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STUDIA ARCHAEOLOGICA

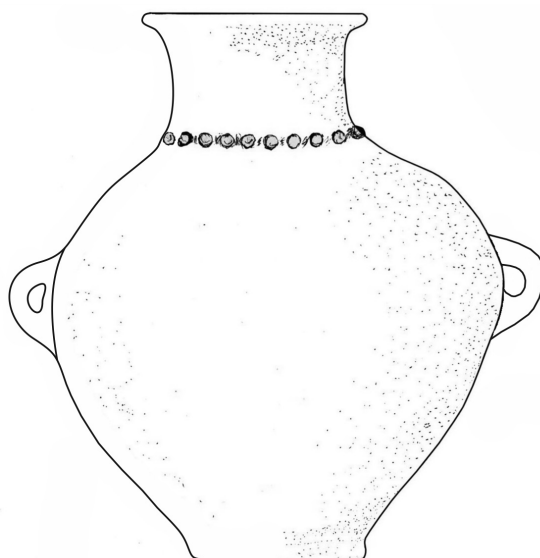
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# Agriculture and Subsistence on the North-Eastern Periphery of the Carpathian Basin – Early Middle Age Settlements from North-Western Romania (Second Half of the 7<sup>th</sup> Century – 9<sup>th</sup>/10<sup>th</sup> Century)

**Ioan Stanciu**

**Abstract:** Similarly to many other regions, habitation in the examined geographical area was exclusively rural during the Early Middle Ages, community sustenance being conditioned by land farming and/or animal breeding. Overall natural conditions favoured soil cultivation and animal husbandry, while certain micro-area trends may be assumed. We discuss here artefacts directly related to primary soil working and harvesting, but also items indirectly referencing certain aspects of the consumption of agricultural products, products, grains firstly. Regarding animal husbandry, decisive information is provided by the archaeozoological material. Furthermore, various structures within the settlements, which fulfilled an exclusively economic role or had mixed functions were briefly commented, although explanations are in some cases unsecure. The settlements' internal layout (investigated to one extent or another) offers relative possibilities of interpretation in terms of social and economic organization, in some sites household units being also discussed. Demographic growth occurred not just in north-western Romania during the 7<sup>th</sup> – 8<sup>th</sup> century, which must have vivified farming activities in direct relationship with increased food needs. By contrast to the previous chronological segment (second half of the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century), archaeological records evidence serious advances in agriculture also connected to shifts in the social set up. Last but not least, this study mirrors the current state of research and rather unsatisfactory knowledge and emphasizes the critical need for interdisciplinary research.

**Keywords:** agricultural activities; consumption; specific artefacts; economic structures; regional trend.

## **Geographical background and preliminary clarifications**

In more accurate geographical terms, the north-western territory of Romania is part of the more stretched region of the Upper Tisza, whatever strict delimitations are in existence. Located by the north-eastern border of the Carpathian Basin and anchored to the north-eastern curvature of the mountains which gave its name, the discussed geographical area is today distributed between the borders of four states, namely it includes south-eastern Slovakia, the Zakarpattia province of Ukraine, the north-eastern segment of Hungary and north-western Romania. Hydrographically rich and also encompassing much marshland, especially in the south, around the Tisza and the lower Someş River course (Someşul Mare), the landscape is varied, divided among lowlands, hills and uplands, therefore separable into different microareas (Fig. 1). Thanks to its geographical position, over the course of time it turned out to be an important space of connection with northern regions, on the other side of the Carpathians, aspect reflected by demographic displacements of different scales. Without further emphasis and in strict connection with the 1<sup>st</sup> millennium AD, possibly best examples in this respect include the southward advance of the Przeworsk culture bearers and the arrival of the Gepids from the north, later also of the first Slavs.

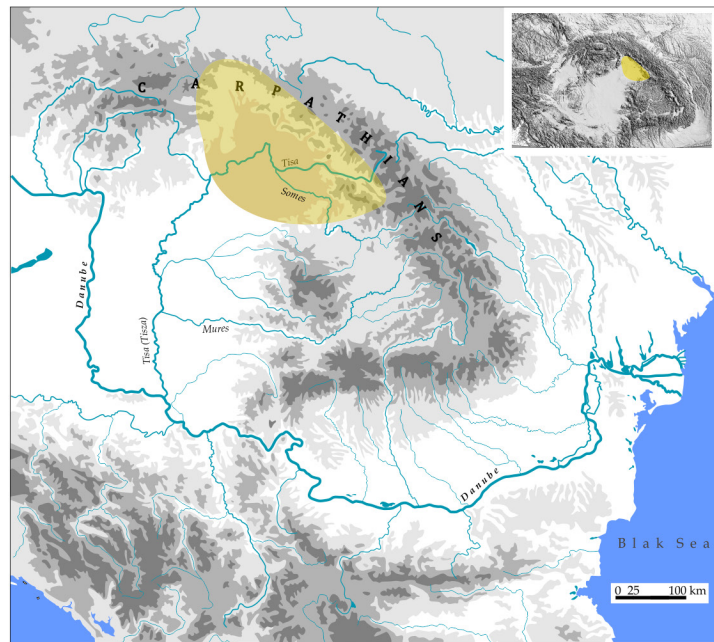
The diverse landscape also characterizes the north-western territory of Romania, as south-eastern segment of the Upper Tisza region and connection space with the Transylvanian Basin: dominating marshlands, in the past, to the west,<sup>1</sup> with the old diverging Someş River and smaller

<sup>1</sup> The old Ecedea Marsh is worth mention (today drained and termed the Ecedea Plain), with a large water-covered area in the past (Berey 1908; Farkas, Németh 1978; Karácsonyi 1994–1995, 197, 210–218; Szűcsné-Murguly 2006). It is believed that between 750–900, marshlands became increasingly limited (Frisnyák 2000, 83).

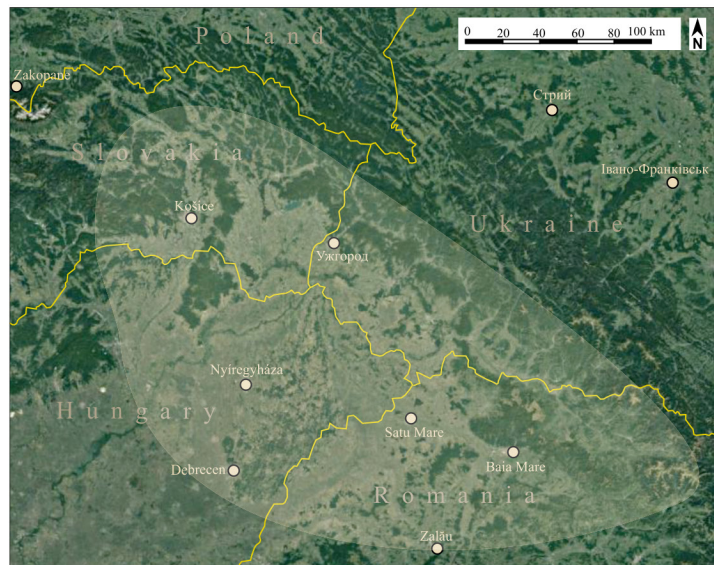
Crasna River courses, shorter or higher hills split on either side of the same Someş River, crossed by many secondary valleys and streams, the intramontane Maramureş depression to the north-east (opened westerly by the narrow corridor of the Tisza), the Silvania Depression to the south, fragmented by hills and valleys in-between. Lowlands cover a third of the region's surface, notable being the Someş River plains, axially crossed by the lower course of the Someş River and extending westwards into the south-eastern third of the Szabolcs-Szatmár-Bereg County in Hungary.

The north-western territory of Romania did not excel by various and qualitative natural resources, however during the early Middle Ages, these were sufficient enough for a sustenance that relied on agriculture and animal breeding, irrespective of their proportions.<sup>2</sup> There had always been a high intra-regional diversity of soils and vegetation, determined by local conditions generated by microrelief, climate and hydrological and biological factors. Most soils had emerged under the influence of a colder and moister forest type climate, formed under oak forests mainly, whose fertility was rather low in natural conditions.<sup>3</sup> The Carei and Crasna Plains, located south-westwards and southwards excel in productivity, most likely one of the reasons for which these were incorporated in the territory directly under Gepid, then Avar control (Fig. 27).

The gradual intensification of human habitation followed by soil turning, clearings and intensified drainages during the 19<sup>th</sup> century resulted in substantial landscape changes over time, first of all to the detriment of woodlands and marshlands, which had covered much more stretched areas in the past. According to an estimate, by early 1<sup>st</sup> millennium AD, woodlands covered over 70% of the Carpathian Basin's area, while around 1000 the forested area amounted to 30-40%.<sup>4</sup> Nonetheless, woodlands



A



B

Fig. 1. The Upper Tisza Basin indicated in the wider area of the Carpatho–Danubian Basin. Draws attention to its position in relation to the north-eastern Carpathians and the passers-by that cross this segment of the mountains (A). The same geographical area of the Upper Tisza today intersected by the borders of several states; more important cities are also indicated (B — processing of an image taken from Google Earth).

<sup>2</sup> As for the period, there is no evidence on mining rich non-ferrous metal ores in the uplands, as it was assumed. For instance, Horedt 1987, 26. Mining began once with the 14<sup>th</sup> century (Kacsó 2015, 118–125).

<sup>3</sup> Posea 1997, 89, 147–148.

<sup>4</sup> Frisnyák 2000, 84. Prior to successive deforestations, intensified starting with medieval period, two thirds of the whole area of the Tisza Plain belonged was covered by forest (Lászlóffy 1982, 164). In the Maramureş Depression forests spanned over 55% of area around 1900, thus prior to this date these must have been considerably larger (Popa 1970, 36–37). The



did not form a continuous and impenetrable network, because on one hand, in certain areas, these disappeared naturally, on the other, the extension process of human habitation to the detriment of woodlands (soil cultivation, grazing) had started long before the early medieval period.

Agriculture was directly influenced by climate and its cyclical changes. In the 1<sup>st</sup> millennium AD, the same applied to entire Europe and not only, although regional variables were noted. A warm and dry period which lasted until late 4<sup>th</sup> century was followed by a period of lower annual temperatures and changing rainfall regimens until around AD 600. Gradual climate heating is mentioned for the 7<sup>th</sup> – 9<sup>th</sup> century along the way with shorter cooling stages and further changing rainfalls. Around AD 900 and even earlier, in certain regions a new period of favourable climate followed, with temperatures similar to nowadays' and which propelled the expansion of habitation ("the medieval optimal climate").<sup>5</sup>

Not just during the early medieval period residential preferences were oriented to river terraces, as evidenced by successive habitations over time, frequently on the same spot. Prior to hydro-improvement works, damp areas with marshes and floodable plains represented a major landscape component throughout the Tisza Plain. These areas did not only apparently favour habitation, since many settlements were identified on old streams terraces and higher land portions, similar to islands, easily recognizable even today. Although the economic potential of damp areas was not always stable, these usually count amongst the most productive biological ecosystems, providing significant extra resources for human sustenance (fish and crustaceans, water birds but also reed or bogiron). Furthermore, floodable meadows were constantly used for cattle grazing. Settlements located by the boundary of floodable plains supported and propelled agriculture in general, and across time, the amount of anthropic interference resulted in a modified natural environment.<sup>6</sup>

Throughout the 1<sup>st</sup> millennium AD, habitation in the area of interest here was exclusively rural, supported by communities whose sustenance was conditioned by land cultivation and/or animal breeding. It was the basic form of economic and social organization not just in Central and Eastern Europe during the early medieval period.<sup>7</sup> In archaeological language, the term "settlement" usually indicates a rural community identifiable on site by house remains, along with other structures that played various roles. Yet, even more important are the messages which these remains could convey in connection with social and economic organization forms, in-between interactions, ultimately the image (even though relative) of "living rural communities" and their dynamics across time.<sup>8</sup> The importance of complex relationships between human habitats and the environment is recognized, however their knowledge involves actions conditioned by serious interdisciplinary approaches with expected answers to inquiries about access to resources, land use around the settlement (arable, hay meadows, pastures), gradually extended to the detriment of woodlands and their harnessing forms.<sup>9</sup>

Regarding north-western Romania at least, such an investigation path, mandatorily interdisciplinary, is still a goal. Possible interpretations of social and economic set ups are given by settlement internal layouts with various built structures, spatial relations in-between and likely connecting ways, sometimes free central areas or other portions of un-built land, while the relationship between these variables evidences a certain organization form of the settlement.<sup>10</sup> Last but not least, it is important to identify connections with other neighbouring settlements (communities), any

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extension of forested areas is assumed to have occurred in the 5<sup>th</sup> century until the first half of the 7<sup>th</sup> century, at least in certain areas (Lászlóffy 1982, 168–180, 183–235). Deforestations had probably intensified during the 8<sup>th</sup> – 9<sup>th</sup> century (Györffy, Zólyomi 1996, 16, 22).

<sup>5</sup> McCormick *et al.* 2012; Vadas, Rác 2013, 204–207; Poschlod 2015, 205–211; Preiser-Kapeller 2018. Recent investigations show sudden cooling between AD 536–660, which was mainly caused by wide-scale volcanic eruptions in Asia (Büntgen *et al.* 2016). The relatively droughty environment prevalent until mid 8<sup>th</sup> century had impacted the downfall of the Avar Khaganate (Vadas, Rác 2013, 207–210). Information about climate evolution in north-western Romania in Feurdean 2005, Feurdean *et al.* 2007 and Feurdean *et al.* 2008.

<sup>6</sup> Dinnin, Van de Noort 1999 and Van de Noort 2000.

<sup>7</sup> In fact, the history of early medieval Europe was that of rural settlements, only to quote the author's slightly rhetorical phrasing (Hamerow 2002, p. VII).

<sup>8</sup> The archaeology of human habitat entails the study of social relations with the aid of archaeological data (Trigger 1967).

<sup>9</sup> Reconstruction of past environments not just through variables of the natural landscape, but the landscape as ever changing cultural process as a result of human actions and resulting replies (Anschuetz, Wilshusen, Scheick 2001 and Johnson 2005). See also Jäger 1977, 74–78.

<sup>10</sup> For instance, Wason 1994, 134–152 and Hamerow 2002, 53.

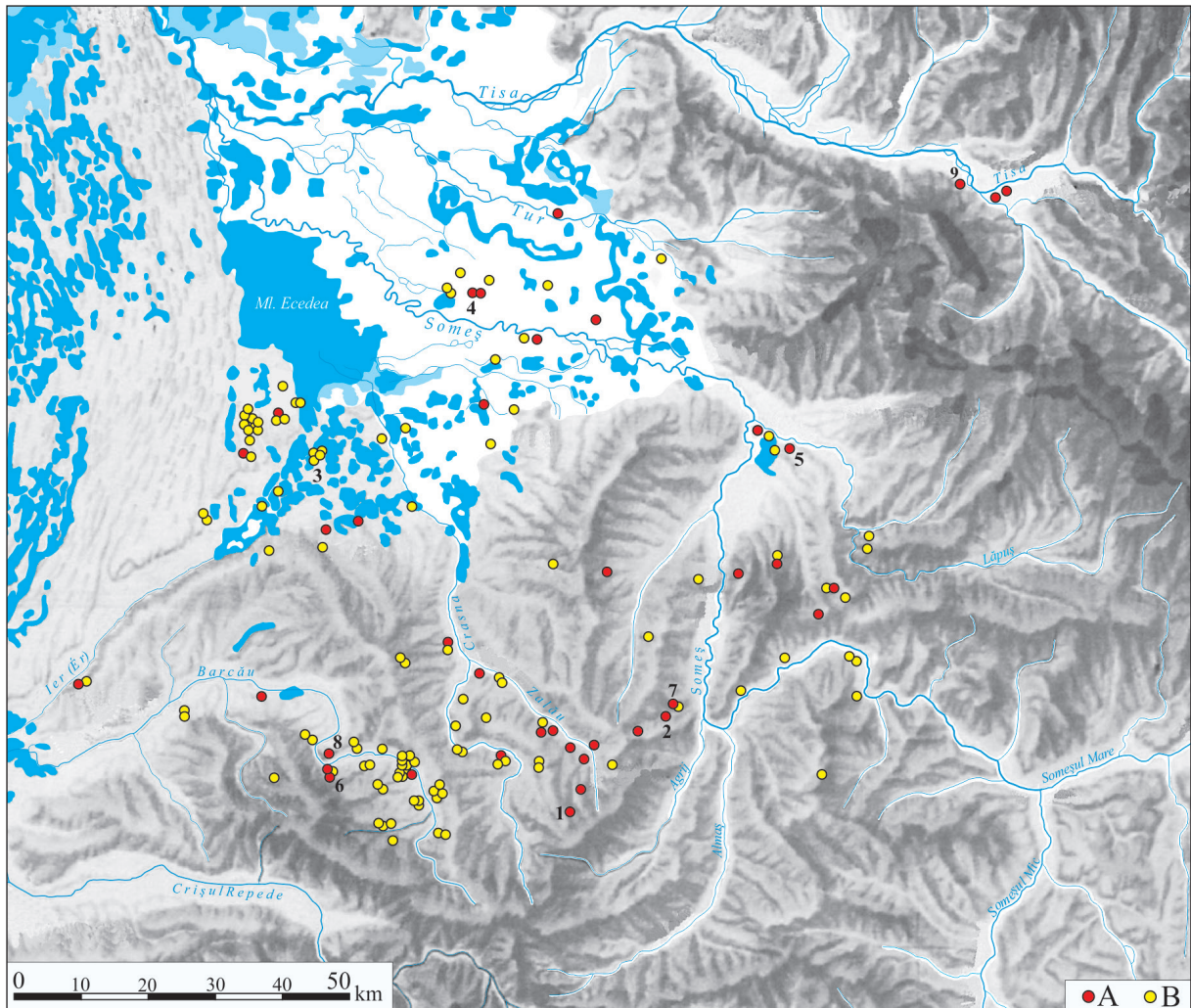


Fig. 2. Early medieval settlements in the north-western part of Romania, horizontal distribution (the location of the settlements more often mentioned in the text is specified, for the rest of the sites, along with other details, see Stanciu 2016a, 282–287 Appendix 1). A — Excavated settlements too neextent or another (26.39%). B — Settlements only identified on the ground (73.61%). 1: Aghireș–Sub pășune (Sălaj County), 8<sup>th</sup> century – early 9<sup>th</sup> century or the first half of the 9<sup>th</sup> century (Băcueț-Crișan *et al.* 2009). 2: Cuceu–Valea Bochii (Sălaj County), the second half of the 8<sup>th</sup> century–the first half of the 9<sup>th</sup> century (Stanciu, Matei 1994 and Băcueț-Crișan 2006). 3: Ghenci–Lutărie (Satu Mare County), 8–9<sup>th</sup> centuries (Németi 1992–1993). 4: Lazuri–Lubitag (Satu Mare County), 8<sup>th</sup> century – the first half of the 9<sup>th</sup> century, perhaps a somewhat later habitation (Stanciu 2016a). 5: Lăpușel–Ciurgău (Maramureș County), 8<sup>th</sup> century (Stanciu 1994). 6: Marca–Sfârăuș (Sălaj County), last third of the 7<sup>th</sup> century (?) – 8<sup>th</sup> century (Băcueț-Crișan, Bejinariu 2020). 7: Popeni–Pe pogor (Sălaj County), second half of the 7<sup>th</sup> century – first half of the 8<sup>th</sup> century (?) / the second half of the 8<sup>th</sup> century–the first half of the 9<sup>th</sup> (?) century (Stanciu, Matei 1994 and Băcueț-Crișan 2006). 8: Porț–La baraj (Sălaj County), late 7<sup>th</sup> – late 8<sup>th</sup>/early 9<sup>th</sup> century (Matei, Băcueț-Crișan 2011). 9: Sarasău–Zăpodie (Maramureș County), 9<sup>th</sup>–11<sup>th</sup> (?) centuries (Popa, Harhoiu 1989).

possible wider territorial formations in process of structuring, in this case even of any possible signs of early political organization.<sup>11</sup>

Despite advances recorded in the archaeological investigations of early medieval settlements, in north-western Romania only a few sites have been excavated to a larger extent, hence offered explanations are on occasion inconclusive (Fig. 2). Regardless of the choice for a certain land form, differences may be noted even among the settlements from the same geographical microarea (Figs. 4–6). Also, one may expect that one and the same settlement had evolved at least over the course of two or three generations, with more or less visible changes in its internal layout. Suitable for such an explanation is the example of the Porț–La baraj settlement, possibly almost fully investigated, with various structures clustering within an area of around 0.05 ha only, occasionally tangent, with

