

## The pottery from the early medieval settlement at Pellendorf/Gaweinstal (Lower Austria) and its relationship to the Great Moravian sites on the River March

Keramika z raně středověkého sídliště v Pellendorf/Gaweinstal (Dolní Rakousko) a její vztah k velkomoravským lokalitám na řece Moravě

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*This paper discusses the pottery finds from the 2003–2005 excavation of the settlement at Pellendorf/Gaweinstal in the central eastern area of the Weinviertel district in Lower Austria. The early medieval settlement was occupied from the 7<sup>th</sup> to the 10<sup>th</sup> centuries. The pottery finds from the 9<sup>th</sup>/10<sup>th</sup> century are characterised by shapes typical of the Mikulčice and Blučina pottery groups and of the March pottery in southern Moravia, and thus revealing intensive contact to the Great Moravian centres on the River March in that period. The paper also mentions further sites with the same pottery in northern Lower Austria, which, taken as a whole, indicate that in the 9<sup>th</sup> century the area was culturally, economically, and thus presumably also politically, closely connected to the Moravian Empire.*

Early Middle Ages – Lower Austria – Moravia – rural settlement – pottery

*Výzkum sídlištní lokality Pellendorf/Gaweinstal ležící ve středu východní části oblasti Weinviertel (Dolní Rakousko) poskytl v letech 2003–2005 keramický materiál, který je diskutován v předložené studii. Sídliště bylo využíváno od 7. do 10. století. Keramika z přelomu 9. a 10. stol. se vyznačuje tvary a výzdobou, jež jsou typické pro soudobá velkomoravská centra na řece Moravě. Pozornost je věnována také dalším lokalitám v severní části Dolního Rakouska, z nichž pocházejí keramické nálezy obdobného charakteru. V celkovém pohledu tento náleзовý inventář svědčí o úzkém kulturním, ekonomickém, a patrně i politickém propojení příslušných oblastí Dolního Rakouska s Velkou Moravou v 9. století.*

raný středověk – Dolní Rakousko – Morava – sídliště – keramika

### 1. The site and its history

The settlement discussed here is around 10 km south of Mistelbach, the capital of the district of the same name in the Lower Austrian Weinviertel, halfway between the villages of Pellendorf to the west and Gaweinstal to the east (fig. 1). The archaeological excavation was prompted by the construction of the North or Weinviertel Motorway in the years 2003–2005, the first leg of which, between Eibesbrunn in the outskirts of Vienna and Schrick, involved the building of a bridge and a water retention basin in Gaweinstal parish. The excavations were carried out by the Archaeological Department of the Federal Monuments Authority (project officer Martin Krenn), together with the organisation AS-Archäologie Service. The site supervisors were Gottfried Artner (G3, G5), Susanne Baumgart (G3) and Astrid Steinegger (G5).

The site lies in the lowlands around the Pellendorfer- or Goldbach (Gold Stream), which flows from west to east, and consists of two excavation areas: A smaller area to the north



Fig. 1. Site location, with the early and high medieval roads (after *Csendes 1969*). Source of Map: Jarvis A., H. I. Reuter, A. Nelson, E. Guevara, 2008, Hole-filled seamless SRTM data V4, International Centre for Tropical Agriculture (CIAT), available from <http://srtm.csi.cgiar.org>. Rivers, water: OpenStreetMap.

of the stream in Gaweinstal parish and a much larger excavated area south of the stream, most of which belongs to Pellendorf. The lower land lies around 195 m above sea level, with the northern slope rising relatively steeply to 198–199 m. The expanding valley bottom to the south of the stream, on the other hand, is only 1.5–3 m higher than the stream and rises more gently southwards, reaching heights of up to 205 m above sea level within the finds area. The archaeological interesting area covers around 20,000 m<sup>2</sup> in which around 2,000 settlement features and five individual graves were recorded (*Artner – Krenn 2003; 2005; Artner – Krenn – Steinegger 2004; Artner – Baumgart – Krenn 2004; Krenn – Artner – Steinegger 2005; Krenn – Artner – Baumgart 2005; Farka – Krenn – Artner 2006, 20–31; Kühtreiber – Artner – Steinegger 2008; fig. 2*). The finds area continues to the west and east of the excavation areas along the stream, with the borders of the settlement being successfully established to the north and the south.

Several settlement phases were identified while the excavation was still ongoing. Scanty Early Bronze Age features were followed by more intensive settlement in the younger Iron Age (Early to Late La-Tène). There followed an extensive Imperial Roman/Germanic (2<sup>nd</sup>/3<sup>rd</sup> centuries) and also a Migration period phase. The early medieval use of the site began by the 7<sup>th</sup> century at the latest and lasted, probably with a break in settlement, into



Fig. 2. Pellendorf/Gaweinstal. Overview of the excavation areas and the excavated features. The analysed objects from the medieval settlement phases are coloured (MA 1–4: 7<sup>th</sup>–10<sup>th</sup>/11<sup>th</sup> c.; MA 5 selected features 12<sup>th</sup>–14<sup>th</sup> c.). Map: Karin Kühtreiber based on the site record.

the 10<sup>th</sup> century. Traces of settlement from the 11<sup>th</sup> centuries are much fewer and mainly consist of pottery finds. By contrast, occupation in the 12<sup>th</sup>–14<sup>th</sup> centuries is very clear, with numerous house features, an erdstall and many finds. The most important features from the early medieval period have now been analysed.<sup>1</sup> All other settlement periods, in particular

<sup>1</sup> All house features, large pits and free-standing ovens were examined for this paper, in order to guarantee that all relevant objects had been identified and included.



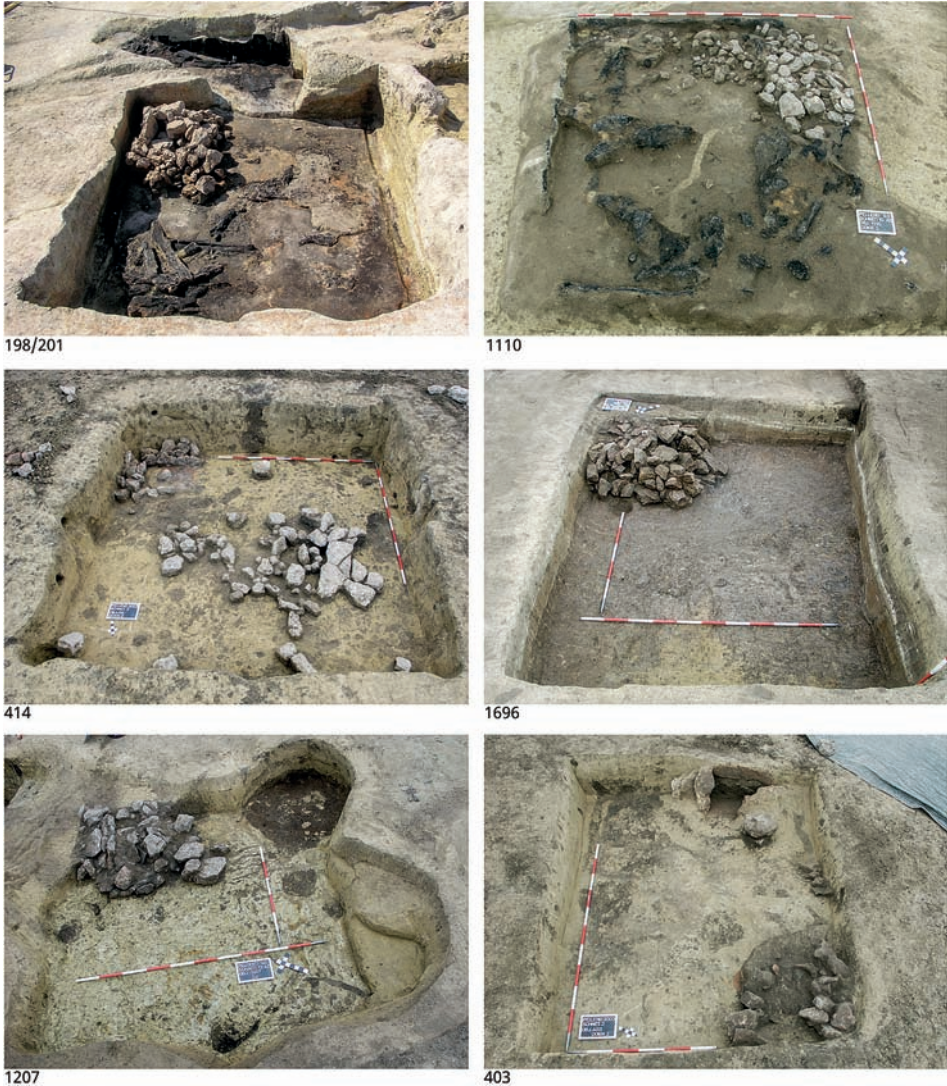


Fig. 3. Pellendorf/Gaweinstal. House features. Photos: BDA/AS-Archäologie Service.

the Imperial Roman and Migration periods, are either still waiting for post-excavation analysis or for the completion of the work already begun.

## 2. The settlement

About 130 of the 2,000 settlement features recorded were early medieval, among them 33 complete or almost complete houses, three partly uncovered buildings and four uncertain house features. In addition, two stone ovens, which were discovered in the humus



Fig. 4. Pellendorf/Gaweinstal. Storage pits with animal skeletons in the fill. Pit 1642: Roe deer. – Pit 1099: Dog. Photos: BDA/AS-Archäologie Service.

layer and could not be assigned to a domestic structure, can also be regarded as house features. This is possible because of the observation that at the site stone ovens were otherwise always within houses, whereas ovens outside buildings were always made of clay. Numerous external, free-standing ovens, about 70 largish pits, 20 of them storage pits, and two burials within the settlement area were also analysed alongside with the house features. Most of these objects are in the Pellendorf excavation area south of the stream, but three large houses and numerous free-standing ovens were recorded on the northern side in the Gaweinstal section. The house features overwhelmingly consist of sunken-featured buildings with a stone oven in one corner of the room (*fig. 3*), one building was not sunken and was therefore recorded as a ground-level feature (feature 1110). One singular feature was an internal oven, which had been shaped out of the earth on the south-western side of the sunken-featured building feature 403. It was presumably for food production (baking). Post pits in the corners or in the ridge line, together with beam slots, indicate various different wall or roof constructions for the upper parts of the houses, while buildings without posts are likely to be block or frame constructions mounted on a continuous sill. Two houses, which had burnt down, are particularly interesting as their oak frames were partially preserved in their collapsed condition. Sunken-featured building feature 1110 included the remains of a probable foundation sill on the edge of the house, and collapsed boards, planks and beams inside, with a demolished stone oven in the southern corner. The second burnt house, feature 198/201, was discovered in the Gaweinstal part of the excavation and was dug to a (surviving) depth of 1.4 m into the side of the slope. Beam slots were visible on three sides, while inside were the collapsed remains of the wooden structure, apparently a frame construction, which had been erected entirely within the house pit. The well-preserved stone oven was in the western corner immediately beside the entrance. The house was accessed through a 3.6 m long and about 1 m wide corridor on the west side, from the walls of which parts of a cladding consisting of vertical planks remained.

Another important group of features are the storage or garrison pits, 20 of which can be dated to the early medieval period. The pits are round or slightly oval with diameters of 1–2 metres, a cylindrical, sack- or pear shaped profile and a depth of at least 1 and up to 2.7 metres. Not only pottery finds, but also animal skeletons, including several dogs and deer, were found in the secondary fills (*fig. 4*).

Feature no.	Sample type	<sup>14</sup> C date	2σ (95,4 %)
0201-GA	Charred plant remains	1120 ± 30	778AD (1.7 %) 790AD – 809AD (0.5 %) 815AD – 826AD (1.4 %) 841AD – 863AD (91.8 %) 995AD
1110-PE	Charcoal	1235 ± 30	686AD (95.4 %) 880AD
1110-PE	Charcoal	1200 ± 35	694AD (9.9 %) 746AD – 763AD (82.8 %) 898AD – 926AD (2.7 %) 944AD
1099-PE	Bone from animal skeleton	1135 ± 30	777AD (4.3 %) 792AD – 803AD (8.0 %) 844AD – 857AD (83.0 %) 986AD
1641-PE	Bone from animal skeleton	1130 ± 30	777AD (3.2 %) 791AD – 805AD (5.6 %) 842AD – 861AD (86.6 %) 988AD

Tab. 1. Radiocarbon dates from four contexts. Sampling by the Poznań Radiocarbon Laboratory. Calibration with OxCal v4.3.2 (*Bronk Ramsey 2017*);  $r:5$ ; IntCal13 atmospheric curve (*Reimer et al. 2013*).

Free-standing clay ovens were also recorded in several cases (*fig. 5*). Some are scattered within the early medieval settlement area, others belong more or less clearly to a particular building, for example as a small external bread oven. The ovens were always accompanied by service pits, long thin work areas beginning at the mouth of the oven. In two cases a single pit served several ovens.

Dating the early medieval settlement relies primarily on pottery finds, which by comparisons with chronological systems from Slovakia and Moravia, indicate a period between the 7<sup>th</sup> and the 10<sup>th</sup>/11<sup>th</sup> centuries. The development of the settlement could be divided into four early to early high medieval phases (MA 1–4), with the youngest phase (MA 5) dating to the 12<sup>th</sup>–14<sup>th</sup> century. A range of radiocarbon dates from the animal skeletons and from charcoal was also undertaken, which essentially confirmed this range of dates, but which also extended clearly beyond the periods indicated by the finds, making strict dating of the limits of the period of settlement impossible. Four samples, which were associated with the Great Moravian pottery discussed below, which is generally dated to the 9<sup>th</sup> and early 10<sup>th</sup> centuries, can serve as an example at this point (*tab. 1*). The chronological ranges of the radiocarbon dates stretches out far beyond this date range, producing dates from the late 7<sup>th</sup> to the end of the 10<sup>th</sup> centuries.

### 3. The pottery

#### 3.1. Methodology

The pottery finds consist of small sherds from the fills of the features so that the complete contour or a large part of a vessel could only be recovered in few cases. The finds from the objects analysed consist of 11,192 sherds with a total weight of 160,795 g. From this total 4,671 sherds of 93,822 g in weight amounting to at least 201 individual vessels could be dated from the 5<sup>th</sup>–7<sup>th</sup> to the 10<sup>th</sup>/11<sup>th</sup> centuries. The other sherds were either from older periods of settlement and had arrived in the early medieval contexts in a process of redistribution or could not be classified with certainty.

