of the site (Ehrich, Pleslová-Štiková 1968, Tables A and B) gives a slightly different result. In the materials from so-called hut B no Vučedol elements are reported while pottery with GAC elements is present. In the „hut I” single potsherds of both types were recorded, while only in the „hut R” pottery displaying traits of both cultures co-occurred on some levels of the feature. Throughout the site, in most cases, pottery exhibiting GAC traits and those of the Vučedol culture occurred separately. If the two varieties were found together then only in very small numbers. The only exception is hut R, however, its chronology is long (phases Ib-II; Ehrich, Pleslová-Štiková 1968, 300). Hence, it seems that analyzing together sources representing both cultural traditions is not fully justified. Future investigations may allow us to define their relationships with greater precision.

⁶ Data following Pleslová-Štiková 1995, 163; catalogue of finds in Ehrich, Pleslová-Štiková 1968; revised on the basis of Zápotocký 2000.

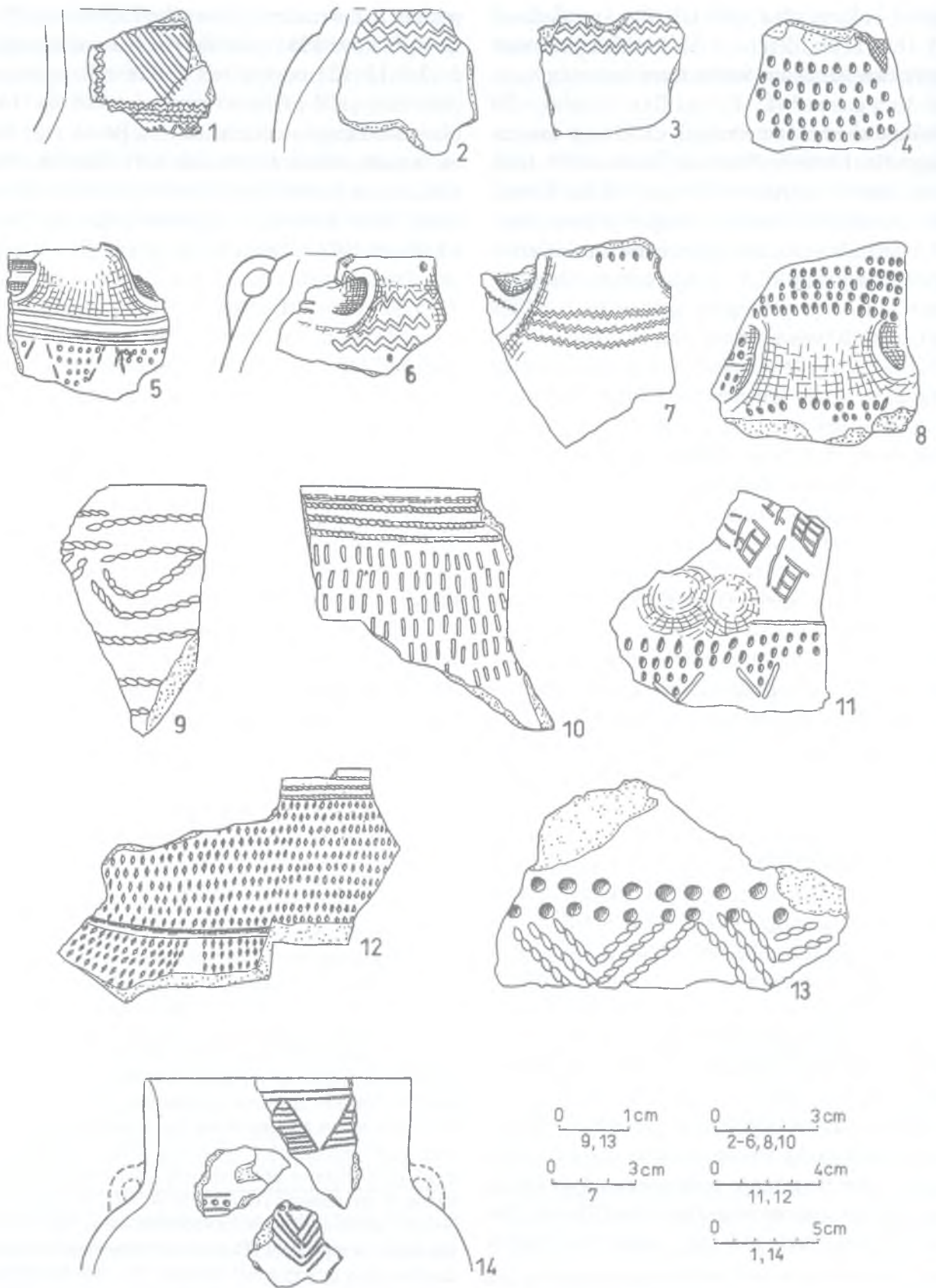


Fig. 8. Examples of the GAC traits in the Řivnáč culture.

1, 14 – Kutná Hora – Dänemark, okr. loco; 2-8, 10-12 – Stehelčeves-Homolka, okr. Kladno; 9, 13 – Klučov, okr. Český Brod. Foll. Ehrich, Pleslová-Štiková 1968, Pleslová-Štiková 1981, Zápotocký, Zápotocká 1990.



Fig. 9. Plan of the hilltop settlements of the Řivnáč culture in Stehelčeves-Homolka, okr. Kladno.
Foll. Pleslová-Štiková 1995, simplified.

Key: 1 – dwelling features („huts”) with traits of the GAC; 2 – others dwelling features („huts”); 3 – pits with traits of the GAC; 5 – ditches and palisades; 6 – contour lines.

associated with phase IIa there (Pleslová-Štiková 1995, 161). It falls on ca. 2930-2690 BC.

The analyses of pottery from Homolka showed that at least some of the pottery with GAC traits had a different technological profile (large temper of mica – Ehrich, Pleslová-Štiková 1968, 78) from the ‘pure’ pottery of the Řivnáč culture (Valentine 1968, 474). Nevertheless, ‘amphora’ ornament pat-

terns were found there on typical Řivnáč pottery as well (Ehrich, Pleslová-Štiková 1968, 78). More recent studies of GAC and Řivnáč pottery from several different sites indicate that the technology of production of clay vessels was in principle similar in both cultures but different from, for instance, recipes used in the Cham culture in Austria (Hanykýř, Maryška, Buchvaldek 1997, Fig. 2-6).



Fig. 10. Selected materials from the sites with the traits of the Řivnáč culture and the GAC in the Middle Elbe-Saale region.
 1-2, 4, 7, 11 – Brambach/OT Rietzmeck, Kr. Roßlau; 3, 5-6, 8-10 – Großobringen, Kr. Weimar.
 Foll. Beier 1988, Walter 1991.