<sup>11</sup> Wason 1994, 127–133.

noticeable superposition relations in-between (Fig. 4/1).<sup>12</sup> Association of houses with other nearby structures, the latter frequently different in forms and sizes suggests in most settlements existing households or at least of a propensity for certain private property form, with built up land, house and encircling annexes, domestic animals and used tools (for instance, the Aghireş–Sub păşune settlement – Fig. 5/2).<sup>13</sup>

Ethnographic parallels even for the discussed territory show for a much later date a horizontal model similar to traditional households (Fig. 3). The example of the Lazuri–Lubitag settlement also suggests a similar set up form, with distinctive groups of constructions and simple structures, yet located at greater distances in-between, which more securely supports the hypothesis of existing autonomous farms (Fig. 4/4). Last but not least, in case of the settlement Popeni–Pe pogor (unfortunately known only by trial trenches) focus is drawn to the grouped structures with exclusively economic role located peripherally and the curious “trough-shaped features”.<sup>14</sup> Without further detailing a discussion that should be carried out elsewhere,<sup>15</sup> one should specify that for two centuries and a half, the organization and time evolution of the

early medieval settlements known to date in north-western Romania and the Carpathian Basin did not generally follow a homogenous “pattern”.<sup>16</sup> Again, examples include some of the archaeological features in the Porţ–La baraj settlement, namely certain “special” constructions (as termed by the excavators), with large area, with or without own fire installation and especially separable by their flat shape, sometimes circular, comparison with yurt-type house being unavoidable (Fig. 4/1).<sup>17</sup>

Without very secure chronological framing, namely between the second half of the 7<sup>th</sup> century – 9<sup>th</sup>/10<sup>th</sup> century, habitation in north-western Romania is evidenced by a number of 164 settlements, most reported a result of field surveys only (Fig. 2).<sup>18</sup> Comparisons with previous phases, namely approximately the second half of 6<sup>th</sup> century and first half of 7<sup>th</sup> century (thirteen settlements and two

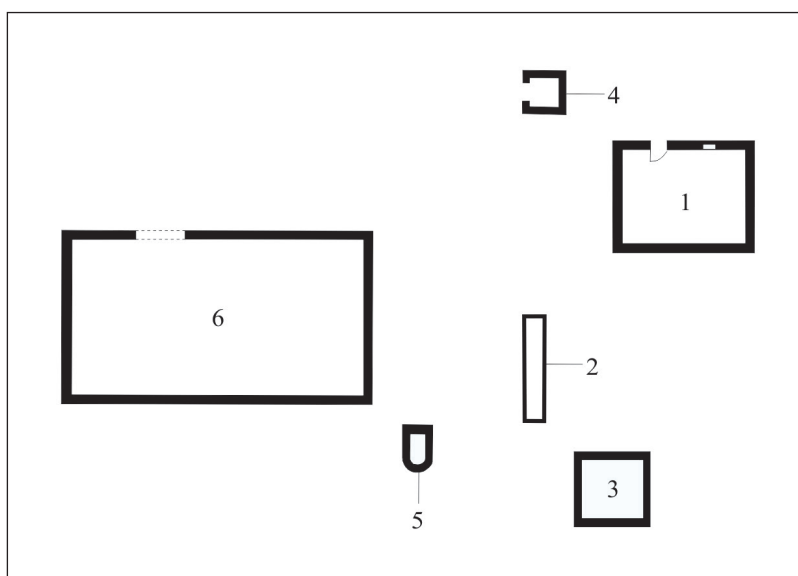


Fig. 3. Ethnographic parallel – a traditional household from north western Romania (*Ţara Oaşului*, a micro-region located south of the Tisa River and bordering Ukraine), as documented in 1959. 1: dwelling (a single room, 4 × 3 m). 2: woven from reeds –the ‘basket’ in which the corn was kept (3.0 × 0.60 × 1.20 m). 3: an arrangement, used for drying plums, with stone walls and a light shingle roof (2.0 × 2.0 m) – the fire was burning under a braid made of green willow branches. 4: vault oven for bread, this one made from corn flour and baked directly on the hearth; built from pieces of stone stuck together with clay, with the hearth slightly raised from the ground level (1.20 × 0.80 m). 5: coop for a pig or chickens, built of wood and covered with straw–the curiously small dimensions attract attention (1 × 1.10 m). 6: the cattle shed, built of stone block shield together with clay and covered with shingles – the large area (9.0 × 5 m) draws attention to the importance of cattle for the subsistence of that household. Source: Focşa 1975, 227–228 with fig. 219.

<sup>12</sup> Matei, Băcuet-Crişan 2011, 88 pl. 4.

<sup>13</sup> Băcuet-Crişan *et al.* 2009, 25–40, with settlement segments separately presented in illustration. See also Stanciu 2016a, 65 fig. 39.

<sup>14</sup> Comments in Stanciu 2016a, 50 with footnote 137, 51 fig. 29.

<sup>15</sup> In connection with interpreting possibilities of early medieval settlements set up in north-western Romania, extended comments in Stanciu 2016a, 56–85, with references to examples especially from geographically close regions. Also in Stanciu 2017c.

<sup>16</sup> Herold 2010, 164, with propositions corresponding to field realities. One should add – with confirmation from fully or partially excavated sites.

<sup>17</sup> Matei, Băcuet-Crişan 2011, 88 pl. 4.

<sup>18</sup> Data at 2016 level: Stanciu 2016a, 28 tab. 2, 283–287 Appendix 1.

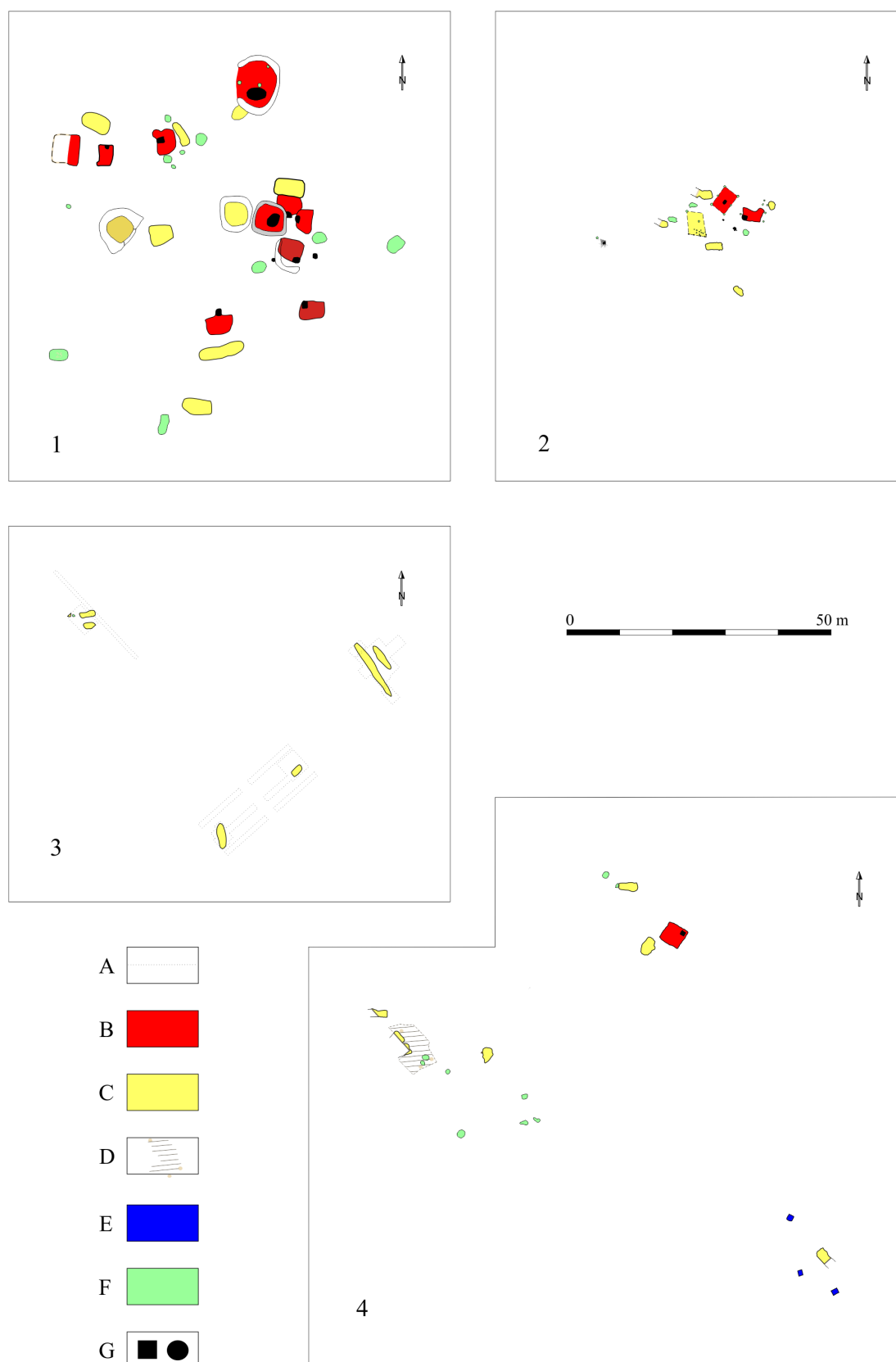


Fig. 4. Early medieval settlements in northwestern Romania, investigated too neextent or another, and clues to their internal organization. 1: Porț-La baraj, Sălaj County (Matei, Băcuet-Crișan 2011). 2: Lăpușel-Ciurgău, Maramureș County (Stanciu 1994). 3: Popeni-Pe pogor, Sălaj County (Băcuet-Crișan 2006). 4: Lazuri-Lubitag, Satu Mare County (Stanciu 2016a). A: the limit of the researched area (it was only sometimes specified). B: dwellings (with heating facilities). C: structures with certain economic functions. D: structures with a supposed economic role, built on the old ground level of the settlement. E: wells. F: smaller pits (for supplies, garbage or other purposes), including post pits. G: fire devices inside dwellings or positioned in an open area.

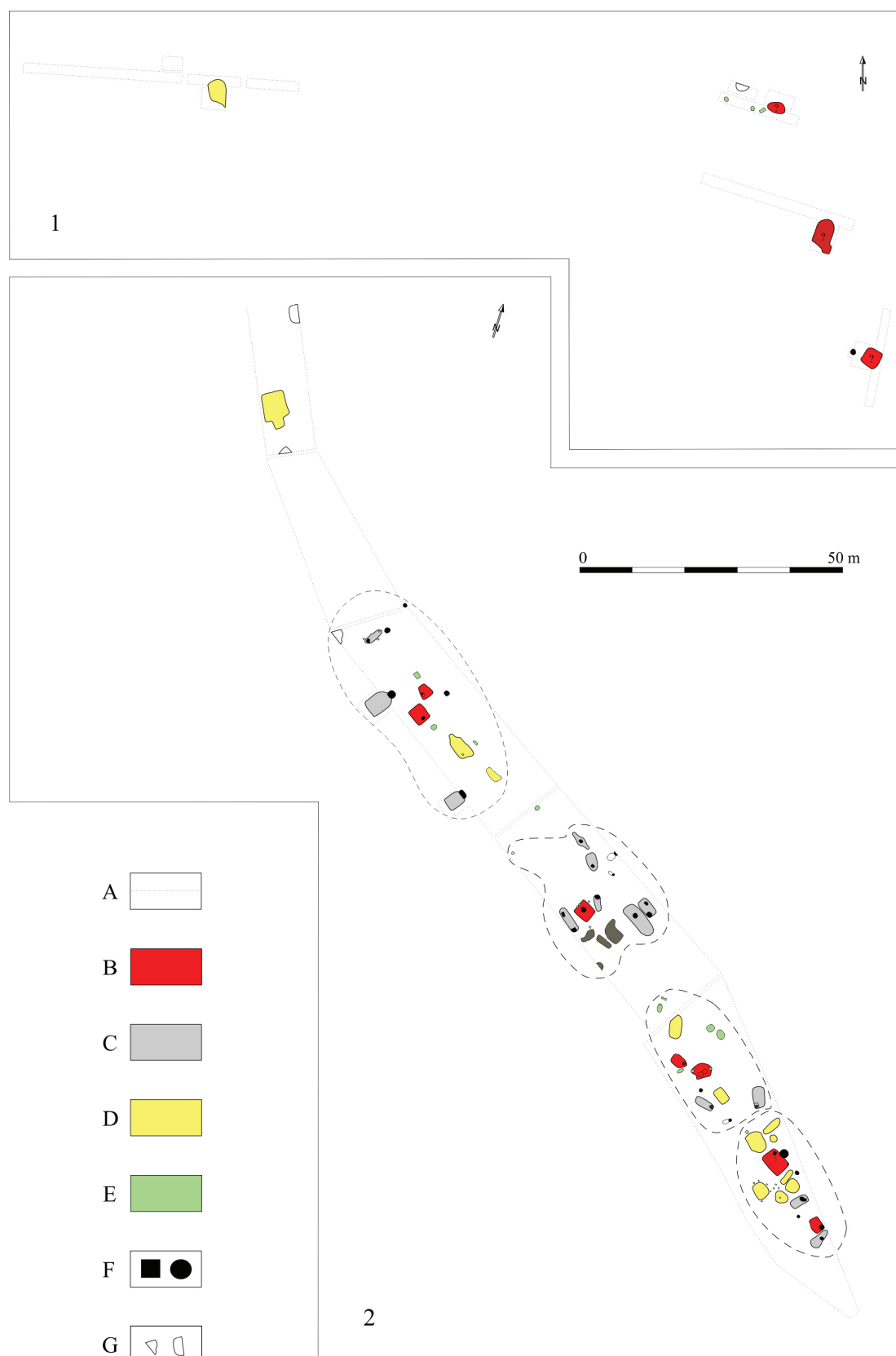


Fig. 5. Early medieval settlements in northwestern Romania, investigated too neextent or another, and clues to their internal organization. 1: Cuceu–Valea Bochii, Sălaj County (Băcueț-Crișan 2006). 2: Aghireș–Sub pășune, Sălaj County (Băcueț-Crișan *et al.* 2009). A: the limit of the researched area. B: dwellings (with heating facilities). C: structures probably with mixed functions (possibly also seasonal housing), have a fire installation or oven hollow in the wall; usually with different shapes and smaller sizes compared to the dwellings. D: structures with certain economic functions. E: smaller pits (for supplies, garbage or other purposes), including post pits. F: fire devices inside dwellings or positioned in an open area. G: partially excavated structures of uncertain function.

sites with funeral finds, respectively cremations<sup>19</sup>) evidence significant changes, first of all obvious demographic growth. When compared the two periods are sensibly different, one century, on one hand, compared to at most three centuries, on the other. If the first phase spans two or three generations, the second is at least double as per this hypothetical calculation. Without reasonable evidence whether these multiple generations of inhabitants directly succeeded one another on site, but not necessarily on the spot of the same settlement, significant demographic growth must be recognized along with economic progress, first of all of agriculture.

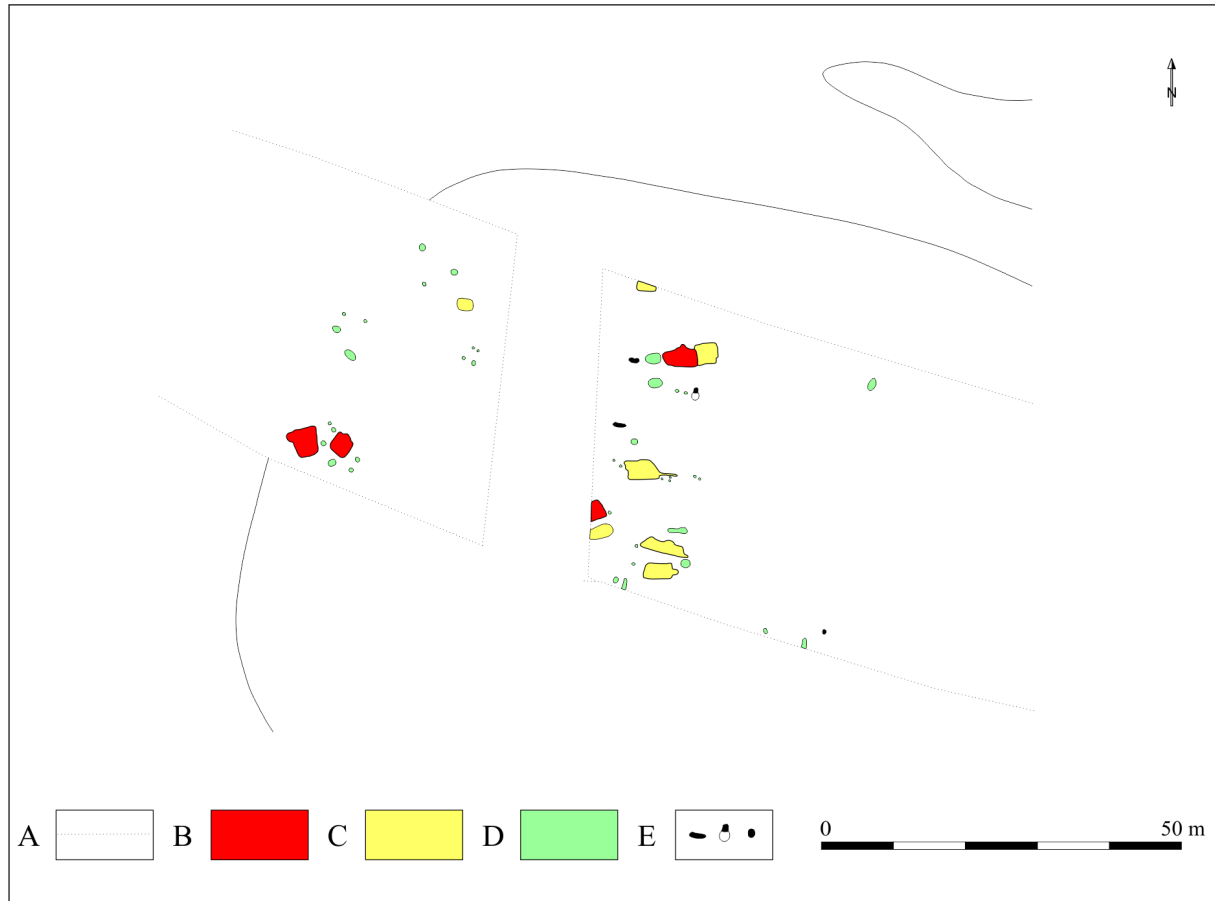


Fig. 6. Early medieval settlements in northwestern Romania, investigated too neextent or another, and clues to their internal organization: Marca–Sfârâuaş, Sălaj County (Băcuet-Crişan, Bejinariu2020). A: the limit of the researched area. B: dwellings (with heating facilities). C: structures with certain economic functions. D: smaller pits (for supplies, garbage or other purposes), including post pits. E: fire devices inside dwellings or positioned in an open area.

The chronological framing of various remains, respectively the effort to specify shorter time periods remains an essential approach. On this path emerge additional opportunities to compare time evolutions and even horizontal differences. Just like in many other regions, dates in case of early medieval settlements were supported by the already overstressed pottery, its technological features, morphology and decoration, yet results obtained so far are unsatisfactory.<sup>20</sup> The second half of the 7<sup>th</sup> century remains vaguely visible, as more secure chronological segments for the following periods are still expected, with the inciting example of the 9<sup>th</sup> century, respectively its definition by contrast to the previous and following century. Such expectations depend today on the support of alternative dating methods.<sup>21</sup>

<sup>19</sup> Stanciu 2011, 111 fig. 18, follow also the catalogue and Stanciu 2023, 70 fig. 2. As for the whole region of Upper Tisza, there are thirty-one settlements and three sites with burial finds (Stanciu 2023, 70 fig. 2).

<sup>20</sup> In relation to north-western Romania, examples: Stanciu, Matei 1994; Stanciu 2000a; Băcuet-Crişan 2014, 64–78; Stanciu 2016a, 86–227; Stanciu 2019; Băcuet-Crişan, Bejinariu 2020, 51–54; Stanciu 2021.

<sup>21</sup> The result of a single radiocarbon sample from Marca–Sfârâuaş shows interval 662–776 (Băcuet-Crişan, Bejinariu 2020, 71).