The documentation of the early medieval finds was based on the recommendations of the “Handbook of Terminology for Medieval and Post-Medieval Ceramics in Austria” (*Handbuch zur Terminologie*, 10–18), which in its turn was based on the 1995 “Guide to



Fig. 5. Pellendorf/Gaweinstal. Oven feature 392. In the background the cupola of the oven, in the foreground the excavated service pit. Photo: BDA/AS-Archäologie Service.



the Description of Pottery” (*Bauer et al. 1995*). In this procedure the pottery is divided into groups according to its technical characteristics. The essential criteria are tempering, production and firing temperature. This approach served the pottery discussed here very well, as tempering materials could be identified macroscopically even in very small sherds. By contrast, production marks (see *Handbuch zur Terminologie*, 16) are more difficult to recognize on small sherds. “Hand-made” vessels were seen as those showing shaping by hand in the form of diagonal or vertical traces on the wall surfaces and which generally had either irregular or substantial wall thicknesses. Whether or how the base used in manufacturing the vessel was turned cannot be said.<sup>2</sup> The primary and intensive use of a manually-operated “potter’s wheel” is indicated by clearly visible horizontal turning grooves, generally regular and comparatively thin wall thicknesses, and by decoration which can only be applied with the use of a turntable (“dynamic” wavy lines). The firing conditions were not criteria for defining the pottery type in this case, as the varied colouring of the sherds unvaryingly reflects mixed atmospheric conditions. Secondary change, such as secondary burning and damage due to use on an open fire or depositional circumstances can also be presumed to be common, thus making a reliable description unlikely. The identification

<sup>2</sup> For problems concerning differentiability and recognition see *Homberger – Zubler 2017*, 59–64. The ethnographic examples discussed there exhibit manual forming assisted by a rotatable wheel, making it possible to turn the workpiece quickly on its horizontal axis.

of pottery type therefore depends primarily on the type of tempering in combination with production marks (hand-made versus wheel-shaped). In addition, some groups can be differentiated further by the condition of the surface.

Generally, an attempt was made to define easily recognisable pottery groups and sub-groups which were present in the inventory to a reasonable extent and to which small fragments could also be allotted. This meant that the relevant criteria were defined relatively broadly with very closely defined groups being avoided. Some groups from which there were large numbers of finds could be further subdivided, for example the sand-tempered, wheel-shaped pottery with a grainy surface (St-Ig-Of/kö), which includes sherds with both finer and much greater particle sizes.

Using this approach, it proved possible to allocate 69 % (according to weight) of all pot sherds to a pottery type. The composition of all fragments which could not be distinctly defined is described in detail in the catalogue. Not illustrated sherds and those sherds bundled together as “early medieval” under a finds number were also not usually allocated a pottery type. They were allotted to the early medieval settlement period on the basis of typical pottery forms (above all decoration and rim shape) or sherd quality.

Nine pottery types were defined on the basis of production, tempering and surface structure. Three groups of hand-made pottery are not discussed here as they overwhelmingly belong typologically to the 7<sup>th</sup> century. The wheel-finished pottery was divided into six pottery types, which are discussed in detail below. Emphasis is put on those forms closely connected to pottery forms in southern Moravia.

The quantitative and chronological distribution of the pottery is as follows: The hand-made pottery types, which date to the 7<sup>th</sup>, and perhaps also to the second half of the 6<sup>th</sup> century, amount to 38 % of the total weight and 27 % of the sherds. The wheel-finished pottery groups from the 8–11<sup>th</sup> centuries make up 62 % according to weight and 73 % of the sherds. Of these 24 % (weight) or 23 % (number of sherds) can be dated on the basis of the associated rim and vessel shapes to the 8<sup>th</sup> or the first half of the 9<sup>th</sup> century, 10 % (both weight and sherds) more broadly in the 8<sup>th</sup>/9<sup>th</sup> centuries, 26 % (weight) or 38 % (sherds) to the 9<sup>th</sup> or the first half of the 10<sup>th</sup> century, and 2 % (weight and sherds) to the 11<sup>th</sup> century.

### 3.2. State of research und reference chronologies

Before the pottery forms are discussed in detail, we will take a look at the state of research, which in Lower Austria is unfortunately less than adequate. A starting point in dating the early medieval pottery from the site discussed here is offered in first place by chronologies from the neighbouring regions Moravia and Slovakia, but also from Bohemia, Poland and the south-eastern Alps (*Fusek 1994; 2013; Jelínková 1990; Kuna – Profantová 2005, 211–213, fig. 84; Macháček 1997; 2000; 2001a; Mazuch 2013; Parczewski 1993; Pavlovič 2015; 2017; Pleterski 2010, 157–160; Poláček 1995*), in which, taken together, the development of pottery from the 6<sup>th</sup>/7<sup>th</sup> to the 9<sup>th</sup>/10<sup>th</sup> centuries has been traced on the basis of extensive finds material in recent decades. These systems have been largely based on observations about manufacture – hand-made versus wheel-finished – and on morphological features, such as rim profile, vessel size/shape and decoration. The result are several chronological steps as an evolutionary model (*Macháček 2000, 39*), at the beginning of which in the 6<sup>th</sup>/7<sup>th</sup> century are hand-made and overwhelmingly undecorated vessels, which in the course of time give way to increasingly better wheel-finished and morpho-



logically more sophisticatedly shaped vessels and details in the 8<sup>th</sup> and 9<sup>th</sup> centuries (a discussion of the history and state of research in *Macháček 1997*, 353–354; *Cech 2001*, 11–12; *Curta 2001*; *Wawruschka 2009*, 123–128; *Bekić 2016*, 77–81). This basic line of development has been largely confirmed in recent years by scientifically-dated pottery complexes or by attaching associated small finds to Avar or Merovingian period chronologies (e.g. *Profantová 2008*; *Fusek – Zábajník 2010*, 165–166, esp. footnote 12; *Pleterski 2010*, esp. 157–159, fig. 4.95; *Jelínková 2012*, 14–16). At the site discussed here, the stratigraphic superimposition of sunken-featured building 678 (wheel-shaped, decorated pottery) over house 674 (hand-made, undecorated early Slavic pottery) fits into this picture.

The hand-made early Slavic pottery of the 6<sup>th</sup>/7<sup>th</sup> centuries, which is not further discussed here, was replaced by wheel-shaped pottery by the 8<sup>th</sup> century at the latest, as the systems for the 6<sup>th</sup>–8<sup>th</sup> centuries developed in Slovakia, by Gabriel Fusek, and in southern Moravia, where *Jiří Macháček (2000)* was able to establish a chronology on the basis of pottery forms from Břeclav-Pohansko (settlement and cremation cemetery), Břeclav/Pošterná – Štoglova jáma and Brno – Starý Lískovec, clearly show. The foundation of Macháček's phases were the technological changes, which he was able to observe at all three sites. An oldest phase (I) is defined by hand-made or vessels wheel-finished in the rim area without decoration or with ornamentation including simple wavy, zigzag and horizontal lines. The following phase (II) is of mixed character, with a juxtaposition of decorated and undecorated vessels, whereby the latter are somewhat more common, and with a better wheel-shaped rim area. The undecorated pottery is no longer discernible in Phase (III), instead all vessels are decorated. Distinctly protruding rims now occur, the rim area shows clear turning grooves and is sometimes much thinner. Macháček sees this phase as the start of professional pottery production and labels it “pre-Great Moravian”. Jewellery from Břeclav-Líbivá means that Phase III can be docked on to Merovingian period chronology in southern Germany, making a case for dating it to the 8<sup>th</sup> century, in particular to the first half. Phase I is dated in the 7<sup>th</sup> century by and large, possibly stretching back in to the 6<sup>th</sup> century. The approximate date of Phase II lies in the second half of the 7<sup>th</sup> century.

Working with the large numbers of finds from the systematic excavations, which took place at the settlement complex at Mikulčice from the mid-1950s onwards, Zdeněk Klanica developed an early system, with which the pottery could be rapidly and easily classified and thus individual contexts and groups of features approximately dated (after *Poláček 1995*). This system is out-of-date today (see also *Mazuch 2013*, 109, with footnote 1), but Klanica's approximate dating of pottery based on the “types” he defined is still relevant in part to the material discussed here and should not be completely ignored. He divided the material into five broadly defined pottery groups labelled “Types” 1 to 5. Types 1 were early medieval pottery, while Type 5 was the high/late medieval to post-medieval ware. The main classification criteria were “material” and the firing technique, but “contour” (rim/vessel forms?) and decoration were also taken into account. The absolute dating of his types was based on the known age of accompanying metal finds or grave inventories. Thus, Type 1 was placed in the 8<sup>th</sup> century, with a focus on its second half, while Type 2 was granted a broad date range from the second half of the 6<sup>th</sup> to the mid-8<sup>th</sup> century, while Type 3, which was synchronised with the last phase of the fortifications, was dated to the end of the 9<sup>th</sup> and the 10<sup>th</sup> centuries.

Marian Mazuch is responsible for the most recent pottery analyses in Mikulčice (*Mazuch 2013*). He analysed the pottery from the northern bailey, which offered more or less ideal conditions for answering chronological questions, as it was only used for a relatively short period of time with no preceding settlement and very little use afterwards either. Mazuch recognised two pottery groups in the analysed material: a “Mikulčice group” and a “Blučina group”, which differed in sherd quality and their typical decoration, rim and vessel shape<sup>3</sup>, but were otherwise found together in the contexts excavated. The Mikulčice group,

<sup>3</sup> *Mazuch 2013*, Mikulčice pottery forms: pls. 33–53; Blučina pottery forms: pls. 22–31. Unfortunately the characteristics of the groups concerned (sherd quality, forms) are not discussed in detail in the English summary of this monograph.

recognisable above all by the typical “chalice rims”, was by far the larger and is generally seen as household pottery while the less frequent Blučina pottery (the “Blučina type” had been described earlier, see *Mazuch 2013*, 109; *Staňa 1994*, 271) was seen as “tableware” or perhaps containers for trading goods due to its superior quality and specific vessel forms. Mazuch recognised that the Mikulčice pottery was most common in the contexts associated with the destruction of the site, so that it became at that site an archaeological “marker” for the later phase of the Great Moravian settlement period (*Mazuch 2013*, 114). Mazuch says only little about when production of the two groups and in particular their forms began, and doubts the indications discussed by others of a beginning in the early 9<sup>th</sup> century (*Mazuch 2013*, 112).

This pottery group named after the Mikulčice site is also typical for the 9<sup>th</sup> century settlement phase in Břeclav-Pohansko, which Jiří Macháček analysed thoroughly. As both Macháček and Mazuch point out, different developments are visible in this pottery at both sites (*Mazuch 2013*, 114; with reference to *Macháček 2001a*, 242–243). Based originally on the finds from the Lesní školka excavation area, Macháček developed five chronological groups, which were positioned in time between the 8<sup>th</sup> (pre-Great Moravian Group 1) and the early 10<sup>th</sup> century (Group 5, transition from Great Moravian to post-Great Moravian).<sup>4</sup> Groups 2 and 3 consist of the characteristic Great Moravian range of forms, typically collar or thickened protruding rims (*Kragen- und Leistenränder*, Group 2), or funnel-shaped protruding rims with a groove (Group 3). A small amount of graphite pottery is present in Group 3, it becomes significantly more common in Group 5 (*Macháček 2007a*, 139, diagram 49).

In Lower Austria, research has to date generally concentrated on pottery from graves (*Friesinger 1971–1974*; 1975–1977; *Daim 1994*; *Herold 2009*; 2010), but archaeological interest in settlements and therefore also in the accompanying pottery has come more into focus in recent years.<sup>5</sup> Brigitte Cech undertook a classification based on metric characteristics when analysing the older excavations (1965–1990) of the fortifications at Thunau am Kamp (*Cech 1991*, esp. 65, fig. 4; 1994; 2001). She set out several form-based groups, which she ordered chronologically with the help of external information (funerary pottery), as other indications of age were largely absent at that site at that time. The pottery can be dated typo-chronologically from the second half of the 8<sup>th</sup> century into the 11<sup>th</sup> century and exhibits only very general trends in its development over this lengthy period. Older characteristics from the 8<sup>th</sup> century which she mentions are small and stout or tall and thin vessels with simple protruding and otherwise plain rims, of which only a few are thickened. This basic shape remains in the 9<sup>th</sup> century, but change can be seen in more complicated vessel profiles (more constricted necks, the shoulder more emphasized or with a slight ledge). The rims also protrude further and are increasingly complicated. For the 10<sup>th</sup> century she observes a trend to more angular rims, ultimately leading to the emergence of the high medieval collar rim in the 11<sup>th</sup> century.

Furthermore, it has become increasingly more common in the area under consideration in recent years, to classify pottery primarily according to its technological characteristics, such as production method (hand-made, wheel-shaped, wheel-thrown), tempering and other technological details which can be used to build groups. This method was employed by Falko

<sup>4</sup> *Macháček 2001a*; the pottery groups were later revised in the Pohansko monograph; see *Macháček 2007a*, 91–156, esp. 131–136, 154–155.

<sup>5</sup> *Friesinger 1971–1974*, 5–42 (Sommerein settlement); *Wawruschka 1998/1999* (Rosenburg settlement); *Cech 2001* (Thunau am Kamp fortifications, excavations 1965–1990); *Herold 2002* (Avar settlement pottery, Brunntal/Gebirge); *Herold 2007b* (Thunau am Kamp fortifications); *Wawruschka 2009* (several settlement sites in Lower Austria); *Herold 2010* (Zillingtal settlement and cemetery); *Nowotny 2015* (Mitterretzbach settlement); *Herold 2016* (Michelstetten settlement).

Daim, for example, in the first publication of the wheel-finished pottery from the Avar cemetery at Mödling (*Daim 1994*). With the help of associated, chronologically more sensitive finds, such as clothing components and weapons deposited as grave goods, he was able to trace the shift from simple to more complex (rim) forms. Generally speaking, the development from hand-made, undecorated to wheel-finished decorated pottery can also be observed in Avar funereal pottery, where a comparable trend in rim shape from rather steeply protruding, non-thickened to more flatly protruding, decorated thickened or collar rims is also visible (*Daim 1994; Macháček 1997, 375–376, fig. 4; Herold 2016, 285*). This approach, augmented by detailed archaeometric analyses is also followed by Hajnalka Herold, who is responsible for the most recent publications about early medieval funerary and settlement pottery in Lower Austria (*Herold 2002; 2007b; 2009; 2010; 2016*). If the relevant features and finds complexes do not offer dating clues (stratigraphic sequence, particularly closely dated associated finds), then it remains necessary to examine associated finds or to take a look at neighbouring regions with their more developed state of research, as recently in the analysis of the pottery from the settlement at Mitterretzbach by *Elisabeth Nowotny (2015)*. Isolated radiocarbon-dated finds or finds complexes of the 9<sup>th</sup>/10<sup>th</sup> centuries from Mautern an der Donau (*Sedlmayer – Wawruschka 2002; Schmitsberger 2005*), but also the pottery from the by dendrochronology precisely dated fortification at Sand (*Felgenhauer-Schmiedt 2003, fig. 4; 2011*) are also important reference material for the pottery spectrum in northern Lower Austria in the 10<sup>th</sup> century.

