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Between East and West – a new site of the Federmessergruppen in Poland

Zwischen Ost und West – eine neue Fundstelle der Federmessergruppen in Polen

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Abstract - This paper describes a new Federmessergruppen site at Lubrza in the Łagów Lake District of western Poland. Here, rescue excavations preceding motorway construction uncovered a surface of close to two hectares, revealing episodes of occupation extending from the late Palaeolithic to the Middle Ages. Seven concentrations of flint artefacts with a total of over 10 000 lithics were assigned to late Palaeolithic (Federmessergruppen and Swiderian) or Mesolithic contexts. Concentrations 1 and 5 (Federmessergruppen) are described here. The former assemblage seems to represent a domestic unit, while the second is a workshop. After a description of the technological and typological aspects of the two inventories the paper examines the chronology and affinities of Polish assemblages of the Arch Backed Piece technocomplex in a broader European perspective.

Zusammenfassung - *Die vorliegende Arbeit beschreibt den neuen Federmessergruppen-Fundplatz Lubrza im Seenbezirk Łagów im westlichen Polen. Bei Rettungsgrabungen im Zuge eines Strassenbaus wurde eine Fläche von knapp zwei Hektar freigelegt, wobei Begehungshorizonte vom Spätpaläolothikum bis zum Mittelalter zum Vorschein kamen. Sieben Konzentrationen mit über 10 000 Artefakten konnten dem Spätpaläolithikum (Federmessergruppen und Swiderian), oder Mesolithikum, zugewiesen werden. Konzentration 1 und 5 (Federmessergruppen) werden hier beschrieben. Erstere scheint einen Wohnbereich zu repräsentieren, während die zweite einen Werkplatz darstellt. Nach einer Darstellung der technologischen und typologischen Aspekte der beiden Inventare werden die Chronologie und Verbindungen der polnischen Inventare des Arch Backed Piece-technokomplexes in einer breiteren europäischen Perspektive untersucht.*

Keywords - Late Glacial, Arch Backed Piece (ABP), Federmessergruppen, lithic technology, lithic typology
Spätglazial, Arch Backed Piece (ABP), Federmessergruppen, Technologie, Typologie

Introduction

Sites related to the Federmessergruppen culture or, as it is sometimes called, the Arch Backed Piece (ABP) technocomplex, are extremely rare on the territory of present day Poland. The fact they are so varied further complicates the situation, so that it is hardly possible to treat them as a single unit. This is one reason why every new discovery of a find spot is important for gradually advancing our understanding of the cultural situation in the region during the middle part of the Late Glacial period.

Site no. 42 at Lubrza is located in western Poland, within the area known as the Łagów Lake District (Fig. 1). The entire region is characterized by a young moraine landscape including numerous glacial lakes (Kondracki 2009). The pronounced peninsula on which the site was recorded rises above the marshy bottom of the basin connecting the Lubrza Lake and the Paklica River (Fig. 2).

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The site was excavated by the Institute of Archaeology and Ethnology of the Polish Academy of Sciences over several months in 2005 and 2008, when rescue excavations were carried out along the A2 motorway. Close to two hectares were excavated, revealing over 1 000 settlement features, and it appears that the site witnessed several episodes of occupation from the Palaeolithic to the Middle Ages (Wiktorowicz et al. 2008). In the central and south-western part of the excavated area seven concentrations of flint artefacts were recorded with a total of over 10 000 lithics. Two of them (Concentrations no. 1 and no. 5) are related to the Federmessergruppen culture, another three are associated with the Swiderian and two more with the Mesolithic (Fig. 2).

The concentrations of the Federmessergruppen culture were recorded in the southern part of the site, with lithic pieces (n = 3 184) occurring from the top of the plough zone down to c. 1 meter below the surface and not forming any distinct cultural layer. The presence of younger occupations (Mesolithic and especially medieval) in some parts of the site could have substantially destroyed the original horizontal and vertical arrangements of the lithics. Technological

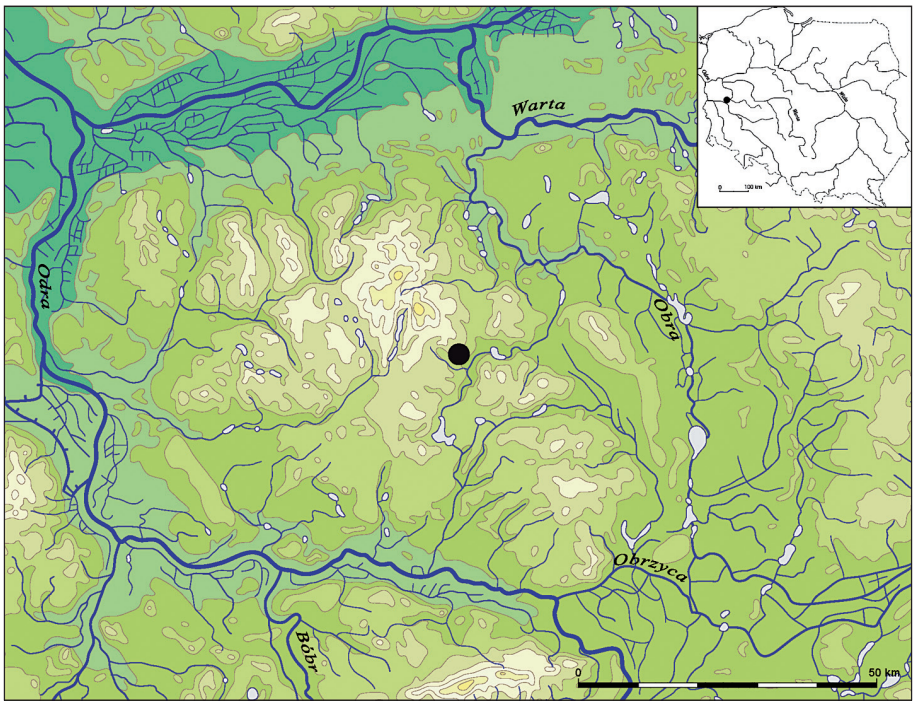

Fig. 1. Lubrza, site 42. Location of the site (Drawing P. Szejnoga).
Abb. 1. *Lubrza, Fundstelle 42. Lage der Fundstelle (Zeichnung P. Szejnoga).*

and typological analyses point to functional differences between the two concentrations. The first one (Concentration 1) seems to be a domestic unit, while the second (Concentration 5) is a workshop.

Concentration 1

Concentration 1 covered an area of c. 110 m^2 with well defined borders (Fig. 3) and produced 2 877

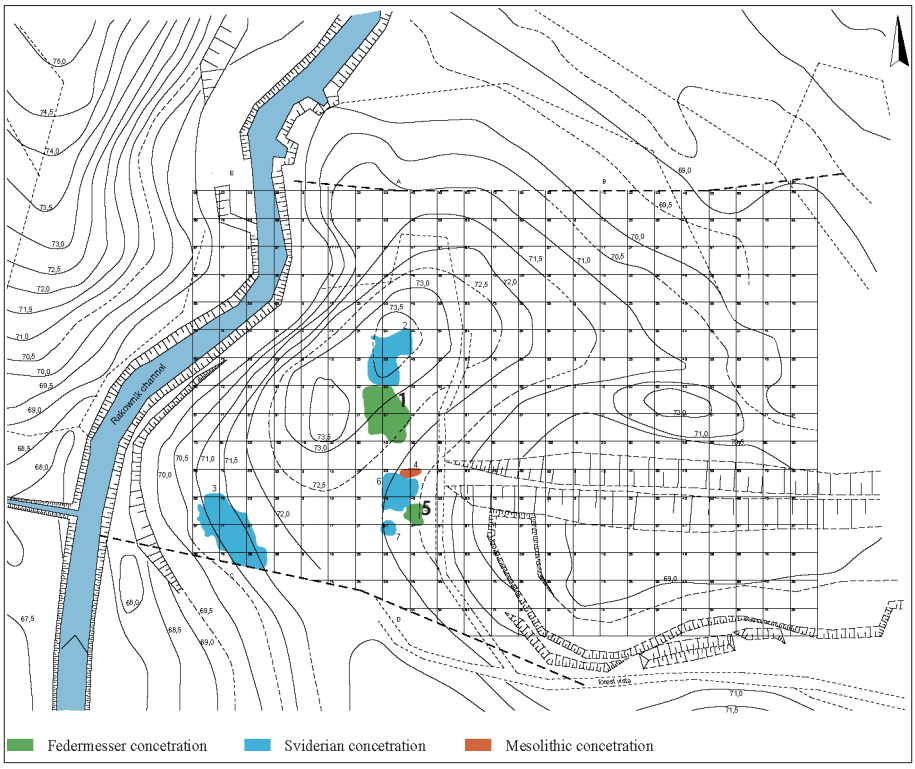

Fig. 2. Lubrza, site 42. Contour map of the site with the location of Late Palaeolithic and Mesolithic concentrations (Drawing M. Sip and P. Szejnoga).
Abb. 2. *Lubrza, Fundstelle 42. Höhenlinienkarte der Fundstelle mit der Lage der spätpaläolithischen und mesolithischen Fundkonzentrationen (Zeichnung M. Sip and P. Szejnoga).*