The publication of rich GAC settlement materials from Lovosice (e.g. Zápotocký, Dobeš 2000, Fig. 12,2) brought a new element into the discussion in the form of adaptation traces of certain traits of the Řivnáč culture by GAC societies (e.g. earlier Ehrich, Pleslová-Štiková 1968, Table A:FIII). The traits, known also from the Jevišovice culture (Medunová-Benešová 1977,

Fig. 4:B1), included vessel forms and ornamentation (Fig. 3:10). The discoveries made at Rietzmeck Kr. Roßlau (Weber 1966) and Grossobringen Kr. Weimar (Walter 1991) show, in turn, a need to discuss the proto-Řivnáč and Řivnáč impact on the cultural development in the Middle Elbe-Saale region including the GAC's development there (Fig. 10).

3. THE GAC AND THE CHAM CULTURE

Western Bohemia and the areas on the middle Danube as far as northern Alpine foothills in the period of interest to us here were inhabited by the populations of the Cham culture (Fig. 11). Also in the case of this unit (general description: Hundt 1951; Burger 1988; Matuschik 1996; 1999; Gohlisch 2000), bordering in the northeast on the Řivnáč culture, we know most about hilltop fortified settlements, which have been objects of intensive investigations in the last 30 years (Moddermann 1977; 1986; Burger 1988; Matuschik 1990; Hoppe 1998; Graser 1999; Ottaway 1999; Gohlisch 2000). In the development of the Cham culture three phases (Burger 1988, 135-136) or four so-called inventory groups (A-D; Matuschik 1992) were distinguished. The most recent observations suggest that it may be divided into three phases (Gohlisch 2000, 207-208). Unlike the case of the Řivnáč culture, the absolute chronology of the Cham culture is becoming ever more accurate owing to a long series of ¹⁴C dates (see specifications in: Ottaway 1999 and Gohlisch 2000). At present, it is believed that the culture developed between the 31st century BC and the turn of the 28th century BC (Gohlisch 2000, 207-208). Taking into account, however, the synchronization with accurately dated Horgen culture assemblages, the inception of the Cham culture should be placed at least one century earlier (ca. 3100-3200 BC ?)⁸.

As a rule, traces of a GAC impact are found within the Cham culture in the younger period of its development (e.g. in the younger phase according to Burger 1988, 189; in the group C and D according to Matuschik 1990; in the younger phase according to Gohlisch 2000). It must be noted that, basically, areas settled by GAC and Cham populations could come into contact only on the upper Ohře (Pleiner, Rybová (ed.) 1978, Map 2). Along the remaining segments of the north-eastern reach of the Cham culture, GAC and Cham populations were separated by territories occupied by Řivnáč culture people. The northern frontier of the settlement of Cham culture populations was marked by the Berounka River.

At Cham sites, the GAC component, again represented only by pottery (Fig. 12), is less conspicuous than in the Řivnáč culture. If in the previous case we dealt with large sets of GAC patterns (above all ornament ones), then in the Cham culture we can record only single vessels or even single ornament motifs. In addition, the incidence of such elements differs from place to place. For instance, they are readily observable and frequent in the western Bohemian group (Pleslová-Štiková 1969, 22-23; Bašta, Bašťová 1989). According to the overall data (Prostředník 1996, Fig. 4; 1997, Fig. 1) GAC traits were recorded there at 35 percent of Cham culture sites, of which only some have been published as, for instance, Bzí okr. Plzeň-sever (Fig. 12:1-9),

⁸ One can observe certain types of ornaments originating with the Cham culture in the so-called Nußdorfer Horgen as early as the 32nd century BC (Königer 1999, 29-30). This fact is quoted in the latest work devoted to the Cham culture,

which, however, has not been reflected in the chronological position of the said unit adopted there (Gohlisch 2000, Fig. 2.1 and 209).



Fig. 11. Traits of the GAC in the Cham culture (the Danube-Berounka area).
Key: 1 – sites of the Cham culture, 2 – site of the Cham culture with the GAC traits.