### 3.3. Wheel-shaped pottery types and their chronological pattern

Wheel-finished pottery can be divided into seven pottery types, based on its tempering and also the finish of the surface, in as far as it is distinctive. The most significant groups are discussed in detail here.

#### 3.3.1. Sand-tempered pottery types

##### 3.3.1.1. Sand- and mica-tempered pottery

The first pottery type discussed here is the group St/Gl(f)-lg-Of/r<sup>6</sup>, which is characterised by sand- and fine mica-tempering, and by a surface which feels rough (*figs. 6 and 7*). This pottery type is particularly typical for the Pellendorf part of the settlement, where it was present in the majority of settlement objects. The relevant vessels exhibit dense sand and stone (mostly quartz) particles with an unevenly large particle size and fine, light to medium mica content. On the outside the tempering particles are usually under the surface, but inside they stick out to a varying extent. Additionally, an apparently very careful handling of the surface means that traces of the smoothing process are often difficult to see often internally. A (dark) brown to dark grey sherd colour (e.g. *Munsell 10YR–7.5YR 4–5/1–3*) is typical of the majority of vessels and indicates an overwhelmingly reduced firing atmosphere. The vessels are well-fired and hard.

<sup>6</sup> The codes used for the pottery types in this paper are composed of the abbreviated German terms for the type of tempering (“Sand/Steine”, “Glimmer”, “Karbonat”, “Grafit” – “Sand/Stones”, “Mica”, “Carbonate”, “Graphite”), the production type (“langsam gedreht” – “wheel-shaped”) and the surface finish (“Oberfläche/rau/glatt/körnig” – “Surface/rough/smooth/gritty”).



Fig. 6. Pellendorf/Gaweinstal. Sand- and mica-tempered, wheel-shaped pottery with a rough surface (St/Gl[f]-lg-Of/r). Without scale. Photos: Karin Kührtreiber.

The few complete or reconstructed vessel profiles are of stout to relatively thin forms with the largest diameter in roughly the middle of the vessel (Cat. Nos. 713-1, 883-1, 1041-1). The rims of the pots are low, not thickened and usually protrude outwards at an angle of about 45°. The tips of the rims are simple, faint rilling at the tip (Cat. Nos. 351-7), decoration on the inner side of the rim or diagonal scratches at the tip (Cat. No. 756-2) are rare.

More developed forms such as the thickened protruding rim occur only in exceptional cases (Cat. Nos. 351-7, 375-4). The bases of the vessels are always flat and unmarked. All vessels are now decorated. Wavy lines in many different forms, often combined with horizontal lines, more rarely associated with punched patterns (Cat. Nos. 882-1, 1041-1) are always found in the shoulder and belly area of the pots.

The comparison of this range of forms with the chronological schemata of the neighbouring countries shows a good degree of similarity with Macháček's Phase III of southern Moravian pottery from the 7<sup>th</sup> and 8<sup>th</sup> centuries (*Macháček 2000*), which is characterised by well-turned vessels and advanced decor with at the same time an absence of undecorated pottery. This phase also matches the chronological group 1 in Břeclav-Pohansko (*Macháček 2007a*, 136) and Phase 0 of the finds area Lesní školka in Pohansko (*Macháček 2001a*, 288). The vessels are thin and have relatively simple rim profiles. A similar range of forms can also be found in the earlier Phase II, but that phase also includes hand-made and undecorated vessels, more steeply and shorter protruding rims and more simple decor, altogether a significant proportion of older characteristics (see *Macháček 2000*, 44–45, figs. 3–4), which pottery type St/Gl(f)-lg-Of/r no longer exhibits. Differences are also apparent in the multiple wavy lines, which in Phase II are significantly more extensive and less “sprightly” than Phase III and thus indicate an earlier stage in the development of wheel-finishing. Overall therefore, the formal range of pottery type St/Gl(f)-lg-Of/r is closer to



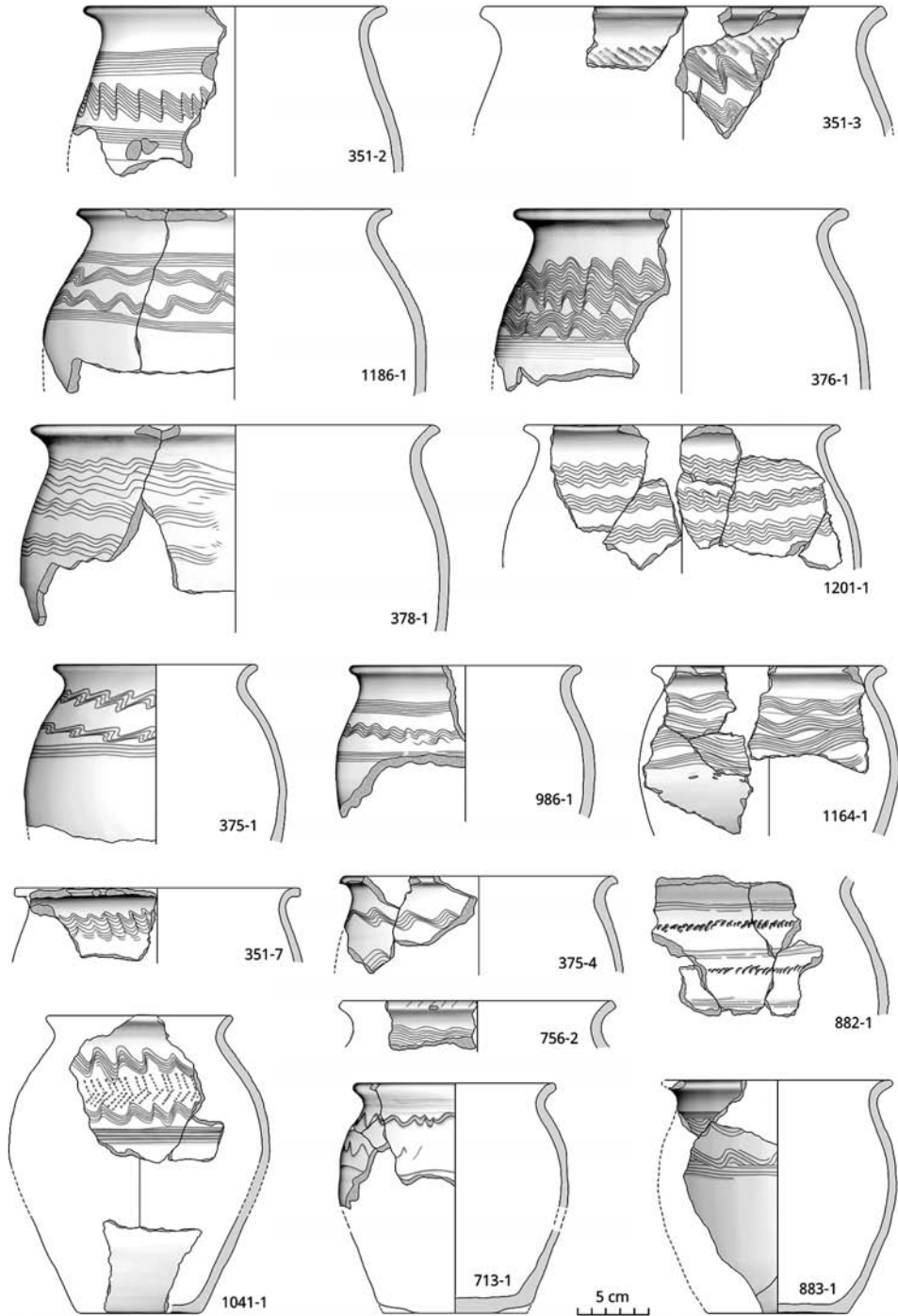


Fig. 7. Pellendorf/Gaweinstal. Range of forms of sand- and fine mica-tempered, wheel-shaped pottery with a rough surface (St/Gl[f]-lg-Of/r). Drawings: BDA/AS-Archäologie Service/Anna Palme, Gabriel Seidl.

Feature No.	Sample type	<sup>14</sup> C age	2σ (95,4 %)
986	Animal bone from stone oven	1320 ± 30	652AD (73.0 %) 723AD – 740AD (22.4 %) 768AD
1026	Bone from an animal skeleton	1230 ± 30	689AD (32.7 %) 751AD – 760AD (62.7 %) 882AD

Tab. 2. <sup>14</sup>C dates from animal bone, associated with pottery type St/Gl(f)-lg-Of/r. Sampling by the Poznań Radiocarbon Laboratory. Calibration with OxCal v4.3.2 (*Bronk Ramsey 2017*); r:5; IntCal13 atmospheric curve (*Reimer et al. 2013*).

Phase III than to the previous Phase II. The absolute date range of the phase is thought to be the 8<sup>th</sup> century, with, among other things, jewellery from Břeclav-Líbivá associated with the pottery forms there providing important chronological clues (*Macháček 2000*, 40–41).

Connections can also be made to those pottery forms from Mikulčice dated in the 8<sup>th</sup> to the first half of the 9<sup>th</sup> century, in particular to “Type 1” and “Type 2” (*Poláček 1995*). The simple vessel profiles (s-shaped) and rim forms (above all non-thickened rims), and also the reduced firing atmosphere, which gives these types their characteristic grey and grey-black colour, are very comparable (*Poláček 1995*, 142). Most pots of the type St/Gl(f)-lg-Of/r find their best comparisons among the older forms from “Type 2” (*Poláček 1995*, 144–145, fig. 8–9), while the younger phase of “Type 2” and the chronologically following “Type 3” already exhibit a younger range of forms. “Type 1” dates to the 8<sup>th</sup> century with a focus in its second half, while “Type 2” dates broadly from the 6<sup>th</sup> to the mid-9<sup>th</sup> centuries.

The group can also be compared to the pottery from the second phase of the fortified settlement at Staré Zámky near Brno-Líšeň, which has been dated from the advanced 8<sup>th</sup> to the first half of the 9<sup>th</sup> century (*Staňa 1994*, 268–270, figs. 3–5). The pottery for this phase corresponds both morphologically (simple, non-thickened, protruding rims; decor) and technologically (coarsely tempered, smooth surface, brown-grey colour) with the pottery type discussed here.

To sum up, the range of forms associated with pottery type St/Gl(f)-lg-Of/r can be dated above all to the 8<sup>th</sup> century, with a possible extension into the first half of the 9<sup>th</sup> century.

Comparable material from the settlements in Michelstetten (*Wawruschka 2009*, pls. 12, 14), Rosenburg (*Wawruschka 1998/1999*, e.g. pl. 11: 103, 13: 117, 17: 172, 23: 230, 231), Neusiedl an der Zaya (*Müller 2017*; many thanks to Silvia Müller for access to this material) and from Ottenthal (*Friesinger 1965*, 114, fig. 26), for which, however, there is no independent dating evidence, should also be mentioned here.

Two radiocarbon dates from animal bone, from contexts, in which the early medieval pottery type discussed here is formally the youngest, are associated with this pottery (*tab. 2*). The <sup>14</sup>C samples come from sunken-featured building 986 and storage pit 1026 and produced calendar dates which extended beyond the boundaries of the archaeological dating: The sample from feature 986 dates to between 652 and 768, and the sample from feature 1026 between 689 and 882, both with a probability of 95.4 %.

The second group to be discussed at this point (St/Gl[gr]-lg-Of/gl-r; *fig. 8*) consists of sand- and mica-tempered, wheel-shaped vessels, which on the whole exhibit a smaller sand particle size (mid to coarse in mid to high concentrations) and coarser mica (fine to coarse sizes in low concentrations) in a picture characterised by generally sloppy tempering. The surface is smooth to rough with a somewhat sandy or soapy haptic. Smoothing marks in differing directions are usually clearly visible on the inside. The vessels are all well fired and moderately to considerably hard. The sherd colour is often lighter than pottery

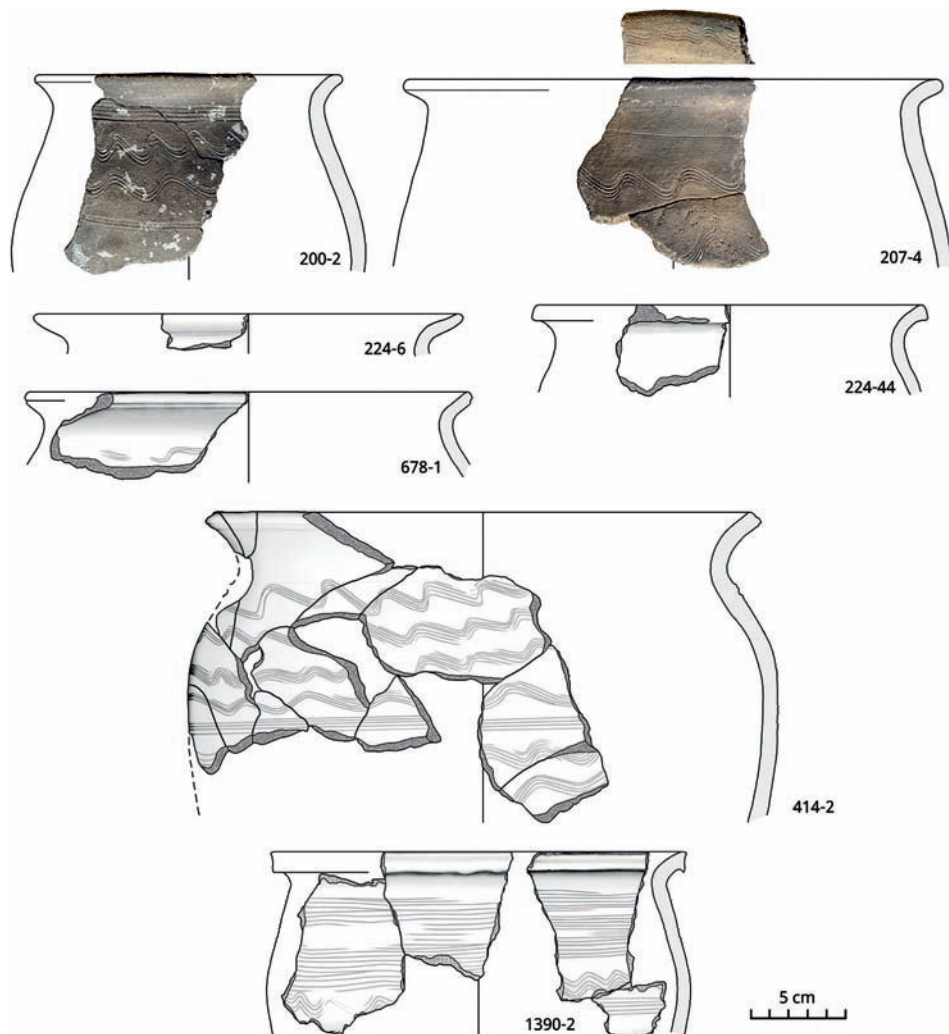


Fig. 8. Pellendorf/Gaweinstal. Vessel shapes of the sand- and coarsely mica-tempered, wheel-shaped pottery with a smooth to rough surface (St/Gl[gr]-lg-Of/gl-r). Drawings: BDA/AS-Archäologie Service/Anna Palme, Gabriel Seidl. Photos: Karin Kühtreiber.

type St/Gl(f)-lg-Of/r and consists of varying shades of brown or sometimes red-brown (e.g. *RAL* grey-beige, beige-red; *Munsell* 10YR 5/1–2, 6/2–3, 7/3).