## Artefact records

### **Tillage and harvesting tools** (Fig. 7)

Although objects of the sort are few (iron made), they are essential evidence of tillage, respectively of grain crops. Primarily ploughshares are noteworthy, with only two specimens known in the examined geographical area to date. One is from the from Lazuri–Nagy Béla rét settlement,<sup>22</sup> farmable to J. Henning's A<sub>1</sub> type, defined by triangular blade and open-socket for attachment, separated from the active side by marked crests; it is 12.7 cm long (Fig. 7/1).<sup>23</sup> The asymmetrical shape of its active side is less established, as one of the blade edges did not survive complete.<sup>24</sup> It is also uncertain whether asymmetrical ploughshares had already been in use during the first half of 1<sup>st</sup> millennium AD, although this may be verified in certain early medieval specimens of the 7<sup>th</sup> – 8<sup>th</sup> century, examples known from Romania, for instance, being dated between the 8<sup>th</sup> – 11<sup>th</sup> century<sup>25</sup> or the 10<sup>th</sup> – 11<sup>th</sup> century in the case of the east-Carpathian territory.<sup>26</sup> As for the other specimen, from the Ghenci settlement,<sup>27</sup> it is similar to variant A<sub>4</sub> Henning, because the open-socket for attachment is modelled in extension of the active side edge (Fig. 7/2).<sup>28</sup> It has a simpler shape, such ploughshares being less spread in south-eastern Europe during the first millennium AD, while between the 8<sup>th</sup> – 9<sup>th</sup> centuries their presence seems to have been more consistent on the territory of today's Bulgaria.<sup>29</sup> In general, more accurate dating of iron implements is difficult owing to their functional shape and prolonged use.<sup>30</sup>

An iron hoe dated to the early medieval period and discovered in unclear context (possibly grave) at Săcueni–Dengheleghiu, Bihor county (Fig. 7/5) may be connected to secondary tillage.<sup>31</sup> Quasi-identical, another implement of this kind was reported in the Porț–La baraj settlement (Fig. 7/6).<sup>32</sup> Such lighter hoes, of not much different shapes, were more suitable for gardening and small plot areas (for removing weeds, loosening earth), although they could also be used for other purposes, for instance, digging holes. Many come from tool and weapon storages, being constantly used during the first millennium AD.<sup>33</sup>

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Because of its condition, a dendrological sample obtained from one of the wells at Lazuri–Lubitag (oakwood missing recent rings) indicates the tree was cut in the 8<sup>th</sup> century or early 9<sup>th</sup> century (Grynaeus, Tóth, Botár 2015 and comments in Stanciu 2016a, 56 with footnote 164.

<sup>22</sup> Lazin 1981–1982, 137–138 with fig. 1.

<sup>23</sup> Henning 1987, 43 fig. 13, 48–57, pl. 13–18/A1. Among examples from a region near north-western Romania, identical specimens to that of Lazuri, including by size, were found in a tool storage from Čebovce, southern Slovakia (Točík 1983, 217 fig. 4). The Lazuri–Nagy Béla rétis settlement lies in the near vicinity of the Lazuri–Lubi tag settlement, possibly both being segments of the same site. The suggested date is the 8<sup>th</sup> century and first half of the 9<sup>th</sup> century (Stanciu 2016a, 228–229, 232–233, 230 fig. 194/1, 284 no. 68).

<sup>24</sup> The relative asymmetry of the ploughshare's blade may be noted, paralleled in specimens thus classified. See Bilavschi 2016, for example, p. 450 pl. XXII/3–4 and p. 451 pl. XXIII/1–4. However, the more or less obvious blade asymmetry could be due to the wear of the ploughshare side more extensively used (Neamțu 1975, 67), which entails their use in harder soils (Bilavschi 2016, 110).

<sup>25</sup> Henning 1987, 51–56; Olteanu 1983, 69; Paraschiv–Talmațchi, Custurea 2008. An older list of finds from Romania (ploughshares type A.1 Henning) in Canache, Curta 1994, 204–205, list of finds no. 1–18 (with the possibility that most finds of the sort date to the 8<sup>th</sup> – 9<sup>th</sup> century). In today's Slovakia, symmetrical or asymmetrical ploughshares were in use starting with the 8<sup>th</sup> century (Točík 1983, 212–213). From this date on, in Central Europe ploughs with different types of accessories begin to be used, intensified and perfected farming techniques being encouraged by the Byzantine environment (Beranová 1984, 31). Also, it is likely that asymmetrical ploughshares were used since the last quarter of 1 millennium AD on the territory of today's Ukraine (Gorbanenko, Pashkevich 2010, 110).

<sup>26</sup> Bilavschi 2016, 110.

<sup>27</sup> Némethi 1992–1993, 60, 62, 73 fig. 10/3.

<sup>28</sup> Henning 1987, 43 fig. 13, pl. 20.

<sup>29</sup> Henning 1987, 51–53 fig. 19–21.

<sup>30</sup> Henning 1987, 42 and La Salvia 2011, 241 fig. 10. It is noteworthy that many ploughshares of the sort belonged to storages containing a wide range of implements.

<sup>31</sup> Cosma 2002, 222 no. 177, 559 pl. 222/1.

<sup>32</sup> Matei, Băcuet–Crișan 2011, 140 pl. 56, 188 pl. 104/1. It is not excluded this was a small storage, perhaps hidden in an abandoned building (feature C.17/2007), because it was found together with a supposed hammer, a chisel, a clamp and fragments of iron blades (Matei, Băcuet–Crișan 2011, 140–141 pls. 56–57).

<sup>33</sup> Henning 1987, 81–86, pl. 50/29–32, pl. 51/1–26 (typ K<sub>10</sub>); Gorbanenko, Pashkevich 2010, 127, 128 fig. 4.18.34–35. See also Bilavschi 2016, 137–138 (type D2a). From Romania many such specimens have been dated since the La Tène and Roman periods, no 5<sup>th</sup> – 8<sup>th</sup> century examples being reported, likely because of “insufficient investigations”; they reappear in storages from the 9<sup>th</sup> century (Comșa 1980, 171, 174 fig. 6/1–6; Bilavschi 2016, 137–138, 141 fig. 6).

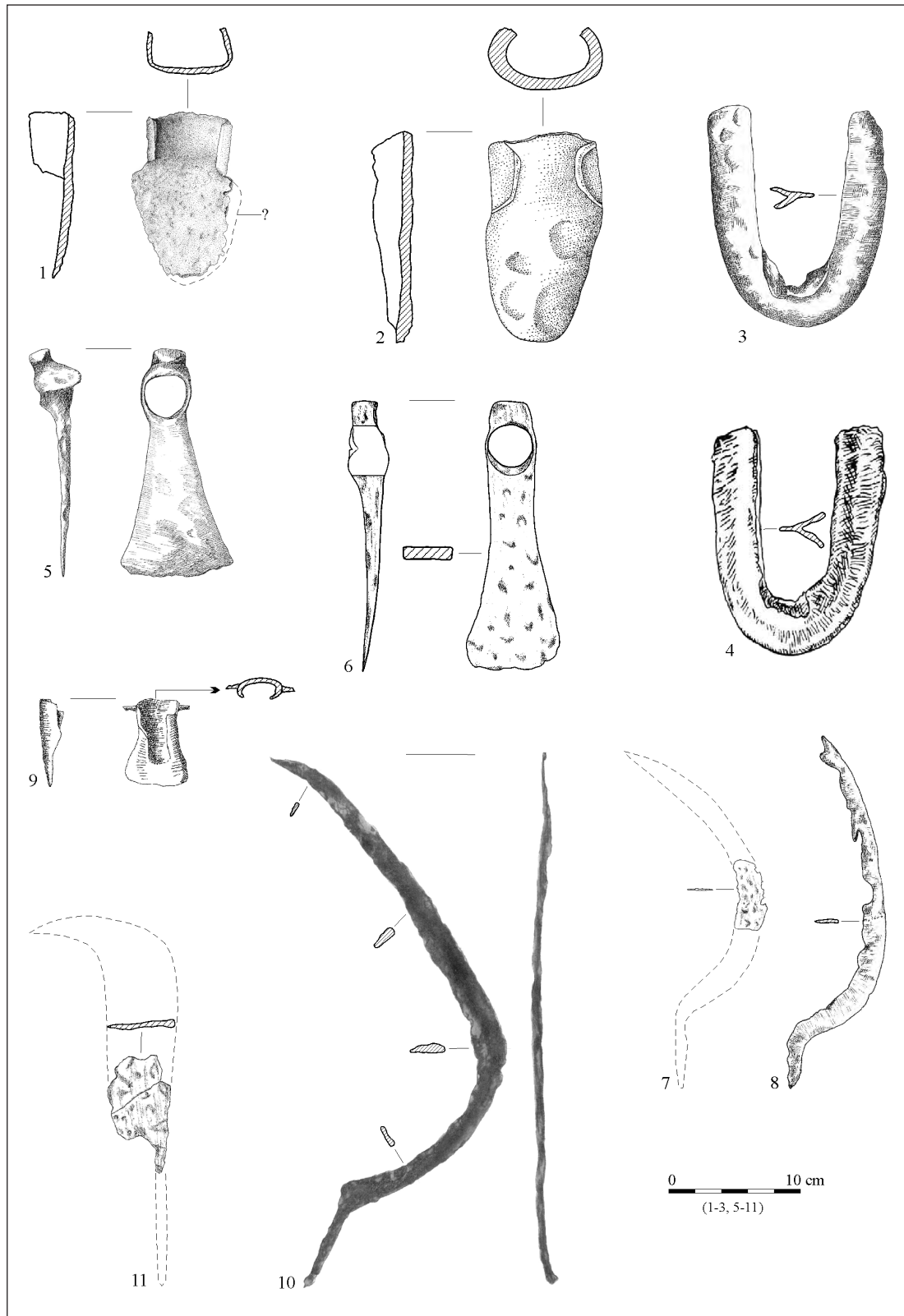


Fig. 7. Farming tools (iron), for those indicated with nos. 6 and 9, hypothetical reconstructions are proposed, and no. 6 could be used for wood processing. 1: Lazuri–Nagy Béla rét/Râtul boilor (Satu Mare County), trench SIII/1979 (source: Lazin 1981–1982). 2: Ghenci–Lutărie, pit no. 3/1986, Satu Mare County (source: Némethi 1992–1993). 3: Cheșereu, settlement (?), stray find (?), Bihor County (source: Cosma 2002). 4: Curtuiușeni–Ligetdomb, Bihor County (source: Roska 1942). 5: Săcueni–Dengheleghiu, Bihor County, possibly grave (source: Cosma 2002). 6, 7, 10: Porț–La baraj, Sălaj County, features C.17/2007 (5) and C. 19/2007 (6, 10) (source: Matei, Băcuet–Crișan 2011). 8: Sălacea–Dealul Vida, Bihor County, settlement (?) (source: Cosma 2002). 8: Valea lui Mihai–Rétaľj, Bihor County, grave (source: Némethi 1983). 10: Oradea–Salca ‘Ghețarie’ (Petrom Gas Station), Bihor County, pit G. 1/2000 (source: Băcuet–Crișan, Fazecaș, Marta 2017). 4 - without exact dimensions.



The iron frame of the active side of a wooden spade was found in a settlement or is a stray find from within the Cheşereu town limits (Fig. 7/3).<sup>34</sup> Another fitting of the sort, identical to the above, was reported a long time ago at Curtuiuşeni-Ēgetóhegy, in the same microarea from Bihor county (Fig. 7/4).<sup>35</sup> Already known prior to the early medieval period, such spades were used especially for gardening or vineyard maintenance, rarely for working farming and more stretched plots.<sup>36</sup> Ethnographic parallels prove the use of hard wood spades until the modern period.<sup>37</sup> Iron fittings (“spaten förmige Eisenbeschläge”, group D<sub>1</sub> in J. Henning) reinforcing the active side of wooden tools were widely spread in south-eastern Europe during the 8<sup>th</sup> – 10<sup>th</sup> century, clustering in the proto-Bulgarian milieu but also in the Avar Khaganate.<sup>38</sup> This chronological framing refers to a more restricted timeframe, as wooden spades with iron reinforced active sides continued to be used, even though with slight changes over time.<sup>39</sup> It is likely that not all specimens were used as spades per se, since the depth of crest on the inner part of frame which allowed attachment to the wooden support rarely exceeds 1 cm (such as in the case of specimen from Cheşereu), so that the tool was more suitable to go through the soil and move horizontally to the front. Hence the supposition that some of these fittings could be used in connection with a device such as the plough, to reinforce the ploughshare.<sup>40</sup>

The grave goods of an Avar warrior from Valea lui Mihai-Rétalj also comprised a sort of axe or adze, with trapezoidal blade and two sideway fins in the upper part of the socket, obtained by bending the iron sheet without edge touching (Fig. 7/9).<sup>41</sup> In the Carpathian basin such tools were found especially in graves from the Avar Khaganate that sometimes belonged to horsemen, but other specimens come from settlements as well. Their functionality remained unclear, being explained as axes/adzes for timber working, sometimes as small hoes, possibly used for weeding. Also, their frequency was noticed north of Caucasian Mountains and in the Altai Plateau.<sup>42</sup> Their presence among the nomad populations in the east would make more likely their use as tools for timber working in smaller specimens similar to a chisel attached to a wooden handle. Their multi-functionality may be taken into account. From Ukraine early medieval parallels are known for the specimen of Valea lui Mihai (including some close in sizes, except the two symmetrical “fins”), and their frequency in graves was justified by use in excavating burial pits, although their use including in connection with plant cultivation was also presumed.<sup>43</sup>

Similar to other iron made tools or objects, sickles were rarely found in settlements from north-western Romania. A possible specimen is evidenced by a fragment discovered in the Porţ-La baraj settlement (Fig. 7/7).<sup>44</sup> Other two specimens were reported at Sălacea-Dealul Vida/Vidahegy/Burgatető,<sup>45</sup> but without knowing if they come from the partially investigated 10<sup>th</sup> – 11<sup>th</sup> century there or its

<sup>34</sup> The artefact comes from a private collection and is kept in Săcueni Museum. Its date to the 8<sup>th</sup> – 10<sup>th</sup> century was proposed with reserves (Cosma 2002, 185 no. 63, 559 pl. 222/2).

<sup>35</sup> With reference to Celtic origin burial finds, this fitting was explained from the very beginning in connection with a wooden spade (Roska 1942, 81 with fig. 98/3). It was published beside three shield bosses, the latter dated to the 3<sup>rd</sup> century AD (Bóna 1961, 200 with footnote 65), but its framing to the 4<sup>th</sup> century is more secure (Bóna 1971, 274; Párducz 1974, 199; Istvánovits, Kulcsár 1992, 81–82). See also Stanciu 2008, 156–157. J. Henning had reported the artefact, the findspot being erroneously identified (Curtuiuşu, Valea Chioarului commune, Maramureş county), specifying its provenance a cemetery of the 6<sup>th</sup> – 7<sup>th</sup> century, but such dating was questioned and the early medieval period suggested instead (Henning 1987, 75, 121 no. 113, pl. 29/1).

<sup>36</sup> Henning 1987, 70. See also Neamţu 1972, and Bilavschi 2016, 142–153. There is no doubt that such tool was used for other purposes as well, for instance, it was more suitable to excavate wells. In the case of the wells from the early medieval settlement of Lazuri-Lubitag, on pit walls where the wooden structure was successively erected the traces of such a spade were clearly visible, respectively its active side (approx. 15 × 20 cm), but we do not know if it was fully wooden or reinforced with an iron frame. See Stanciu 2016a, 55–56 with footnote 162.

<sup>37</sup> Bilavschi 2016, 147, with references to bibliography in footnote 726.

<sup>38</sup> Henning 1987, 72, 74 with fig. 32, 76, pls. 28–29 (group D<sub>1</sub>).

<sup>39</sup> Kralovánszky 1962, 117–118, 124; Neamţu 1972; Bilavschi 2016, 144–153.

<sup>40</sup> Henning 1987, 73–75.

<sup>41</sup> Némethi 1983, 147 fig. 8/1.

<sup>42</sup> Garam *et al.* 1975, 273.

<sup>43</sup> Gorbanenko, Pashkevich 2010, 128 fig. 4.18/1–14.17–29, 127–130, 248–252.

<sup>44</sup> Matei, Băcuet-Crişan 2011, 144 pl. 60/3.

<sup>45</sup> A published specimen (Fig. 7/8) and a second identified in the repository of Țării Crişurilor Museum from Oradea. With references to previous bibliography see Cosma 2002, 223 no. 179, 560 pl. 223/12. This author agrees that both sickles could originate from a settlement dated to the 10<sup>th</sup> century. In Henning 1987, 116 no. 36, Kralovánszky 1962 was quoted,

presumed corresponding settlement, located nearby.<sup>46</sup> Along with a more recent specimen reported in a house investigated at Oradea–Salca ‘Ghețârie’ (Bihor county, but an area bordering that of interest here –Fig. 7/10),<sup>47</sup> the sickle published from Sălacea (Fig. 7/8) may be included among the variants of group H<sub>1</sub> Henning, with balanced shape, namely the handle oriented towards the blade’s weight point, which eased its use.<sup>48</sup> Compared to the 5<sup>th</sup> – 7<sup>th</sup> century, the 8<sup>th</sup> – 10<sup>th</sup> century sickles are significantly higher in numbers, while the older mapping operated by J. Henning shows cluster areas in the Avar Khanagata and neighbouring Moravia in north-west, and the Lower Danube region.<sup>49</sup> Many specimens come from hoards, along with other tools or weapons and are also frequent among the burial finds. For the Carpathian Basin and burial finds, relatively many sickles are indicated as coming from the Avar Khaganate area because in the 9<sup>th</sup> century finds of the sort clustered in Moravia and south-west of Slovakia; graves with sickles are significantly fewer during the 10<sup>th</sup> century and the following period.<sup>50</sup>

One should also mention a tool likely used in connection with fruit growing. From the settlement at Porț–La baraj comes a fragment of an iron object whose reconstructed shape points to a tool similar to a pruning knife or billhook (Fig. 7/11).<sup>51</sup> Such knives were used to maintain vines<sup>52</sup> and fruit trees and to harvest fruits. Previous observations mention that 8<sup>th</sup> – 10<sup>th</sup> century specimens were mainly distributed in the north-west of the Balkan Peninsula.<sup>53</sup> These knives with curved blade were rather universal implements, as they could be efficiently used to cut wigs, branches or in connection with other domestic activities.<sup>54</sup>

### **Quern-stones (for hand-grinding)** (Fig. 8)

The importance of grains for the nutrition of the early medieval population and concurrently, their cultivation on lands that did not excel in fertility such as most soils in north-western Romania is evidenced by the relatively frequent finds of rotary hand-grinding quern-stones especially in settlements where archaeological excavations were more extended.

In the Porț–La baraj settlement was identified an almost intact specimen of the upper rotary part of a quern-stone (Fig. 8/6).<sup>55</sup> Other fragments more certainly belonged to the fixed segment, on which the stone above turned (*meta*) (Fig. 8/8–9.11). These were occasionally found in front the ovens inside the houses, which means that after disuse these were used to cover the stoking hole of the fire device, such as the case of an intact specimen from the early settlement of Zalău–Farkasdomb<sup>56</sup> or in general, the construction of stone ovens. Similarly, in the Lazuri–Lubitag settlement, determinable fragments exhibit, without exception, traces of strong firing, while those in feature 40/2001 counted among other stone pieces from the oven structure.

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mentions a sickle found in 10<sup>th</sup> century grave from Bezded, the current county of Sălaj. The location is incorrect, although village Bezdead/Bezded (Gârbou commune, Sălaj county) exists in north-western Romania, yet the Romanian archaeological literature there is no information on a possible early medieval cemetery there. In fact, A. Kralovánszky does not indicate the information source and a very serious examination of these finds in Transylvania and western Romania does not record the assumed site (Gáll 2013). Confusion with town Tiszabездé from north-eastern Hungary (north of town Kisvárda) is clear, because such burial finds had already been reported there (Gáll 2013, 616 footnote 931, with bibliography quoting).

<sup>46</sup> In connection with the graves there, their dating and other issues, see consistent comments in Lakatos-Balla 2008 and Gáll 2013, 459–463.

<sup>47</sup> Băcuet-Crișan, Fazecaș, Marta 2017, 217–218, 228 pl. 8. Also from a microarea bordering to the south the area discussed here, another sickle comes from the Râpa–Sub pădure/Câmpul de sus settlement (Bihor county), dated by pottery to the 8<sup>th</sup> – 9<sup>th</sup> century (Cosma 2002, 2016 no. 156).

<sup>48</sup> Henning 1987, 87, pls. 38–39 (H<sub>1</sub>).