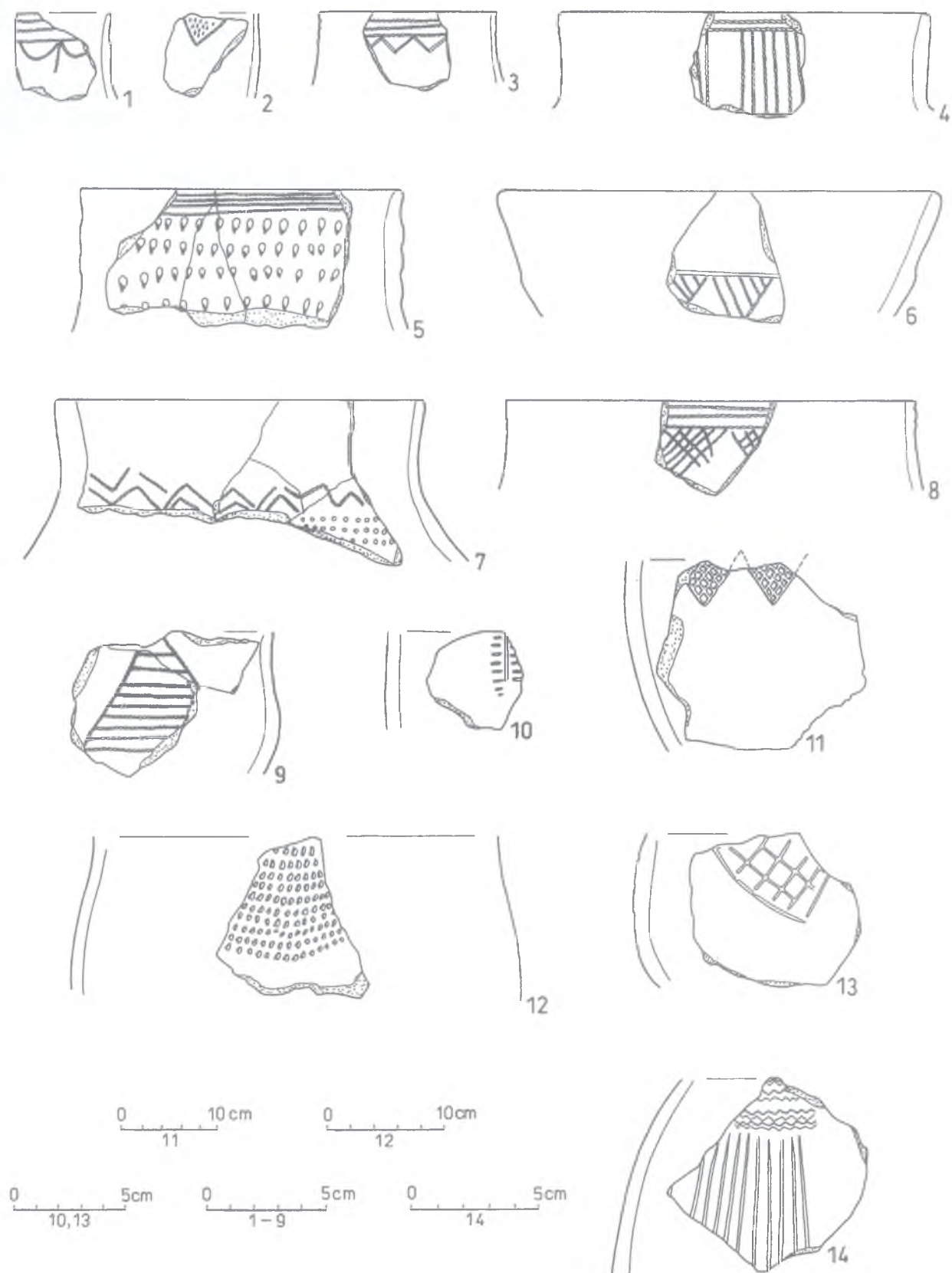


Fig. 12. Examples of the GAC traits in the Cham culture.

1-9 – Bzí – „Velká skála”, okr. Plzeň-jih; 10,13 – Aldersbach Lkr. Passau; 11-12 – Riehofen Kr. Regensburg; 14 – Hadersbach Kr. Straubing. Foll. Burger 1988, Matuschik 1992, Graser 1999, Prostředník 2001.

Vlkov-Babina okr. Plzeň-jih, Skupeč-Vinice okr. Plzeň or Št'áhlavice/Milínov-Lopata okr. Plzeň-jih (Jílková 1957; Mašek 1962; Pleslová-Štiková 1969; 1978b; Prostředník 1996, 1997, 2001). Other sites are known only from brief mentions (Bašta, Baštová 1989; Prostředník 1996, 1997, 2001). The published examples (e.g. Jílková 1957, Fig. 7 and 10; Prostředník 2001, Fig. 40, 41, 63) repeat in part GAC patterns (in their western variety) known from Řivnáč culture settlements. To be sure, the publications do isolate 'original' GAC vessels and their local 'imitations' (Prostředník 2001, 70), but due to the brevity of relevant information the issue cannot be reanalyzed.

In the remaining groups of the Cham culture (Danube and North Alpine), elements that may be associated with the GAC are less conspicuous and are of a different nature from those discussed so far; no such elements have been found up to now only for the Fränkische Alb-Ries group. In the Danube group relevant materials come, for instance, from Aldersbach Lkr. Passau (Fig. 12:10,13), Riekkofen-Kellnerfeld Kr. Regensburg (Fig. 12: 11-12) and Hadersbach Kr. Straubing (Fig. 12:14) (Burger 1988, Fig. 79/20; Matuschik 1990, Table 31/3, 135/25, 240/13; 1992, Table F,10; Graser 1999, Fig. 5), and in the North Alpine group from Wimsbach-Neydharting „Stadl-Paura” pB. Wels in Upper Austria (Burger 1988, 106)⁹. Generally speaking, the finds mentioned here show affinities with the western group of the GAC but in a different version than the finds of the Western Bohemian group,

i.e. without a clear mediation of the Řivnáč culture. Only a single potsherd from Riekkofen gets close to Řivnáč solutions (Fig. 12:12).

In the light of the above data, it is highly probable that in the case of the Cham culture we deal with two routes of transmission of GAC traits: (1) in the Western Bohemian group through the mediation of the Řivnáč culture (together with many other cultural patterns unrelated to the GAC; see Matuschik 1992, 215-218) and (2) on the Danube (and south of the river) directly from the Middle Elbe-Saale region. The second route seems to be more probable because of discoveries of GAC potsherds in regions lying further west, namely in Upper Swabia, within the so-called Goldberg III group (Stroh 1938)¹⁰.

⁹ Pottery differing from Cham products not only in its ornamentation but also in technological characteristics is found there, too. This was observed, e.g. in Hadersbach, where not only ornamentation but also technological characteristics of at least one vessel were supposedly alien to local patterns (it is „organisch gemagert, von grauer Farbe und weist eine auffallend dünne Wandung auf” – Graser 1999, 53). It should be noted that an organic temper is extremely rare in GAC pottery (Szmyt 1996, 26-27; 1999, 18-20; Lehmann 2000). A recipe based on an organic temper has already been identified in the pottery of the Cham culture, for instance in Galgenberg, but without any comment (Chapman, Giles 1999, Table 3.1). Thus, if in the Hadersbach case we are not dealing with a mistake, then the discussed fragment has connotations that are hard to assess now.

¹⁰ The discoveries include two potsherds obtained during old investigations at the eponymous site in Riesburg-Goldburghausen-Goldberg (Stroh 1938). One of them bears an ornament that is typical of the older and middle phase of the GAC in the Middle Elbe-Saale region (group A and SB foll. Müller 2001). The analysis of these potsherds using the thin section method showed that they had been made of local raw materials (Stroh 1938, 220), hence, they are artifacts made locally according to GAC rules. It must be noted that new investigations of sites considered as belonging to the Goldberg III group have not yielded any comparable evidence of contacts with the GAC so far (e.g. Schlichtherle 1999).

4. THE GAC AND THE HORGEN CULTURE

The latest investigations of *palafitte* sites along the border between Germany and Switzerland have brought results greatly expanding our knowledge on the various aspects of life of local cultural groups, in particular from the Neolithic and the Bronze Age (e.g. Schlichtherle (ed.) 1997; Schlichtherle, Strobel (ed.) 1999). The results proved to be especially meaningful for the issues relating to the intercultural contacts of populations living there (e.g. Köninger, Schlichtherle 2001). The same applies to the question of the influences coming to eastern Alpine regions from the east and north-east (e.g. Köninger, Lübke 1997; De Capitani, Leuzinger 1998; Kolb 1999; Köninger 1999; Leuzinger 1999). For the issues raised in this paper, it is important to trace any cultural contacts between the GAC and the Neolithic Horgen culture (in its eastern variety) dated to the second half of the 4th millennium and the early 3rd millennium BC (for a general description see Itten 1970; Schlichtherle 1990). The basic information making this possible comes from two stratified sites on Lake Constance (*Bodensee*; Fig. 13), where investigations focused on well-preserved relics of settlements of populations belonging to the classic and late phases of the Horgen culture: Nußdorf-Strandbad Kr. Überlingen (Köninger 1999) and Sipplingen-Osthafen Kr. Überlingen (Kolb 1997; 1999). In both cases we deal with pottery made in a different way than typical, rather simple Horgen vessels.