The group exhibits, on the one hand, already familiar rim designs and vessel proportions in the form of protruding, non-thickened rims and pot shapes, which emphasise the belly area (Cat. Nos. 200-2, 207-4), and, on the other hand, clearly more advanced characteristics, such as thickened protruding and collar rims (Cat. Nos. 224-44, 1390-2). A once again increasing emphasis of the shoulder area, which includes a more or less substantial ledge, is now also one of the apparently younger forms (Cat. Nos. 414-2). Wavy or horizontal lines remain the most common decoration, whereby the latter can now occur over



Fig. 9. Base marks. 1–2: Pellendorf/Gaweinstal Cat. No. 414-4, 477-6; Drawings: BDA/AS-Archäologie Service/Anna Palme, Gabriel Seidl. Photos: Karin Kühtreiber. – 3: Břeclav-Pohansko, southern bailey, Obj. 479 (after *Hlavica 2016*, 40, fig. 24).

a wide area or consist of several lines (Cat. No. 1390-2). Marks on the base appear only on this pottery type. Two identical base marks were found on pots from the sunken-featured buildings 414 and 477 (*fig. 9*).

Analogies for the shapes used for this pottery type can be found among the Great Moravian pottery of the 9<sup>th</sup> to early 10<sup>th</sup> centuries in the Mikulčice und Břeclav-Pohansko centres. The pot decorated with grooves and with a collar rim Cat. No. 1390-2 has good parallels at the latter site. In the older pottery study by Bořivoj Dostál this shape is labelled “Type 1a” and, based on the contexts in which it is found, thought likely to date to the last third of the 9<sup>th</sup> century.<sup>7</sup> The same combination of rim shape and decoration, together covering the 9<sup>th</sup> century, occurs in the chronological groups 2 and 4 in the Lesní školka excavation area as analysed by Jiří Macháček (2007a, 95, décor form V\_D2; 98, rim shape R\_B4; 136; 155, tab. 38). Identical forms are also exhibited in the pottery inventory from the 9<sup>th</sup> century in Mikulčice (*Poláček 1995*, 146, fig. 10: 39 [younger phase “Type 2”]; also comparable *Mazuch 2013*, 150, pl. 28: 1, 2); good comparisons for the rim and vessel shapes Cat. Nos. 224-6, 224-44, 414-2 und 678-1 can be found in the finds material of the 9<sup>th</sup> to early 10<sup>th</sup> centuries in the northern bailey (*Mazuch 2013*, 123, pl. 1: 1–4, 18: 8–10, 21). The large vessel fragment Cat. No. 414-2 also has close analogies among the rim types in Břeclav-Pohansko (*Macháček 2007a*, 98, Rim R\_B1\_F [esp. Group 4]). Lastly, analogies to the non-thickened rims and also the protruding thickened rim can be found in the pottery from the fortification at Thunau am Kamp (Rim types Group 1 and 3; *Cech 2001*, 17; 37, fig. 22).

The close relationship between the pottery from Pellendorf/Gaweinstal and that of the Great Moravian centres is also convincingly illustrated by the base marks Cat. Nos. 414-4 and 477-6. This sign in a form similar to a K, which is found on the bottom of both vessels, has almost identical equivalents in the finds material from the southern bailey at Pohansko (*Hlavica 2016*, 40, fig. 24: feat. 479; *fig. 9*).

<sup>7</sup> Dostál 1994, 225–229, fig. 5: 1, 6: 1. Type 1a is characterised by a “vertically truncated, strongly profiled rim with protruding upper and lower edge, and closely-lying horizontal grooves on the body” (*Dostál 1994*, 225).





Fig. 10. Pellendorf/Gaweinstal. Sherd quality of the wheel-shaped pottery types with a gritty surface. Above: sand-tempered (St-Ig-Of/kö). – Below: sand- and carbonate-tempered (St/Ka-Ig-Of/r-kö). Without scale. Photos: Karin Kühtreiber.

### 3.3.1.2. Sand-, carbonate- or mica-tempered pottery with a gritty surface

Three further groups of sand-tempered pottery, which have in common a very visible (finely) gritty surface, can be distinguished on the basis of their different tempering (St-Ig-Of/kö, St/Gl[gr]-Ig-Of/kö, St/Ka-Ig-Of/r-kö). These pottery types will be discussed together here, not only because of their typical surface texture, but also because the vessel forms correspond in some respects.

Technologically these groups have the following characteristics: The sand-tempered wheel-shaped pottery with a gritty surface (St-Ig-Of/kö) is heavily tempered and has a very gritty surface (*fig. 10* above). The medium to large tempering particles are equally sorted and usually present in a sherd in large numbers. They are visible on the surface, but remain beneath the firing skin. The vessels are very well and mostly more “dynamically” turned than in the other groups of wheel-shaped pottery. Often only the vertical smoothing marks on the inner side of the wall reveal the fact that they are wheel-shaped vessels at all and not objects created with the help of centrifugal forces (“wheel-turned”). The sherds are hard or very hard, the colours vary among different browns, or sometimes shades of red (*RAL* beige-red, beige, grey-beige, beige-grey, grey-brown) or grey (*Munsell* 7.5YR 5/1–2, 2.5Y–7.5YR–10YR 4/1; *RAL* umbra-grey, quartz-grey, stone-grey, bright grey-grey).

Characteristics of pottery type St/Ka-Ig-Of/r-kö (*fig. 10* below) include intensive tempering with sand in medium to large size as well as clearly recognisable carbonate particles of the same size, but in fewer numbers and with a sometimes coarse, but more often fine surface texture. The vessels are all well fired and hard and are brown, red brown and grey to dark grey in colour (*RAL* grey-beige, beige-grey, beige-red, dust grey, bright grey, quartz-grey; *Munsell* 7.5YR 6/3–4, 10YR 6/2–4/1).

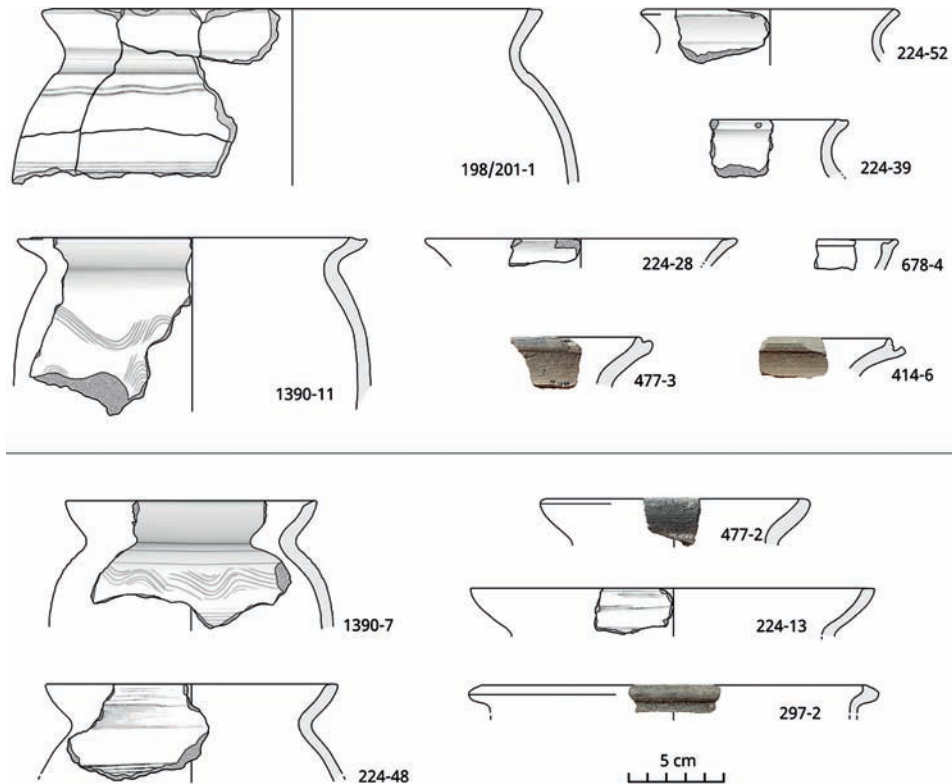


Fig. 11. Pellendorf/Gaweinstal. Forms of the Mikulčice pottery group within the wheel-shaped pottery types with a gritty surface. Above: sand-tempered (St-Ig-Of/kö). – Below: sand- and carbonate-tempered (St/Ka-Ig-Of/r-kö). Drawings: BDA/AS-Archäologie Service/Anna Palme, Gabriel Seidl. Photos: Karin Kühtreiber.

A small group within the sand- and mica tempered, wheel-shaped pottery can be separated off because of its particularly gritty surface (St/Gl[gr]-lg-Of/kö). The fragments are heavily tempered with relatively evenly sorted medium coarse to coarse sand in fine to medium large particles. Other evidence is patchy and is exclusively limited to wall sherds decorated with wavy and straight lines.

The first step is to look for analogies for the noticeably (finely) gritty surface texture. These can be found very easily in southern and south-eastern Moravia. This characteristic is emphasised for the so-called “March pottery” or “March type” around Staré Město near Uherské Hradiště (*Galuska 1995*, 104), and also in connection with the so-called “Type 3” in Mikulčice (*Poláček 1995*, 150–151, figs. 11, 12). Both types are seen as Great Moravian pottery and are thus dated to the 9<sup>th</sup> century, and above all to the second half of the 9<sup>th</sup> and the beginning of the 10<sup>th</sup> centuries.

An analysis of the rim forms of these pottery types shows that the non-thickened protruding rims have now become less important than the more fashioned vessel mouths, with funnel-shaped mouths being particularly obvious (*fig. 11*). These rims bend outwards very considerably, usually together with a more or less marked hollow on the inner side, and a horizontally truncated tip. The few surviving fragments of large vessels have very con-

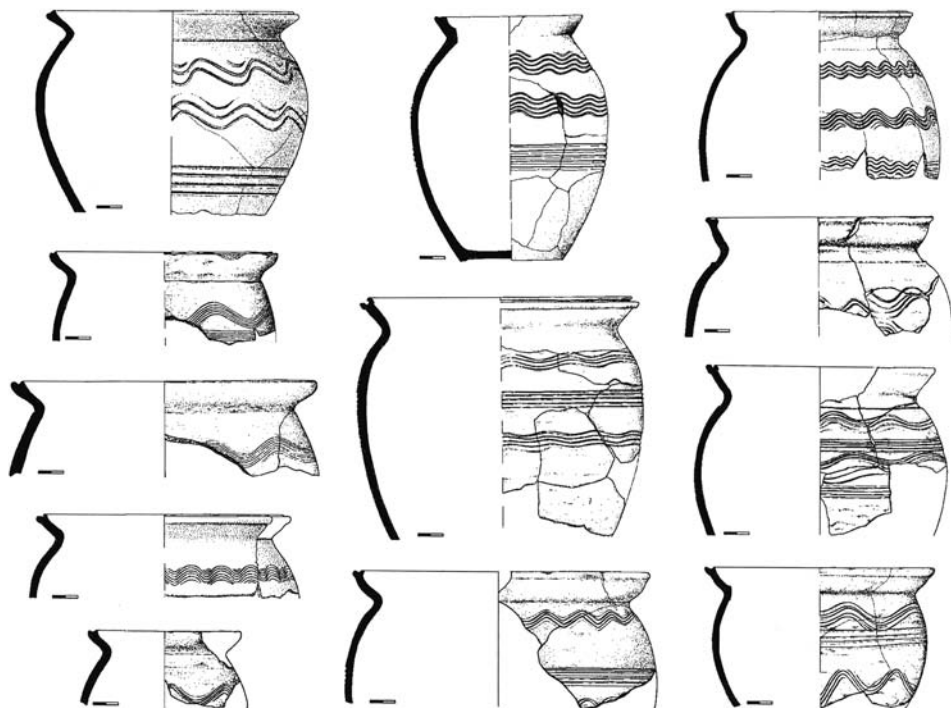


Fig. 12. Břeclav-Pohansko. Forms of Macháček's Pottery Group B (after Macháček 2001a, 147, fig. 100).

stricted necks and pronounced ledges on the shoulder (Cat. Nos. 198/201-1, 224-48, 1390-7, 1390-11). These “funnel” or “chalice rims” originate in the Mikulčice and/or Břeclav-Pohansko areas, where they are the leading form in the Great Moravian period i.e. the 9<sup>th</sup> to early 10<sup>th</sup> centuries. In Pohansko, this range of shapes form Macháček's typological pottery group B (Macháček 2001a, 147, fig. 100; 2007b, 156, Cat. No. 8.3.3; fig. 12), whereby chalice-shaped rims with a pronounced groove (Rim type R\_E) are most common in the chronological group 3 (c. 1<sup>st</sup> half 9<sup>th</sup> century; Macháček 2007a, 99; 136; 155, tab. 38). In Mikulčice, Klanica initially saw these vessel shapes as a part of “Type 3” (Poláček 1995, 150, fig. 11; fig. 13). In more recent research by Mazuch they are lumped together in the “Mikulčice pottery group”, which according to the researches in the northern bailey, was most important in the last phase of that agglomeration at the end of the 9<sup>th</sup> and the beginning of the 10<sup>th</sup> centuries (Mazuch 2013, 113; esp. pls. 37–53; 2014, 64). Their comparatively rough appearance together with their predominant presence in the destruction layer of that settlement, indicate that the vessels were very probably everyday household pottery, while other wares, such as the “Blučina pottery” discussed below, served other purposes.