<sup>49</sup> Henning 1987, 89 fig. 43.

<sup>50</sup> Stadler 2005, 146 pl. 181 and Somogyi 1982, especially figs. 1–3. In north-western Romania, two sickles were found in a barrow grave investigated in 1879 in the Nușfalău cemetery (Torma 1880, 111).

<sup>51</sup> Matei, Băcuet-Crișan 2011, 144 pl. 60/4.

<sup>52</sup> The observation resulted from pollen tests from the Iaz marsh (Sălaj county), at only 15 km away from the Porți settlement, is interesting, important and surprising at the same time, and that between AD 271–900 the domestic vineyard dominated (Grindean, Lăzărescu *et al.* 2015, 113, 116 tab. 3, 123).

<sup>53</sup> Henning 1987, 93–96, 95 fig. 46, pls. 35–36 (types G<sub>1a</sub>, G<sub>1b</sub> and G<sub>4a</sub>).

<sup>54</sup> Henning 1987, 93.

<sup>55</sup> Matei, Băcuet-Crișan 2011, 150 pl. 66/2 (feature 20). Diameter estimated around 35 cm.

<sup>56</sup> Stanciu 2011, 395, 788 pl. 177/4.

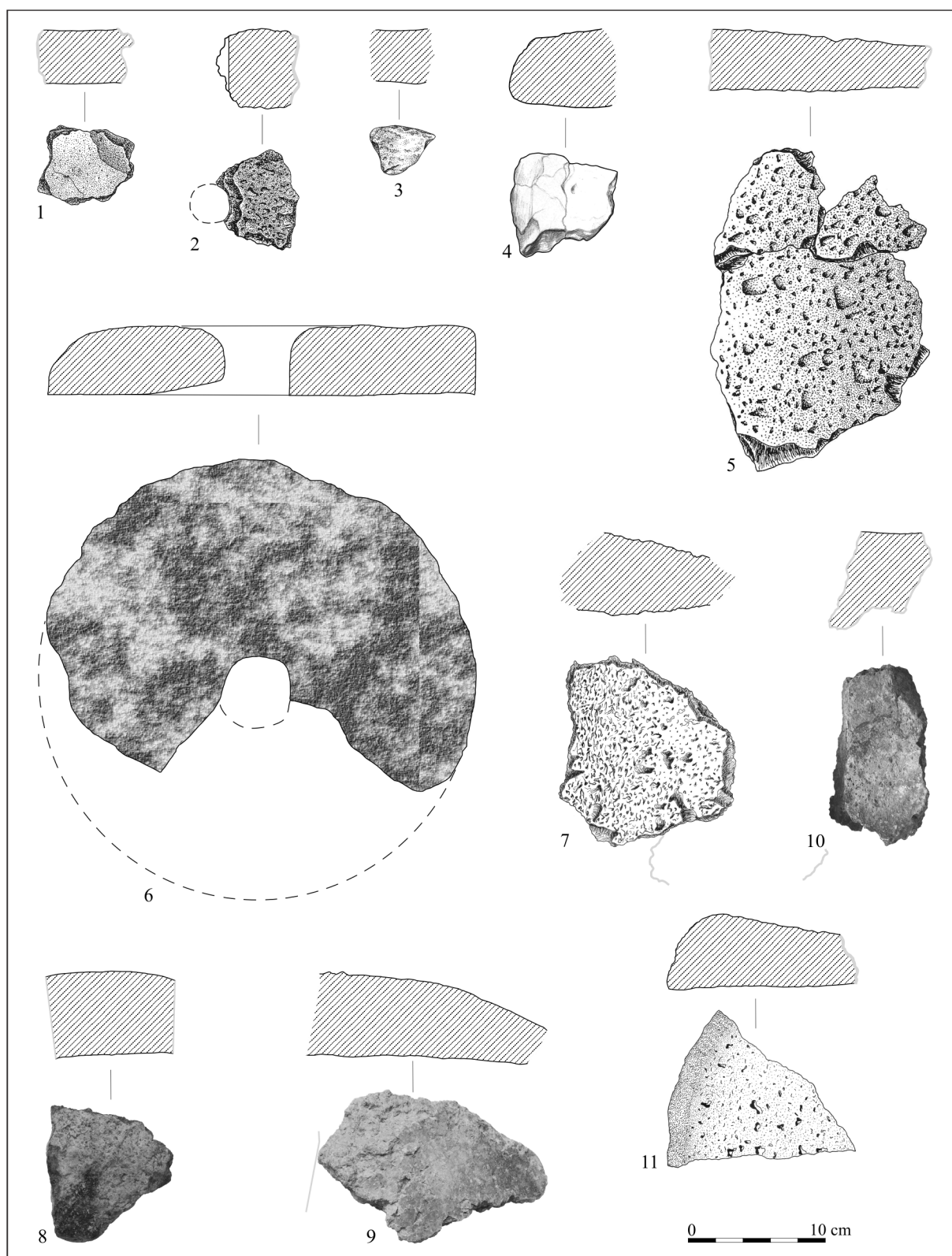


Fig. 8. Fragments of quern-stones found in settlements from North-West Romania. Lazuri-Lubi tag: features 72/1995 (1–2), 233/2002 (3), 15/1995 (4), 40/2001 (8–10) (source: Stanciu 2016a). 5: Popeni-Pe pogor, destroyed features (after Stanciu, Matei 1994). 6: Porț-La baraj, feature 20 (after Matei, Băcuceț-Crișan 2011). 7: Lăpușel-Ciurgău, dwelling 2 (source: Stanciu, Matei 1994). 11: Berea, from the layer (source: Stanciu 1998b).

Some quern-stone shapes remained unchanged from Antiquity until the medieval period or even times closer to that modern,<sup>57</sup> with regional differences noted in terms of form and construction of

<sup>57</sup> E.g. Parczewski 1993, 81.

the entire device.<sup>58</sup> Specimens from north-western Romania belong to group I Minasian, with each of the two components shaped as a flattened cylinder, emerging or more spread during the 6<sup>th</sup> century AD.<sup>59</sup> The importance of these quern-stones is obvious, although the raw material was not available in all regions. Those of Lazuri were made of tuff, existing in Oaş-Gutâi Mountains, at about 50 km eastwards. Most advantageous from this point of view were settlements close to Moigrad area, where dacite, also a hard volcanic rock was found.<sup>60</sup> It is believed they were made by skilled persons, with adequate tools and necessary experience, more likely in the context of a craft already specialized in such production.

### **Clay pans** (Figs. 9–10)<sup>61</sup>

The specific function of these “pans” modelled without the potter’s wheel<sup>62</sup> is evidenced their circular shape, with short walls and base usually thickened centrally (Fig. 9). They were used for a long time in various environments and regions and served for yeast-unleavened round flat breads.<sup>63</sup> For instance, in north-eastern Transylvania, at Deda and a few nearby villages, clay pans or “lespezi” (in Romanian) identical to the early medieval clay pans, made of clay rolls, on a primitive wheel, occasionally even by hand, were still made by early 20<sup>th</sup> century.<sup>64</sup>

Because they were frequently found in settlements of the Avar Khaganate, clay pans were identified beside baking bells, then the two ceramic forms seem to have diffused simultaneously in the Carpathian Basin, their sizes being similar (usually the base diameter of the baking bells is larger), it was sometimes assumed that clay pans were used together with baking bells, as supports of the latter. They would also been used to bake bread, but also other food, such as the meat.<sup>65</sup> The same may

<sup>58</sup> Leube 2009, 42 and Minasian 1978.

<sup>59</sup> Minasian 1978, 103–104, 104 fig. 1, 109–110 and Beranová 1980, 207–215, 211 fig. 70/1–4. Quern-stones in section shaped as a flattened semicircle, just like Fig. 8/5–9.11, for example, in the Late Avar settlement of Hajdúnánás–Feketehalom, not far from those in north-western Romania (Bajkai 2015, 61 fig. 11/3). For the use of early medieval quern-stones and their efficiency, see Beranová 1993, 114–115.

<sup>60</sup> Specialised determination of the early quern-stones of Zalău–Farkasomb (second half of the 6<sup>th</sup> century – first half of the 7<sup>th</sup> century). See also Stanciu 2011, 277 footnote 1523.

<sup>61</sup> In the Romanian archaeological literature these are named “tipsii” or “tăvițe” (plural). Sometimes, these were called ‘tigăi’ (Teodor 1978, 28, 82), with the English correspondent “pans” and recently “dish-plates”, a term opposed to their commonly recognized function (Teodor E. S. 2003, 327). According to *Dicționarul Explicativ al Limbii Române* (eds. I. Coteanu, L. Seche, M. Seche, R.S.R. Academy Press, Bucharest, 1984), p. 940 and 956, referencing metal made pans, in Romanian the name is of Turkish origin (*tepsi*). In north-western Romania emerges the regional pronunciation *tepșe*, but also *tăpșie*, with reference to a word from Hungarian (*tepsi*, just like in Turkish). See also Farcaș 2012, 136. In Transylvania, north-western Romania, likely in other regions as well, people have used the term *lespede* to date, which also refers to a metal baking vessel, with a body identical to clay pans, but provided with a long handle. Clay pans made in Deda (north-eastern Transylvania) until today are called *lespezi* (Diaconescu 2011, 39). The term references an ancestral practice, the baking of flat-breads on stone slabs, heated on fire (for instance, Mohs 2004, 11–14, 23–24, 24 fig. 19). Just as well could be used the clay disks, from which clay pans derived, especially since such disks were found together with clay pans (the Zarubintsy and Kiev cultures). References to the discussion and arguments against such explanation in Curta 2016, 154–156. For the use of clay disks comparable to clay pans see also Vida 2016, 391. Essentially, some clay pans having barely outlined walls may be deemed such stone slabs. For instance, the 6<sup>th</sup> – 7<sup>th</sup> century settlements of Davideni (Mitrea 2001, 344 fig. 83/14, 359 fig. 98/6, 360 fig. 99/7, 363 fig. 102/3 etc.), Groșșani–Gura Gurgotei (Popilian, Nica 1998, 169 fig. 17/5, 172 fig. 20/2) or Botoșana (Teodor 1984b, 128 fig. 49/1).

<sup>62</sup> In north-western Romania only one example of a clay pan made by the slow turning wheel, in the Bobota–Pe vale settlement (Băcuet–Crișan 2010, 31, 70 pl. 14/3. A comment in Stanciu 2016a, 168, with footnote 589.

<sup>63</sup> In connection with these 6<sup>th</sup> – 7<sup>th</sup> century clay pans, recent important contributions in Curta 2016 and Curta 2017, with suggestions on their social significance in the period. In connection with the presence of this ceramic form in the early medieval settlements of north-western Romania detailed examination may be found in Stanciu 2016a, 107–114, Stanciu 2017a, and Stanciu 2017b. According to one view, these were used in the Slavic environment in connection with baking leavened wheat bread (Vida 2016, 391), yet this would have required a closed environment, namely heat above and beneath, just like in ovens (Herrmann 1986, 270; Krauss, Jeute 1998, 515; Ghenescu 2002, 81 footnote 6). However, ethnographic parallels point to such possibility, where two overlapped claypans were used (Vida 2016, 391).

<sup>64</sup> Diaconescu 2011, 39, no. 1501–1503 etc. (with descriptions in catalogue). These were used for baking pies. Also, almost until nowadays such clay pans were used in Bosnia, Macedonia and Bulgaria for baking flat-breads (Curta 2016, 162–163). Those from the Rodopi Mountains region (*șac*, name of Turkish origin, designating the baking tray or the pan) were used for the preparation of a regional specialty, similar to the omelette (Krauss, Jeute 1998, 513, 519 footnote 24). Likely, occasionally, the Deda clay pans were also used for this purpose (Diaconescu 2011, 38–39).

<sup>65</sup> Vida 2016, 369–370, 391. See also Erdélyi, Szimonova 1985, 387. Use of clay pan lids would be meaningless inside domed ovens, since heat came from above, exhausted by oven walls (Pleterski 2008, 142).

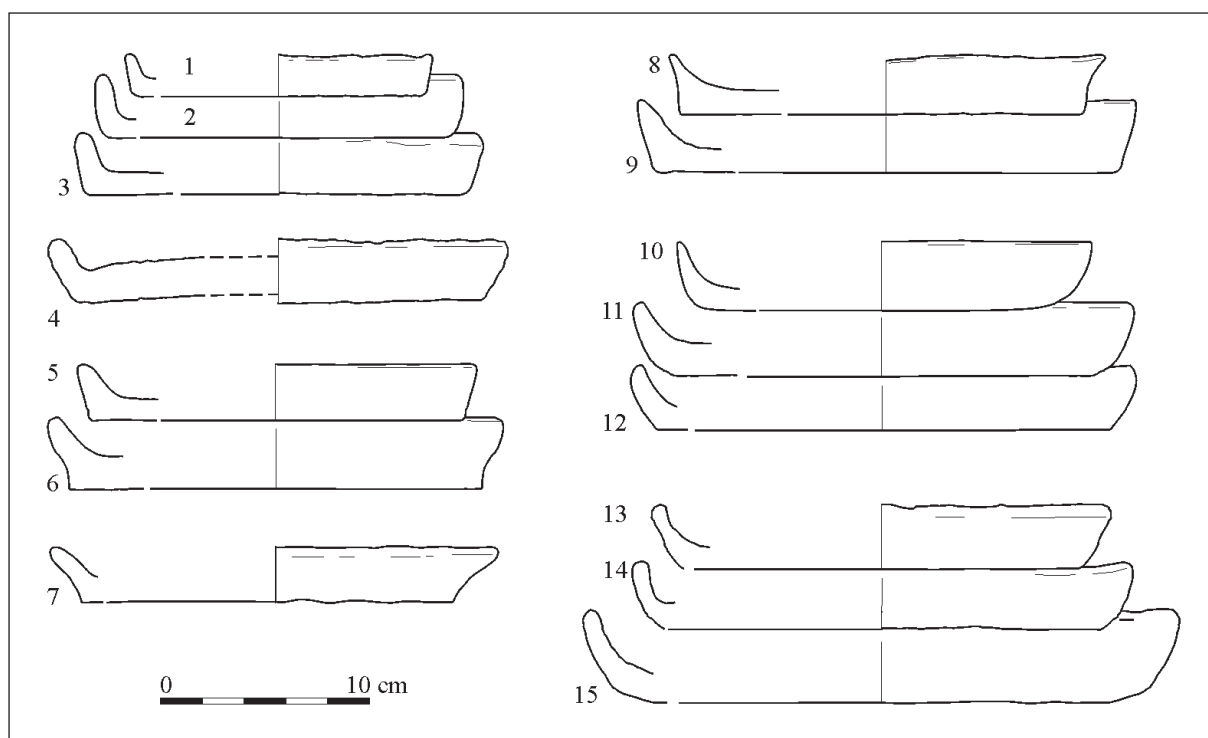


Fig. 9. With a relative morphological classification, examples of clay pans from the settlement in Lazuri-Lubitag, features: 15/1995 (1, 8); area 10/1995 (2, 5, 7, 10); 24/1995 (3); 39/2001 (4); 72/1995 (6, 11-12); 1/1995 (9); 45/2001 (13-15). Source – Stanciu 2016a.

be noted in the settlements from north-western Romania, baking bells and clay pans being found together in the same contexts, above explanation being applicable for this geographical area as well (Fig. 11).

Usually, clay pan modelling was rather crude. Rim heights vary sometimes in the same specimen, seldom with more careful surface finishing. They were fired under the same conditions as handmade pots, most being orange.<sup>66</sup> Evidence of direct contact with fire, almost without exception, traces of secondary firing are visible on the external side of the base and by the base of the walls. In the Lazuri-Lubitag settlement, two thirds of the restorable items had a diameter between 18-25 cm, those with a diameter between 26-30 cm being significantly fewer, while exemplars with a 9-14 cm diameter being rare.<sup>67</sup> The first two groups are important, and size differences among the exemplars thus distributed are not very high.<sup>68</sup> The smallest clay pans are almost miniatures and their base was not fired

<sup>66</sup> In the Lazuri-Lubitag settlement, clay was commonly mixed with crushed shards or grog, exemplars whose fabric contained more or less fine grained sand being few; although to a small proportion, the presence of crushed shells mixed with limestone grains and crushed shards is interesting. It is also noteworthy that all fabric types are present in pots, yet the sand mixture seems to have been more frequently used. Although area differences are difficult to explain, the situation is reversed in the Lăpușel settlement, where only 25% of clay pan fragments contain crushed shards, while exclusively the sand mixture was reported in the settlements from Silvania Depression. For all these notes see also Stanciu 2016a, 108 with fig. 76.

<sup>67</sup> Stanciu 2016a, 108, 109 with fig. 77

<sup>68</sup> Size variability is one of the arguments in the support of the proposition that during the 6<sup>th</sup> – 7<sup>th</sup> century, clay pans were produced and used only on certain occasions (Curta 2016, 159). But size differences are relative. Flat-bread sizes are generally related to the palms' area of their makers (Pleterski 2008, 56, 142). The flat-breads or small breads were too small to suffice for an entire family's meal; on one hand, much too larger hearts would have been requested within the houses, while on the other, too much time to prepare sufficient quantities. Hence, this would mean that clay pans were used only on certain occasions. See also Pleterski 2008, 142. The explanation is questionable, at least from the point of view of the ratio between clay pan sizes and the useful oven area. A simulation applied to ordinary ovens from second half of the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century dwellings (north-western Romania), taking into account clay pan sizes with diameter of 20 cm compared to the hearth areas by the base of the ovens, evidences that inside the fire devices with hearths between 0.30-0.40 sqm (these are most numerous) at least two-three clay pans fitted in. In the isolate case of an oven with the largest area (ca. 1.40 sqm) six-seven exemplars could have been used. One should not disregard the frequent association, within the same house, of the main oven, usually located in a corner, with one or more ovens dug in the sunken walls of the construction, mainly used for baking bread, as commonly believed.

secondarily, so their purpose must have been different. In above settlement, out of the total number of specimens with established height, almost all values vary between 2-3.6 cm, with only two cases where height is slightly higher.<sup>69</sup> Differences regarding clay pan rim shapes, more or less slanting, are not too significant, although certain variants may be delimited, repeated in all settlements (Fig. 9).<sup>70</sup> The decoration is not missing from the clay pans in north-western Romania, but is rarely present and certain trends may be identified from one site to another (Fig. 10/1–11). Noteworthy are the crosslike marks on the bases (internal side) of two clay pans found in the same feature of the Lăpușel–Ciurgău settlement (Fig. 10/12–13). In their case, a possible decorative effect was not intended, but held rather a symbolic significance, perhaps in connection precisely with the flat-breads or bread baked inside.<sup>71</sup>

In north-western settlements, clay pans were frequently used. In the Lazuri–Lubitag settlement, they are only missing from features – pits mainly – where pottery was also scarce; the more numerous is the handmade pottery in one feature, the more proportional increase of such pottery form overall. Fragments likely of two claypans were identified on the floor of the single dwelling possibly determined as such, remaining fragments originating from features where domestic waste was discarded, so their position is secondary. Likely most are in connection with still un-investigated dwellings, but most definitely some clay pans were used in ovens or hearths set up outdoors, as occasionally proven by their find contexts.<sup>72</sup> The frequency record of clay pans in each settlement may only offer relative results in the attempt to compare one settlement with another one in this respect, as the number of investigated features differs much and investigated sites to a greater extent are fewer. However, it is notable that these clay pans appear in most early medieval settlements from north-western Romania starting with mid 7<sup>th</sup> century until the 9<sup>th</sup> century, very likely in the following period as well, as evidenced by the Sarasău–Zăpodie settlement (Maramureș Depression), if dating in its case are accurate.<sup>73</sup>

Another note worth attention is that in settlements where few archaeological features are known there are more clay pans than in sites investigated to a significantly larger extent. In this respect, differences between the settlements of Lazuri–Lubitag, Popeni–Pe pogor, Lăpușel–Ciurgău and Cuceu–Valea Bochii are illustrative, on one hand and those of Aghireș–Sub pășune and Porț–La barajon the other.<sup>74</sup> This is an issue that, at least in preliminary terms and regardless of possible chronological explanations suggests the unequal quantitative distribution of clay pans in early medieval settlements from north-western Romania. The Lazuri and Lăpușel settlements seem to evidence a direct relation between the frequencies of handmade pottery in general and that of clay pans or baking bells. However, in this case, to the extent of regressing handmade pottery, the function of such necessary clay pans would have been supplemented by other, wheel-thrown, or another baking practice of flat-breads or cakes could be considered, for instance directly on the hot oven hearths after the removal or set up of embers.<sup>75</sup> In fact, the entire pottery inventory of the Aghireș settlement is extremely poor and neither the Porț settlement excels by quantity, so that the rare clay pans could be due simply to the fact that only part of the disused ceramic vessels remained in houses or were discarded beside other domestic waste. Since more restricted or better argued dating is missing for the settlements in north-western Romania, it is difficult to say if such horizontal differences bear chronological significance or are due

<sup>69</sup> Stanciu 2016a, 108, 109 fig. 78.