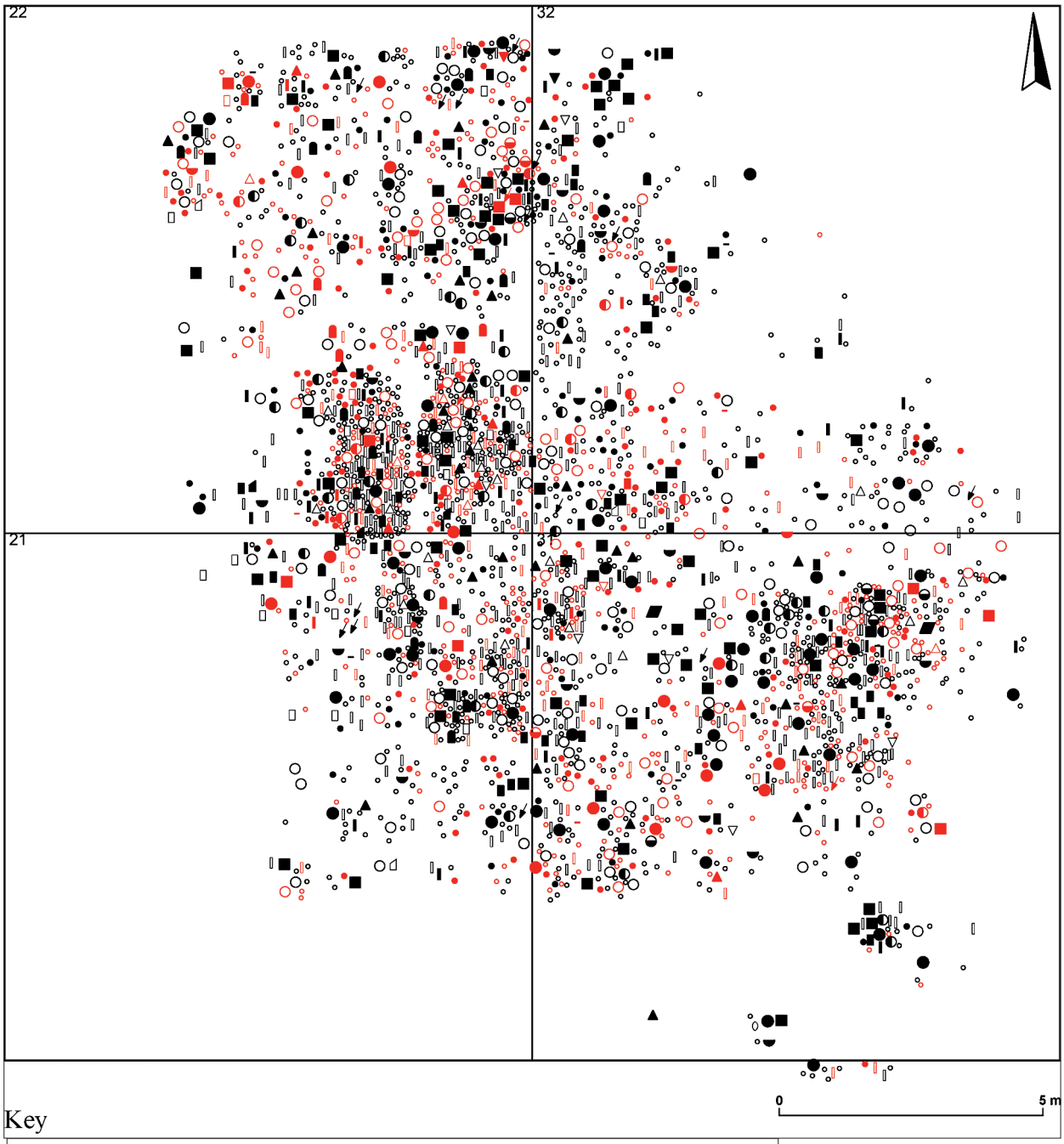

Fig. 3. Lubrza, site 42. Concentration 1 –. Spatial distribution of Federmessergruppen lithic artefacts (Drawing P. Szejonga).

Abb. 3. *Lubrza, Fundstelle 42. Konzentration 1. Räumliche Verteilung der Steinartefakte des Federmessergruppen-Inventars (Zeichnung P. Szejnoga).*

artefacts assigned to the Federmessergruppen occupation (Fig. 4). In the area of this concentration approximately 300 Mesolithic artefacts were also recorded; their vertical distribution followed that of the Palaeolithic finds. Based on typological and technological analyses, the Mesolithic settlement recorded at the site comprises multiple occupations, most probably during the Boreal and Atlantic periods (Fig. 5; Fig. 6).

As the technological and typological differences between the two inventories are quite evident, the separation of their cores and tools seems to be

accurate. However, we may expect some admixture of Mesolithic debitage within the Federmessergruppen inventory and the total number of these specimens (Fig. 4) should be considered with caution. For this reason a complete technological analysis of the Federmessergruppen assemblage was not possible.

Both the Palaeolithic and Mesolithic lithic artefacts were made of erratic Baltic Cretaceous flint, but for production of the former specimens a specific, brown-beige erratic flint was sometimes used (Fig. 7).

The Federmessergruppen lithic assemblage from Concentration 1

The overall structure of the Federmessergruppen inventory, from both a technological and a typological view, suggests we are dealing with a lithic assemblage produced to cover the everyday needs of the site inhabitants.

Burnt flint pieces, which are quite numerous, are dispersed throughout Concentration 1 and could represent either the remnants of a fireplace destroyed by post-depositional processes or a side effect of forest fires at the end of the Allerød, a feature observed at many sites of that period, e.g. Całowanie and Witów in Poland or Reichwalde in Germany (see Schild 1973;1975; Dąbrowski 1982; Knipping et al. 2001; Friedrich et al. 2001; Burdukiewicz & Furmanek 2008).

Cores are very uniform from a technological point of view. Platforms were normally prepared, usually with single blow, and their edges are trimmed. Core angles vary around 90°. The basic type of core present is a single platform core for the production of blades, however other types are also found, such as cores with their orientation modified for flakes and blades (Fig. 8: 2-3). Both hard hammer and soft hammer techniques were applied.

Of the 110 retouched and formed tools encountered in Concentration 1 (Fig. 9) the most numerous types (excluding the numerous retouched flakes and blades) are burins, end-scrapers and backed forms.

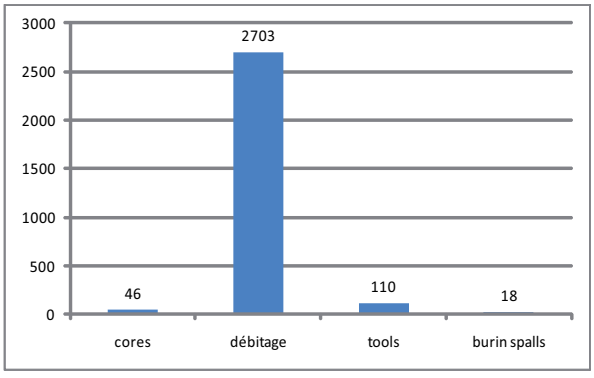

Fig. 4. Lubrza, site 42. Concentration 1. General structure of the Federmessergruppen lithic assemblage.

Abb. 4. *Lubrza, Fundstelle 42. Konzentration 1. Zusammensetzung der Steinartefakte des Federmessergruppen-Inventars.*

Category	n	Fig.
Debitage		
Cortex blades	4	
Primary lames *a crête*	12	
Flakes	4	
Blades	103	
Core rejuvenation flakes	3	
Secondary lames *a crête*	8	
Cores		
Cores for flakes	15	6.1-2
Cores for blades	16	6.3-4
Undefined cores	9	
Tools		
End-scrapers	6	6.5-6
Scrapers	4	6.7-8
Perforators	1	6.9
Triangles	24	6.10-17
Trapezes	3	6.18-20
Undefined microliths	12	
Truncations	5	
Microtruncations	1	
Backed bladelets	21	6.21-23
Retouched blades	9	
Core-axes	2	6.24-25
Microburins	26	6.26-27
Total	288	

Fig. 5. Lubrza, site 42. General structure of the Mesolithic lithic assemblage from the area of Concentration 1.

Abb. 5. *Lubrza, Fundstelle 42. Zusammensetzung der mesolithischen Steinartefakte aus dem Bereich der Konzentration 1.*

The 22 specimens of burin, mostly on flakes, are morphologically highly differentiated with a predominance of different forms of burin on truncation. Dihedral burins are rare, as are those on breaks (Fig. 10:5-18). Not a single Lacan burin was identified, either here or in Concentration 5. End-scrapers, on the other hand, are dominated by short and very short flake specimens, with some close to the so called "Tarnowian" type (Fig. 8: 4-11; 7:1-4). In this characteristic, the specimens are very similar to end-scrapers known from other sites of the ABP technocomplex from Poland.