The concentration of the “fluted chalice rims” in Mikulčice and Pohansko is shown by a look at the finds material from Brno-Líšeň Staré Zámky, where such forms only occur as occasional foreign bodies (Staňa 1994, 273–274, fig. 8: 2). Particularly isolated examples, for example from Olomouc, or Litoměřice in northwestern Bohemia, are attributed to cultural exchange or migration after the end of the Moravian centres at the beginning of the 10<sup>th</sup> century (Macháček 2007a, 345; Mazuch 2013, 114).

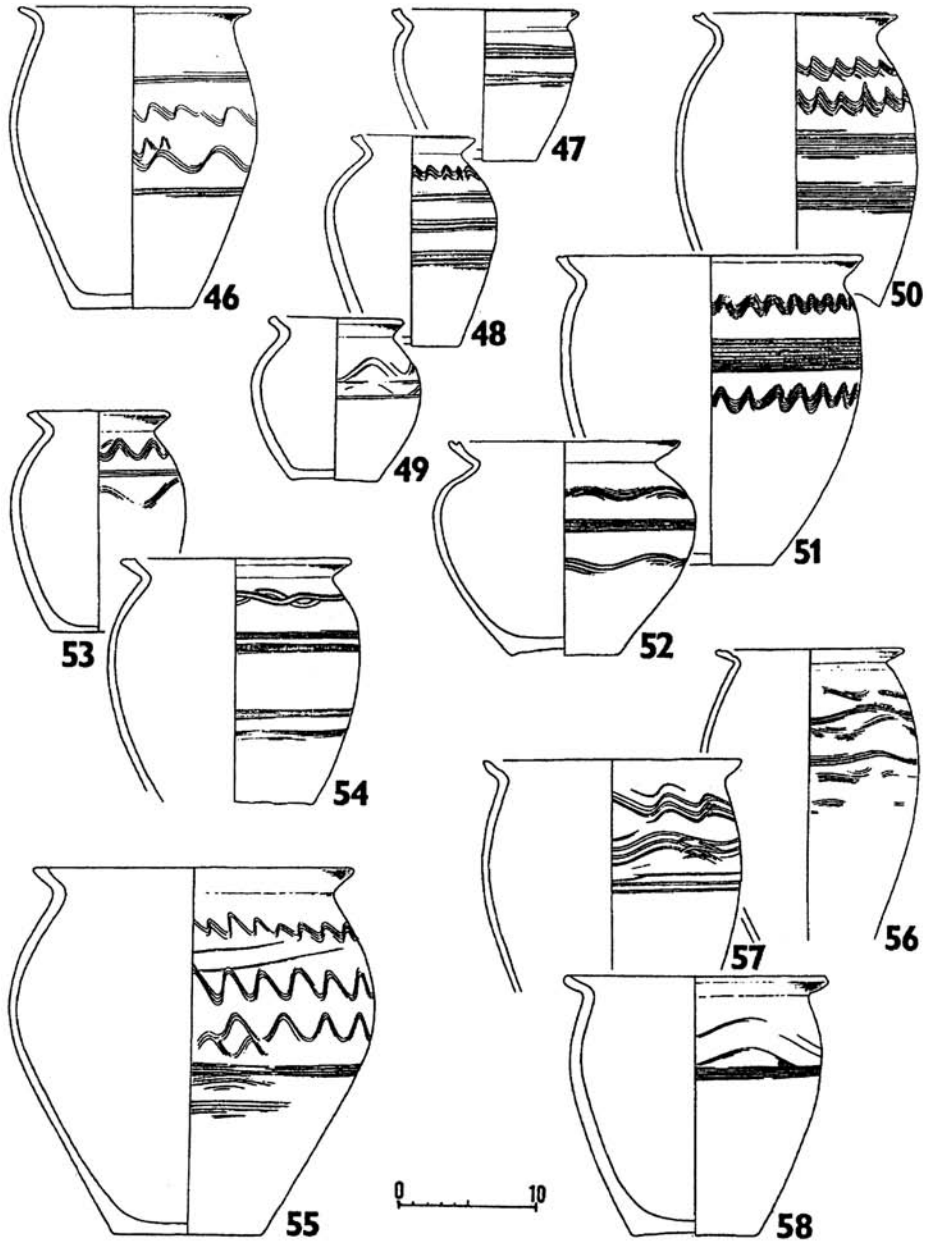


Fig. 13. Mikulčice. Klanica's "Type 3" pottery (after Poláček 1995, 150, fig. 11).

The dating of the Mikulčice pottery group in the second half of the 9<sup>th</sup> and the early 10<sup>th</sup> centuries is undisputed, but opinions about the point in the 9<sup>th</sup> century at which the shapes, in particular the typical fluted chalice rim, associated with it appear, are hesitant. A date at the beginning of the 9<sup>th</sup> century is either questioned (Macháček 2007a, 155, tab. 38)



or entirely rejected (*Mazuch 2013*, 112). Instead, the presumption at the moment is that of their gradual appearance in the course of the first half of the 9<sup>th</sup> century. Uncertainties surrounding their date emerged in recent years above all because of the new dating of the fortifications at the military centres of Moravian power. Previously, it was presumed that they were built in the first half of the 9<sup>th</sup> century, around the time of the first mention of the Moravians in Frankish sources in 822 (*Zehetmayer 2007*, 27), but a range of dendrochronological and radiocarbon dates in the recent past now imply that the fortifications were in fact built in the second half of the century as late as the 880s. This is a particular case of Pohansko, where there are three dendrochronological dates, all of which date to the second half of the century. Two of the samples have traces of neither the wane nor sapwood, so that the dates obtained are only a terminus post quem (*Macháček – Dresler – Rybníček 2013*, esp. 161, 163). A similar movement in time has also taken place at the fortified site at Thunau am Kamp, where the most recent scientific dating has indicated its construction in the last third of the 9<sup>th</sup> century (*Kühtreiber – Obenaus 2017*, 80). These new results therefore pose the question of how the terms “pre-Great Moravian” and “Great Moravian” should now be considered. It will be necessary to decide how far into the first half of the 9<sup>th</sup> century the pottery forms associated with the so-called pre-Great Moravian pottery continue.

The new radiocarbon dates also affect finds complexes with the pottery types and forms discussed above, the resulting calendar dates are again much broader than the boundaries set by the archaeologically dating (see *tab. 1*). A more exact dating framework is possible for the house 1110, based on two charcoal samples from the burnt superstructure of the building. The period in which the calibrated calendar dates of the 2 $\sigma$  area overlap is between 694 and 880 and therefore with the 8<sup>th</sup>/9<sup>th</sup> century also compatible with the archaeologically inferred dating limits of this pottery.

The high quality of the ceramic products involved and the great need for cooking and storage vessels in the settlements are thought to imply specialist workshops within or not far away from the agglomerations. Where exactly they were and how the production there was organised is unknown (*Mazuch 2013*, 111). The only evidence for pottery production in the immediate vicinity of a Moravian centre to date are some ovens in the outer bailey of the fortified site at Nitra-Lupka, the products of which are best known at that site in a neighbouring cemetery (*Chropovský 1959; Vlkolinská 2012*). A distribution map of the Mikulčice pottery group by *Petr Dresler (2015, 153, fig. 4 left)* includes the settlement at Pellendorf/Gaweinstal as the at the moment most south-westerly point. In Lower Austria vessels with fluted chalice rims also occur in inhumation burials at Bernhardsthal and Rabensburg (*fig. 14*). These finds sites are only around 4 and 8 km (linear distance) from Pohansko, however, and are therefore to be regarded as part of the immediate political and economic hinterland of that central place (*Macháček et al. 2013b, 78*). By contrast, Pellendorf/Gaweinstal is at around 36 km (linear distance) much further away. Evidence from points further westwards is difficult to identify, as here possibly relevant material is either unpublished or can only be studied through drawings. The pottery finds for the older excavations at Thunau, for example, include very few steeply protruding and non-thickened rims with a relatively faint groove at the edge of the rim; Brigitte Cech labelled the pottery with this rim form Group 2 and stressed its rarity (*Cech 2001, 17, 37, fig. 22; examples ibid. CD-ROM, Cat. No. A783, B3850, B4732*). A rim of this type is known from an inhumation burial in Stein an der Donau, it has been connected to southern Moravian pottery elsewhere (*Kühtreiber – Obenaus 2017, 70; fig. 15*). These few examples can now

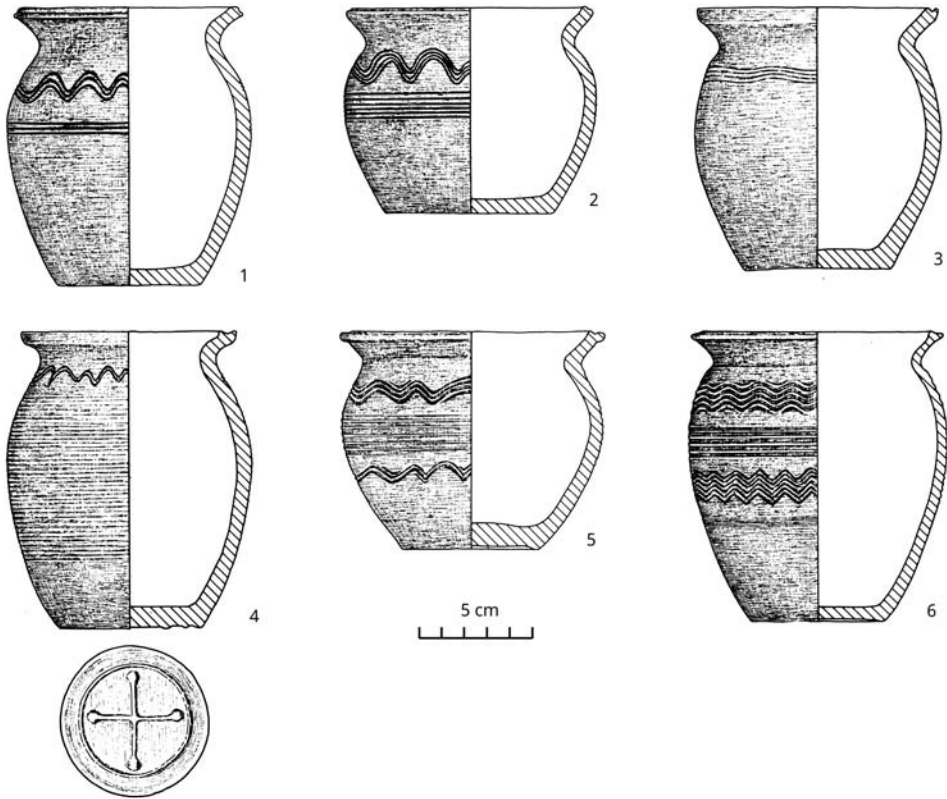


Fig. 14. Pottery of the Mikulčice pottery group from inhumation burials in the north-eastern Weinviertel: 1–2: Bernhardsthal, Kohlfahrt field (after *Friesinger 1975–1977*, pl. 8: 2377, 2378). – 3–6: Rabensburg (after *Friesinger 1975–1977*, pl. 13/grave 6 und 7; pl. 15: grave 14; pl. 17: grave 21).

be linked to the Mikulčice pottery group. There is a need for caution, however, as the examples from Thunau show, which do not have the typical hollow on the inside, which Macháček's pottery group B normally has. More generally, the non-thickened protruding rim with groove occurs several times in pottery inventories of the 8<sup>th</sup> and 9<sup>th</sup> centuries in Lower Austria<sup>8</sup> and can therefore be seen as normal in the region, whereby the rim area is uniformly lower than the chalice rims in Pohansko and Mikulčice.

Very important for our knowledge of the distribution of Moravian pottery in the south-west is a finds complex from the lord's compound within the fortification at Thunau am Kamp, with a repertoire of forms which has been related to Phase II from Lesní školka in Břeclav-Pohansko, but which to date has only been published in a preliminary report. According to the colleague concerned, Hajnalka Herold, this is a comprehensive pottery complex from the fill of a sunken-featured building with a range of forms which has not

<sup>8</sup> E.g. the cemetery at Pitten: *Friesinger 1975–1977*, pl. 18, grave 32: 1 (also pictured in *Cech 1994*, 55, fig. 3: 5); pl. 20, grave 35: 3; pl. 37, grave 81: 3; pl. 38, grave 82: 1; pl. 40, grave 88: 2. Thunau am Kamp: *Cech 2001*, CD-ROM, e.g. Cat. No. A7, A47, A119, B471, B939, B1551, B2113-2, B2165, B3783.

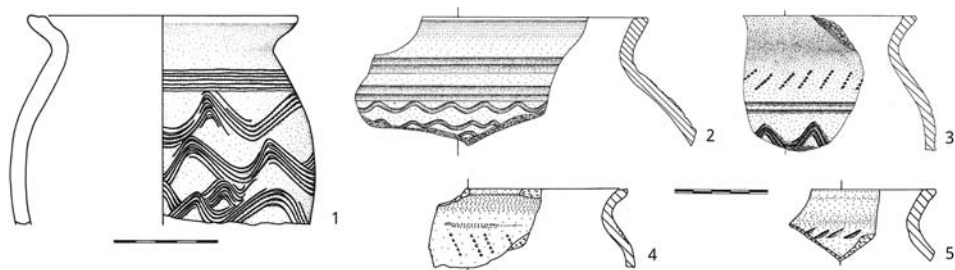


Fig. 15. Vessels with steeply protruding, horizontally truncated rims and a groove at the tip from Lower Austria north of the Danube. 1: Stein an der Donau (after *Kreitner 1993*, 291, fig. 10). – 2–5: Thunau am Kamp (after *Cech 2001*, A783, B1087, B2640, B4732).

yet come to light among previously known pottery complexes (*Herold 2008*, 291). A full picture will only be available after the publication of the material, but it seems likely that the distribution area of the pottery produced within the economic surroundings of the Moravian centres of the 9<sup>th</sup> century included places in the west of modern-day northern Lower Austria.

Apart from Mikulčice pottery group, there are other pieces which can be isolated within the pottery types with a gritty surface and connected to the “March pottery” or the so-called “March type”, thus demonstrating an origin in the area of Staré Město near Uherské Hradiště (for the distribution of the early medieval “pottery circles” in Moravia see *Macháček 2001a*, 249, fig. 186). Without going into detail about origins and research history (details *Galuška 1995*, 97–102; for pottery from Staré Město and its surroundings see also *Galuška 1994*), which was recently discussed extensively by *Lucie Valášková (2010)*, it can be noted that this characteristic pottery type can be isolated in Staré Město and also numerous finds sites in south and south-eastern Moravia (see distribution map in *Valášková 2010*, 103, fig. 5), among them Mikulčice within the framework of the range of forms of Klanica’s “Type 2” (*Poláček 1995*, 146, fig. 10: 35–37). The common characteristics of this pottery are egg and barrel-shaped vessel shapes, a finely gritty surface and simple decoration of continuous grooves and wavy lines limited to the upper part of the vessel, whereby the most common pattern is a flattened wavy line between two horizontal grooves. The other typical characteristics given for the finds from Staré Město, where this pottery is the leading form, are high-quality firing, creating a ringing hard sherd, and the grey to brown-red colour (*Galuška 1995*, esp. 97–98, 102–104, fig. 1: E; fig. 17).