Especially the find from Sipplingen is highly meaningful. It comes from one of the cultural strata associated with the Horgen culture designated in the stratigraphy of the site as stratum 13A (Kolb 1997, 25; 1999, 16). A pottery decorated with festoons made with impressions of a two-strand cord was found there (Fig. 14:1). Both the type of ornament and the double-cone form as well as the technology used to make the vessel differ completely from Horgen culture pottery¹¹. Although there

are no direct dendrochronological dates for stratum 13A, it can be roughly dated because it is located between two precisely dated cultural strata (Kolb 1999, Fig. 1), namely stratum 11 lying below (whose dendrodates fit into the period of 3317-3306 BC) and overlaying stratum 14 (dendrodates from 3101 to 3060 BC). Taking into account the whole stratigraphic make-up, layer 13A should be dated certainly before 3100 BC, probably between 3200 and 3100 BC (Fig. 14). In the general chronological diagram developed for Switzerland, this corresponds to facies 2b of the Late Neolithic (so-called older Sipplingen) dated to 3250-3125 BC (Hafner, Suter 1997, Table 2 and 3; 1999, Table 4).

In Nußdorf, interesting sources come from the surface exposition of a Horgen cultural stratum (Köninger 1999, 20). It consisted of potsherds (Fig. 14:2-4) bearing ornaments of incised festoons accompanied by vessels decorated with impressed, pricked and relief (strips and bosses) elements. There also occur vessel forms that are not typical of the Horgen culture and whose origin is traced by J. Köninger (1999, 29) to the north (to the circle of the Wartberg or Bernburg/GAC cultures). Dendrodates place the chronology of the whole Horgen stratum in Nußdorf-Strandbad between 3176 and 3127 BC.

Of special interest are pottery ornaments, occurring on both sites, in the form of festoons made using different techniques. Such ornaments, however only incised, are occasionally recorded in Horgen culture materials (Köninger 1999, 26). Besides the two mentioned sites, single specimens bearing

Keramik diametral entgegenstehen“ (see also Kolb 1997, 25). It is worth mentioning here that, in the opinion of the quoted author (Kolb 1999, 15-16), in materials from both stratum 13A and older stratum 12, influences of the Cham culture are noticeable (in the form of certain vessel shapes and relief ornaments such as relief strips and appliqué bosses), while on levels 13A and 13B other influences coming from the circle of the Wartberg and Bernburg cultures are visible as well (their symptoms are several vessels of an atypical form and better technology than the Horgen one as well as ornaments consisting of impressions of small points).

¹¹ As the author of investigations stresses (Kolb 1999, 16): „Neben Gefäßform und Verzierung sind Dünnwandigkeit, feine Magerung und qualitativ voll geglättete Oberfläche weitere Merkmale, die den Merkmalen geläufiger Horgener

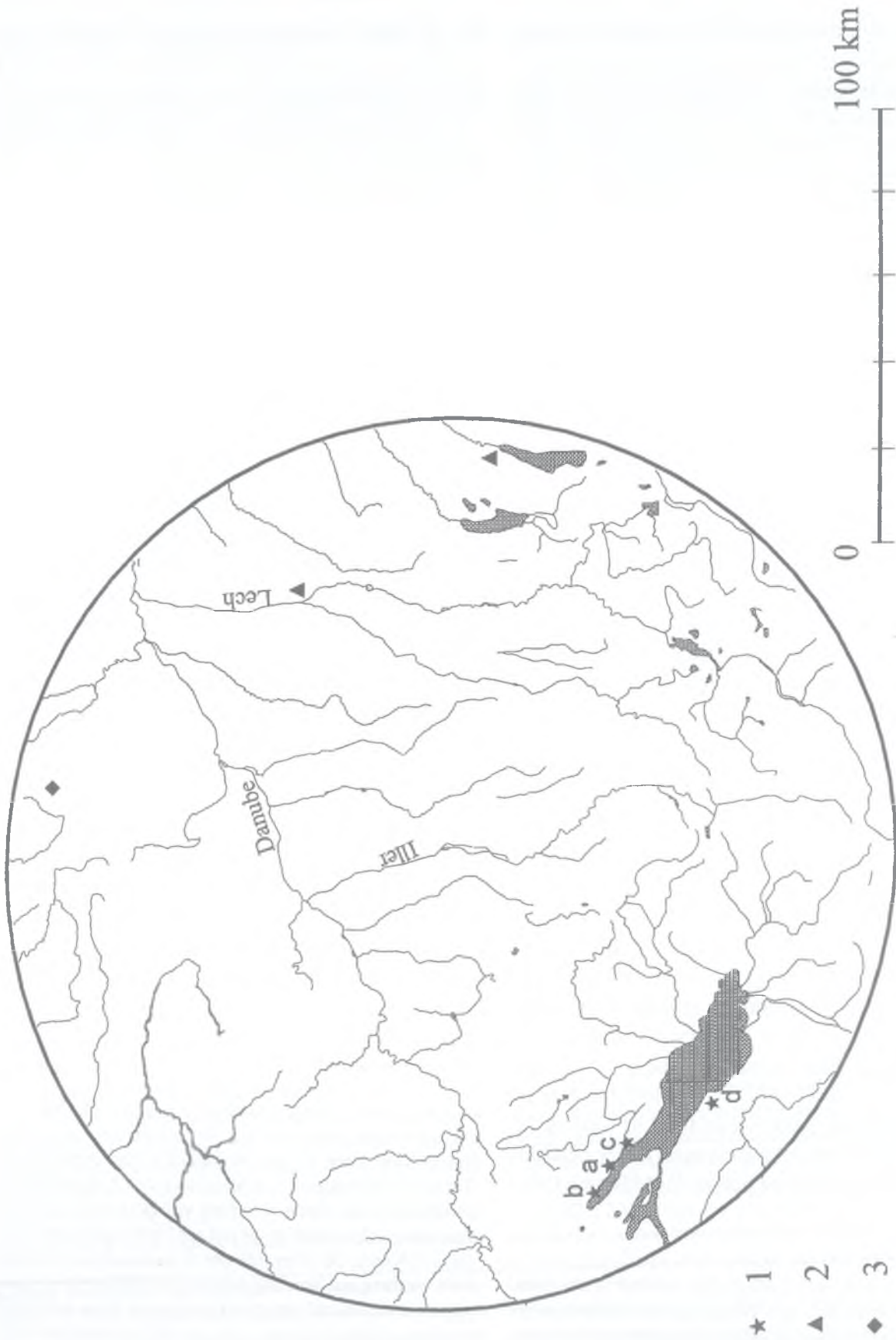


Fig. 13. Traits of the GAC in the Lake Constance-Danube area.
 Key: 1 – sites of the Horgen culture with the strange traits (elements of the GAC: a – Nußdorf-Strandbad (?), b – Sipplingen-Osthafen, c – Wallhausen-Ziegelhütte (?); elements of the Baden culture (Boleser stage): d – Arbon-Bleiche 3); 2 – sites of the Cham culture; 3 – sites of the Goldberg III group with the GAC traits.