With 15 pieces the most characteristic tools are certainly the backed points and (small and large) backed blades (Fig. 7; Fig. 11). Alongside forms with a straight or arched back, which are often recorded in inventories from western Poland (e.g. Siedlnica 17: Burdukiewicz 1974), Concentration 1 also produced large points with straight or arched backed sides formed by steep retouch. In three cases backed retouch is also present on the other side of the tool, forming a kind of tang. One double-backed point (Fig. 11:19) is morphologically close to the Krems points following W. Taute (Taute 1963, Fig. 9.3, 6;

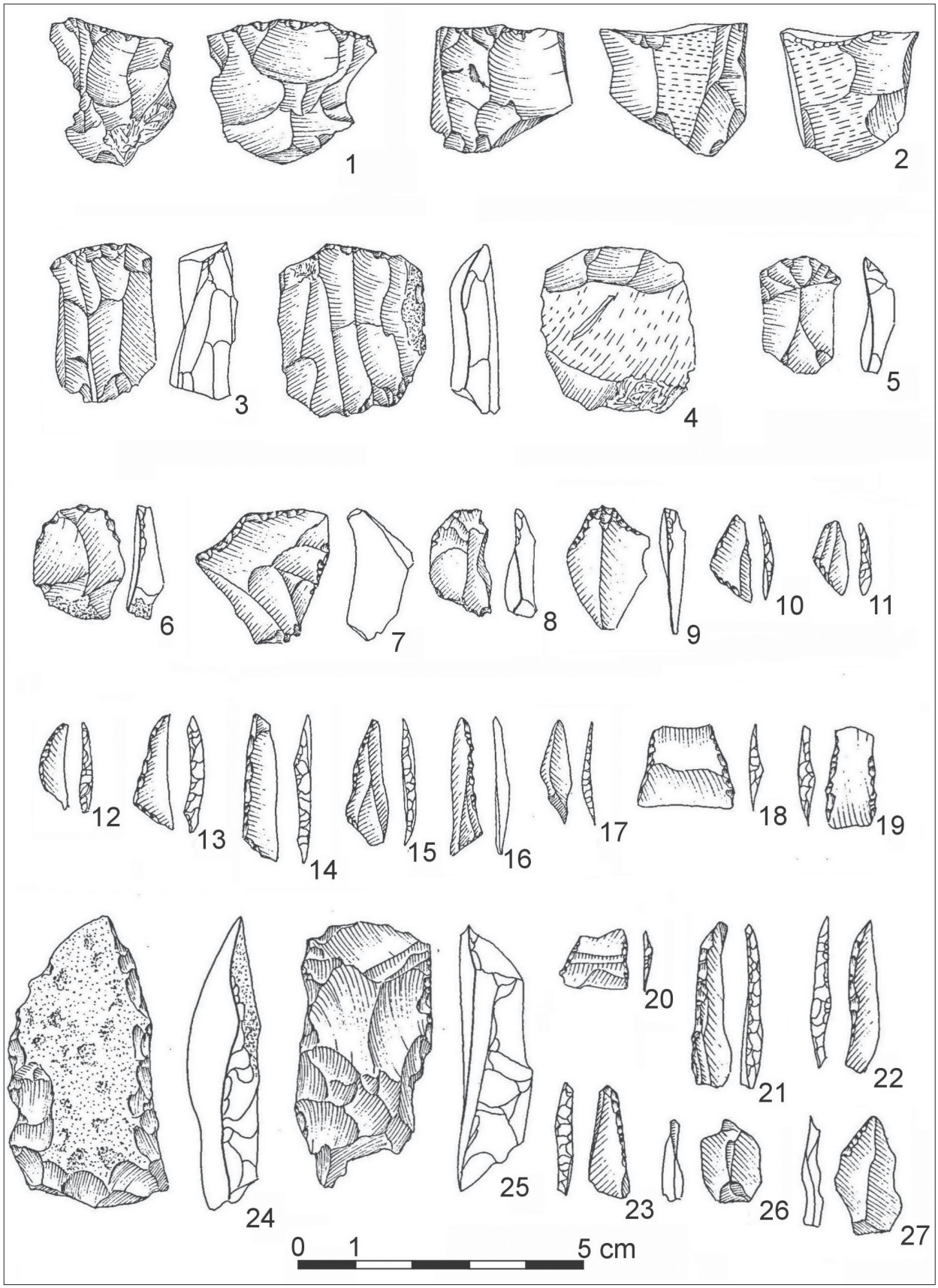

Fig. 6. Lubrza, site 42. Concentration 1. Mesolithic lithic assemblage: 1-4 cores; 5-6 end-scrapers; 7-8 scrapers; 9 perforator; 10-17 triangles; 18-20 trapezes; 21-23 truncations; 24-25 cores axes; 26-27 microburins (Drawing J. Sawicka).

Abb. 6. *Lubrza, Fundstelle 42. Konzentration 1. Mesolithische Steinartefakte: 1-4 Kerne; 5-8 Kratzer; 9 Bohrer; 10-17 Dreiecke; 18-20 Trapeze; 21-23 Endretuschen; 24-25 Kernbeile; 26-27 Mikrostichel (Zeichnung J. Sawicka).*

1968). Other authors have classified this type of tool as groovers (Kozłowski 1972) or simply as backed pieces (Schild 1975).

By far the most intriguing forms are sometimes referred to as undulated backed pointed blades (De Bie & Caspar 2000; Fig. 8:14, 16, 18). Up to now no similar pieces were known from Polish assemblages of Federmessergruppen type. On the other hand, similar tools are often present at north-western European sites such as Rekem (De Bie & Caspar 2000, Pl. 71.24), while quite comparable pieces are described as *couteau à dos retouché* at Belloy-sur-Somme and Le Marais (Fagnart 1997, Figs. 47.18; 89.11, 13, 15, 18-19).

Concentration 5

Concentration 5 is situated c. 25 meters south of the described Concentration 1 and covers an area of c. 40 m^2 (Fig. 12). It comprises 307 flint artefacts made of locally obtained erratic Baltic Cretaceous flint. The technological and typological composition of this inventory (Fig. 13) clearly points to a workshop character. With the exception of a single trapeze, no other Mesolithic material was recorded here. Burnt flints (n = 46) are dispersed throughout the central and northern part of the concentration, suggesting the presence of a fireplace in this area.

Relatively numerous cortical flakes and blades,

Fig. 7. Lubrza, site 42. Concentration 1. Selected backed points of the Federmessergruppen assemblage (Photo J. Kabaciński).

Abb. 7. *Lubrza, Fundstelle 42. Konzentration 1. Ausgewählte Rückenspitzen des Federmessergruppen-Inventars (Foto J. Kabaciński).*