<sup>70</sup> For instance, a comparison with “types” established by Băcuț-Crișan 2014, 71–72 with fig. 18a. It was noted that in Western Slavs environment the shape of late specimens tends to be that of a bowl (Herrmann 1986, 270).

<sup>71</sup> For possible interpretations of the clay small „breads” cross-marked, see also Stamati 2000, 371–372 and Stanciu 2011, 301–304. A claypan from the settlement of Spinoasa-Iași on which such “cross” was marked (Teodou, Zaharia 1962 1962, 37, and fig. 3/1) was indicated as an example of Christianity practice (Teodor 1991, 95, 139 fig. 21/5, 147 no. 45). Other parallels (7<sup>th</sup> century), also east of the Carpathian Mountains are mentioned in Curta 2016, 232 fig. 3/2, 233 fig. 4/1, 198 no. 344, 199 no. 367) and Teodor E. S., Stanciu 2009, 153 figs. 40–43.

<sup>72</sup> For example, in the Aghireș–Sub pășune settlements (Băcuț-Crișan *et al.* 2009, 36, 233 pl. 133/C. 102, 327 pl. 227/1 – open fire place; 36, 234 pl. 134/C. 105, 332 pl. 232 – oven in open area), Bobota–Pe vale (Băcuț-Crișan 2010, 22, 82 pl. 26, 85 pl. 29/4 – outdoor oven) or the settlement of Carei–Stația de epurare (Romát, Lakatos 2014, 252 fig. 2, 253 fig. 3/5–6 – outdoor oven).

<sup>73</sup> Stanciu 2016a, 110–111, with tab. 7. For the Sarasău settlement, see also Popa, Harhoiu 1989, 267 fig. 10/4, 269. Clay pans were not reported only in the settlements of Nușfalău–Țigoiiului Benedek and Culciu Mare–Boghilaz, yet these are minor test pits, hence circumstances may be accidental. Handmade clay pans could also be the “pots similar to plates” found in a barrow at Nușfalău, investigated in 1878 (Hampel 1881, 156).

<sup>74</sup> Stanciu 2016a, 111–112, 112 figs. 80–81.

<sup>75</sup> For Roman *panis subcinericius*, baked in the warm hearth ashes or *panis rostus*, baked on the hot hearth (Mohs 2004, 42).

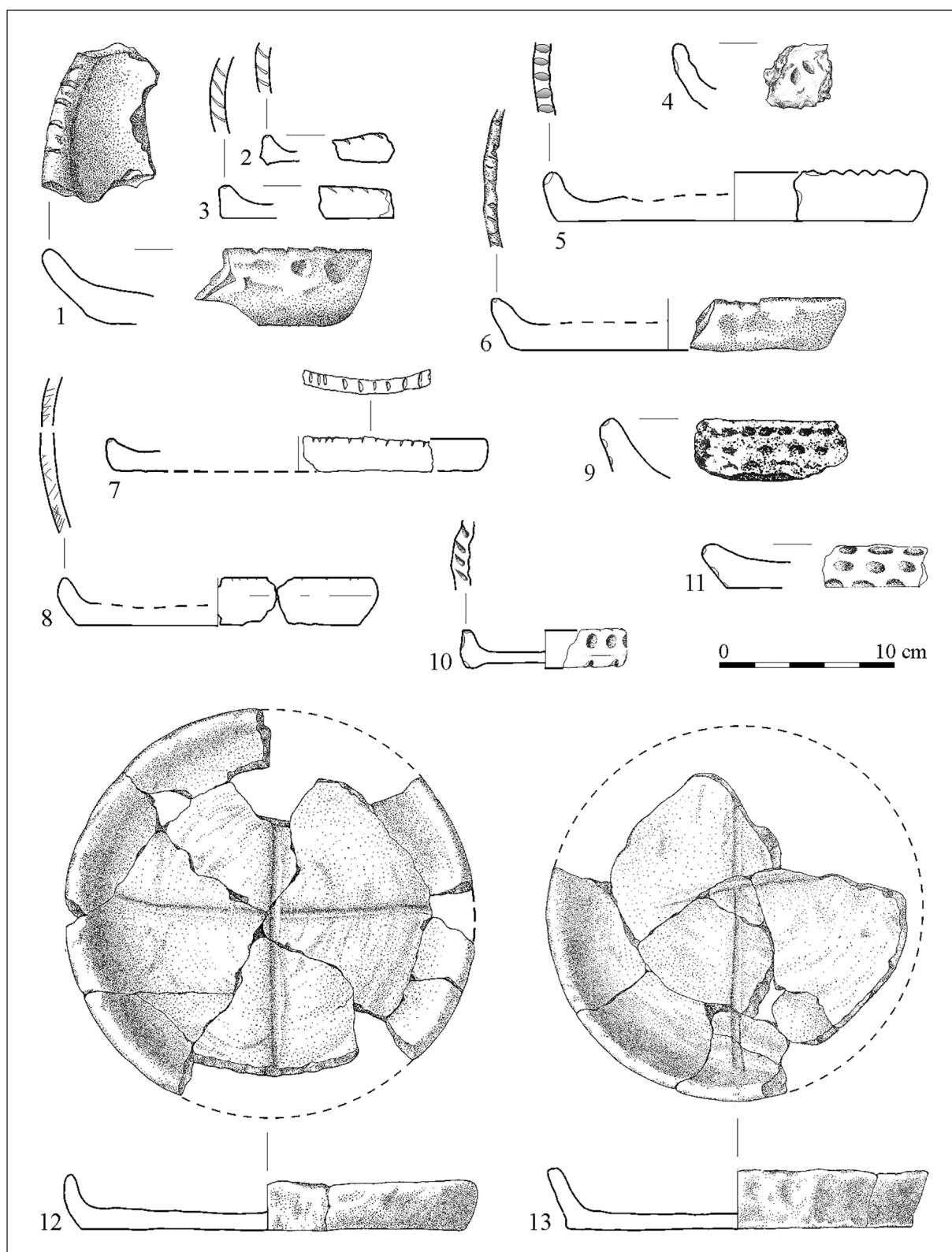


Fig. 10. Decorated clay pans and (1–11), some with a cruciform sign inside (12–13); item no. 10 is a miniature specimen, perhaps with a symbolic function. 1, 6, 12–13: Lăpușel–Ciurgău (source: Stanciu 1994). 2–3, 7–8, 10–11: Zalău–Mihai Viteazul Blvd. 104–106 (source: Băcuet-Crișan S., Băcuet-Crișan D. 2003). 4: Lazuri–Lubitag (source: Stanciu 2016). 5: Aghireș–Sub pășune (source: Băcuet-Crișan *et al.* 2009) 9: Izvoare–Bahna (as a parallel, the settlement of provenance is east of the Carpathians, in Moldova – source Mitrea 1998).

to other economic or social factors, such as for instance, the habit of a certain diet in which flat-breads or bread were less important.

In the dwellings from north-western Romania where clay pans are represented, these often emerge in number of one-four specimens, rarely five-six specimens.<sup>76</sup> To the extent such frequency is not accidental, the situation would coincide with circumstances noted for some 6<sup>th</sup> – 7<sup>th</sup> century settlements, namely the consumption of flat-breads or unleavened bread of an ordinary family.<sup>77</sup> Clay pans from this early period were conferred a serious symbolical charge, because these were not identified in certain settlements, while in other they emerge only in certain houses, and in some cases, associated with “special” artefacts. Therefore, it was concluded that “the social significance of clay pans raises no questions”, namely such clay pans would be indicative of attempts to claim higher social standing, the case of leaders whose main role was to hold ceremonies and community feasts, and that ultimately, these did not correspond to daily ordinary needs.<sup>78</sup> If this was the case then, such explanations no longer valid at least for the early medieval settlements in north-western Romania datable once with the second half of the 7<sup>th</sup> century, because these clay pans are much frequent, in for instance, sites where only one or two features were investigated, houses or another, yet clay pans are not missing from their inventory. In a much lower number clay pans emerge earliest in north-western Romania in the Lazuri–Lubitag settlement, respectively the last phase dated to the first third or half of the 7<sup>th</sup> century.<sup>79</sup> If the chronological framings suggested for settlements such as Turulung-Vii or Crăciunești–Mohelca are accurate, then during the following period, starting with mid 7<sup>th</sup> century, present clay pans became more in the settlements from north-western Romania.<sup>80</sup> From that time onward, these may be noted on a more stretched space, although in certain regions they were not used.<sup>81</sup>

<sup>76</sup> Stanciu 2016a, 110–111 tab. 7.

<sup>77</sup> Curta 2016, 163.

<sup>78</sup> Curta 2001, 209–307; Curta 2016, especially p. 157, 163, 171–17; Curta 2017. Indeed, the so unequal distribution of clay pans within a settlement would support this explanation, at least for the earlier period when such ceramic vessels began to be used. But reserves are necessary regarding the number of clay pans found in one dwelling or another even their presence or absence, as often the pottery identified in abandoned dwellings is not representative for the overall used wares. There are few cases when all or part of the vessels remained on site, in rather fortuitous cases such as a fire. When a house was relocated, understandably used pots were moved. Even in earlier houses from north-western Romania it was hypothesised these remained “waste”, without knowing what happened to the rest of pots, because on the ground level such remains were not found and no waste pits were identified in either where these could have been discarded. Also, the pits of some of decommissioned dwellings likely contained remains from other houses as well, as evidenced by the marked fragmentation of the pottery (Stanciu 2011, 255). What is there to say about the four fragments that definitely belonged to clay pans, found in the earlier settlements from north-western Romania and only in the Lazuri–Lubitag settlement (Stanciu 2011, 641 pl. 31/6 and 724 pl. 114/2–4)? That for a certain period, even though short, only four clay pans were used for baking the flat-breads necessary for repeated ceremonies? Dwelling 52 from Lazuri from where three fragments come, although most restricted in area (8.50 m<sup>2</sup>), draws the attention by the presence of a handmade pot whose decoration duplicates that of the common slow wheel-thrown pottery and a rim fragment worked in this technique (Stanciu 2011, 723 pl. 113/1–3). On the other hand, in the Zalău–Mihai Viteazul Blvd. settlement, the owners of the dwellings that obviously stand central to the settlement (with house groups set around in a relatively circular perimeter) must have held a special status in the community (Stanciu 2011, 116 fig. 21). Yet neither the houses themselves nor their inventories stand out. Similarly to the entire settlement, clay pans are missing from dwelling 13 there, the largest from north-western Romania, with an area of almost 25 sqm and likely divided into two rooms (Stanciu 2011, 738 pl. 127/1). It is more likely that at least in the settlements from the region, the much limited presence of clay pans seems to have only chronological significance. The case of a dwelling from Seliște (Republic of Moldova), in which were found a number of 129 clay pan fragments to which add a number of 1039 fragments of other handmade pots is curious (in Curta 2016, 163, 198 no. 342). This could be explained as production space of handmade pottery, or by its secondary destination, namely wastepit for disused pots or storage of ceremonial wares? Without doubt, the hypothesis of the clay pans’ special role, resumed by Florin Curta lately, deserves all attention, yet also further discussion.

<sup>79</sup> Stanciu 2011, 204 fig. 81/type 21, 220, 298. The same situation defines the vast expanses from Central-Eastern and Eastern Europe, where these emerge sporadically in the 6<sup>th</sup> century (unsecure dating to this period) and the first half of the 7<sup>th</sup> century. According to recent estimates, most clay pans appeared east of the Carpathian Mountains, on the territory of Romania and the Republic of Moldova (Curta 2016, 230 fig. 1). In the following period they are more numerous and cover wider areas (Horedt 1978, 64 fig. 4, 66; Erdélyi, Szimonova 1985, 387–388; Smilenko, Iurenko 1990, 286; Stanciu 2011, 221, with references to bibliography; Curta 2016, 157; Vida 2016, 392–394, 393 map 9).

<sup>80</sup> Turulung-Vii: Stanciu, Bader 2003. Crăciunești: Popa, Harhoiu 1989, 256–265.

<sup>81</sup> Thus, on the background of reduced frequency of handmade pottery, missing clay pans were reported in the settlements from south of Romania dated between late 7<sup>th</sup> century and during the 9<sup>th</sup> century, although in the previous phase they were used (Teodor E. S. 2000a, 326; Teodor E. S. 2003, 328 footnote 32; Corbu 2006, 123). If this is true, their re-emergence in the Wallachian Plain of the 10<sup>th</sup> century is interesting, as evidenced by the Băneasa–Sat settlement (Constantiniu, Panait 1965, 120, 124 fig. 42/1–3). The note according to which clay pans were unknown in the settlements of the Avar Khaganate could be premature (Bálint 1991, 61 and Herold 2014, 211), because, even in smaller numbers, they emerge by its eastern boundary,



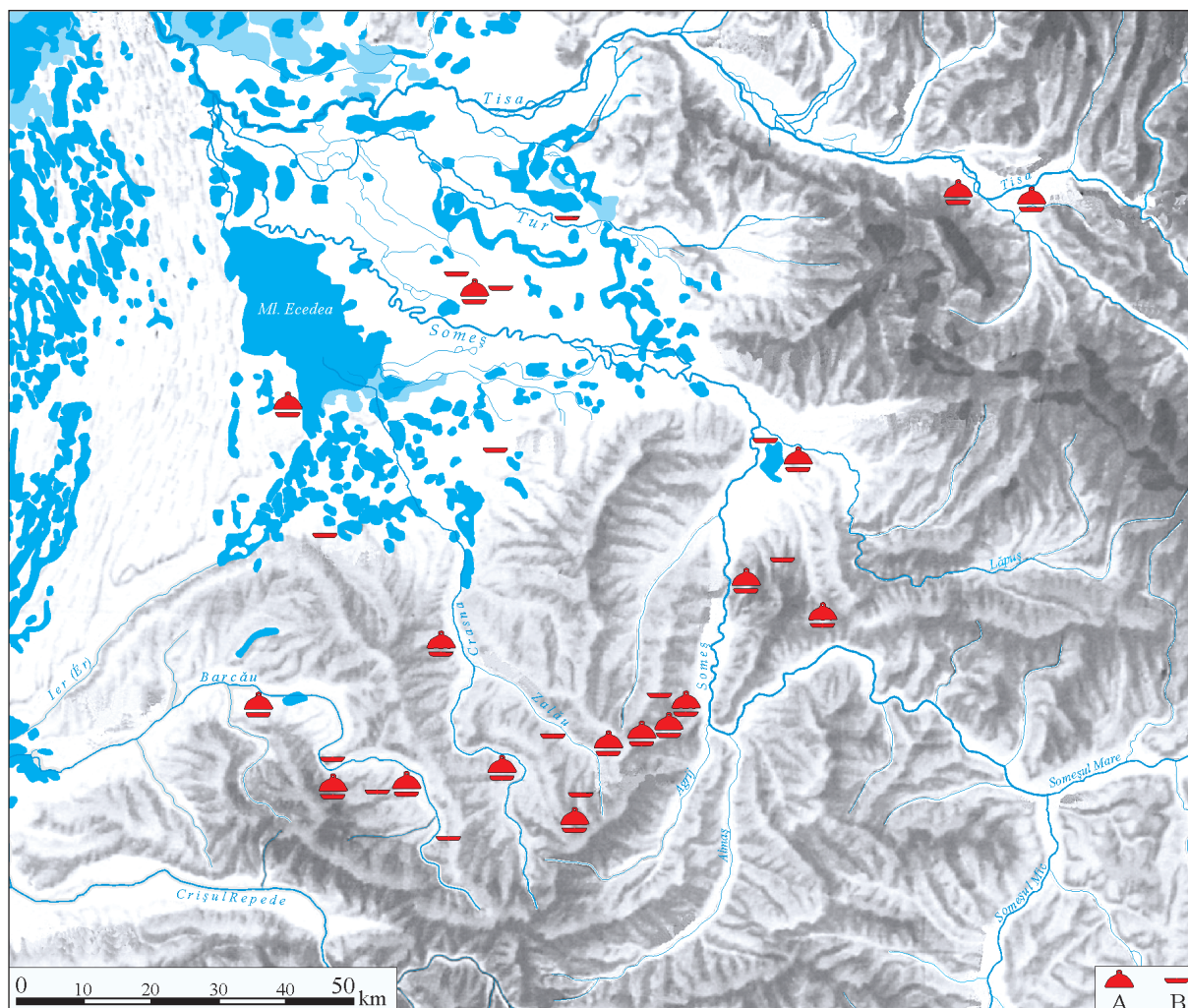


Fig. 11. Distribution of clay pans and baking bells in the early medieval settlements in North-West Romania (second half of the 7<sup>th</sup> century – 9<sup>th</sup>/10<sup>th</sup> centuries). A: baking bells. B: clay pans. Source: Stanciu 2016a, specifying the sites.

The common view on the north-eastern origin of clay pans, respectively their original connection with the early Slavs and their migration, was disputed.<sup>82</sup> Their earliest appearance is assumed on the territory of Romania, in Moldova or by the lower Danube during the second half of the 6<sup>th</sup> century or its last third, while their diffusion would not be due to the Slavic migration but to the adoption of a Roman culinary practice.<sup>83</sup> However, consumption of flat-breads or unleavened bread, irrespective

for example, in the 7<sup>th</sup> - 8<sup>th</sup> century settlement of Sighișoara–Dealul viilor (Harhoiu, Baltag 2006, 252 fig. 473, with references to illustration). It is likely that the explanation resides in the location of the early medieval settlements from the Târnave Basin, on a “border” line of the Avar Khaganate. This is also the case of the Comana de Jos settlement, where clay pans are frequent (Glodariu, Costea, Ciupea 1980, 91–92), just like settlements dated to the 7<sup>th</sup> – 9<sup>th</sup> century from north-eastern Transylvania, region adjacent to the territory directly under the Avar Khaganate control (for instance, Gaiu 2000, figs. 2/5, 3/4, 5/8, 6/2, 4 etc.). In south-eastern Transylvania, clay pans seem to be more frequent during an earlier period; they emerge in neither all features of known settlements nor in all settlements (Stanciu 2013, 346 fig. 14). Even though Csanád Bálint and Hajnalka Herold note could be corrected, namely by the peripheral diffusion of clay pans in the Avar Khaganate, their increased frequency in communities outside the Avar Khaganate is obvious. However, according to an updated assessment, clay pans may be noted in both border and central regions of the Avar Khaganate (Vida 2016, 391, with references).

<sup>82</sup> For instance, Curta 2001, 295–296, 297 fig. 72 and Curta 2016, 154–156, 172. Arguments rely on disputing the relation between the 6<sup>th</sup> century “Slavic” clay pans and earlier clay pans from the Kiev culture environment (3<sup>rd</sup> – 4<sup>th</sup> century AD). For the rest, their early emergence in Romania, Moldova and/or by the lower Danube is argued more securely dated archaeological features, thanks to other present artefacts, where clay pans appeared. The Mediterranean, Italian-Balkan origin of baking bells and clay pans is also supported by the detailed examination of Tivadar Vida (Vida 2016, conclusion in p. 392).