These descriptions correspond to an almost complete pot with a flatly protruding thickened rim and three horizontal lines on the shoulder from the sunken-featured building 1424 in Pellendorf/Gaweinstal (fig. 16; Cat. No. 1424-14).<sup>9</sup> The very homogenous tempering, a gritty surface with small particles and the hardness of the pottery stand out technologically. Fine turning grooves in the area of the rim prove the use of a potter’s wheel. However, the production marks on the inside reveal that the construction of the vessel did not take place with the use of centrifugal forces i.e. with a foot-operated wheel, as the typical fine

<sup>9</sup> I am grateful for crucial tips from Petr Dresler and Lucie Valášková in the search for analogies to this vessel, for which my heartfelt thanks.

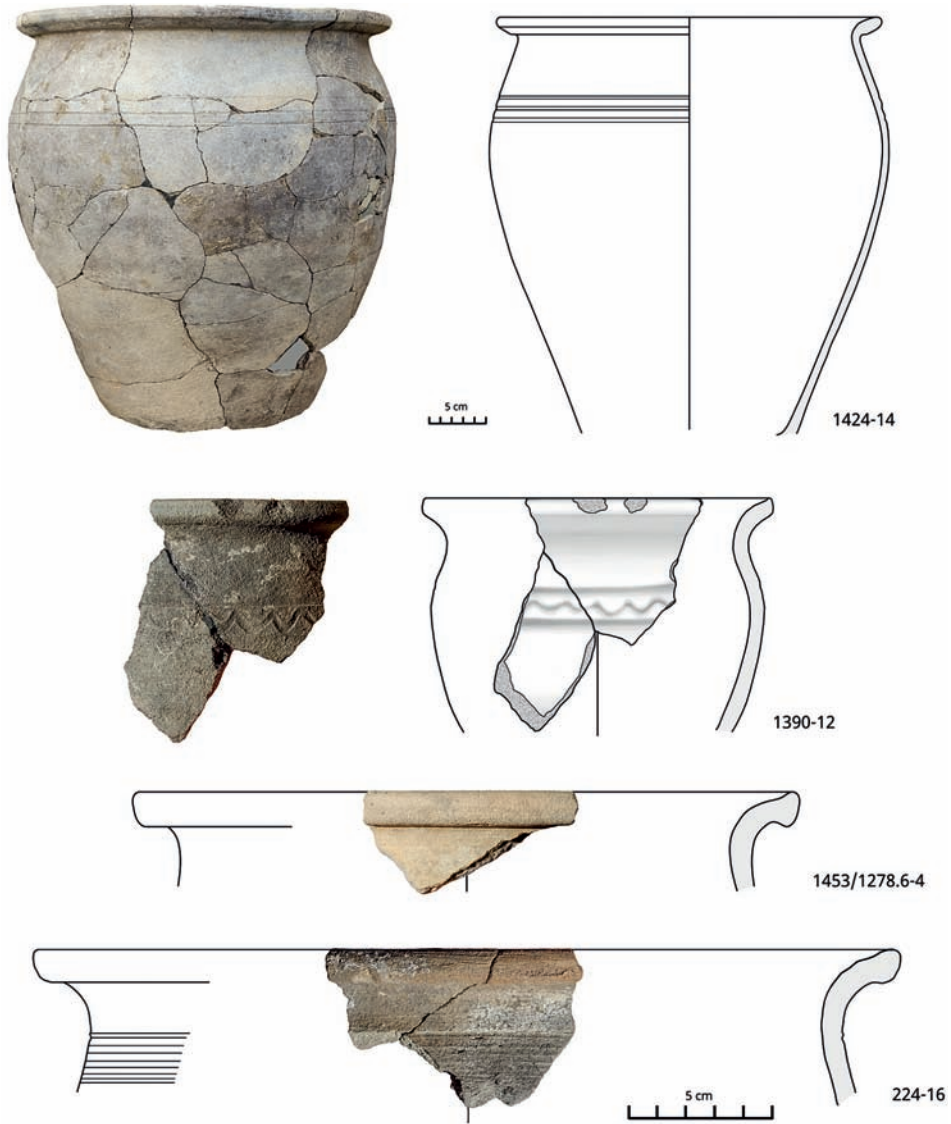


Fig. 16. Pellendorf/Gaweinstal. March pottery. Drawings: BDA/AS-Archäologie Service/Anna Palme, Gabriel Seidl. Photos: Karin Kühtreiber.

grooves which then occur, particularly close to the base, are absent; instead horizontal to diagonal smoothing marks can be seen. Other fragments with the same technological and formal characteristics are present in the inventory.

As in the case of Mikulčice and Pohansko, where the production of the locally typical pottery is thought to have taken place in the context of the two centres, the Great Moravian centre in Staré Město is regarded as the organiser of the production of this ware. It is therefore dated primarily to the second half of the 9<sup>th</sup> century, with its beginnings presumed to



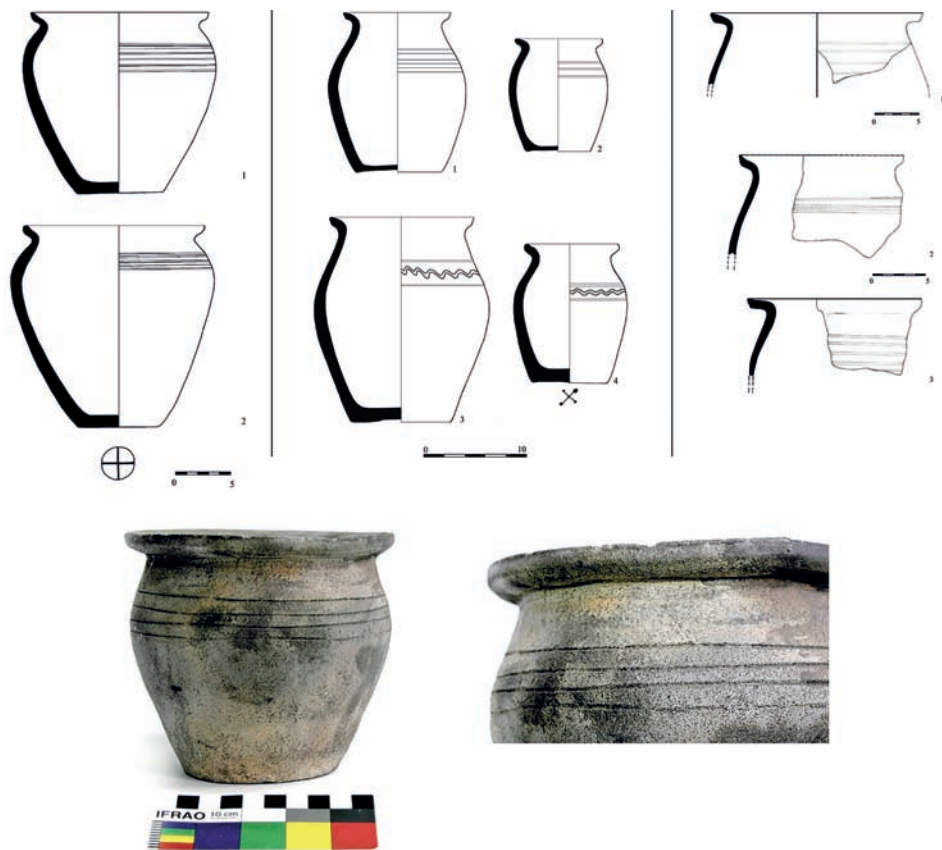


Fig. 17. Forms of March pottery from different sites in the vicinity of Staré Město: Above left: Spytihněv. – Above centre: Nechvalín. – Above right: Veselí nad Moravou (after Valášková 2006, pl. 16, pl. 18, pl. 22). – Below: pot from Staré Město – “STK” (photo by S. Doleželová).

be in part as early as the 8<sup>th</sup> century.<sup>10</sup> The supposed Moravian pottery types with a gritty surface occur regularly in the contexts datable to the 9<sup>th</sup> century. Their share varies from feature to feature. In the sunken-featured buildings 198/201 and 1110, for example, about 90 % of the pottery finds can be said to be Moravian, while in Obj. 1110 the figure is “only” a minimum of 48 % (proportions according to weight).

### 3.3.1.3. Another variant of the pottery with sand- and mica-tempering with connections to southern Moravia

Another well-known and widespread group in southern Moravia, which is present in the finds material from Pellendorf/Gaweinstal, is the “Blučina pottery group”, also known as the “Blučina type”. The vessels of this form are decorated with grooves over a wide

<sup>10</sup> After Galuška 1995, 104–105. – In Mikulčice, vessels of the March type belong to the younger part of “Type 2” (8<sup>th</sup> to mid-9<sup>th</sup> century; after Poláček 1995, 146, fig. 10: 35–37).

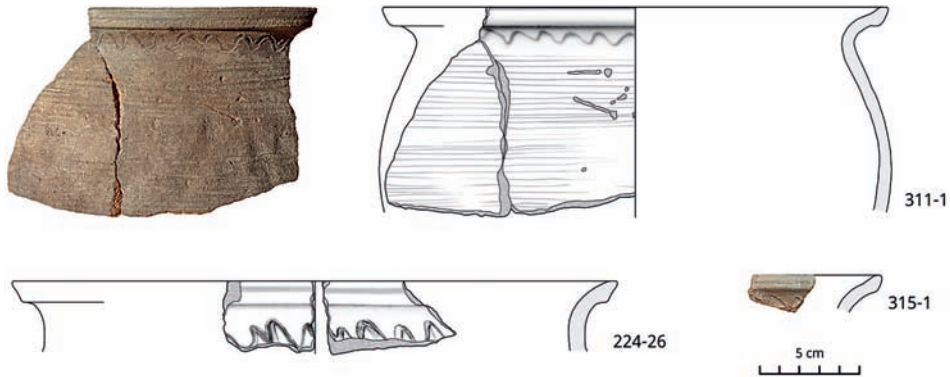


Fig. 18. Pellendorf/Gaweinstal. Vessels of the Blučina pottery group. Drawings: BDA/AS-Archäologie Service/Anna Palme, Gabriel Seidl. Photos: Karin Kühtreiber.

area, accompanied by single wavy lines, which are typically in the neck and/or belly area. The vessels, which tend to have prominent shoulders, have different protruding rim forms such as the non-thickened rim and the thickened rim, and the mouths often have a slight hollow on the inner side. Several potsherds exhibit this range of forms (*fig. 18*), Cat. No. 311-1 is a particularly good example of the “type”. Other fragments can be allocated to this pottery on the basis of decoration and sherd quality (sand tempering of medium density and medium particle size, fine mica particles, well-fired, smooth surfaces, beige to beige-red colour.<sup>11</sup> This pottery group is considerably rarer than the Mikulčice group at the site and is limited to a few pieces.

The most recent research into this pottery took place as part of the analysis of the finds from the northern bailey at Mikulčice, where this group was always found alongside the Mikulčice pottery group and made up 2–6 % of the total. The same relationship is found on site in Pellendorf/Gaweinstal at sunken-featured building 224 (*see fig. 11*, Cat. Nos. 224-13 and 224-48). The high quality of the sherd is emphasized for the vessels analysed at Mikulčice. This, and also its relative rarity and the unsuitability of its proportions for food preparation (constricted necks), are seen as indications that this pottery was either tableware or was used as containers for transporting specific trading goods (*Mazuch 2013*, 111).

As the name of the finds site indicates, the Brunn area with the nearby Blučina was a main distribution area for this pottery. Plentiful finds complexes of this pottery with characteristics differing in detail, a possible indication of different workshops, are known from the fortified sites at Brno – Staré Zámky and Rajhrad (*Staňa 1994*, 273–274, *figs. 6–8*; *fig. 19*). This pottery also occurs at Břeclav-Pohansko (as part of Macháček’s typological “Group E”, *see Macháček 2001a*, 150, *fig. 103*), but not in Staré Město (*Mazuch 2013*, 111). The motifs also occur in Nitra, where the pottery from the cemetery at Nitra-Lupka, for example, includes numerous vessels with identically composed decoration (*Vlkolínská 2007*). The chronological range of this pottery is once again likely to be above all in the second half of the 9<sup>th</sup> and the early 10<sup>th</sup> centuries. A typologically younger and therefore

<sup>11</sup> The pieces were not treated as a further pottery type, as there were only very few sherds.