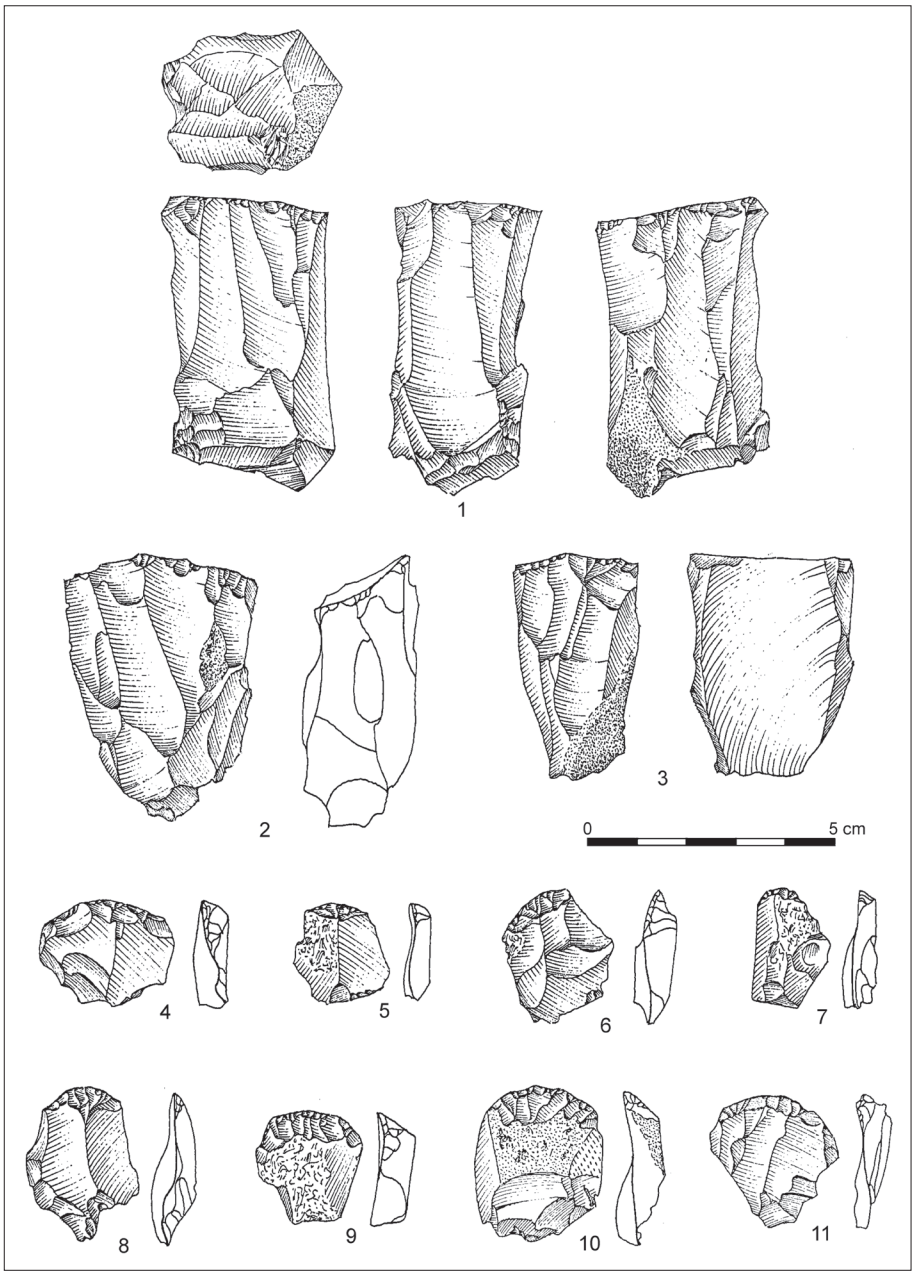

Fig. 8. Lubrza, site 42. Concentration 1. Federmessergruppen lithic assemblage: 1-3 cores; 4-11 end-scrapers (Drawing J. Sawicka), ⅔ nat. size.

Abb. 8. *Lubrza, Fundstelle 42. Konzentration 1. Federmessergruppen-Inventar: 1-3 Kerne; 4-11 Kratzer (Zeichnung J. Sawicka),* ⅔ nat. Grösse.

primary *lames à crête*, core trimming flakes and intact nodules of flint indicate that raw material was brought to the site and that cores were formed and later exploited at this exact location. The size of cores, tools and pieces of debitage allows us to estimate the size of the flint nodules, which certainly exceeded 10 cm in diameter.

The main form of core used for the production of flakes and blades was a single platform type, but opposed platform cores are also present. The preparation of cores modified the striking platform (usually formed with a single blow or facetted), the flake removal surface and the sides of the core. Core angles are around 90° (Fig. 14: 1-2).

Principally blades were struck off the cores, with flakes being much less numerous. Hard hammer technique clearly predominates and blades are wide and thick. The average width of blades from single and opposed platform cores is 14 mm and 18 mm, with a thickness of 4.8 mm and 9 mm respectively. Other forms of debitage, cores and tools also give an impression of "massiveness", a feature which differentiates the discussed inventory from Swiderian assemblages. In rare cases cores were repaired during

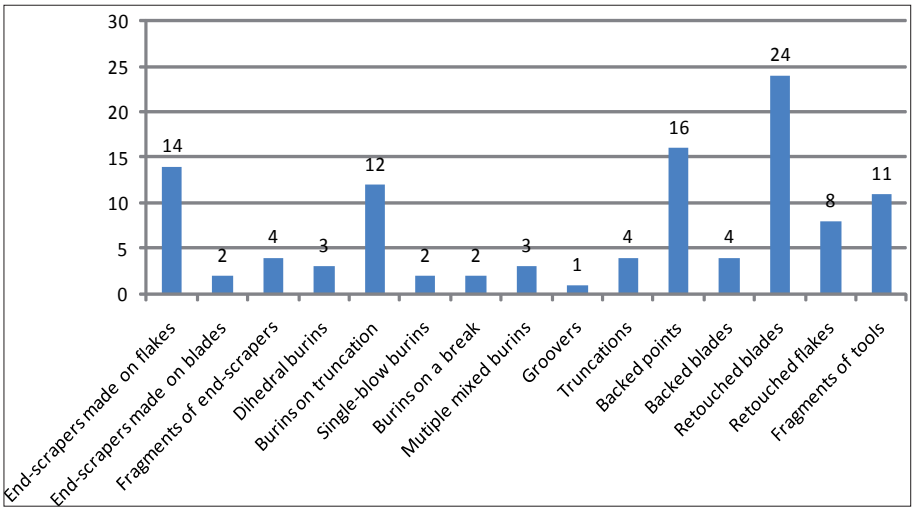

Fig. 9. Lubrza, site 42. Concentration 1. Structure of the Federmessergruppen lithic tool assemblage.
Abb. 9. *Lubrza, Fundstelle 42. Zusammensetzung der Werkzeuge des Federmessergruppen-Inventars.*

their exploitation, while another way of prolonging the life of a core was to change its orientation.

Six tool types were identified among the 19 specimens present, including three end-scrapers, three burins, two retouched blades, eight retouched flakes, one denticulate tool, a pick and a flake axe.

All end-scrapers are specimens on flakes; they are short or very short and morphologically heterogeneous (Fig. 14: 3-5). Of the three burins, one was dihedral, one on a truncation and the third was a single blow burin (Fig. 14: 6-8). The heavy-duty tools, a flake axe and a pick (Fig. 15) deserve special attention, this being the first time that these kinds of tools have been recorded in a Federmessergruppen assemblage from Western Poland.

Even if no tools characteristic for the Federmessergruppen technocomplex were identified in this concentration, a clear connection to this group can be shown on the basis of the technology used by the makers of the assemblage. It is based on hard hammer technique with direct percussion. Inventories with similar technological characteristics were discovered at Nowa Wieś (Burdukiewicz & Furmanek 2008), Całowanie (layer III) and Rydno IV/57 (Schild 1975), Pawłów (Libera et al. 2008), Trzebca II/63 (Kobusiewicz 1964) and also in north-western Europe, for example at Le Marais (Fagnart 1997) and Rekem (De Bie & Caspar 2000).

Assemblages of the Arch Backed Piece technocomplex in Poland

The Arch Backed Piece (ABP) technocomplex as defined by R. Schild comprises a number of cultures and groups identified in western and central Europe (Schild 1996). Internal divisions of this large taxonomic unit are based on morphological analysis of assemblages, the appearance of single tool types and sometimes on differences in the proportions of certain groups of tools. In Poland the three following cultural entities were distinguished: Federmessergruppen, Tarnowian and Witowian (Kobusiewicz 1999).

The first inventories related to the ABP technocomplex (the so called Tarnowian) were identified in Poland by S. Krukowski in 1939 on the basis of the sites at Tarnowa and Grzybowa Góra 4 and linked by him to the Azilian (Krukowski 1939-1948).

The classic assemblage of the Tarnowian, from the Tarnowa site itself, is characterised by the presence of numerous end-scrapers, which are mainly short and squat specimens on flakes (so called Tarnowian end-scrapers) and sometimes doubled. These are accompanied by burins and backed pieces. These last tools are usually slim pieces with a massive retouched back and they do not exceed 2 % of whole tool group. Hard hammer technique is typical for the exploitation of cores, among which opposed platform and single platform are the most numerous types. Cores are poorly prepared (mainly the platforms) and the removed blades and flakes are short and thick (Schild 1975). Beside the eponymous site only three other Tarnowian assemblages are known, namely Rydno (Grzybowa Góra) IV/37, IV/57 and IX/59 (Schild 1975).

M. Chmielewska defined a second industry, the Witowian, after the site of Witów (Chmielewska 1961). A typical feature of Witowian assemblages, as is also the case for the Tarnowian, is the hard hammer technique used for core exploitation. With the exception of striking platforms no other parts of the cores are prepared. Cores for flakes predominate, with single platforms and multiple changed orientations of removals.