<sup>83</sup> Curta 2016, 152–153, 167–171; Curta 2017; Vida 2016, 392. For supposed early contexts of clay pans by the Lower Danube, which preceded the arrival of the Slavs, see also Paliga, Teodor E. S. 2009, 154 (yet no such examples are specified). Adoption of Roman culinary practice is provided as explanation for handmade clay pans emergent in the second half or towards late 6<sup>th</sup> century in also some settlements from Spain, being later used until the 8<sup>th</sup> – 9<sup>th</sup> century; see the discussion

of how these were baked, is not an exclusive Roman habit, environment where such clay pans were not even reported.<sup>84</sup> They are simple vessels, easy to make, that is why they might have been used (not necessarily as baking wares) simultaneously or in different periods, in various regions and by distinctive populations.<sup>85</sup>

In many settlements dated to the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century, commonly related to the early Slavs, the so-called “small clay breads” (“Tonbrötchen”) were discovered in connection with stone ovens, bearing incised in the raw clay including crosslike marks. They are commonly assumed low-scale representations of real bread, in which case the adopted specimen would be the leavened bread, made of wheat or rye flour. This explanation is supported not only by the similarity of forms and difficulty to find a practical justification, but also their occasional marks comparable to the knot-shaped bread used for special occasions, as ethnographic parallels show.<sup>86</sup>

Such bread<sup>87</sup> could be baked in the ovens within dwellings, made of clay or stone or those relatively frequently set up in sunken house walls, sometimes in outdoor ovens (“bread ovens”), heated up to adequate temperature and with the dough placed directly on the hearth from which embers were gathered or placed around it.<sup>88</sup>

According to above dates, it is likely that at least for north-western Romania these clay pans began to appear at the turn of the 6<sup>th</sup>/7<sup>th</sup> centuries, within a novel environment encompassing the whole area of the Upper Tisza basin, which may be circumscribed to an assumed model of early Slavic culture.<sup>89</sup> Approximately at the same time (possibly earlier) they began to be used in regions that bordered the Carpathian Mountains to the south and east, but also in those located further to the north. If the diffusion of this pottery form was due to the adoption of a late Roman culinary practice, associated with an assumed social significance, then the dissemination of the clay pans “trend” should be understood as a sudden phenomenon, from the south northwards, on a very stretched space, including north-eastern regions, where until mid 5<sup>th</sup> century such vessels had already been in use (area of the Kiev culture, last phase).

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in Curta 2016, 150–153 and Curta 2017, 132–134, with references to bibliography. In the attempt to support his own hypothesis (late Roman origin of clay pans in general) and contradict the other (origins in the Slavic setting, by virtue of a supposed connection between the Slavic milieu and the Kiev culture), Florin Curta notes the same argumentation issue, namely the absence of immediate precedents of these clay pans by early medieval period. However, this argument would not count much according to the author, while clay pans from Spain are paralleled with potential precedent, certain *terra sigillata* disks dated to the 4<sup>th</sup> century and early 5<sup>th</sup> century (Curta 2016, 153 footnote 15). As we know, wares of the sort were not used for baking and generally, for cooking. Instead, to refute the diverging view, lack of direct precedents would be the decisive argument (Curta 2016, 154–156 and Curta 2017, 134–135), although baking clay pans were used until the final stage of the Kiev culture, namely the first half of the 5<sup>th</sup> century. For such dating, see for instance Terpilovskii 2004, 128.

<sup>84</sup> As for late 6<sup>th</sup> century and early following century, references were made to clay pans found in the Roman-Byzantine fortresses by the Danubian border, therefore datable to the period when these appeared in the settlements of the nearby *Barbaricum* (Curta 2016, 169, with references to bibliography). Nevertheless, it is not certain whether those who used the clay pans were Romans, as evidenced by the handmade pottery from the fortress of Halmiris for instance, related to bearers of the Penkovka culture, garrison members (Topoleanu, Teodor E. S. 2009).

<sup>85</sup> See also Eugen S. Teodor’s view, according to which these cannot be ascribed only to the Slavs. The author references Roman plates and trays as possible model, specifying, which may be accurate that: “The functionality of this object seems to be multiple – lid, plate, baking tray – which explains why it was so enthusiastically adopted” (Teodor E. S. 2000a, 326). In this respect see also Vida 2016, 391. Definitely, there are many examples of “clay pans” from different periods and regions, at least some being used for baking flat-breads. For example, an identical piece, decorated with notches on the lip and explained as used to bake flat-breads, comes from the north of France, dated from the Neolithic (Gascó 2002, 293 and fig. 2). From the same period, in today’s Germany, clay pans with a diameter of 20–25 cm and notched rim were found (Mohs 2004, 15). Other references in Mohs 2004, 14–15 and Vida 2016, 397 figs. 6/3–4 and 7/6–7 (Hallstatt), 407 fig. 22/7, 408 fig. 25/3–5 and 409 fig. 26/4–6 (medieval period). 6<sup>th</sup> – 7<sup>th</sup> century examples, sometimes used as plates in Curta 2016, 153–154.

<sup>86</sup> For the whole discussion, for instance Bialeková 1999, Stamati 2000, and Stanciu 2011, 263 fig. 145, type III.1–4b and likely type II, 301–306. In many cases, the relationship between the dough of which the bread was made and clay of which pots or other objects are made, the two raw materials, alike the human body, being understood as “locations of the spirit” (Ghinoiu 1992; Stamati 2000, 368–369; Mesnil, Popova 2002, 250). The early medieval clay pans of Staraya Ryazan were explained as toys copying the shape of old Russian breads (Mongait 1955, 126, 128).

<sup>87</sup> For leavening, for instance, yoghurt or other dairy products could be used, known in the Balkan Peninsula as fermentation products until today (Krauss, Jeute 1998, 510–511).

<sup>88</sup> Inserted in the oven by a small wooden shovel (Herrmann 1986, 270–271).

<sup>89</sup> Stanciu 2011, 91–318.

**Clay baking bells** (Fig. 12)<sup>90</sup>

According to literary sources, the Latin *testum* (term from which word “*țest*” comes in Romanian<sup>91</sup>) originally designated a sort of lid under which flat-breads were baked. Varieties of bread or flat-breads were baked in or under another clay or metal vessel (*clibanus*, a Greek word), circular in shape, slightly widened towards the base. The same information also describes the procedure, identical to that recorded by ethnographic parallels for times closer to nowadays: the hearth was heated with that *testum* or *clibanus*, then followed it was cleaned and flat-bread placed on top, covered by the hot pot set with mouth downwards, above and around embers being arranged.<sup>92</sup>

Ethnologically, the clay baking bell would be understood as “mobile oven”, respectively a device composed of two complementary segments, namely a support, on one hand and the pot on top of it, on the other. South-eastern Europe terminology always suggests the whole, yet specifically denominates only one of the parts. Thus, *țest* in Romanian refers to the upper part, while the Bulgarian *podnitsa* the lower part, namely the support, although it was used together with a conical lid, made of clay included (*vrashnik*).<sup>93</sup>

As previously noted, it is believed that in the Avar Khaganate milieu, clay pans could be used together with baking bells, as supports of the latter, for baking flat-breads yet also to cook other foodstuffs, such as meat.<sup>94</sup> This hypothesis seems valid for the settlements in north-western Romania (Fig. 11), with the interesting example of a dwelling from Lazuri–Lubitag. A fragment of a larger clay pan or a circular platter similar to *podnitsa*, but also fragments from a larger baking bell were found together on the oven hearth and its vicinity (Fig. 12/32).<sup>95</sup>

Similarly to ethnographic parallels, baking bells yielded by archaeological excavations, handmade and usually without decoration and careful finishing of the surface and thicker walls,<sup>96</sup> have a coarse fabric, namely clay mixed with sand, pebble, crushed shards or chopped straw and chaff (grains), likely sometimes mixed with other organic materials, such as manure or wool intended to enhance the pot’s ability to withstand heat.<sup>97</sup> They were fired outdoor, most likely at the time of first use, hence they are not too resistant, as evidenced by the condition they are usually found in; common colours are orange-yellow or orange-red.<sup>98</sup>

<sup>90</sup> When smaller fragments are found, it is difficult to separate them from roasting trays, especially, clay pans or even larger bowls rims. A similar observation in Fiedler 1994, 338, Herold 2014, 211, and Vida 2016, 382 footnote 195. This is one of the explanations for which, they only recently have come to the attention of archaeologists, and were examined rather from ethnographic view. A history of research in Vida 2016, 364–366. See also Bálint 1991, 60. The ethnographic literature documents baking bells throughout the south-eastern European area (Mesnil, Popova 2002, 243). In Romania they were more spread in Oltenia and part of Banat (Chelcea 1968, 172).

<sup>91</sup> For instance, Chelcea 1968, 171.

<sup>92</sup> Vida 2016, 365, 376–377, with reference to sources. See also Mesnil, Popova 2002, 243. For baking bells functionality, with many references, see Vida 2016, 368–370. Often, ethnographic parallels also indicate the use of baking bells in the absence of any support, set directly on the hearth. For instance, Chelcea 1968, 172 and Larionescu, Armășescu 1973, 247. An interesting experimental study, which involved including the making of baking bells was completed by cooking chicken meat under the baking bell, straight on the hearth, with excellent results (Fusek, Zábajník 2006).

<sup>93</sup> Mesnil, Popova 2002, 241 fig. 1, 244 and Hrisimov 2017, 71. Based on ethnographic sources, the same authors maintain these vessels were also made for ritual purposes, exclusively by women. See also Chelcea 1968, 171 and Larionescu, Armășescu 1973. Regarding the *podnitsa*, with diameters between 50–70 cm: Krauss, Jeute 1998, 513, Vida 2016, 366, 369, and Curta 2016, 162–163.

<sup>94</sup> Vida 2016, 369–370, 391. Hajnalka Herold claims that during the Avar period and throughout the Carpathian Basin, baking bells do not associate with clay pans in the same settlement (Herold 2014, 211). For example, this is the situation of settlements from Eperjes and Örménykút, with baking bells yet without clay pans (Bálint 1991 and Herold 2004). Although outside the Avar Khaganate, but in its vicinity, today’s north-western territory of Romania is illustrative for the joint emergence of the two pottery forms (Fig. 11). Regardless of region, this possibility was envisaged a long time ago (Erdélyi, Szimonova 1985, 387). As ethnographic parallel (the Eastern Rhodopes), a clay handled lid, identical to baking bells, was used on top of clay pans, likely a *podnitsa* (Krauss, Jeute 1998, 513 fig. 30, 528 K 51).

<sup>95</sup> Stanciu 2016a, 276, 426 pl. XXIX, 427 pl. XXX/1, 428 pl. XXXI/8.

<sup>96</sup> In southern regions, during the Roman period, in Late Antiquity and Early Byzantine period, then in Middle Ages, wheel-thrown baking bells were also frequently used, of course of another fabric (Vida 2016, 367).

<sup>97</sup> The clay of which baking bells from north-western Romania were modelled, usually coarsely worked, included more or less coarse sand, crushed shards, sometimes chopped straws or chaff, such organic materials being visible both on the surface and in section. Slightly more used seems to be the coarse sand and pebbles, then crushed shards or grog and the insufficiently sorted sand (it may have been present in the native clay occasionally). Often, mainly by walls’ base and on the bottom (external surface) traces of secondary firing are visible, more or less marked, natural for clay tools repeatedly in contact with fire.

<sup>98</sup> Beside details on their modelling: Szőke 1980, 187–188; Bálint 1991, 58–60; Herold 2004, 42; Mihályová 2006; Vida 2016, 367, 382; Fusek, Zábajník 2006. Sometimes, their base preserves the footprint of a textile material, which suggests

In north-western Romania no intact item has survived, being reconstructed twice in the Lazuri–Lubitag settlement, in more or less secure terms, and a few handle fragments were also found (Fig. 12/21.30.32).<sup>99</sup> An estimate of the total number of fragments that likely belonged to a number of 53 items identifiable in the settlements from the discussed geographical area evidence variable wall thicknesses of 1.4 - 4.4 cm.<sup>100</sup>

The homogeneity of early medieval baking bells was noted in Carpathian Basin, as well as a valid morphological classification established a long time ago.<sup>101</sup> This could be used to classify the specimens from north-western Romania, differences being minor (Fig. 12). For example, comparison with baking bells known in south-western Slovakia emphasizes repetition of forms with its variants.<sup>102</sup> There are few items in which handles survived, just as handle fragments were rarely found in settlements, nonetheless, it is impossible to say that in the Avar period baking bells without handles were in use, while those handled would belong to a subsequent chronological framing.<sup>103</sup> Irrespective of the period, most baking bells were provided with handles or knobs, which were necessary for easier handling a clay object firstly heated before use.<sup>104</sup>

In the western vicinity of the region of interest here, the settlement of Hajdúnánás–Mácsi-dűlő (north-eastern Hungary), handled baking bells were found in most houses, and a bronze belt accessory more strictly dates the site, with a last phase towards late 8<sup>th</sup> century and early 9<sup>th</sup> century.<sup>105</sup> In the Örménykút settlement (south-eastern Hungary), most specimens, fully or partly restored (handled), were dated to the first phase, the Late Avar period or the second half of the middle (second half of the 8<sup>th</sup> century – early 9<sup>th</sup> century). In phase II and III dwellings identified there, small fragments of baking bells would have arrived by accident, while in phase IV baking bells are missing.<sup>106</sup> In the Zillingtal settlement (eastern Austria) baking bells were dated between AD 650/680 – 800/820).<sup>107</sup>

Over half of the recorded specimens, baking bells from north-western Romania were identified in dwellings, and a third come from constructions without any fire device, in which – at least the features of Lazuri–Lubitag – they lay in secondary location, discarded beside other pottery remains. Only once (Carei–Stația de epurare) baking bell fragments were likely found in the stoking hole of a clay outdoor oven.<sup>108</sup> In the same settlement of Lazuri, other baking bell fragments were discovered in domestic

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they were modelled on such a support (Herold 2004, 40 and Fusek, Zájbojník 2006, 21 fig. 6). At least in some villages from Oltenia (province from south-west Romania) baking bells were modelled on an earth pile set up especially for this purpose or an anthill, earth being sprinkled with ashes or grass coated (Chelcea 1968, 171 and Larionescu, Armășescu 1973, 246).

<sup>99</sup> For this area, detailed examinations in Stanciu 2016a, 122–129 and Stanciu 2016b.

<sup>100</sup> Stanciu 2016, 124–125, with tab. 8 and fig. 86. When the base thickness can be estimated, its values vary between 2.0–4.4 cm, but almost 80% of fragments measure between 2.0–3.0 cm, the remaining between 3.6–4.4 cm. Values similar to specimens reported in other areas (Bálint 1991, 59, Herold 2004, 42, and Zájbojník 2006, 139). The proportional relationship between thickness and size as a whole is natural, so baking bells in which diameters and heights are higher, walls are thicker. As for the examples from north-western Romania, best represented groups have a thickness between 1.4–1.9 cm and diameters between 26–30.4 cm, respectively thicknesses between 2–2.9 cm and diameters between 20–25.7 cm. Due to their fragmentary state, heights could not be accurately computed.

<sup>101</sup> Vida 2016, 382. It was expressed that groups established by Csanád Bálint remain valid, completed by new examples (Vida 2016, 382). “Types” A, B, the latter with two variants, in Bálint 1991, 58–60, pl. XXXIII/5–7. This classification may also apply morphologically to the baking bells known from Sylvania Depression (Băcuet–Crișan 2014, 71, with fig. 18). Distinctive are the four types set up by H. Herold based on the making technique, respectively its possible traces; different would be the supports on which baking bells could be modelled (Herold 2004, 40, 42). However, this classification does not indicate baking bell shapes, and the constant use of different procedures within the same settlement is intriguing. Specimens from north-western Romania do not confirm the view on high shape variability of the baking bells, diameters, heights and wall curving (Herold 2004, 42).

<sup>102</sup> Zájbojník 2006, 142–146 pls. I–V.

<sup>103</sup> Fiedler 1994, 338.

<sup>104</sup> Vida 2016, 365 fig. 1.

<sup>105</sup> Bajkai 2015a and Bajkai 2012b. It is noteworthy that there are no materials that could be dated to the 10<sup>th</sup> century there.

<sup>106</sup> Herold 2004, 54, 61.

<sup>107</sup> Herold 2010, 169. Baking bell fragments were also found in a well from Brunn am Gebirge, radiocarbon and dendrological data showing it was built during the second half of the 7<sup>th</sup> century, yet materials might have reached its filling in the first half of the 8<sup>th</sup> century (according to Herold 2014, 212). H. Herold suggested that handmade baking bells and buckets were produced and used in the Avar environment since the second half of the 7<sup>th</sup> century, possibly sometime before, until the end of Avar period (Herold 2014, 215). In connection with an early dating, the same view in T. Vida, with reference to the second half of the 7<sup>th</sup> century (Vida 2016, 382, 384).

<sup>108</sup> The same context in the Hajdúnánás–Mácsi-dűlő settlement (Bajkai 2015b, 231). The assumption that baking bells could be used in both indoor and outdoor ovens remains questionable (Bálint 1991, 60).

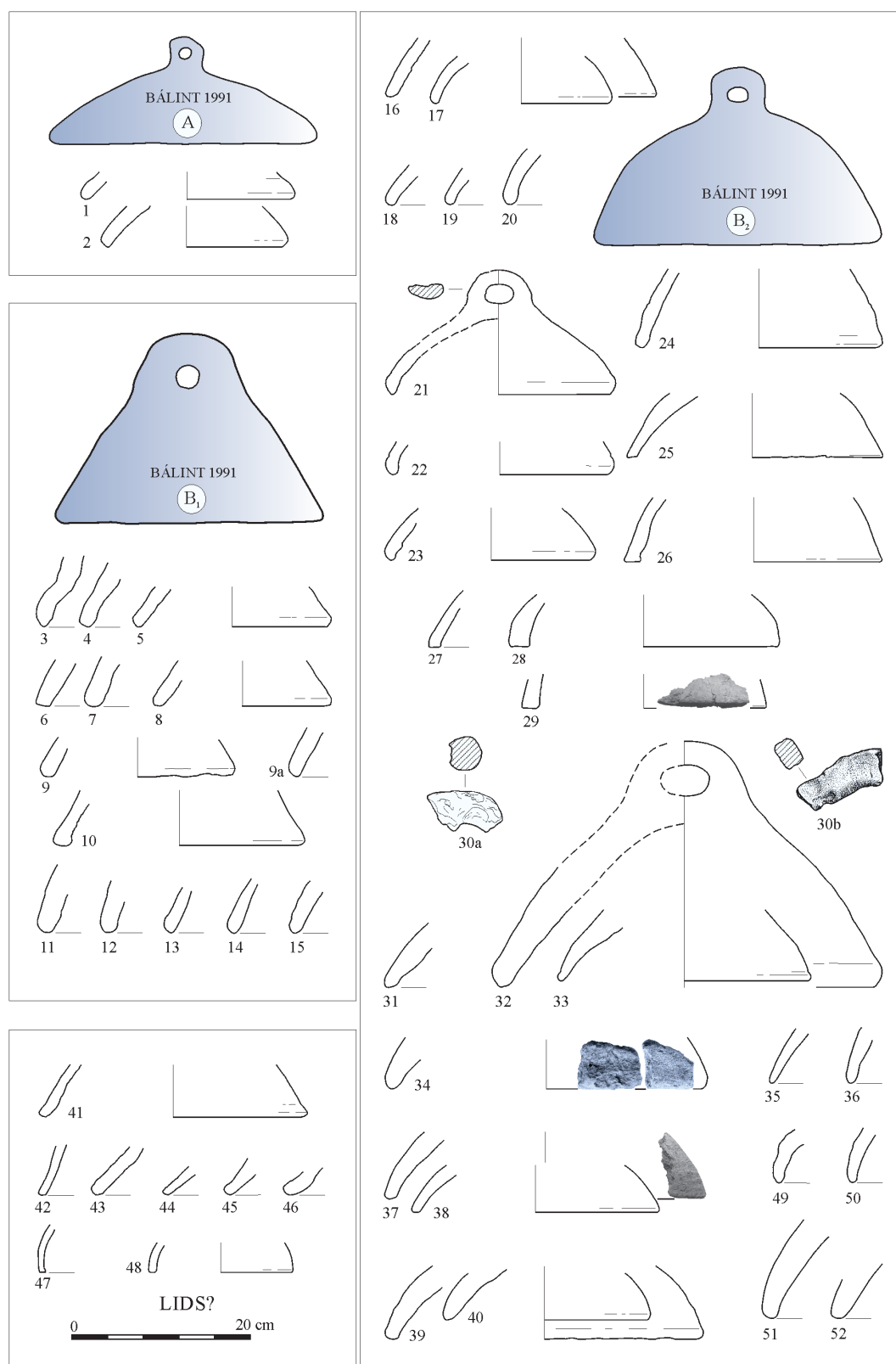


Fig. 12. Baking bells in the early medieval settlements in North-West Romania (1–40; items nos. 41–48 could also be lids). 1: Mîrşid–Fântâna albă (source: Băcuet–Crişan 2014). 2, 4, 7–9, 16, 18, 19, 21, 25, 27–32, 34, 37, 39, 41, 43, 44: Lazuri–Lubitag (source: Stanciu 2016a). 3, 12, 40: Nuşfalău–Ţigoiul lui Benedek (source: Băcuet–Crişan 2004). 5–6, 10, 17, 46: Cuceu–ValeaBochii (source: Băcuet–Crişan 2006). 11: Bobota–Pe vale (source: Băcuet–Crişan 2010). 13–15, 36, 38, 40, 47: Zalău–Mihai Viteazul Blvd. (source: Băcuet–Crişan S., Băcuet–Crişan D. 2003). 20, 22: Aghireş–Sub păşune (source: Băcuet–Crişan *et al.* 2009). 24, 26: Popeni–Pe pogor (source: Băcuet–Crişan 2006). 35, 42, 48: Marca–Primăria nouă (source: Băcuet–Crişan 2008). 23: Lăpuşel–Ciurgău (source: Stanciu 1994). 33: Pericei–Keller tag (source: Băcuet–Crişan D., Băcuet–Crişan S. 2000). 45: Cheud–Sub hij (source: Culic, Băcuet–Crişan 2010). 9a, 49, 50: Crăciuneşti–Mohelca (source: Popa, Harhoiu 1989). 51, 52: Sarasău–Zăpodie (source: Popa, Harhoiu 1989).

pits. In neighbouring regions, baking bells were repeatedly identified in indoor contexts, in parallel with ovens,<sup>109</sup> although they are true “mobile ovens” more suitable for outdoor use, even more in the hot season. The example of a house from the Doboz settlement (south-eastern Hungary) is eloquent as it was provided with both an indoor oven and a hearth where a baking bell was found.<sup>110</sup> Similarly, in a house from Lazuri (feature 40), fragments of a large item lay on the stone oven hearth, yet just nearby of a simple hearth, almost related to the main fire device.<sup>111</sup>

In many features from the Lazuri–Lubitag settlement (other than dwellings) baking bell fragments belonged to three-four different specimens, yet alongside other shards, they were found as residual pottery resulted from houses or other un-investigated structures. Fragments from dwelling 40 belonged to a single item, cases repeated in features from other settlements as well. However, if connection with features of origin is not accidental, many baking bells come from dwellings reported at Nuşfalău and Sarasău–Zăpodie.<sup>112</sup> In relation to baking bells, separating lid or bowl fragments remains an issue, as these have constant and smaller thickness of walls.<sup>113</sup> Baking bells, most often accompanied by clay pans, are not missing from most settlements in north-western Romania dated between the second half of the 7<sup>th</sup> century and 9<sup>th</sup>/10<sup>th</sup> century investigated to one extent or another or just identified by field surveys.