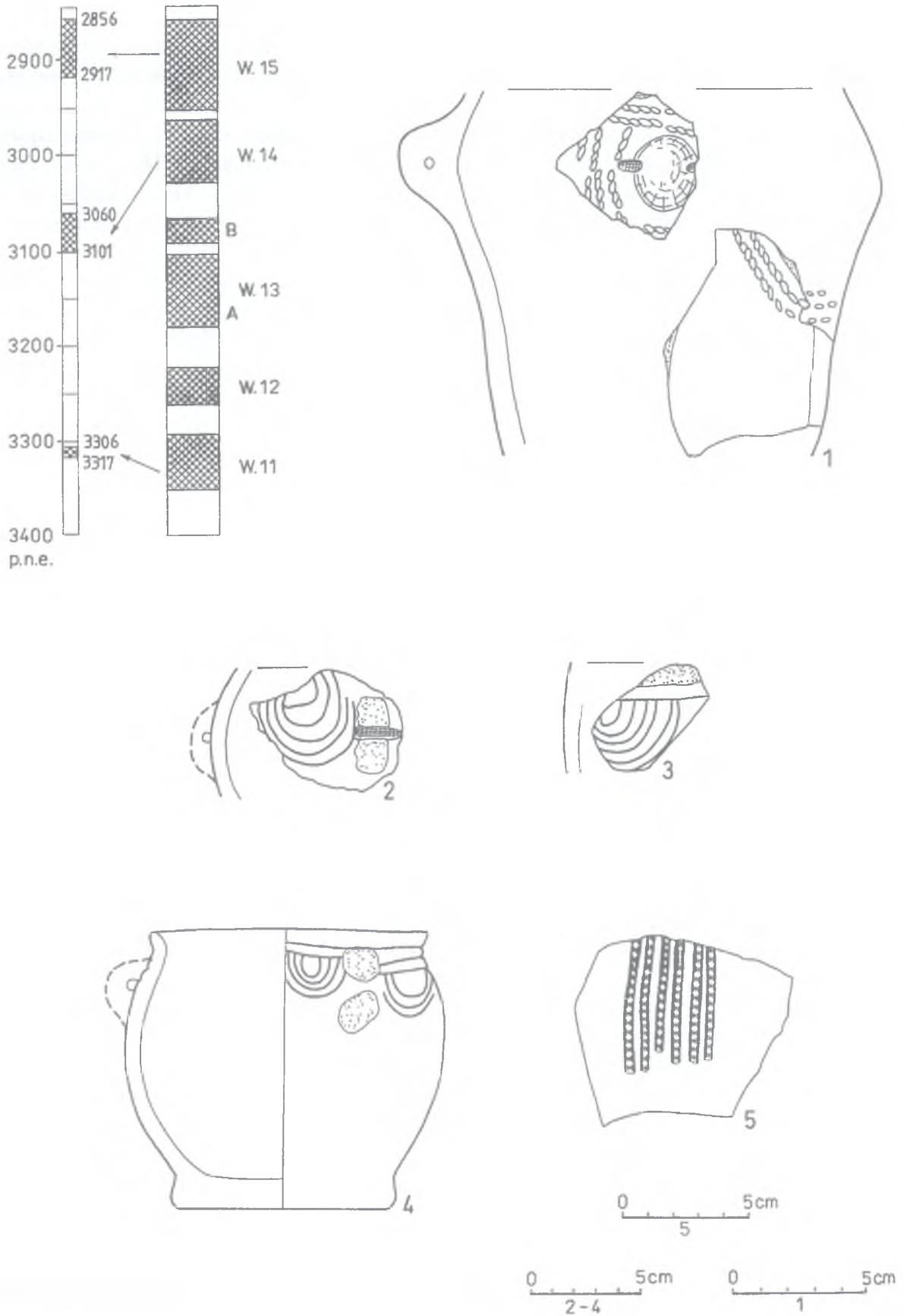


Fig. 14. Examples of the GAC traits in the Horgen culture and stratigraphy of the site in Sipplingen-Osthafen. 1-5 – pottery (1 – Sipplingen-Osthafen Kr. Überlingen, 2-4 – Nußdorf-Strandbad Kr. Überlingen, 5 – Wallhausen-Ziegelhütte Kr. Konstanz). Note: W. – cultural layer. Foll. Kolb 1999, Königer 1999.

elaborate festoon motifs, different from those in Sipplingen, were published, e.g. from Wangen K. Zug (Itten 1970, Fig. 4,1), Feldmeilen-Vorderfeld K. Zürich (Winiger 1981, Table 97/4 and 98), Wallhausen-Ziegelhütte Kr. Konstanz (Köninger, Lübke 1997, Fig. 35/5), Cham-Bachgraben K. Zug (Itten 1970, Fig. 4, 4). The first two sites are currently dated between 3250 and 3000 BC (Hafner, Suter 1999, 11, note 24), while the third between 3300 and 3200 BC (Köninger, Lübke 1997, 61). The origin of this type of ornaments in the Horgen culture is not clear.

It follows from the above review that the vessel from Sipplingen is entirely different from Horgen pottery decorated with festoons. Alien to Horgen patterns is not only the ornamentation technique (cord impressions), but also the form and technology of the vessel. The ornament of corded festoons can hardly be associated with any impact from the north since it is not found in any Late Neolithic groups in the Middle Elbe-Saale region. Whereas, it is frequently encountered in the materials of the central group of the GAC and in the so-called mixed GAC zone in Silesia and Moravia; it is also recorded in the Řivnáč culture (in the 'eastern' variety of GAC traits). The Nußdorf-Strandbad pottery, in turn, decorated with incised festoons, is less distinct. What draws our attention in this case is the arrangement of the ornament – less elaborate than in the sources of the Horgen culture cited above but analogous to that unearthed in Sipplingen.