The most numerous forms of tool are small, thick or very thick end-scrapers on flakes. Backed pieces are slightly less numerous than end-scrapers. Typical are microlithic backed pieces (not longer than 3 cm) made on small blades and flakes, with backs retouched

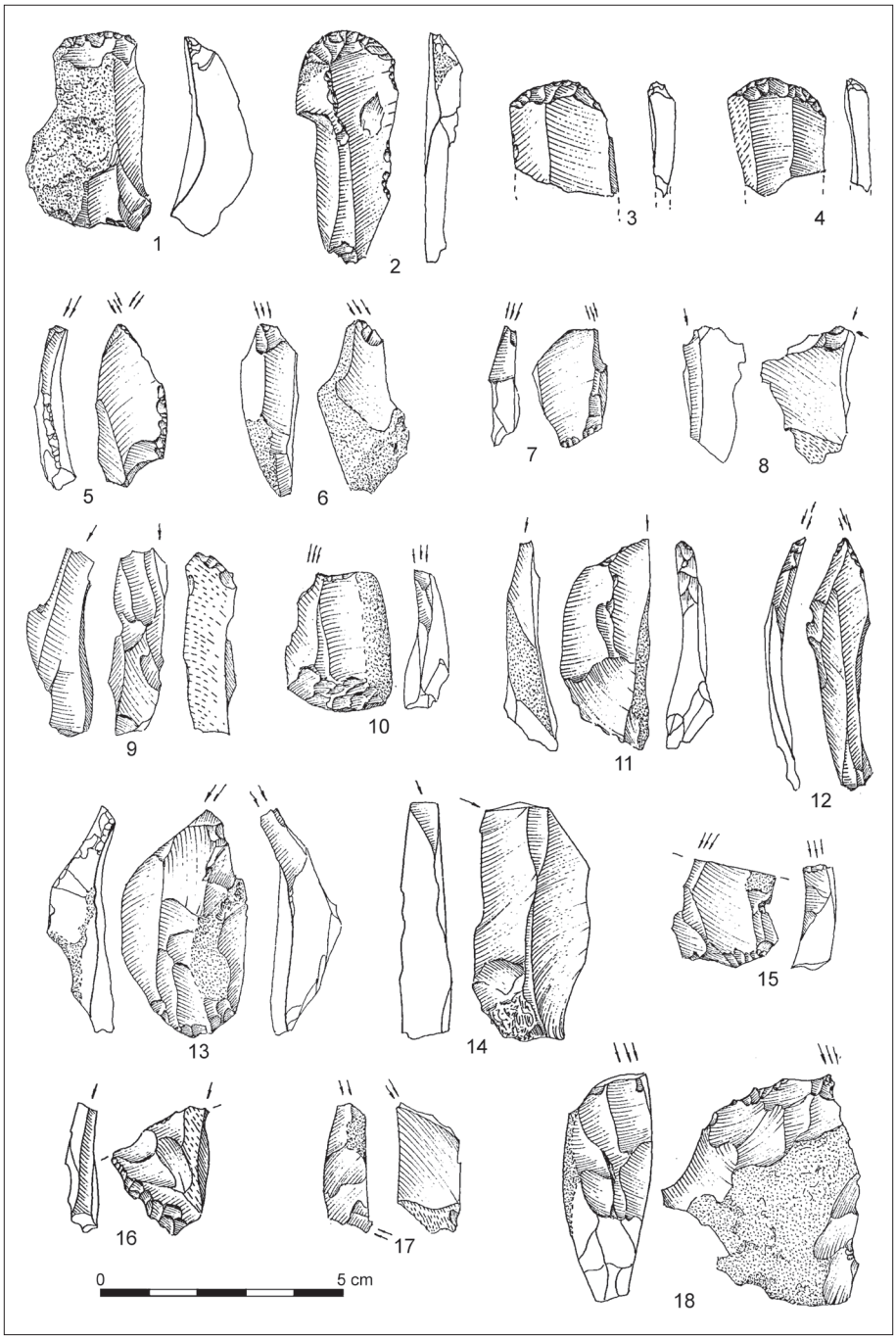

Fig. 10. Lubrza, site 42. Concentration 1. Federmessergruppen lithic assemblage: 1-4 end-scrapers; 5-18 burins (Drawing J. Sawicka), ⅔ nat. size.

Abb. 10. *Lubrza, Fundstelle 42. Konzentration 1. Federmessergruppen-Inventar: 1-4 Kratzer; 5-18 Stichel (Zeichnung J. Sawicka),* ⅔ nat. Grösse.

completely or along three-quarters of their length. Burins, which are mainly side burins on truncation made on flakes, are almost always less numerous than end-scrapers and backed pieces although their proportions vary from site to site. Dihedral burins, made on flakes and short or squat, are rare and single examples of perforators and becs are also present (Schild 1975).

In his discussion of the Federmessergruppen W. Taute classed inventories from Tarnowa, Grzybowa Góra, Witów, Siedlnica and Krzekotówek together within a fourth group of the Federmessergruppen complex, alongside the Tjonger, Rissen and Wehlen groups (Taute 1963). On the other hand, some Polish scholars suggest a connection between the Witowian and the Tardigravettian complex which developed in the Carpathian region and the Balkans (Kozłowski & Kozłowski 1975; Kozłowski 1987). The basis for this suggestion is provided by the small, arch backed pieces typical for the Tardigravettian, which are often present at Witowian sites.

Beside the Tarnowian and Witowian, other

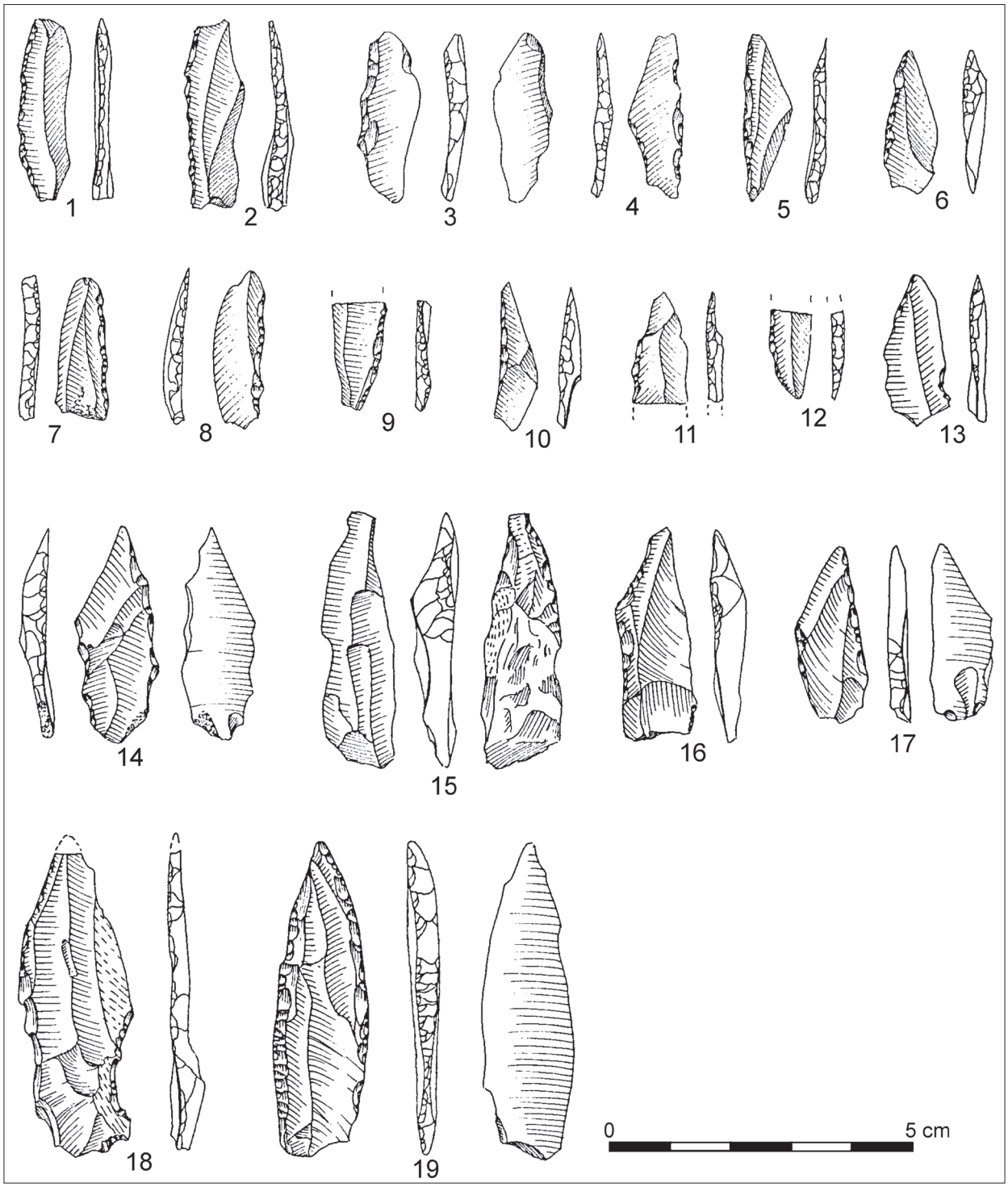

Fig. 11. Lubrza, site 42. Concentration 1. Federmessergruppen lithic assemblage:. Backed pieces (Drawing J. Sawicka).
Abb. 11. *Lubrza, Fundstelle 42. Konzentration 1. Federmessergruppen-Inventar: Rückengestumpfte Formen (Zeichnung J. Sawicka).*

assemblages related to classic Federmessergruppen inventories have also been identified on the territory of Poland, among them Wołczkowo, Siedlnica, Olbrachcice, Nowa Wieś or, recently, Pawłów. These are assemblages in which the predominance of hard hammer technique is also observed, not only during the process of core preparation but also during blade production. Platforms of cores were usually formed by removing a single flake (Schild 1975; Libera et al. 2008). Usually, similar numbers of end-scrapers and burins are present in these assemblages. Burins are squat and of large dimensions. The most numerous end-scrapers are so called "Tarnowian" end-scrapers, whereas slender forms are extremely rare.