Baking flat-breads and bread with the aid of baking bells represented a long-lasting culinary practice in the south-east European – Mediterranean space, found in the Southern Alps, the Balkans and in the Italian Peninsula since the Late Bronze Age. Then, in various periods, it spread to the neighbouring populations, being sporadically attested until today. Baking bells were specific to sedentary populations, not noted among the nomad Euro-Asian populace groups. Their adoption in the Avar Khaganate would have been due to Balkan influences, and baking bell use evidence lifestyle shifts and population sedentarisation.<sup>114</sup>

Early medieval baking bells from the Carpathian Basin, respectively the Avar Khaganate have no direct precursors, therefore these may be explained as cultural influence,<sup>115</sup> nonetheless the date when their use began is still debated. It was assumed that beside clay handmade cauldrons they existed in the Carpathian Basin in the 9<sup>th</sup> century, yet were specific to settlements from the next period, namely the 10<sup>th</sup> century and even during the Arpadian period.<sup>116</sup> As for north-western Romania, at least, baking bells are not attested in the second half of the 6<sup>th</sup> century and first third or half of the 7<sup>th</sup> century, yet more likely clay pans began to emerge by the turn of the two centuries.<sup>117</sup> In some settlements, relatively datable to mid or second half of the 7<sup>th</sup> century (only by pottery) and where clay pans become increasingly more present, baking bells seem to be absent, like for instance at Turulung-Vii,<sup>118</sup> in other settlements they seem to have been already in use like at Crăciuneşti–Mohelca.<sup>119</sup> Even though more restricted chronological framings supported on sound are still missing, one may argue that baking bells are practically not missing from settlements where more slow or fast wheel-thrown pottery exists, which should be indicative of their intensified presence once with the 8<sup>th</sup> century.

Attention was drawn on missing baking bells with the Balkan Slavs in the 8<sup>th</sup> – 9<sup>th</sup> century, namely precisely when their presence in the Carpathian Basin was more marked,<sup>120</sup> even more since one speaks

<sup>109</sup> Szóke 1980, 197, Bálint 1991, 60, and Herold 2004, 42, 52. Commonly, baking bells must have been used on outdoor hearths (Pleterski 2008, 142).

<sup>110</sup> According to Bálint 1991, 60.

<sup>111</sup> See also note 91.

<sup>112</sup> According to ethnographic parallels, a household owned two or even three baking bells, depending on bread sizes to be baked (Mesnil, Popova 2002, 242). Extant spare baking bells is mentioned, at least in some households (Chelcea 1968, 171).

<sup>113</sup> Bálint 1991, 58 and Herold 2004, 42.

<sup>114</sup> Detailed discussion of the issue in Vida 2016, 370–392 and Vida 2011. For the Balkan origin of baking bells, but without excluding the possibility of an Eastern origin, see also Bálint 1991, 60–61. According to another view, regardless of their Mediterranean origin, baking bells were specific and used by the Slavic milieu of the Carpathian Basin (Fiedler 1994, 338).

<sup>115</sup> Vida 2016, 382.

<sup>116</sup> Fodor 1984, 106, 108.

<sup>117</sup> Baking bells are not reported in the early Slavic milieu, their role being fulfilled by clay pans (Vida 2016, 384). Clay baking bells are not known in Eastern regions (Bálint 1991, 60 footnote 169).

<sup>118</sup> Stanciu, Bader 2003.

<sup>119</sup> Popa, Harhoiu 1989, 256–265. On this settlement’s dating, a comment in Stanciu 2016a, 127 footnote 450.

<sup>120</sup> They reappeared in the 10<sup>th</sup> century, then are attested until the 14<sup>th</sup> – 15<sup>th</sup> century. See also Vida 2016, 384. An initial distribution map of the early medieval baking bells in the Carpathian Basin in Fiedler 1994, 335 fig. 13. It was completed with findspots which extend the original area (Herold 2004, 74 and Vida 2016, 383 map 6). One may add settlements from

of regions, from where these had allegedly diffused northwards. There is a coincidence between the date when they disappear from the Balkan Peninsula, on one hand and the date when they diffuse within the Carpathian Basin, on the other. The situation is identical in the well-known settlements from the South-Carpathian territory of Romania,<sup>121</sup> but also in Moldova.<sup>122</sup> It is unsure whether in southern Transylvania, the inhabitants of Comana de Jos used baking bells (clay pans exist there), as they were neither reported nor specified as such among handmade pottery forms there.<sup>123</sup> They were neither noted in sites from south-east the Transylvanian Basin,<sup>124</sup> nor in the central-eastern part of the same region.<sup>125</sup> On the other hand, they were used in the settlement of Jucu de Sus–Tetarom III on the Someșul Mic Valley,<sup>126</sup> likely also in north-eastern Transylvania.<sup>127</sup>

If the issue of more accurate date when baking bells began to be used in the Avar Khaganate and the Carpathian Basin remains questionable for now, in the case of the early medieval settlements from north-western Romania these tools existed in 8<sup>th</sup> century settlements and, according today's dating possibilities, also in the following century. On the territory of today's Hungary at least, these were in use during the following period, respectively the 10<sup>th</sup> – 12<sup>th</sup> century.<sup>128</sup> This is also valid for north-western Romania, to this period (the 11<sup>th</sup> century – early 12<sup>th</sup> century) being framed a dwelling from Ip–Dealul Bisericii, where one baking bell and one clay pan fragments were found.<sup>129</sup> They are no longer archaeologically documented in the following century (also likely owing to the unsatisfactory state of research of rural habitation), yet their re-identification in traditional environments of the modern period, either made of clay or even metal, proves their unceasing use in peasant households.

### **Clay “roasting trays” (Fig. 13)<sup>130</sup>**

They were sometimes found in secure connection with indoor ovens, regardless whether in stone or clay.<sup>131</sup> In these cases, their modelling was made on site based on a wattle formwork set on top the

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south-western Slovakia, where present baking bells were specified (Zábojník 2006).

<sup>121</sup> Dridu (Zaharia 1967, 89), Bucov (Comșa 1978), Vlădeni–Popina Blagodeasca (Corbu 2013, 118–123). See also Corbu 2006, 124. In the Bucov settlement, an unsecure fragment of a baking bell rim (Comșa 1978, 26, 40 fig. 25/8).

<sup>122</sup> Dodești (Teodor 1984a, 89, 91–92), Izvoare–Bahna (Mitrea 1998, 77–79), Davideni (Mitrea 2001, 167–171), Lozna (Teodor 2011, 52–54). See also Teodor 1978, 80–82. In fact, some of the bowls from Poiana may be baking bells (Andronic 2005, 113 pl. 39/10). Baking bells are absent from the territory of the Republic of Moldova (Musteață 2005, 71–74; Postică 2007, 164–165; Tentiuc 2012, 75–93).

<sup>123</sup> Glodariu, Costea, Ciupea 1980, 91–92.

<sup>124</sup> For instance, Székely 1992.

<sup>125</sup> Settlement of Sighișoara–Dealul viilor (Harhoiu, Baltag 2006).

<sup>126</sup> Stanciu 2014, 336 fig. 11/1–3.

<sup>127</sup> Very likely fragments mistaken for clay pans or bowls. For instance, Gaiu 2000, figs. 9/7, 10/5, 14/5, 18/8, 9, 11. However, the situation remains unclear. No baking bells were found in the systematically excavated settlement of Șieu-Odorhei, where clay pans are recorded (Rădulescu 2008, 107).

<sup>128</sup> Bálint 1991, 60, Fiedler 1994, 338, and Vida 2016, 385–386.

<sup>129</sup> Băcuț-Crișan, Csók 2017, 283, 298 pl. 10.

<sup>130</sup> Termed in the Romanian archaeological literature “trays”, “portable hearths” or even “mobile hearths with heightened rim” or “movable clay oven”, recently “clay roasting trays” (specifications in Ghenescu 2002, 77–78, 81). Confused term “oven – baking bell” in Dumitrașcu 1994, 89. More precise are references to a “plinth or rectangular tray” (Constantiniu, Panait 1965, for instance, p. 115.) or “tray fixed on oven” (Teodor E. S. 2000, 326). The term “mobile oven” is more suitable to baking bells (see also Mesnil, Popova 2002). The term “roasting tray” was originally used as a French term corresponding to a “tray” or a larger “clay pan” (for instance Dolinescu-Ferche 1979, 223). The term “roasting tray” removes possible confusion with clay pans. Even the more so that in the older literature the two recipients were not distinguished in clear terms (Herrmann 1986, 267, with references). More numerous are the rectangular roasting trays, with rounded corners, yet those circular or oval are not missing. The sides of rectangular exemplars reach 80–90 cm in length and a maximum height of walls of 18 cm, with notable thicker base. Maximum sizes belong to a rectangular roasting tray found in a settlement from Biharea–Grădina SA-Baraj, described as follows: sides of 85 □ 46 cm. Another specimen from the same settlement is sized 68 □ 42 cm, while its walls are 18 cm high (Dumitrașcu 1994, 184, 186). There are also even larger specimens (Ghenescu 2002, 77, but without references). Also, in north-western Romania most roasting trays reported to date are rectangular, yet some were most definitely oval or circular (Fig. 13/18–20), those oval are not missing (Fig. 13/8). In the specimens from this region, wall thicknesses vary between 3–7 cm. Usually, the clay (sometimes described as sandy) contains grain husks and sometimes, grass. Most often, the clay composition is that mentioned above and also, most specimens were insufficiently fired, therefore the poor durability of walls and bases. For other comments and details see Stanciu 2016a, 114–121. Descriptions: Teodor 1978, 74–75; Herrmann 1986, 267; Parczewski 1993, 69; Krauss, Jeute 1998, 513–516; Ghenescu 2002, 77; Musteață 2005, 58; Szmoniewski, Lityńska-Zajac 2005.

<sup>131</sup> Most illustrative contexts come from southern Romania, respectively settlements dated to the second half of the 6<sup>th</sup> century

oven (the formwork imprint survived in the raw clay), commonly preserving its flat shape, mostly rectangular, formwork being fired at first use.<sup>132</sup> At least in the settlements from southern Romania (6<sup>th</sup> – 7<sup>th</sup> century), clay trays usually replace clay oven domes, other times they overlap it.<sup>133</sup> There were noted contexts when clay roasting trays were placed above repaired ovens, without knowing if these had been used in the first use phase of the fire device.<sup>134</sup> In the same geographical area and period mentioned above, these “roasting trays” appeared relatively frequently in house inventories, sometimes beside exemplars found *in situ* and which prove their location on top the ovens, respectively as parts of oven structures.<sup>135</sup>

Commonly, in the Romanian archaeological literature these larger roasting trays were explained as “portative hearths” or “mobile trays” or fixed on top the ovens, which also suggest possible functions. In fact, between the terms “hearth”, be it mobile, on one hand, and “tray”, on the other hand, the difference of meaning is major. In the first, this would be a clay recipient in which fire was made, while the “tray” was supposed to be placed on way or another above the fire or heated by embers. It is noteworthy that on the internal surface of these clay trays there were never reported traces of repeated burning.<sup>136</sup>

Examples above clearly evidence these clay trays existed in the earlier settlements of the Muntenia Plain (6<sup>th</sup> century – first half of the 7<sup>th</sup> century), being placed on top the clay ovens, as stable parts of their construction. In the same geographical area identical ovens were found in the settlement of Băneasa-Sat, date to the 10<sup>th</sup> century.<sup>137</sup> If such trays were mobile, on one hand, it is difficult to say why they were regularly moved from the oven and on the other, because of their sizes and weight, especially in the poorly fired exemplars, their handling/moving would have been impossible as they would break.<sup>138</sup> At least in the case of clay ovens built on a wattle skeleton, whose dome would have been modelled in the form of such trays, as often assumed, the latter were common part of the entire oven construction, therefore it was impossible to move them.<sup>139</sup> Even in stone ovens or carved in a clay

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and first half of the 7<sup>th</sup> century (Dolinescu-Ferche1979, 223 and Dolinescu-Ferche1995). As an example, roasting trays on stone ovens: Bucharest-Căţelu Nou (Leahu 1963, 38). Roasting trays on top of the clay ovens: Dulceanca II (Dolinescu-Ferche 1986, 123–124, 125 fig. 2/1 etc.). Later examples: roasting trays found in connection with clay ovens in the Băneasa-Sat settlement dated to the 10<sup>th</sup> century (Constantiniu, Panait 1965, 108, 115). More examples for the Biharea-Grădina SA-Baraj settlement (western Romania), respectively habitations dated between the 7<sup>th</sup> – 9<sup>th</sup> century: rectangular specimen found under the remains of a stone oven, another found on top the stone oven from house 4/1977, other fragments found under the remains of the stone oven from house 9/1980 (Dumitraşcu 1994, 89, 183, 186). Still there, the curious context of a “small oven or baking bell excavated in the native clay” near a stone oven. By description, it is definitely a rectangular roasting tray (Dumitraşcu 1994, 184). Also in other early medieval settlements, remains of these roasting trays were found in connection with ovens, for instance, those from Karos-Mókahomok (Herold 2006, 10, 15) and Örménykút-site 54 (Herold 2004, 43).

<sup>132</sup> They might have been modelled elsewhere and later placed on top the oven, yet in this case, compulsorily left a while to dry. For formwork traces, for instance: Constantiniu 1963, 86; Teodor 1978, 75; Dolinescu-Ferche 1984, 126, 130 footnote 79; Dolinescu-Ferche 1995, 165, 179, 182–184; Ghenescu 2002, 82. Apart from these mentions, there are also other authors who have explained these roasting trays in connection with oven construction, for instance: Constantiniu 1963, 94–96; Constantiniu, Panait 1965, 108–109, 115; Teodor1978, 74–75; Olteanu 1983, 70–71; Teodor 2011, 54; Spinei 2009, 215.

<sup>133</sup> Dolinescu-Ferche 1984, 126 and Dolinescu-Ferche, 163.

<sup>134</sup> Sixth – seventh century clay ovens, examples: Dulceanca I – hut no. 2 (Dolinescu-Ferche 1974, 85, 96 fig. 104); Dulceanca II – huts nos. 1, 10 and 19 (Dolinescu-Ferche 1986, 123–124, 128); Străuleşti-Lunca – hut A (Constantiniu 1963, 94–96). See also Dolinescu-Ferche 1979, 192. The use of roasting trays each time the oven was reconstructed is attested later, in the case of huts nos. 3 and 4 from the settlement of Băneasa-Sat, dated to the 10<sup>th</sup> century (Constantiniu, Panait 1965, 108–109, 115).

<sup>135</sup> For example, Dolinescu-Ferche1995, 163–176, with references to illustration. Secure contexts are reported also in the following period, which prove the presence of such roasting trays on top clay ovens in particular, attached to the oven dome, as an organic part of it, context recorded in the settlement of Slažany (south-western Slovakia). With references to other examples and bibliography, see also Ruttkay1990, 345.

<sup>136</sup> Krauss, Jeute 1998, 516, Ghenescu 2002, 78, and Stanciu 2011, 260. A movable hearth was that of Bârlad-Prodana (Moldova), circular in shape, diameter around 120 cm, provided with a central flue and perforations for hanging (Teodor 1978, 75).

<sup>137</sup> Constantiniu, Panait 1965, 108, 115.

<sup>138</sup> Ghenescu 2002, 77 and Herold 2006, 10. It is likely that notes made in connection with specimens from the settlement of Stradów may be checked elsewhere as well. Depending on the fabric structure, two groups were established there, the second characterised by limited presence of organic inclusions and enhanced resistance, and traces of secondary firing show their use above the fire (Szmoniewski, Lityńska-Zajac 2005, 221–225). In this regard, the fragments found in the dwelling 1 from Lăpuşel-Ciurgău (Stanciu 1994, 274, 276 pl. III/13, 302) are similar.

<sup>139</sup> Rappoport 1975, 152 fig. 55 and Krauss, Jeute 1998, 516.



support, upon their first burning the trays modelled on top would have adhered to one extent or the other to the remaining construction.

However, there are cases when these trays were deliberately used as mobile facilities, especially when due to clay composition and firing quality they became more durable. Although descriptions are insufficiently clear, in a few cases, orifices were noted across their walls, occasionally related to a possible method of transportation.<sup>140</sup> Especially since so few examples can be noted, perhaps such devices should be assigned a special function, possibly in connection with certain ceremonies (?). In early medieval settlements from north-western Romania, the use of large, mobile clay trays is not indicated by convincingly positive data. Likely these were used on top the hearths, occasionally set outdoors, on a stone support.<sup>141</sup> This would be supported by the south-Carpathian settlements of Bucov (8<sup>th</sup> – 10<sup>th</sup> century), with houses where frequently, in connection with hearths, were identified fragments of rectangular or relatively circular “hearths with heightened rim”. Sometimes, river stones encircled these, in one case, a brick was found, likely evidence of the supporting walls of such trays.<sup>142</sup> Even more convincing is the example of a hearth set in the space in-between the houses from the settlement at Brășăuți (Moldova), dated to the 8<sup>th</sup> – 9<sup>th</sup> century. A rectangular tray, with rounded corners, incompletely fired was set on a few stones with burning traces.<sup>143</sup> It is difficult to say whether in such cases one may speak of movable trays, precisely due to their frailty. These must have been most of the time fixed under light roof, which protected the entire facility during rainfalls, even if for a shorter while.

At least for the early medieval settlements from north-western Romania, regardless of their flat forms, one may distinguish trays with thicker walls, especially the base, which seem rectangular in most cases (Fig. 13/6–7.9.15–16), compared to other trays with thinner walls, and base of almost equal thickness (Fig. 13/13–14.17.20). It was assumed that the latter served another purpose because their walls would be too thin to withstand repeated handling.<sup>144</sup> A specimen found in a house from Săcășeni, with little sand in its fabric, could be rather framed among very large size clay pans (restorable mouth diameter over 37 cm, rim height of 6 cm – Fig. 13/20).