The question is how rational it is to consider the possibility of so far-reaching intercultural rela-

tionships: GAC – Horgen culture. To such a question, archaeological sources from eastern Alps lakes give surprising answers testifying to the existence of long-distance cultural ties. This is true, for instance, of the contacts with the Baden culture (in its Boleráz stage; cf. older works: Maier 1955; Sochacki 1980: 122-125), which is borne out by the recent investigations in Arbon-Bleiche 3 K. Thurgau (De Capitani, Leuzinger 1998, 242-243; Kolb 1998, 138-139; Leuzinger 1999, 10-13), and with areas in the Warta and Oder drainages, which is shown by the discovery in Wallhausen - Ziegelhütte (Köninger, Lübke 1997, 59-60; Köninger 1999, 29). On this last-mentioned site, preliminarily dated between 3300 and 3200 BC (Köninger, Lübke 1997, 61), a discovery was made of pottery decorated with vertical impressions of a three-strand cord (Fig. 14:5), i.e. ornaments that are a distinguishing mark of the late (Luboń) phase of the Funnel Beaker culture on the Polish Lowlands¹². They are also known from GAC materials in Kujawy (Szmyt 1996, 242). It is worth mentioning here that vertical impressions of a three-strand cord frequently occur in combination with horizontal impressions made using the same technique. Multi-element patterns emerge in this way whose chronology is relatively short (3500-3150 BC)¹³. At present, it is hard to tell definitely whether the presence of pottery decorated with a three-strand cord in Wallhausen is an effect of long-distance cultural ties to the circle of the late Funnel Beaker culture or to the GAC. The discoveries made on Lake Constance discussed earlier make the latter possibility more plausible.

5. INTERCULTURAL RELATIONSHIPS: GAC - ŘIVNÁČ – CHAM – HORGEN. POSSIBILITIES AND LIMITS OF INTERPRETATIONS

The information presented in the previous parts of this paper shows that the traces which may be associated with the GAC appear in different cul-

tural environments that are, nevertheless, bound by various ties (e.g. Pleslová-Štiková 1992). Such traces are found in areas between the upper Elbe

¹² Numerous examples of their use can be found in Wielkopolska (Jażdżewski 1936), Kujawy (Koško 1980), Silesia (Bukowska-Gedigowa 1975; Wojciechowski 1980), as well as – however rarely – in Brandenburg (e.g. Kirsch 1993, Fig. 91:395,396, 112:655, 118:761).

¹³ In the Funnel Beaker culture in Kujawy, they are recorded in phase IVA (Koško 1991, 92), whereas in the GAC they are found only in phase IIa (Szmyt 1996, 242), i.e. in the period between 3500 and 3150 BC (Czebreszuk, Koško, Makarowicz, Szmyt 2000).

and the eastern Alps. The interpretations, presented here, of sources discussed earlier stem from the conviction that objectual correlates of a culture (Tabaczyński 2000) are meaning-laden being a result and, at the same time, a participant of socio-cultural processes. It is not important whether they mass occur or not. Nor is important their technological one-sidedness (in this case a restriction to ceramic goods¹⁴). What is most important, however, is the fact that the spatial and temporal parameters of the emergence of these traits can be logically interpreted within a coherent explanatory conception that is not at odds with the general knowledge of the times, on the contrary, that opens up new vistas for making the picture of the epoch more detailed¹⁵. This conviction accompanies the hypotheses suggested here, which should be treated as a point of departure for further studies.

5.1. Relationships GAC - Řivnáč culture

The relatively high incidence of GAC pottery at the settlements and in the features of the Řivnáč culture has made the issue of relationships between the two cultures an object of much debate for a long time (Ehrich, Pleslová-Štiková 1968, 165-167; Neustupný 1982, 280-281). For an equally long time hypotheses put forward have been grounded in the conviction that only graves were solely GAC

features on the Bohemian Plateau, while there were no 'pure' settlements or encampments of the culture (np. Ehrich, Pleslová-Štiková 1968, 167; Neustupný 1978, 266; 1982, 281; Pleslová-Štiková 1995, 163). 'GAC pottery' at Řivnáč culture sites is designated as 'imports' by some investigators (e.g. Dobeš 1998, 169). It was also noted that inasmuch as some vessels with GAC ornaments were made according to a specific recipe, others followed the Řivnáč technology (Ehrich, Pleslová-Štiková 1968, 78; Neustupný 1982, 280-281). In sum, these observations were taken to be evidence of the coexistence of populations of both cultures (Neustupný 1982) or even their *ein freundliches Zusammenleben* (Pleslová-Štiková 1995, 163) which was supposed to take the form of the presence of small groups of GAC people within Řivnáč settlements consisting of many houses (e.g. in Homolka where 62 houses from the phase IIa are supposed; Pleslová-Štiková 1995, 167). Such a symbiosis was supposedly grounded in economy (Pleslová-Štiková 1981, 165). Another view, however, is presented, too, according to which the increase in the number of fortified Řivnáč settlements is associated with the influx of GAC populations from Silesia (Dobeš 1998, 170). The results of latest investigations make us amend this view to a certain extent. Although we still have not achieved any breakthrough in building an accurate chronology of the matters in question, it is clear that outside of the center of the Řivnáč oecumene there functioned a GAC own settlement network, which encompassed settlements and encampments as well as sepulchral areas. One of such regions was, above all, the drainages of the Bílina and Ohře rivers, i.e. north-western Bohemia. In the drainage of the Vltava River (central Bohemia), GAC traces are recorded only at the same sites as the artifacts of the Řivnáč culture, while on the Elbe, east of the confluence with the Vltava (eastern Bohemia) both forms of GAC presence are found.

The amendments do not change, however, the overall picture but only make it more complicated instead. All data show that direct contacts between the societies of both cultures were possible on the Bohemian Plateau. An effect of such contacts was the development of a system of information (cultural patterns) exchange. In the light of observations

¹⁴ The discussion of the cultural role of the pottery-making and its products (vessels) does not bring about – because it simply cannot – unambiguous results (see e.g. different theoretical views: Sackett 1977, Hodder 1977, 1982, Arnold 1985, Czerniak 1989, Buko 2000). It is obvious that this category of sources, laden with various meanings, calls for the use of many complementary analytical methods. They should center on both individual aspects of its cultural role (e.g. technological, formal, semiotic, etc.) and its comprehensive reading.

¹⁵ In the presented context, the ceramic sources analyzed in this paper have one basic advantage: they are relatively easy to discover. Other artifacts, which necessarily accompany ceramic finds, are harder to find, which follows from both the specific character of the epoch (production of goods from other raw materials becoming rather uniform) and methodical shortcomings as well as, last but not least, deficiency of research competence.

referred to above, it is probable that on the social level the system relied on limited (small-number) population movements. E. Neustupný applied to this case a hypothesis of ‘migrations by infiltration’: „A migrating population settled down as a minority in villages of the local communities without disrupting the network of relations with their relatives living with other local communities of the same region. Thus, they could retain their social and cultural identity for several generations at least” (Neustupný 1982, 290). Even though this interpretation is controversial, it must be strongly stressed that cultural contacts between GAC and Řivnáč culture societies were permanent and lasting, which is manifested by the stable incidence of their material traces.