Different backed points typical for the Federmessergruppen are present, among them slender forms with a straight or arched back and specimens with a truncated base (Kozłowski & Kozłowski 1975;

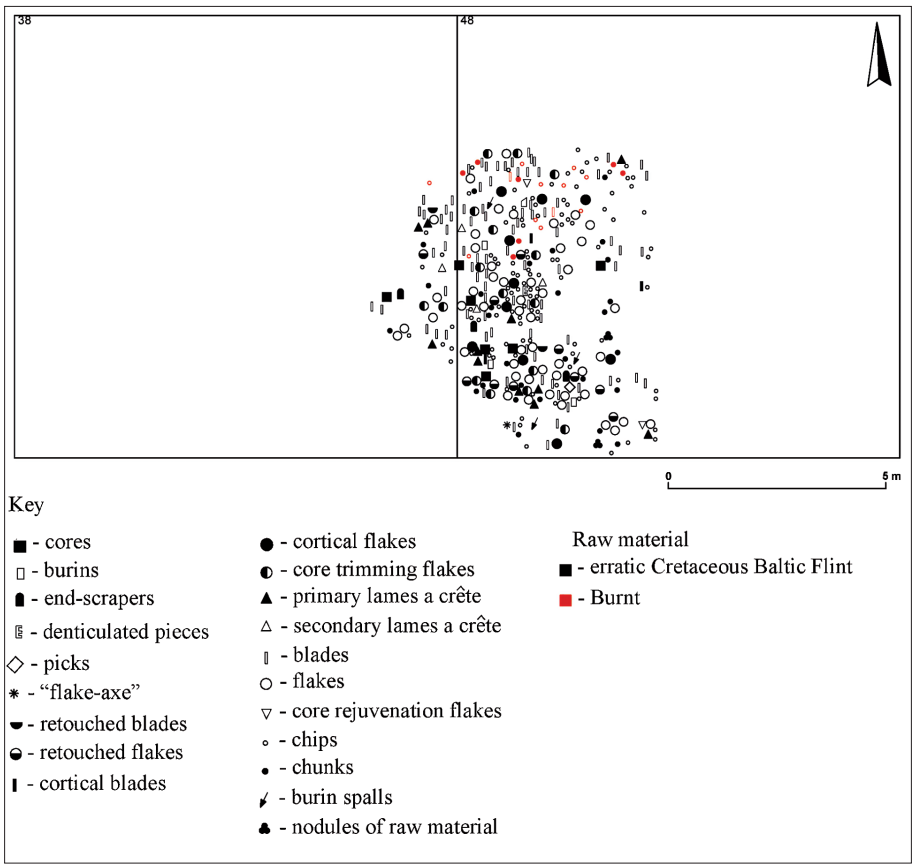

Fig. 12. Lubrza, site 42. Concentration 5. Spatial distribution of the Federmessergruppen lithic artefacts (Drawing P. Szejonga).

Abb. 12. *Lubrza, Fundstelle 42. Konzentration 5. Räumliche Verteilung der Steinartefakte des Federmessergruppen-Inventars (Zeichnung P. Szejnoga).*

Schild 1975).

Summing up the above observations, three kinds of assemblages ("cultures") related to the ABP techno-complex are recognized in Poland at present, albeit of unclear genesis and with unclear distinguishing criteria (Fig. 16). It is worth noting that most of the inventories are surface collections (like Tarnowa) or stray finds (Wołczkowo). Quite often these are single finds of backed blades or backed points and these tool types are known not only from Federmessergruppen sites but are also present at sites of the Hamburgian and Creswellian (Kabaciński et al. 1999; Kobusiewicz 1999; Campbell 1977), the Swiderian (Kobusiewicz & Kabaciński 1992), the Ahrensburgian

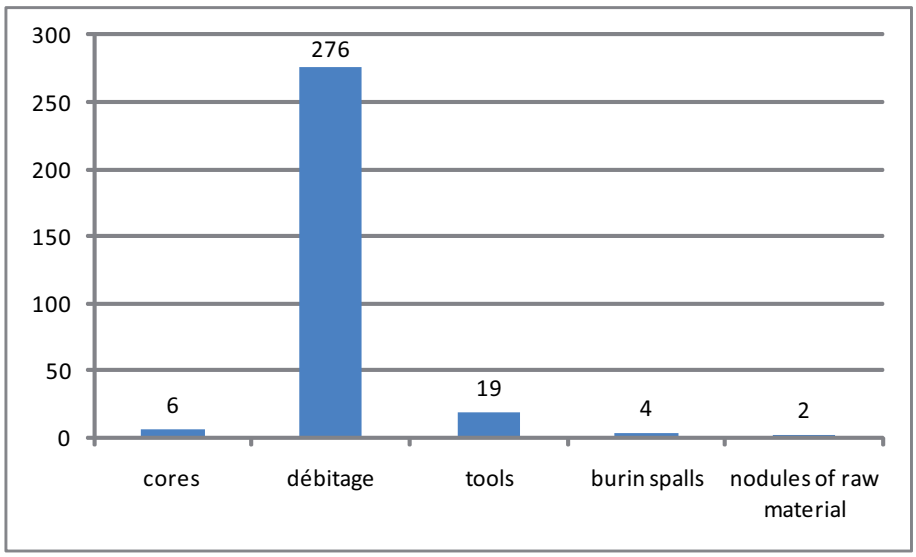

Fig. 13. Lubrza, site 42. Concentration 5. General structure of the Federmessergruppen lithic assemblage.

Abb. 13. *Lubrza, Fundstelle 42. Konzentration 5. Zusammensetzung der Steinartefakte des Federmessergruppen-Inventars.*

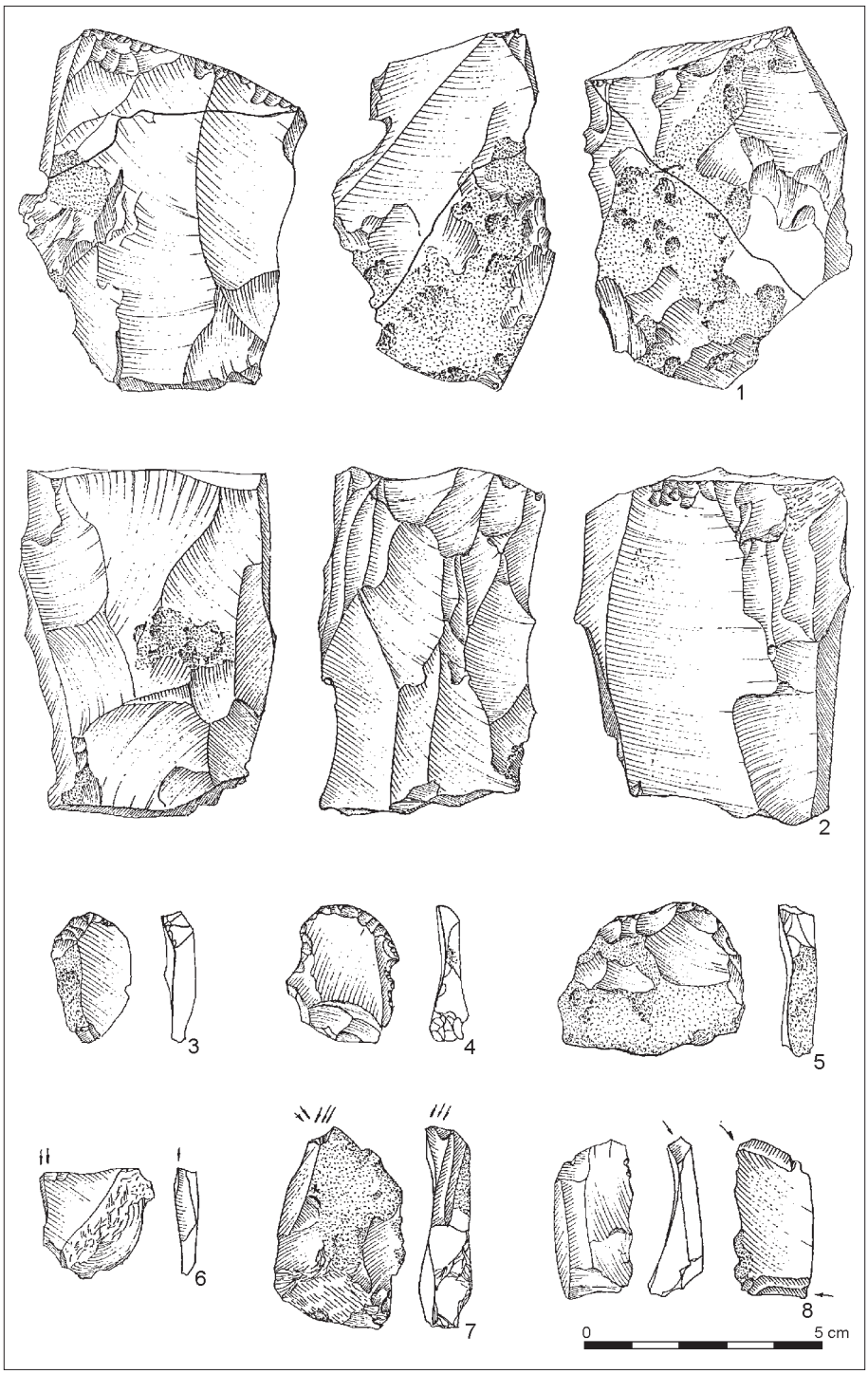

Fig. 14. Lubrza, site 42. Concentration 5. Federmessergruppen lithic assemblage: 1-2 cores; 3-5 end-scrapers; 6-8 burins (Drawing J. Sawicka), ⅔ nat. size.