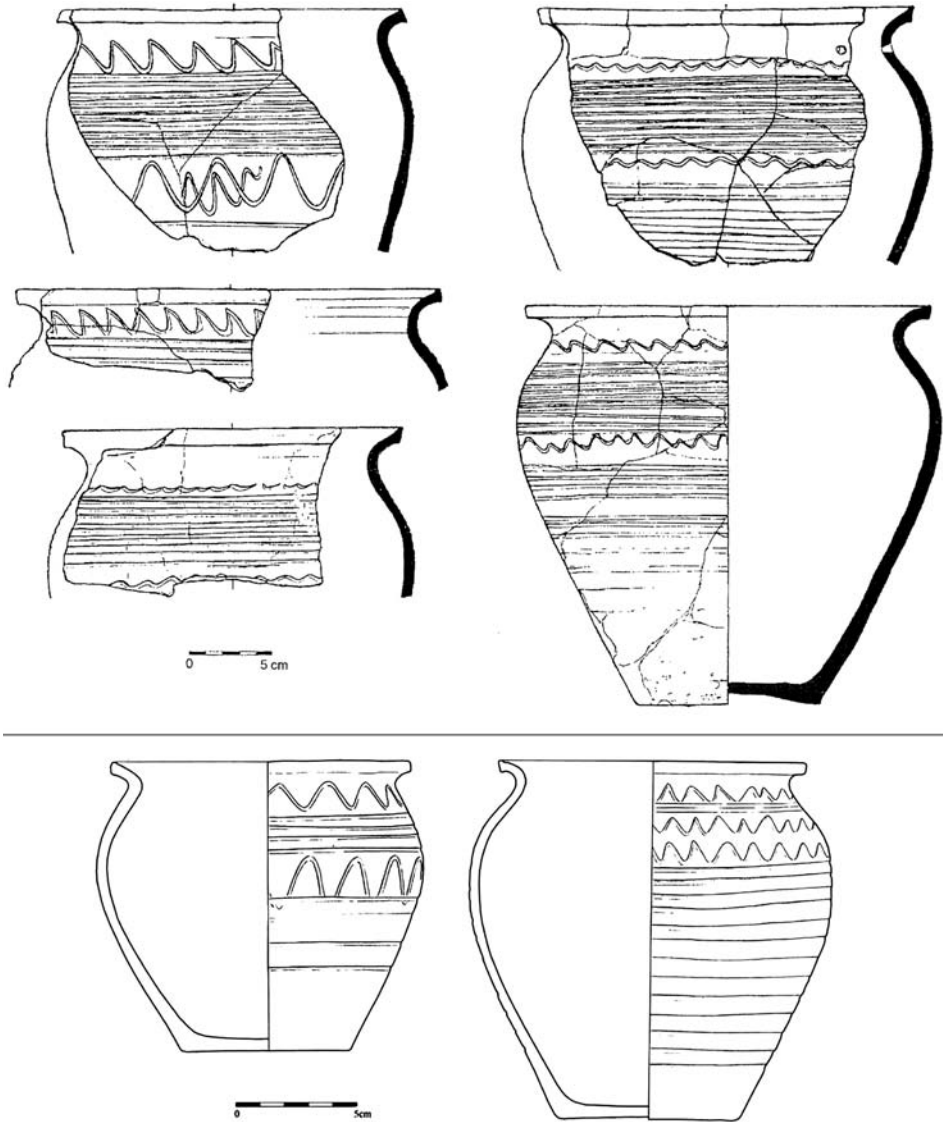


Fig. 19. Pottery of the Blučina pottery group. Above: Brno-Staré Zámky (after *Staňa 1994*, 271, fig. 6). – Below: Mikulčice (after *Mazuch 2013*, pl. 23: 2, 3).

probably “post-Great Moravian” variant of this pottery is possibly the so-called Žabník type, known from the eponymous finds site within the Mikulčice agglomeration (*Bartošková 2007*, esp. figs. 21–24).<sup>12</sup> Stratified contexts and differences in quality are responsible for the younger date of this pottery. Beside Pellendorf/Gaweinstal, there is Lower

<sup>12</sup> I am also grateful to Petr Dresler und Marian Mazuch for information about this pottery.

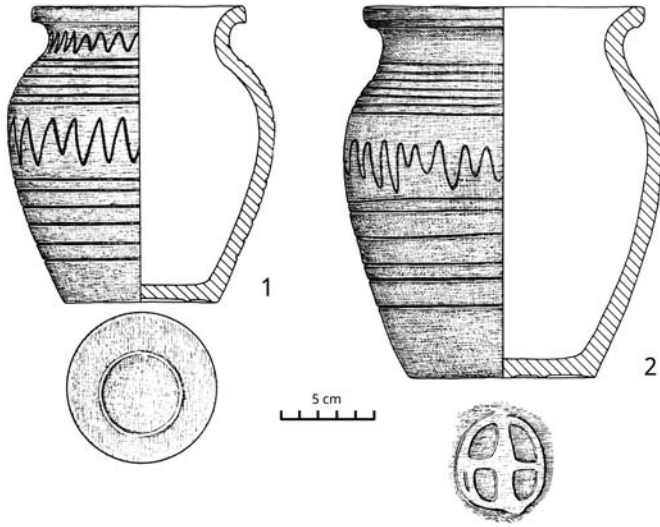


Fig. 20. Possible examples of the Blučina pottery group from graves in north-eastern Lower Austria. 1: Laa/Thaya. – 2: Mitterhof near Wildendürnbach (after Friesinger 1975–1977, pl. 11).

Austrian evidence for this “ware” in the form of funerary vessels from Laa an der Thaya and Mitterhof near Wildendürnbach, both in the north-eastern part of the Weinviertel district, which can be allotted to this group of pottery.<sup>13</sup> Both pots are typically decorated with bands of continuous lines and single wavy lines on the neck and belly (fig. 20).

### 3.3.2. Graphite pottery

Graphite pottery (Gr-Ig) occurs in the early medieval contexts alongside the pottery types with gritty surfaces so that its appearance can be dated to the 9<sup>th</sup> century. The evidence is generally sparse and is limited to wall fragments of pots with bands of wavy lines, single wavy lines and groups of straight lines, and the rim of a shallow bowl (fig. 21). The few sherds found are not uniform, so that, for example, Cat. No. 1390-17 has only isolated graphite particles, while Cat. Nos. 414-11 and 1390-20 have a high amount of finely-sorted graphite in the clay matrix.

Graphite pottery is of particular importance because of the regionally limited character of its raw material (Scharer-Liška 2007, 15–16). The earliest evidence from medieval contexts in modern-day Austria is from graves with grave goods in Upper and Lower Austria and is dated in the 8<sup>th</sup> century (most recently Nowotny 2018, 110, with refs.). In the 9<sup>th</sup> century it occurs more frequently, above all in the Danube and Waldviertel areas, and from the 10<sup>th</sup> century onwards it is the dominant pottery type in the Lower Austrian Danube valley and the areas north of the river (Felgenhauer-Schmiedt 1998). In Břeclav-Pohansko, it appears within the periods attributed to the Great Moravian levels in Phase 3 (corresponds to chronological group 3), which is essentially dated in the second half of

<sup>13</sup> Laa an der Thaya: Friesinger 1975–1977, 13 (Nr. 14, Bonteufel Field: red-brown, quartz tempered; ring-shaped relief mark on the base, h. 12.3 cm); 35, pl. 11. – Mitterhof: Friesinger 1975–1977, 14 (Nr. 43: red-brown, mica-tempered; base mark in the form of a cross-wheel, h. 15.3 cm); 35, pl. 11.



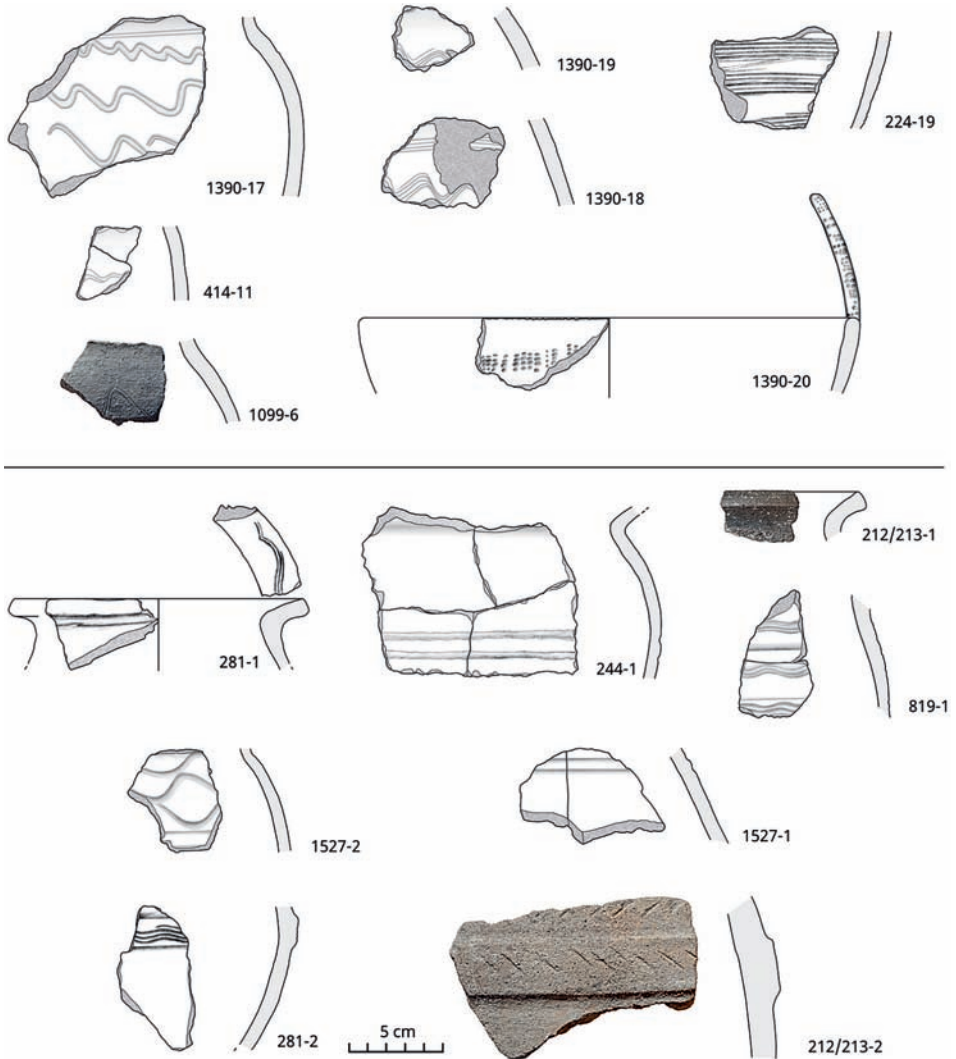


Fig. 21. Pellendorf/Gaweinstal. Forms of graphite-tempered, wheel-shaped Keramik (Gr-Ig). Above: examples from objects of the 9<sup>th</sup>/10<sup>th</sup> centuries. – Below: from contexts of the 11<sup>th</sup> century. Drawings: BDA/AS-Archäologie Service/Anna Palme, Gabriel Seidl. Photos: Karin Kührtreiber.

the 9<sup>th</sup> and the early 10<sup>th</sup> centuries. It becomes more important afterwards in Phase 4, which is regarded as post-Great Moravian (corresponds to chronological group 5; *Macháček 2001a*, 289; *2007a*, 136, chronological groups 3 and 5). Not far away in Mikulčice and in Central Moravia, on the other hand, its appearance can be securely dated no earlier than the 10<sup>th</sup> century (*Poláček 1998*, esp. 154–155; *Staňa 1998*, esp. 122–123). According to new findings graphite pottery forms around 20 % of the total ceramic finds material at the fortified site of Thunau am Kamp, despite the fact that plentiful deposits of graphite can be found within a short distance of the settlement site (*Herold 2007a*, 84–85, map 5.4.1).

In the Weinviertel district – because of the relative lack of research – early medieval graphite pottery is known primarily from graves,<sup>14</sup> for example from Wetzelsdorf (Poysdorf municipal area) and from Steinabrunn (Großmugl market town; *Friesinger 1965*, 90, grave 80, spinning whorl; grave 81, vessel; *1975–1977*, 21–22, pl. 21). According to Brigitte Cech, the grave finds from Steinabrunn date to the second half of the 8<sup>th</sup> and the early 9<sup>th</sup> centuries (a compilation of early medieval graves with graphite pottery in *Cech 2001*, 64), meaning that the beginnings of this pottery type in the Weinviertel can also be dated to the 8<sup>th</sup> century. By contrast, in Pellendorf/Gaweinstal the association of graphite pottery with the characteristic Moravian chalice rim with continuous groove and the simultaneous absence of graphite vessels in the finds groups typologically dated to the 8<sup>th</sup> century indicates that the first appearance of this pottery type can be dated to the 9<sup>th</sup> century.

“Highly-concentrated” graphite pottery becomes dominant in the next youngest settlement phase of the 11<sup>th</sup> century at Pellendorf/Gaweinstal and thus follows the generally known picture of the development of medieval pottery in Lower Austria. Stratigraphic contexts are available for this phase, for example free-standing ovens in the Gaweinstal part of the settlement, which overlie sealed early medieval pit houses. Graphite pottery is dominant in these ovens and also exhibits a more developed range of forms, such as the large “storage vessels” or the “angular” protruding rims, typical for the 11<sup>th</sup> century (*Kühntreiber 2006*, 99–100).

#### 4. Evaluation

The frequency of Great Moravian pottery in the central part of the eastern Weinviertel makes Moravian influence in the area in the 9<sup>th</sup>/10<sup>th</sup> century very clear archaeologically. Historians have long presumed that in the 9<sup>th</sup> century northern Lower Austria and in particular the easily settled Weinviertel were dominated by Moravia, while East Frankish-Bavarian power structures were established in and around the ancient camps and forts along the Danube (*Zehetmayer 2007*, 27; *2019*, 40; *Kupfer 2017*, 439–450). Bavarian jurisdiction probably only covered a strip of land along the Danube riverbank and did not extend further northwards. At the same time the lack of written sources means that there is uncertainty about the extent of Moravian influence and the intensity of settlement. Generally, the Moravian border is seen as an extended and permeable transition zone, with relations between Bavarians and Moravians being shaped both by armed conflict and economic contact. The latter is shown by the so-called Raffelstetten customs regulations (*Zehetmayer ed. 2007*, 132–134, Cat. No. 5.3), which were drawn up in 902/03–907 and mention in today’s Lower Austria among other things a “Moravian market” (*mercatus Marharorum*), at which salt was sold. Its location is not given and it is thus supposed that it was not tied to a particular site. Mautern is the easternmost market site named by the regulations and,

<sup>14</sup> The settlement pottery from Baumgarten an der March, Mannersdorf an der March and Michelstetten published in *Wawruschka 2009*, does not include early medieval graphite pottery (the rim sherd with graphite from Baumgarten, Obj. 55, pictured belongs typologically in the 13<sup>th</sup>/14<sup>th</sup> century; *ibid.* 170, pl. 2: 21). – A date in the 9<sup>th</sup> century would be possible for individual sherds made of highly-concentrated graphite clay in the settlement in Mitterretzbach in the north-western Weinviertel, but as a distinct Great Moravian phase is absent here, with instead a settlement phase from the 10<sup>th</sup>/11<sup>th</sup> centuries very tangible, a younger date seems more likely; see *Nowotny 2015*, 62; pl. 1: 1 (fill 1077), pl. 4: 14 (fill 723).

as one reached the Moravian market by “going over” or “further” (*transire*), it seems likely that it was north of the Danube, possibly in the Krems/Stein area (*NÖUB I*, 157–158; *Kühtreiber – Obenaus 2017*, 11, footnote 34; 66, 76, footnote 469).

Moravian influence in the territories north of the Danube has been known to archaeologists for a long time, with the decades of research at the fortifications at Thunau am Kamp being particularly significant. The complex system of fortifications there, with earthen ramparts strengthened by wood and stone, is of the same type as the sites in the Slavic/Moravian area (*Kühtreiber – Obenaus 2017*, 75–89, esp. 87), as is, for example, the jewelery of the cemetery at the Obere Holzweise (*Nowotny 2018*, 180–181). That this is also true of the pottery forms has already been mentioned above and the publication of the finds is much anticipated. Similarly, the analysis of the valley settlement at Thunau will also lead to important new results, as it appears to be form a “production-based interface between the hinterland and the fortified hilltop settlement” (*Obenaus 2018*, 75) and to have gone on to about 1000, after the fortified site was abandoned.