5.2. Relationships GAC - Cham culture

For the interpretation suggested below, four observations are of key importance: contemporaneity of the two units, disjointedness of territories exploited by populations used both cultures, limited set of GAC traits in Cham sources (chiefly single motifs in pottery ornamentation) and the special role of the Řivnáč culture in contacts with the two units. In this light, the spreading of the GAC elements mentioned earlier in the Cham environment (in particular in the Western Bohemian group) seems to be an instance mainly (but surely not exclusively!) of diffusion of cultural patterns. In the case in question, it would take the form of transmission of cultural ideas from one human group to another through the mediation of a third one. The third group consisted of Řivnáč culture populations who had close and direct ties with the populations of both GAC and the Cham culture. In the Řivnáč environment, as I have shown earlier, contacts with GAC populations had a stable position in the whole cultural structure, while elements adopted from different GAC groups made a permanent component of the environment and a significant one in terms of quantity. Whereas in the Cham culture (in the Western Bohemian group), material traits, which can be associated with the GAC, were part of a larger set of patterns originating with the Řivnáč culture; thus, they were part of the whole ‘package’ of

imports. A different interpretation was offered by J. Prostředník (2001, 70) who claims that ‘luxury’ GAC vessels (i.e. only original pots) made their way into Cham settlements together with salt from the Halle region or Baltic flint as a result of exchange.

For the Danube zone, no doubt, one should assume other mechanisms of the spreading of GAC traits including a possibility of direct contacts with members of the western group of the GAC. The present state of knowledge, however, does not justify advancing any sweeping hypotheses.

5.3. Relationships GAC – Horgen culture

Observations listed above (part 4) make one think of a possible northeastern impulse reaching populations of the Horgen culture on Lake Constance from the milieu of the GAC/Řivnáč culture¹⁶. Its logical explanation is a hypothesis about the transmission of certain GAC elements to eastern Alpine regions through the mediation of other cultural groups. In the light of current knowledge, it is possible to draw two such trails of the diffusion of GAC traits. Both of them would have a chain character. One of them would run from the north-east: GAC → Řivnáč culture → Cham culture → vicinity of Lake Constance. The other, indicated by sources from Goldberg¹⁷, would run from the north: GAC (Middle Elbe-Saale region) → Goldberg III group → vicinity of Lake Constance. The materials from Sipplingen-Osthafen, cited here, relate rather to the first transmission trail. This course of transmission is also corroborated by other manifestations of long-distance ties mentioned above (with the Baden culture and the cultural milieus of the Polish Lowlands).

It must be stressed that symptoms of more or less credible contacts with the GAC are known only from such assemblages of the Horgen culture in

¹⁶ What is only unclear in this case is the role of a mediator, if any, who may be populations of the (early) Cham culture separating the oecumenes of the Řivnáč and Horgen cultures. In the materials of the Cham culture that have been published so far there are no festoon ornaments, but various corded patterns are quite frequent. Suggested by M. Kolb (1999, 16), analogies to Cham materials from Hadersbach are vague.

¹⁷ See note 10.

which they co-occur with other contemporaneous patterns borrowed from the milieus of the Cham, Bernburg and Wartberg cultures. Hence, yet again,

they are a component of multiculture 'packages' of traits and it is in this form that they must have reached the region under consideration.

6. CONCLUSION

Presented in the previous sections of this paper, the set of the most recent data on the south-western settlement agglomerations of the GAC and the directions of the impact they exerted, outlines a picture that – despite many gaps – seems to be quite plausible revealing a certain logic of the structure of intercultural ties in areas stretching from the drainages of the Vistula and Oder rivers to the foothills of the Alps (Fig. 1). In the structure, GAC populations and their cultural patterns played a significant but not a dominant role. A relative ease of identification of these patterns (or rather of some of them) allows us to trace the chain of transformations they were subject to while moving into alien cultural contexts¹⁸. As I have shown earlier, successive stages of the dissemination of GAC patterns were characterized by their simplification. It is highly probable that their cultural significance changed as well due to transformations taking place on each stage (cf. the conception of metonymic and metaphorical transformations – Leach 1976, 25-26). To put it differently, a similar external form (in this case material one) may have had different symbolic values attached to it in the initial environment (here: GAC) and in other environments it reached in successive stages of transmission, i.e. Řivnáč, Cham and Horgen cultures.

The contention about the chain of cultural ties has a number of consequences. One of them is a complicated picture of the chronology of the arrival of GAC traits at the areas between the upper Elbe and Alpine foothills, which now can be divided into at least two stages. The older stage covers the arrival of elements originating with the Silesian group of the GAC. It was inaugurated ca. 3150 BC at the latest, while source evidence is provided by the assemblages of phase Ia of the Řivnáč cul-

ture and the materials of the Horgen culture from Sipplingen. The Cham culture, by contrast, shows no analogous signs as far as we can tell now, which should be studied further. The second stage, the most readily observable in the area in question, is characterized by a diversity of sources from which GAC traits arrived. It is inaugurated by the appearance of GAC populations south of the Ore Mountains (point of departure: Saxony) and south-west of the Sudetes (point of departure: Silesia). It is with the second stage that most GAC traits are connected and noticeable in the assemblages of both the Řivnáč and Cham cultures. In the latter, chiefly 'western' traits are present, i.e. those which were arriving from the north-west (through the mediation of the Řivnáč culture) rather than from the north, directly from the Middle Elbe-Saale region. Whereas in the context of the Řivnáč culture, we encounter elements connected with both directions of the translocation of GAC populations onto the Bohemian Plateau. This stage can be dated to a period after ca. 3000 BC. In an extreme version, it could have spanned the whole first half of the 3rd millennium BC.