Abb. 14. *Lubrza, Fundstelle 42. Konzentration 5. Federmessergruppen-Inventar: 1-2 Kerne; 3-5 Kratzer; 6-8 Stichel (Zeichnung J. Sawicka),* ⅔ nat. Grösse.

(Burdukiewicz 1979) and Lyngby inventories of Tolk type (Bagniewski 1997).

Chronology of the Arch Backed Piece technocomplex

The chronological position of the ABP technocomplex is beset with many problems due to the limited number of accurate radiocarbon dates, the nature of the dated material (see for instance discussion of the dating of burnt bones from Reichwalde and Bad Breisig (Lanting & Brindley 1998; Lanting et al. 2002; Vollbrecht 2005; Grimm 2004) or by plateaux within the calibration curve for this part of the Late Glacial (Björck et al. 1998; Kitgawa & van der Plicht 1998).

R. Schild had already suggested in the mid 1970s

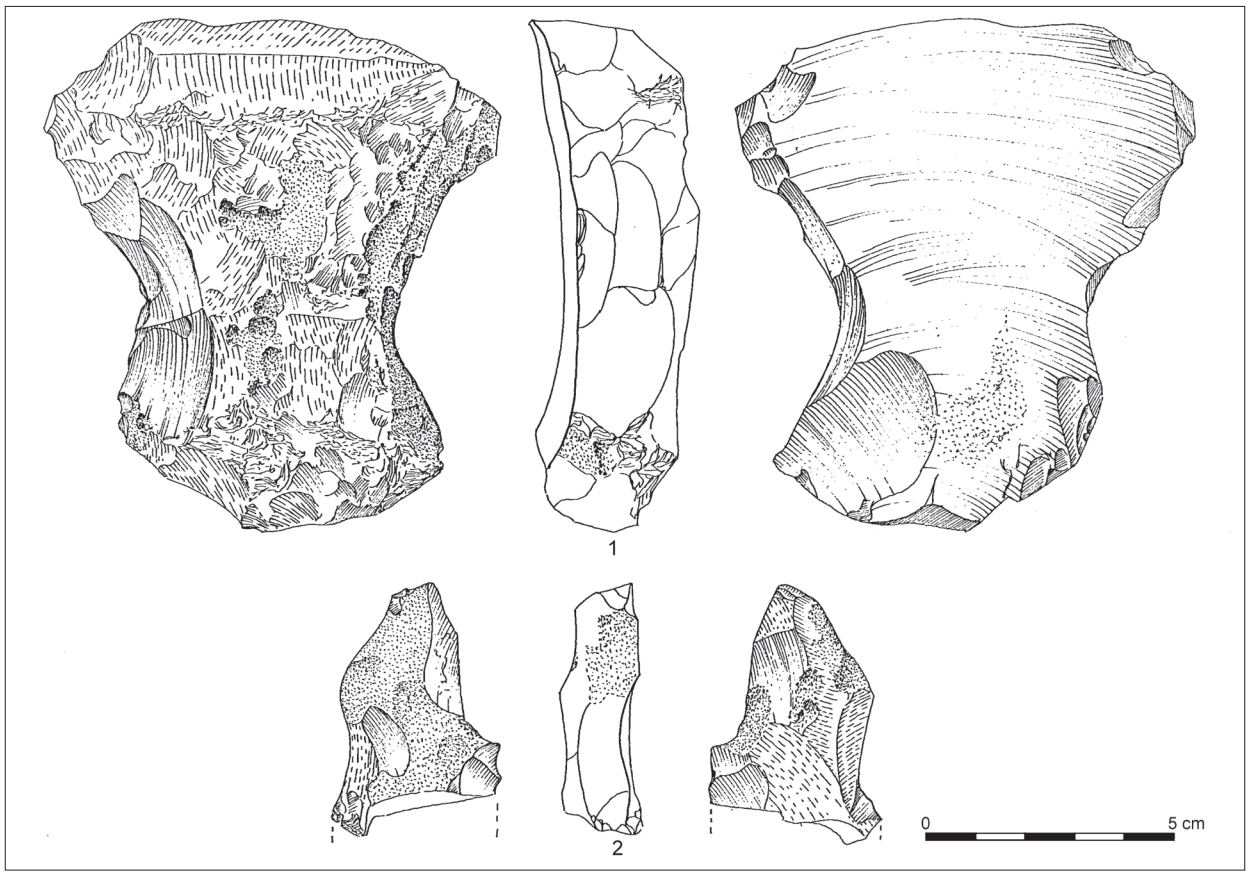

Fig. 15. Lubrza, site 42. Concentration 5. Federmessergruppen lithic assemblage. Heavy-duty tools: 1 flake axe; 2 pick (Drawing J. Sawicka), ⅔ nat. size.

Abb. 15. *Lubrza, Fundstelle 42. Konzentration 5. Federmessergruppen-Inventar: Grobgeräte: 1 Scheibenbeil; 2 Hacke (Zeichnung J. Sawicka),* ⅔ nat. Grösse.

the possibility of the existence of ABP assemblages in the Older Dryas and at the very beginning of the Allerød. Based on modern dating results we may assume that Federmessergruppen populations were at least partially contemporary with the Hamburgian and Bromme groups. This seems to be confirmed by radiocarbon determinations from several sites:, such as Reichwalde: GrA-15437: 12 350±50 BP and GrA-15436: 12 280±50 BP (Vollbrecht 2005); Węgliny: Poz.-10674: 12 120±60 BP (Cziesla & Masojć 2007) or Klein Nordende: LA 37: 12 035±110 BP (Bokelmann et al. 1983) and by similar features in the lithic technologies of Hamburgian and Federmessergruppen societies (Grimm & Weber 2008). In the case of the Węgliny barbed point we follow the cultural attribution of the specimen suggested in the source publication (Cziesla & Masojć 2007). The site Klein Nordende is palynologically dated to the Pre-Allerød-*Hippophäe* maximum (Bokelmann et al. 1983), which would be synchronous with GI-1e. The chronological position of the occupation LA 120B at Alt Duvenstedt is slightly younger, with a radiocarbon date on charcoal from a fire place of 11 780±100 BP (AAR-2444), placing the site within GI-1c1 (Clausen 2004).

In the central Rhineland the Federmessergruppen existed during last interstadial of the Weichselian, which can be correlated with the palynologically defined Bølling *(sensu stricto)* and Allerød phases and dated in radiocarbon years to between 11 800 and 10 800 BP (Street et al. 2006). Final Allerød occupation here is confirmed by radiocarbon estimates from Bad Breisig (10 840±60: GrA-17439; 10 480±80 BP: GrA-17642; 10 220±60 BP: GrA-17716), whereby the oldest date (GrA-17439) is believed to reflect the age of the site most accurately (Grimm 2004).

Some 30 radiocarbon dates from Belgium and the Netherlands do not help to clarify the chronological position of Federmessergruppen occupation there due to the presence of "natural" charcoal in the Usselo soil horizon. Until now only one acceptable date exists from Rekem, made on resin present on a curve backed point (11 350±150 BP: OxA-942). The Late Glacial age of Federmessergruppen settlement in the region is generally confirmed by TL dates, whereas all the measurements made on charcoal are of Holocene age (De Bie & Caspar 2000).