What can be said about the areas further eastwards on the March and the Thaya? The distribution of early medieval sites (distribution of finds sites see <https://dpp.oeaw.ac.at/>, link “Map Application” [05.06.2019]) shows a notable concentration along the March. This is due partly to the “Amber Road”, which had existed since the prehistoric period, and partly to the enthusiastic prospection of local researchers.<sup>15</sup> To the west another, concentration of sites first becomes visible in the Waschberg area, above all around Oberleiserberg. The area in-between has only very few finds sites at the moment.<sup>16</sup> Exceptions are the settlement discussed here and also a line of sites stretching south-eastwards to Gänserndorf, where an early medieval settlement and an Avar cemetery are known at Schönkirchen-Reyersdorf (*Egger – Mayer – Reichel 1993; Mayer 1994; Wawruschka 2009*, 86–87). Northwards, the density of finds increases significantly towards the March and Thaya from Mistelbach onwards. At the moment, potential settlement sites are known primarily from graves and cemeteries, among them the Avar cemetery at Mistelbach (*Distelberger 1996*), and towards the rivers March and Thaya graves in Herrenbaumgarten, Ketzelsdorf and Wetzelsdorf (*Friesinger 1975–1977*, 11, 14, 21–22), and a recently discovered settlement at Neusiedl an der Zaya (*Fuchs et al. 2016; Müller 2017*). Finally, there are the cemeteries at Bernhardsthal and Rabensburg on the March, which can be considered a part of the immediate surroundings of Břeclav-Pohansko (*Friesinger 1975–1977*, 9, 15–21; *Macháček et al. 2013b*, 78). As previously mentioned, Great Moravian influence in these cemeteries can be clearly seen in the presence of the Mikulčice pottery group (*fig. 14*), while westwards to Laa an der Thaya connections to Blučina pottery are visible (*fig. 20*). Pottery of the Mikulčice and Blučina types has not been identified in the known settlements of the eastern Weinviertel to date – with the exception of Pellendorf/Gaweinstal. This seems to be due in part to the older chronological position of many of these settlements, but also appears to be partially the result of the uneven state of research.

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<sup>15</sup> Hermann Schwammenhöfer’s collection from early medieval finds sites in this area is currently being analysed by Edith Nechansky as part of a master’s degree at the Institute of Prehistory and Historical Archaeology at Vienna University.

<sup>16</sup> Many thanks to Eva Steigberger for access to the Finds sites data base of the Department for Archaeology, Federal Monuments Authority, Vienna.

How the remarkable absence of settlement in the (south-)eastern Weinviertel is to be interpreted cannot be said with satisfaction at the moment. The absence of finds sites in the southern Marchfeld area could be due to decades of intensive modern agriculture there leading to the subsequent destruction of the sites. It is also likely that targeted prospection would lead to the discovery of further sites, thereby changing the picture. The absence of a central place in the entire central Weinviertel area in the 9<sup>th</sup> century is very apparent. This may mean that the area served as a western puffer zone for one of the Moravian centres (*Kühntreiber – Obenaus 2017*, 191–193). Oberleiserberg, which had been an important fortified hilltop settlement in the prehistoric and migration periods, became significant again in the 10<sup>th</sup>/11<sup>th</sup> centuries, but in the 9<sup>th</sup> century it seems to have been little occupied (*Stuppner 2014; Brundke et al. 2017; Kühntreiber – Obenaus 2017*, 104–108), while Michelberg, north of Stockerau, which was fortified as early as the Bronze Age, provides no evidence of settlement in this period (*Kühntreiber – Obenaus 2017*, 102–103; *Kühntreiber 2017*, 186).

The choice of location for the settlement at Pellendorf/Gaweinstal could be the result of its position at the meeting of two important old roads, for which, however, there are no written sources older than the High Middle Ages. According to *Peter Csendes (1969*, 151–158), a byroad of the old Nikolsburg Road (Nikolsburg = Mikulov) and the so-called Southern High Road cross at Gaweinstal. The main course of the Nikolsburg Road, which connects the Danube area to Brünn, led, according to Csendes, from Korneuburg over Großrußbach, Kreuzstetten, Ladendorf and Paasdorf to Mistelbach, and from there through Poysdorf, Drasenhofen, Mikulov and Mušov. The byroad relevant to the site discussed here, however, took a more easterly route beginning at Vienna-Stadlau and passing through Wolkersdorf to Gaweinstal und from there through Schrick to Poysdorf, where it joined the main route. The west-east Southern High Road may have arisen from a number of local routes which connected the north-south routes at important points. It breaks off from the Rittsteig by Elsarn and runs over Hohenwarth to Großrußbach, from where, by way of Niederkreuzstetten, Streifing and Atzelsdorf, it reaches Gaweinstal and crosses the old Nikolsburg Road. West- and eastwards of Gaweinstal the field names “On the High Road” in Atzelsdorf and “Highway” in Klein-Harras (*Administrativ-Karte NÖ*, Sheet 42) refer to this route. From Klein-Harras the High Road goes on over Ebenthal to Stillfried an der March. A deed of Emperor Heinrich III. in 1056 mentions the Lundenburg Road (*ad stratum Lauentenburch ducentem*), a route north-eastwards to Břeclav, which is thought to break off from the Nikolsburg Road at Mistelbach and go through Wilfersdorf, Bullendorf, Großkrut and Reinthal (*Csendes 1969*, 146–147; *NÖUB I*, 364–365, Nr. +28b).

The considerable presence of pottery forms equally well-known from Pohansko, Mikulčice or Staré Město, indicates intensive exchange with the southern Moravian area. The distances are remarkable however. Pellendorf/Gaweinstal and Pohansko are around 36 km (linear distance) or a walking time of 9 hours apart, but the distance to Staré Město is about 90 km. Whether the pottery forms were copied and produced locally or if instead finished vessels were brought to the settlement, perhaps as containers for other goods, can only be determined by more detailed pottery analyses, which, however, have not yet been completed.<sup>17</sup> Contemporaneous pottery with no relationship to the canon of Moravian forms

<sup>17</sup> First analyses using X-ray fluorescence measurement to determine the composition of the raw materials employed are being undertaken by Petr Dresler (Masaryk University Brno), the results are still being processed.



indicates that a high if yet unknown percentage of the pottery is likely to have been produced regionally.

The substantial presence of Moravian pottery forms in Pellendorf/Gaweinstal must also be considered in terms of the discussion about the political character and the economy of “Great Moravia”. In contemporary discussion the Great Moravian power structure is seen as a hierarchically-structured “rank society” (*Štefan 2011*, 349) or as a “chiefdom” (*Macháček 2009; 2012*, 12–15). At its peak stood the ruler or “chief” with an elite circle of followers, the legitimation of whom depended on successful conquests, military expansion and conspicuous power and consumption. Archaeologically this is reflected in the multi-part, functionally and structurally ordered agglomerations, which, as in Břeclav-Pohansko, were centres in every sense: as extensive fortified bases of the political system, residences of the ruler and trade and production centres of more than local importance (*Macháček 2007a*, 348–362; *2012*, 17). The economic basis is thought to be a “gift-giving-economy” (*Štefan 2011*, 343), founded on distribution. The circulation of high-value goods, whether acquired through military action or in the course of long-distance trade (Danube, Amber Road) was important, as in this way the loyalty of one’s supporters could be guaranteed. Whether or not there was internal trade within Moravia, and to what extent, is unknown. Its existence, or at least the presence of an established internal market, is doubted because of the absence of coins or other adequate means of exchange. At the same time potential markets for surplus production have not been ruled out (*Štefan 2011*, 343).

In view of this discussion the presence of Moravian pottery in Pellendorf/Gaweinstal leaves plenty of room for speculation. It could be thought of as an indication of an internal market, which is difficult to prove and therefore doubted, but in the course of which surplus pottery produced in the centres could have been traded. Other distribution mechanisms could be responsible, but that would beg the question of which motives and reasons could have led to the distribution of household pottery to the site. Vessels are likely to have come to the site as containers for high-value products, such as honey, but that cannot explain the considerable presence of pottery which is either “Moravian” or perhaps locally produced pottery “of Moravian type”. In the future, contemporaneous finds inventories from the region will show whether or not the substantial presence of Moravian pottery in Pellendorf/Gaweinstal is typical of the eastern Weinviertel or rather an exception. Last but not least, scientific analyses will demonstrate whether the pottery is really Moravian or whether it was copied locally.

As far as they go, the finds and contexts imply that the finds site at Pellendorf/Gaweinstal was an open rural settlement with a population dependent on arable and pastoral farming. Apart from utensils to do with daily domestic tasks, such as spinning whorls, flat millstones from manually-operated corn mills or simple bone tools, there is no evidence of production which went further than self-sufficiency. The situation was different at the settlements of Břeclav-Libivá (*Macháček 2001b; 2007a*, 42–44) and Kostice – Zadní hrád (*Macháček et al. 2013a*, 775) in the immediate vicinity of Břeclav-Pohansko. They are seen as supply bases for that fortified site and its population. The frequent large storage pits in both settlements are seen as evidence of surplus production and a role as suppliers of the population of Pohansko, particularly as the pits do not occur within the fortifications themselves (*Dresler 2015*, 154–157, discusses the absence of storage pits in Pohansko in a broader context). In Kostice, the numerous free-standing and frequently refurbished ovens have also been connected to a surplus economy.

By contrast, the choice of location in Pellendorf/Gaweinstal probably depended on its position at a road junction, as outlined above. That would also explain the widespread distribution of Mikulčice pottery from the Břeclav-Pohansko/Mikulčice area and also of the March pottery from the Staré Město region. Its distribution route would have led along the Lindenburg and Nikolsburg road to the settlement and from there southwards directly to the Danube or westwards along the northern bank of the that river to Krems/Mautern, where there is not only relevant pottery, but where also the Moravian market mentioned in the Raffelstetten customs regulations is likely to have taken place. The position of the settlement on a long-distance route was still relevant in the 11<sup>th</sup> century, as seen in a Hungarian denarius of King Belas I. (1060–1063), which was found immediately south of the excavation area on an old path leading past the site (*Schebeczek 2004*, 1000).

## 5. Conclusion

In the years 2003–2005, an extended settlement was uncovered about 10 km south of Mistelbach on the boundary between the villages of Pellendorf and Gaweinstal in advance of the construction of the A5 North- or Waldviertel Motorway, which connects the area around Vienna with the southern border of the Czech Republic. Around 2,000 features, ranging from the Early Bronze Age to the Later Middle Ages were discovered over two excavation areas covering a combined area of c. 20,000 m<sup>2</sup>. Following intensive settlement in the later Iron Age, an extended Imperial Roman/Germanic (2<sup>nd</sup>/3<sup>rd</sup> centuries) and a migration period phase were discovered. Early medieval occupation began by the 7<sup>th</sup> century at the latest and continued, despite a probable interruption, into the 10<sup>th</sup> century. Settlement features of the 11<sup>th</sup> centuries are much fainter and largely only visible because of pottery finds, but the youngest occupation phase of the 12<sup>th</sup>–14<sup>th</sup> centuries, with numerous house features, an erdstall and plentiful finds was clear. The analysis and presentation of the early medieval settlement phase began shortly after the excavations and was completed as part of the 2015–2019 Austrian-Czech research project “Border, Contact zone or No-man’s-land? The March-Thaya region from the Early to the High Middle Ages”.

About 130 of the numerous excavated settlement objects could be dated to the Early and High Middle Ages, among them 33 complete or almost complete houses, numerous free-standing ovens, about 70 large or largish pits (20 of them storage pits) and two burials found within the settlement area. The dating of the settlement is based primarily on the pottery finds, which indicate, through comparison with chronological schemata from Slovakia and Moravia, a period between the 7<sup>th</sup> and the 10<sup>th</sup>/11<sup>th</sup> centuries. Four early or early high medieval settlement phases could be identified (MA 1–4), with a youngest phase in the 12<sup>th</sup>–14<sup>th</sup> centuries (MA 5). Additionally, a range of <sup>14</sup>C dates were acquired, which essentially confirmed the archaeological determined age of the settlement, but which extended far beyond the dating framework established by the finds, so that more exact dates could not be narrowed down.

The abundant early medieval pottery was separated into several groups based on its technological characteristics, such as production type (hand-made or wheel-shaped), tempering and surface condition. From the very start, the range of forms shown by the pottery types revealed definite connections to southern Moravia and Slovakia, and in the 9<sup>th</sup> century a strong relationship to Moravian forms, particularly those of the Mikulčice pottery

group associated with the Mikulčice and Břeclav-Pohansko agglomerations, and to the March pottery with its connections to Staré Město near Uherské Hradiště, lastly also to the Blučina pottery group. The finds from these pottery groups in the central eastern Weinviertel are proofs of Moravian influence in northern and north-eastern Lower Austria in this period, an influence historians have long suspected and which can now be demonstrated archaeologically. Further conclusions are dependent on further research, in particular material analysis, which can provide information about the source of the raw materials and therefore the probable production sites. Part of the pottery, at least, can be said to be of Moravian origin. This is indicated by the high quality of the pottery, which implies specialised workshops in the vicinity of the Moravian centres, and also by identical base marks on vessels from Pellendorf/Gaweinstal and Pohansko. On the other hand, contemporaneous forms, which do not conform to the Moravian spectrum, indicate that there must also have been local pottery production. A possible explanation for the substantial presence of pottery from southern Moravia, and from the March area in particular, in the settlement is its position at the probable junction of two old roads. One of these connected southern Moravia to the Danube area, while the other ran west-east from the March to the Krems/Stein area, where a “Moravian Market” (*mercatus Marharorum*) mentioned in the Raffelstetten customs regulations is thought to have taken place and where in any case pottery forms from the Mikulčice group have previously been found.

*The analysis of the early medieval part of the site was completed as part of the 2015–2019 Austrian-Czech research project “Border, Contact zone or No-man’s-land? The March-Thaya region from the Early to the High Middle Ages”, led by Stefan Eichert and Jiří Macháček, and supported by the Austrian Science Fund and the Czech Funding Agency (FWF-GAČR–Project I 1911-G21). I would like to thank the project supervisors for their invitation to join the project and for their wide-ranging support. The Federal Monuments Authority (Department of Archaeology), in the person of Martin Krenn, and AS-Archäologie Service, with Gottfried Artner, Silvia Müller und Susanne Baumgart, are also to be thanked for the processing and analysis of the finds site. I am grateful to Petr Dresler, Gabriel Fusek, Hajnalka Herold, Lumír Poláček, Eva Steigberger, Astrid Steinegger, Alois Stuppner, Erik Szameit, Lucie Valášková and Tomáš Zeman for numerous other helpful acts and discussion.*

English by Paul Mitchell

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