While discussing these issues, one can hardly forget that the three units were distant from GAC societies not only in terms of space but also in terms of cultural characteristics. The 'cultural distance' can be seen in settlement structures, social organization, funerary rituals etc. At the same time, however, these groups made up together a network of cultural ties binding societies living between the Carpathian Basin, the Baltic Sea and the Alps or even as far as regions lying south of the mountains (e.g. Königer, Schlichtherle 2001). This network of interactions can be described as a long-lasting structure functioning independently of a varying conglomerate of its components – cultures or groups. Traditional communication routes were used in this region at least from the Early Neolithic (cf. the spreading of cultures from the Danube circle: Schlichtherle 1990, Fig. 6). A significant obser-

¹⁸ These issues are discussed in greater detail in a separate work (Szmyt 2003).

vation in this context is the impression that the area around Lake Constance served as a communication junction in the network. It is there that long-distance transmission channels crossed, not only circum-alpine ones, but also north-south and east-west ones. As a result, local societies adapted patterns coming from various cultures. Such patterns are clearly visible in the late 4th and 3rd millennia BC, a period of interest to me here (e.g. Schlichtherle 1990, 150-152; Königer 1999, 29; Königer, Schlichtherle 2001). To the juncture, GAC traits came embedded in multicultural 'packages' of traits and bearing, no doubt, different meanings than in the lands of their origin.

The examples shown here illustrate, above all, the transmission of GAC patterns. An opposite movement of traits (and ideas), adapted by GAC societies, is more difficult to reconstruct now. We have some modest evidence in the case of relationships between the Řivnáč culture and the GAC (Lovošice, Grossobringen, Rietzmeck). They show a possibility that Baden traits (in the Řivnáč va-

riant) could reach the Polish Lowlands along the Elbe – Havel – Noteć rivers.

Because of too little information, I have not discussed any issues relating to the other direction of GAC ties in the area under consideration. Their symptom is the co-occurrence of GAC elements and those of the Vučedol and Lajbacher Moor cultures at Řivnáč and Jevišovice culture settlements. Regardless of the doubts expressed earlier and information gaps, this question calls for a separate study. I mean here especially the question of importance of the said contacts for the new cultural landscape of Central Europe that formed here in the beginning of the Bronze Age.

The paper was written during a stay at the Otto-Friedrich University in Bamberg (Germany) made possible by a generous stipend from the Alexander von Humboldt Foundation.

Rokietnica, 19 czerwca 2003

Translated by Tomasz Żebrowski

Table 1. Functional structure of GAC sites in Bohemian Plateau and Moravia

Type of site	Culture	Bohemian Plateau		Moravia		Total
		Number	%	Number	%	
Grave	GAC	6	13	0	0	6
Grave?	GAC	7	15	0	0	7
Settlement/camp*	GAC	4	9	3	17	7
Undetermined (only potsherds)	GAC	23	50	14	78	37
	GAC?	6	13	1	5	7
Total		46	100	18	100	64
Undetermined (flint axes)	GAC?	0	0	17**	X	17
Total		46	x	35	X	81

Notes: * As settlements/camps were qualified only those sites where ground features (pits etc.) had been unearthed. ** From Moravia and Czech Silesia

Table 2. Selected radiocarbon determinations from areas discussed in the paper.

No.	Culture*	Region	Site/feature	Type of sample	Lab. no.	BP	BC (OxCal v. 3.5 – Bronk, Ramsey 2000)	References
1	GAC	Lower Silesia	Żukowice 34/ pit 36	animal bones	Ki-6910	4285±45	68,2%: 3010 – 2980 (6.6%) 2930 – 2870 (61.6%) 95,4%: 3030 – 2860 (84.0%) 2810 – 2750 (9.2%) 2720 – 2700 (2.2%)	Szmyt 2001
2	GAC	Lower Silesia	Żukowice 34/ pit 199	animal bones	Ki-6911	4265±50	68,2%: 2920 – 2860 (47.5%) 2810 – 2750 (16.5%) 2720 – 2700 (4.2%) 95,4%: 3020 – 2850 (61.7%) 2820 – 2670 (33.7%)	Szmyt 2001
3	GAC	Bohemia	Lovosice/ settlement feature	charcoal	Bln-4165	4520±80	68,2%: 3360 – 3090 (68.2%) 95,4%: 3500 – 3450 (3.8%) 3400 – 2900 (91.6%)	Zápotocký, Dobeš 2000
4	GAC	Moravia	Olomouc- Slavonín – „Horní lán”/ pit 835	animal bones	GrA-13492	4150±40	68,2%: 2870 – 2830 (12.8%) 2820 – 2800 (5.1%) 2790 – 2660 (41.9%) 2650 – 2620 (8.4%) 95,4%: 2880 – 2620 (93.3%) 2610 – 2590 (2.1%)	Peška 1998 and project 1H01G01810 supported by Polish Committee for Scientific Research
5	Řivnáč	Bohemia	Stehelčeves- Homolka/ hut X	charcoal	GrN-4065	4260±70	68,2%: 3010 – 2980 (4.8%) 2930 – 2850 (30.7%) 2820 – 2690 (32.7%) 95,4%: 3090 – 3060 (1.0%) 3030 – 2620 (94.4%)	Ehrlich 1968

6	Jevišovice	Moravia	Brno-Starý Liskovec/pit 48	charcoal	Bln-4370	4240±45	68,2%: 2910 – 2860 (33.1%) 2810 – 2750 (27.5%) 2720 – 2700 (7.6%) 95,4%: 2920 – 2830 (40.9%) 2820 – 2660 (54.5%)	Görsdorf 1994
7	Jevišovice	Moravia	Brno-Starý Liskovec/pit 40	charcoal	Bln-4371	4180±50	68,2%: 2880 – 2850 (10.5%) 2820 – 2670 (57.7%) 95,4%: 2890 – 2620 (94.2%) 2610 – 2590 (1.5%)	Görsdorf 1994
8	Jevišovice	Moravia	Brno-Starý Liskovec/pit 35	charcoal	Bln-4372	4305±50	68,2%: 3020 – 2950 (22.4%) 2930 – 2870 (45.8%) 95,4%: 3090 – 3060 (3.1%) 3040 – 2860 (88.6%) 2810 – 2750 (3.7%)	Görsdorf 1994
9	Jevišovice	Moravia	Brno-Starý Liskovec/pit 29	charcoal	Bln-4397	4063±40	68,2%: 2840 – 2810 (5.1%) 2670 – 2640 (5.2%) 2630 – 2550 (37.2%) 2540 – 2490 (20.7%) 95,4%: 2860 – 2810 (11.1%) 2700 – 2470 (84.7%)	Görsdorf 1994
10	Jevišovice	Moravia	Brno-Starý Liskovec/pit 75	charcoal	Bln-4398	4240±40	68,2%: 2910 – 2860 (35.0%) 2810 – 2750 (26.5%) 2720 – 2700 (6.7%) 95,4%: 2920 – 2850 (42.7%) 2820 – 2670 (52.7%)	Görsdorf 1994

Note: * Lists of radiocarbon dates (in sum 40) for the Cham culture are presented in: Ottaway 1999 and Gohlisch 2000.

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