In the Somme region of northern France Federmessergruppen settlement existed during the entire Allerød, between 11 800 and 10 800 BP. Sites at Hangest-sur-Somme III are assigned to the oldest phase (pre-Allerød) with dates of 11 630±90 BP

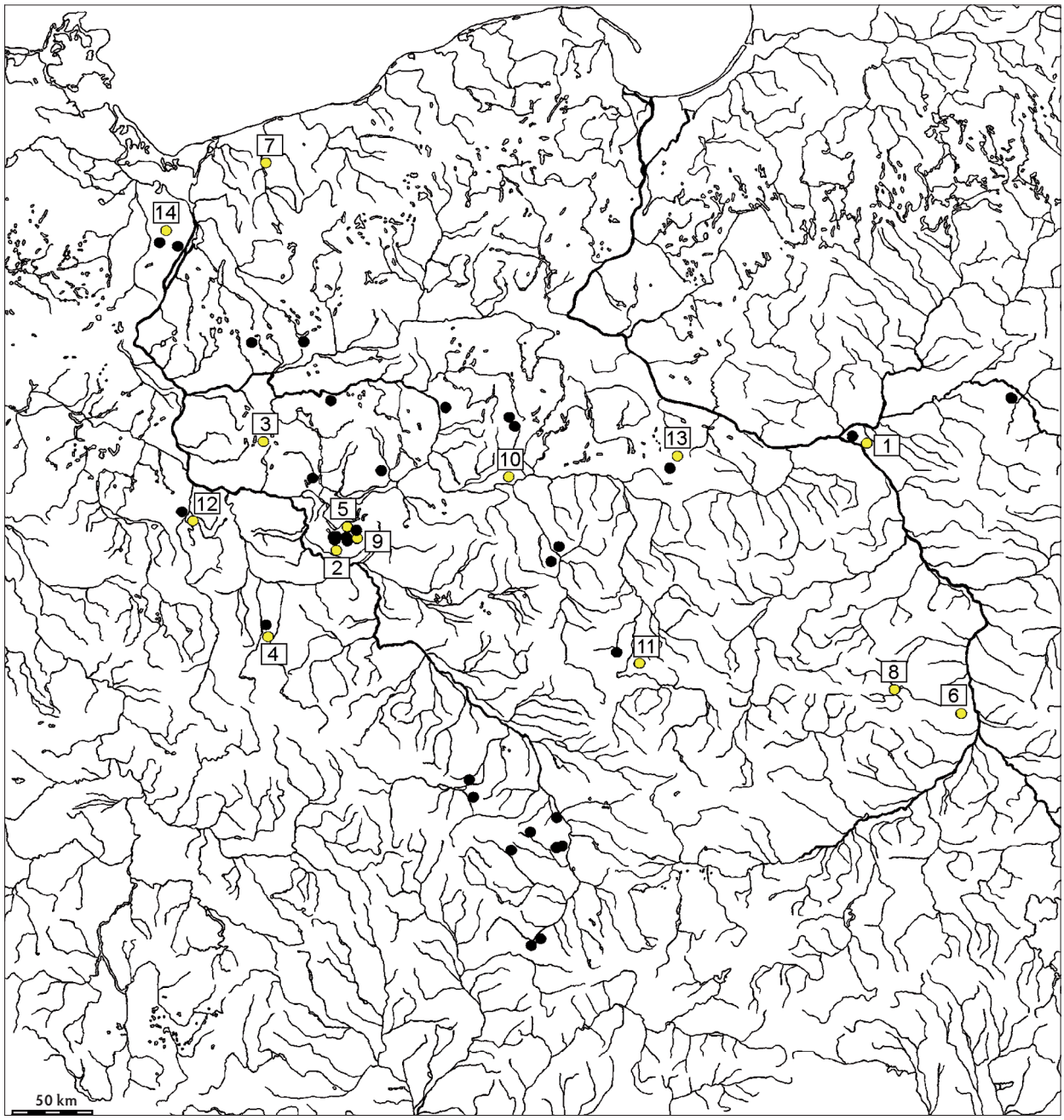

Fig. 16. Distribution of sites related to the Arch Backed Piece technocomplex in Poland. Yellow dots – main sites mentioned in the text: 1 – Całowanie, 2 – Krzekotówek, 3 – Lubrza, 4 – Nowa Wieś, 5 – Olbrachcice, 6 – Pawłów, 7 – Rotnowo, 8 – Rydno -Grzybowa Góra, 9 – Siedlnica, 10 – Tarnowa, 11 – Trzebca, 12 – Węgliny, 13 – Witów, 14 – Wołczkowo. Black dots – other sites (Drawing I. Sobkowiak-Tabaka).

Abb. 16. *Lubrza, Fundstelle 42. Lage der Fundstellen des „Arch Backed Piece technocomplex" in Polen. Gelbe Punkte – wichtige im Text erwähnte Fundstellen: 1 – Całowanie, 2 – Krzekotówek, 3 – Lubrza, 4 – Nowa Wieś, 5 – Olbrachcice, 6 – Pawłów, 7 – Rotnowo, 8 – Rydno -Grzybowa Góra, 9 – Siedlnica, 10 – Tarnowa, 11 – Trzebca, 12 – Węgliny, 13 – Witów, 14 – Wołczkowo. Schwarze Punkte – andere Fundstellen (Zeichnung I. Sobkowiak-Tabaka).*

(OxA-4936) and 11 660±110 (OxA-4432). The site at Le Marais is linked to the Allerød with radiocarbon dates of 10 890±90 BP (OxA-6151), 11 620±90 BP (OxA-6149), 11 560±90 BP (OxA-6150) and 11 410±80 (OxA-6148). The youngest occupations are at Saleux (no. 114), dated to 11 010±80BP (OxA-4932) and 10 800 ±140 BP (OxA-4933), and at Hangest-sur-Somme (III-1, upper layer) with a date of 10 920±90 (OxA-4935) (Fagnart & Coudret 2000).

On the other hand, series of dates made on charcoal from Całowanie and Witów (Table 1) indicate that groups related to the Federmessergruppen technocomplex existed on the Polish Lowlands as late as the dune phase of the Younger Dryas stadial (Schild et al. 1999). A single date from Schipsloot, Een in Belgium (10 495±60 BP: GrN-6341) might also suggest continuation of Federmessergruppen settlement into the Younger Dryas, but this date merely provides a *terminus ante quem* and is not directly related to the assemblage (De Bie & Caspar 2000).

Site	Lab. no	^{14}C-Dates BP	Remarks	References
Witów („hut" 1)	Gro-828	10 815±160	charcoal	Chmielewska 1961
Rotnowo	Poz.-8308	11 100±70	burnt bones from the hut; 0.9-1.0 m below the surface; Sq 58Gc	Galiński 2007
	Poz.-8310	11 090±80	burnt bones from the hut; 1.0-1.2 m below the surface; Sq 59Gb	Galiński 2007
Całowanie, level III; trench III	Gd-4165	11 740±200	charcoal from leached hearths	Schild et al. 1999
	Gd-5967	11 380±95	charcoal from leached hearths	Schild et al. 1999
Całowanie, level IVB; trench IX	Gd-2723	10 900±130	charcoal from the hydromorphic soil	Schild et al. 1999
Całowanie, level IV	Gd-2882	11 770±160	charcoal	Schild et al. 1999
	GrN-5410	11 190±65	charcoal	Schild et al. 1999
Węgliny 1	Poz.-10674	12 120±60	barbed harpoon (Cervidae or Bovidae)	Cziesla & Masojć 2007
Pawłów 4	–	–	OSL dates the trench to the second half or to the end of the Allerød (Younger Dryas?)*	Libera et. al. 2005; Libera et. al. 2008

Fig. 17. Radiocarbon dates from Federmessergruppen sites in Poland. (*There are no specific date(s) in the published literature.)
Abb. 17. *^{14}C-Daten von Federmessergruppen-Fundstellen in Polen. (* Keine genaueren Daten in der publizierten Literatur vorhanden.)*

There is no question that the technological and typological characteristics of the Lubrza assemblages associate them with the ABP technocomplex, although it is difficult to point directly to a specific analogy. The most characteristic features of the discussed inventories are the presence of massive, only slightly prepared cores with straight angles of striking platforms and which are exploited by hard hammer direct percussion, and of numerous burins and backed points. What is striking is the relatively small number of end-scrapers as compared to burins and backed pieces, a situation almost never met with on other Polish sites of this age. Unique is also the presence of shoulder-like undulated backed pointed blades, otherwise unknown from the territory of Poland. These cannot be found in Polish Witowian, Tarnowian or classic Federmessergruppen assemblages and would suggest affinities rather with the classic Federmessergruppen inventories of Western Europe. Rekem (De Bie & Caspar 2000), Belloy-sur-Somme and Le Marais (Fagnart 1997) and especially Bad Breisig (Grimm 2004) seem to provide important analogies.

It is not possible at the moment to establish the chronology of Federmessergruppen settlement at Lubrza on the basis of direct dating due to lack of suitable material. Traditionally, settlements of Federmessergruppen culture in Poland have been linked with the Allerød (e.g. Taute 1963; Schild 1975). This is confirmed by radiocarbon dates from Całowanie (Schild et al. 1999), Witów (Chmielewska 1961) and recently at Rotnowo (Galiński 2007) (Fig. 17). Despite the lack of other data allowing more precise dating we would also suggest an association of the site under discussion with the Allerød oscillation.

The Lubrza site is located at the edge of a large glacial basin filled with biogenic and mineral sediments. A single core was taken here for archaeobotanical (palynology, macro-remains) and malacological studies. Preliminary results confirm the presence of a Late Glacial sequence with a Bølling layer at its base (Okuniewska-Nowaczyk 2009). This is supported by the first three radiocarbon analyses made on macro-remains: 12 000±60 BP (Poz.-31273), 11 470±60 BP (Poz.-31272) and 10 780±60 (Poz.-31271). At the current stage of research we cannot demonstrate a relationship between the remnants of Federmessergruppen sediments preserved at the archaeological site with a specific layer in the palaeo-lake. This should however be possible within the framework of a planned intensive interdisciplinary project for the detailed study of the Late Glacial history of the region.

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