An un-noted case, yet which seems too often occur in some settlements is that several trays associated in the same dwelling, usually two, sometimes of different shapes.<sup>145</sup> In the early medieval settlement of Băneasa–Sat (10<sup>th</sup> century), the oven hut no. 3, rebuilt four times, was provided in the last

<sup>140</sup> Likely suggesting that wooden rods were inserted through these holes (Glodariu, Costea, Ciupea 1980, 92). Nonetheless, a bier would have been more efficient. Other times, they were related to support posts (?) or liquids that would have dripped through these orifices during use (Herold 2006, 10). The purpose of pierced clay plates found in a few ovens from Străulești–Lunca remains unclear (Constantiniu 1963, 86). Fragments of a “rimless tray” discovered in front of an oven and explained as “mobile hearth” were also reported in a house from Durlești–Valea Babei, the Republic of Moldova, dated to the 9<sup>th</sup> century (Tentiuc 2012, 42–43, 83).

<sup>141</sup> Herrmann 1986, 272 and Szmoniewski, Lityńska-Zajac 2005, 225 fig. 4A, 227. An interesting context in this regard was reported in a region in the vicinity of that discussed here, respectively the settlement of Biharea–Grădina SA–Baraj (Bihar county), dated to the 7<sup>th</sup> – 8<sup>th</sup> century. A hearth with coal and ashes was described there, with nearby stones and clay “small oven” on top, actually a rectangular roasting tray. It is unclear whether this fire device was indoors, in a house or outdoor. Similarly, a hearth with fragments of a roasting tray on top was discovered in house 2/1977 (Dumitrașcu 1994, 79, 89, 182). In the settlement of Aghireș–Sub pășune a fragment of a roasting tray was found in connection with an outdoor hearth, bordered by stones (Băcuet–Crișan *et al.* 2009, 37, 239 pl. 139 C. 113/2009, 353 pl. 253/4). From the early medieval settlement of Gergelyugornya (on lower Someș River, in north-eastern Hungary) a hearth with heightened rims and open on the stocking side was reported. It is very similar to the roasting trays, but it was fixed, raised on the ground level (Simonova 2008, 141 fig. 13). In the settlement of Pácin–Szenna-domb (still in north-eastern Hungary) was identified *in situ* such a tray, rather oval in shape; underneath, the earth was burned, but it was more certainly used on a stone support, surrounding it (Pinter-Nagy, Wolf 2017, 144–145, 161 pl. 7/4).

<sup>142</sup> Comșa 1978, 22–23, 26, 39 fig. 24, 40 fig. 25. Similar contexts also in the south-Carpathian settlement of Dridu (Zaharia 1967, for example, p. 41–42). With details, a comment in Stanciu 2016a, 118 with footnote 397.

<sup>143</sup> Spinei, Monah 1970, 375, fig. 18. On open fire place, they had to be placed at a reasonable height to warm and heat, nonetheless not below 20 cm, in order to facilitate smoke dissipation and fire maintenance (Pleterski 2008, 142).

<sup>144</sup> Krauss, Jeute 1998, 516.

<sup>145</sup> Example of an already mentioned pit-house from Lazuri–Lubitag, where the roasting tray corresponding to the stone oven is evidenced by pieces of a highly thick base, while other fragments had belonged to distinctive specimens, one circular, with shorter rim, the other significantly higher (Fig. 13/13.18 – Stanciu 2016a, 426 pl. XXIX, 427 pl. XXX/1–3). In dwelling no. 1 from Lăpușel, among oven stones counted fragments of a rectangular roasting tray with elevated rim (Fig. 13/9) and nearby, fragments of a second roasting tray with a very short and thick rim (Stanciu 1994, 276 pl. III/12–13). Also, from dwelling 29 of the settlement at Porț–La baraj come fragments from at least two specimens (Matei, Băcuet–Crișan, 166 pl. 82/2–4).

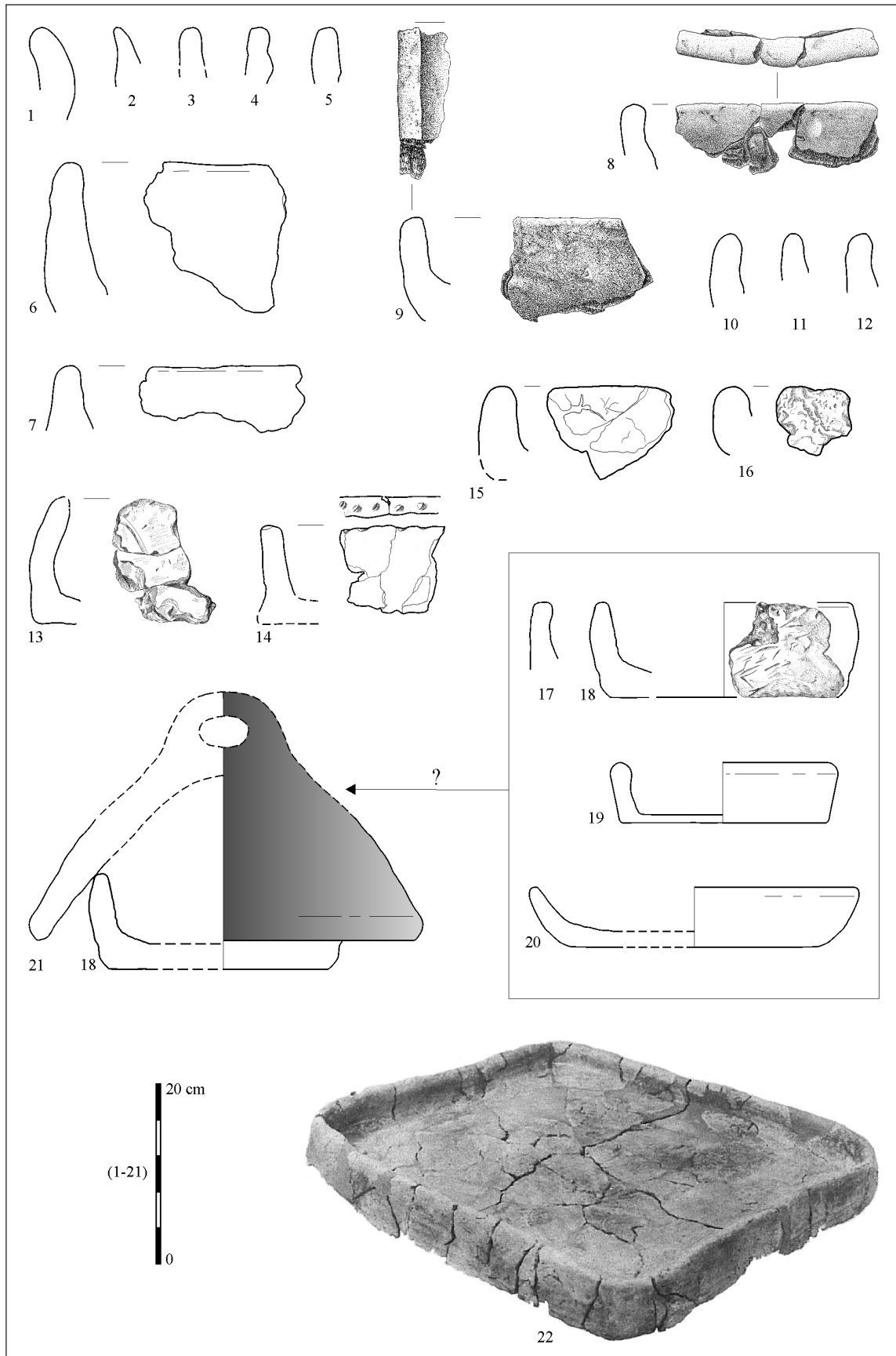


Fig. 13. Clay roasting trays in North-West Romania (21—baking bell). 5, 7, 8, 12, 13, 15, 16, 18, 20–21: Lazuri–Lubi tag (source: Stanciu 2016a). 1, 3, 4: Aghireș–Sub pășune (source: Băcuet–Crișan *et al.* 2009). 2, 6, 11, 17: Porț–La baraj (source: Matei, Băcuet–Crișan 2011). 8–9: Lăpușel–Ciurgău (source: Stanciu 1994). 14: Popeni–Pe pogor (source: Băcuet–Crișan 2006). 19: Nușfalău–Țigoiul lui Benedek (source: Băcuet–Crișan 2014). 20: Săcășeni–Fântâna ciobanului (source: Lazin 1975). 22: Klučov (Bohemia), settlement dated to the 8<sup>th</sup>–9<sup>th</sup> c., random size (source: Beranová 1980).

phase with a rectangular tray, however a circular exemplar with shorter walls was also found. Similarly to hut no. 4 there, the difference between the tray itself (“plate”) and the “portable tray similar to a plate in shape, yet with thinner and more finished walls and base on both sides” is remarkable.<sup>146</sup> The case repeats in the settlement from Bucov-Tioca, respectively in dwellings dated to 9<sup>th</sup> – 10<sup>th</sup> century or the 10<sup>th</sup> century, where common rectangular trays associated with circular specimens.<sup>147</sup> This must have been customary to some of the 6<sup>th</sup> – 7<sup>th</sup> century settlements, such as Radovanu, where in two huts were identified fragments of three rectangular trays and one oval.<sup>148</sup>

This means that beside trays mounted on top the ovens or hearths, other movable specimens were occasionally identified, likely mostly circular or oval (diameters between 40-70 cm), made of the same fabric, possibly sometimes carefully modelled, according to the exemplars from Băneasa-Sat. Their shape resembled much that of clay pans, from which they differ by larger diameters, more elevated rim, massiveness and often the vegetal remains in fabric. One may believe that these larger clay pans played a different role, compared to that of rectangular trays, while similarity with a sort of “mobile oven” recorded until nowadays throughout the south-eastern European area, is inevitable. These are the clay baking bells (“*țest*”), diffused in Romania mainly in the south or *podnitsa* from north-eastern and central Bulgaria, used for bread baking.<sup>149</sup> The two specimens found in the same dwelling in the Lazuri settlement might have been used this way too (Fig. 13/13.18.21).

Regarding the function of these rectangular clay trays, most often explanation is they were used to dry or easy roast grains, before grinding or to drying vegetables and fruits, which was mandatory for their conservation.<sup>150</sup> Because in the burnt buildings from the Tornow burg, such clay trays contained charred grains, they were explained as “storage vessels” modelled directly on barn floors.<sup>151</sup> The view was disputed because such recipients were inadequate to store grains in optimal conditions, especially since in Tornow, beside the clay trays were identified remains of wooden crates much more suitable as storage spaces (the fact that the charred grains reached the trays of Tornow would be by chance).<sup>152</sup>

Even though rectangular, the comparison between the Central European clay trays, more massive, with thicker walls, with the Balkan *podnitsa* would suggest their use for bread baking. But such an operation required a closed space, hence, the completed explanation argued the use of iron lids (?).<sup>153</sup> Nevertheless, the multiple cases where trays, mainly rectangular, were identified in clear contexts, as part of clay or stone ovens are overlooked. If such interpreting is secure, at least in the case of rectangular specimens, one should further discuss the possibility of the specific use of circular specimens as mobile devices, for baking bread in particular, and possibly for cooking.

As supposed precursors for early medieval specimens, the dating of certain clay trays to the Roman period was refuted.<sup>154</sup> According to available information, earliest are the specimens from the Muntenia Plain, north-western Romania and the east-Carpathian area, yielded by settlements peaking in the second half of the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century.<sup>155</sup> It is noteworthy that

<sup>146</sup> Constantiniu, Panait 1965, 108, 115.

<sup>147</sup> Comșa 1978, 26, 40 fig. 25.

<sup>148</sup> Comșa 1975, 336, 337 fig. 1.

<sup>149</sup> Chelcea 1968, Babić 1972, Krauss, Jeute 1998, 513, and Mesnil, Popova 2002. These circular larger clay pans do not have the same function as the rectangular roasting trays (Pleterski 2008, 142).

<sup>150</sup> For example, Herrmann 1986, 272, Krauss, Jeute 1998, 514–515, Ghenescu 2002, 81, and Herold 2006, 10. They amass well heat and are very efficient when set on top domeless ovens; since these were less hot on top of domed ovens, they were not suitable for baking, function which could be fulfilled when they were set on top of outdoor fire places (Pleterski 2008, 142). For baking bread use see also Filipchuk 2008, 73. The old Slavic term *prga* (*pražmo*) refers to roasted grains, yet not fully baked or to certain special food by-products (Pleterski 2008, 126).

<sup>151</sup> One does not exclude their use to dry grains (Herrmann 1986, 271–272). Their use to store flour was also considered (Kraus, Jeute 1998, 514 footnote 29), dough battering (Herrmann 1986, 272) or even in connection with metallurgical activities (Szmoniewski, Lityńska-Zajac 2005, 225, 227).

<sup>152</sup> Krauss, Jeute 1998, 514–515. Grain storage in wooden barns or textile bags is proven not only by ethnographic parallels, but also by other archaeological finds, for instance, those from the Lower Danube (Olteanu 1983, 70).

<sup>153</sup> Krauss, Jeute 1998, 515–516. Other authors had also considered the use of roasting trays, regardless of their shape, to bake bread or dry grains. See also Ghenescu 2002, 81, with references. Without explanations, their multifunctional role is indicated in Parczewski 1993, 69.

<sup>154</sup> Nizna Myšľa in Slovakia (Fusek 1994, 78), Wólka Lasiecka in Poland (Parczewski 1993, 69) and Dulceanca I in Romania, south of the Carpathians (Stanciu 1998a, 231 with footnote 19).

<sup>155</sup> With reference to the 6<sup>th</sup> century, see also Parczewski 1993, 69 and Fusek 1994, 78.

either more or less in all these regions they were associated with clay pans from the very beginning.<sup>156</sup> Earlier specimens from Slovakia, Poland, Bohemia, Moravia and eastern Germany were dated to the 7<sup>th</sup> century or the 7<sup>th</sup> – 8<sup>th</sup> century.<sup>157</sup> Earliest since the second half of the 7<sup>th</sup> century, but more securely in the following century, these trays diffused along with clay pans throughout the whole Central Eastern Europe, peaking in settlements of the 8<sup>th</sup> – 9<sup>th</sup> century. This is valid for Transylvania and north-western Romania, likely also its western regions, then to the east and south of the Carpathian Mountains.<sup>158</sup> The latest specimens known on the territory of Romania date to the 11<sup>th</sup> – 12<sup>th</sup> century, reported in sites from the Lower Danube.<sup>159</sup>

### **Structures located outside dwellings used for bread baking and generally, cooking or with mixed functions; the issue of supply storage**

#### ***“Bread-baking ovens” and hearths*** (Figs. 14–15)

Often, the denomination “bread-baking oven” may be found in at least the Romanian archaeological literature concerned with the study of the early medieval period, used with reference to a clay oven set outside houses, which also functioned as such.<sup>160</sup> The explanation is not erroneous as such ovens were suitable to bake flat-breads and possibly, of leavened bread,<sup>161</sup> but also for cooking in general.<sup>162</sup> However, multifunctionality of such fire devices has been always considered (usually, their possible metallurgical or pottery function firing being excluded<sup>163</sup>): to dry grains, vegetables, fruits, to dry and smoke meat.<sup>164</sup> In Central, Eastern and South-Eastern Europe domestic ovens were used throughout the 1<sup>st</sup> millennium AD and later on until the late Middle Ages.<sup>165</sup> In connection with their specific functions, it is worth noting that their surface is commonly larger than indoor ovens.<sup>166</sup>

Examples known in north-western Romania, with parallels in other geographical areas, indicate ovens that did not lay at the settlement’s ground level. Originally, an oval or rectangular pit was excavated and in its walls the cavity of the oven itself was carved (flat circular or oval and semi-circular in section), it was fully lined with a few centimetres thick clay layer. So that the oven was better thermally insulated by the base, a second clay layer was placed under the first, formed by potshards or flat stones. In order to guarantee long-term use, such structures had to be roof protected, although its traces are difficult to identify (Fig. 14/5).<sup>167</sup> However, one may assumed these did not last too much in time, because of the pressure exerted by the earth on top the dome, so that several ovens were often identified in connection with the same pit, although these did not necessarily operate concurrently. In fact, such ovens are identical in all respects and functioned similarly to those carved in more or less sunken dwelling walls, so they lay outdoors and could not heat the indoor space much (Fig. 16/3).<sup>168</sup>

<sup>156</sup> Together with clay pans, the clay roasting trays were present in the Early Slavic period only with the Eastern and Southern Slavs, and later diffused on an extended area (Herrmann 1986, 267).

<sup>157</sup> Stanciu 2011, 260, with references.

<sup>158</sup> Ghenescu 2002, 80.

<sup>159</sup> Comşa E. 1959, 108–109 and Ghenescu 2002, 80, with references to bibliography. In connection with the early medieval habitation at Krivina (Bulgaria) clay roasting trays, some circular were identified, with burning traces, compared to the *podnitsa*, used until today (Krauss, Jeute 1998, 516).

<sup>160</sup> E.g. Teodor 1984a, 49, 50, 63 etc., Teodor E. S. 2000b, 128, 135–136, and Mitrea 2001, 122.

<sup>161</sup> As for the Carpathian Basin, literary sources, ethnographic and linguistic data proved that consumption of leavened bread started from the 16th century (Fodor 1986, with references to bibliography).

<sup>162</sup> As examples: Ruttkey 1990, 338; Šalkovský 2001, 99; Kuna, Profantová 2005, 111; Pleinerová 2000, 193–194; Pryshcepa, Gorbanenko 2016, 119. Such ovens ensured higher thermal insulation compared to those raised at ground level (Ruttkey 1990, 343).

<sup>163</sup> However, specific situations prove their use also to fire pottery: Fedorovo I (Kotigoroshko 1977, 81–82, 84 fig. 3/1, 94, 98); Radovanu (Comşa 1981); Dulceanca I (Dolinescu-Ferche 1969); Bucharest–Str. Sf. Ioan cel Nou (Teodorescu 1972, 75–76 with fig. 1); Bucharest–Dămăroaia (Rosetti 1934, 212). See also Magomedov, Smilenko 1990, 399

<sup>164</sup> Méri 1963, 276–279; Fodor 1986, 191; Ruttkey 1990, 345.

<sup>165</sup> Méri 1963; Fodor 1986; Ruttkey 1990; Šalkovský 2001, 123; Fusek, Zábajník 2010, 166–167; Pryshcepa, Gorbanenko 2016.

<sup>166</sup> Méri 1963, 273, 275 and Fodor 1986, 185.

<sup>167</sup> Méri 1963, 275, 279 and Fodor 1986, 185.

<sup>168</sup> Ruttkey 1990, 343 and Šalkovský 2001, 93, 95. One should pose a question in connection with the operation of such ovens, namely, if a flue was needed, to ensure combustion and smoke discharge from the house. For views to this effect,

According to available records, ovens of the sort were relatively few in early medieval settlements from north-western Romania (7/8<sup>th</sup> – 9/10<sup>th</sup> century), but somewhat more than those dated to the second half of the 6<sup>th</sup> century and first third or half of the 7<sup>th</sup> century),<sup>169</sup> as evidenced by the information for sites investigated to a wider extent. They are missing from the settlement at Poț-La baraj, almost fully investigated.<sup>170</sup> Such an oven was reported in the settlement from Zalău-Mihai Viteazul Blvd. (Fig. 14/4),<sup>171</sup> two were found in the settlement of Aghireș-Sub pășune, site investigated to a significant extent (Fig. 14/2-3)<sup>172</sup> and in the settlement of Marca-Sfârăuș (Fig. 14/1).<sup>173</sup> Few as they were, it is uncertain whether they were used jointly by a number of

including in connection with indoor ovens or excavated in their walls (structures with mixed role): Méri 1963, 275, 279 and Ruttkay 1990, 337-338, 343, 345 (with references to bibliography). On the issue, a comment in Stanciu 2011, 143-145, with a reconstruction suggestion in fig. 45.

<sup>169</sup> Stanciu 2011, 163-165 and Stanciu, Virag 2013.

<sup>170</sup> Matei, Băcuet-Crișan 2011.

<sup>171</sup> Băcuet-Crișan S., Băcuet-Crișan D. 2003, 35, 140 pl. 43. Possibly, some of the postholes in its vicinity could evidence a protective roof.

<sup>172</sup> Băcuet-Crișan *et al.* 2009, 30 (features C.43/2008 and C.105/2009), 30, 36, 188 pl. 88, 234 pl. 134/C.105. Such an oven was also found in the settlement of Săcueni-Surodomb (Cosma 2002, 221-222 no. 174).

<sup>173</sup> Băcuet-Crișan, Bejinariu 2020, 34 (C. 33/2012), 188 pl. 77.

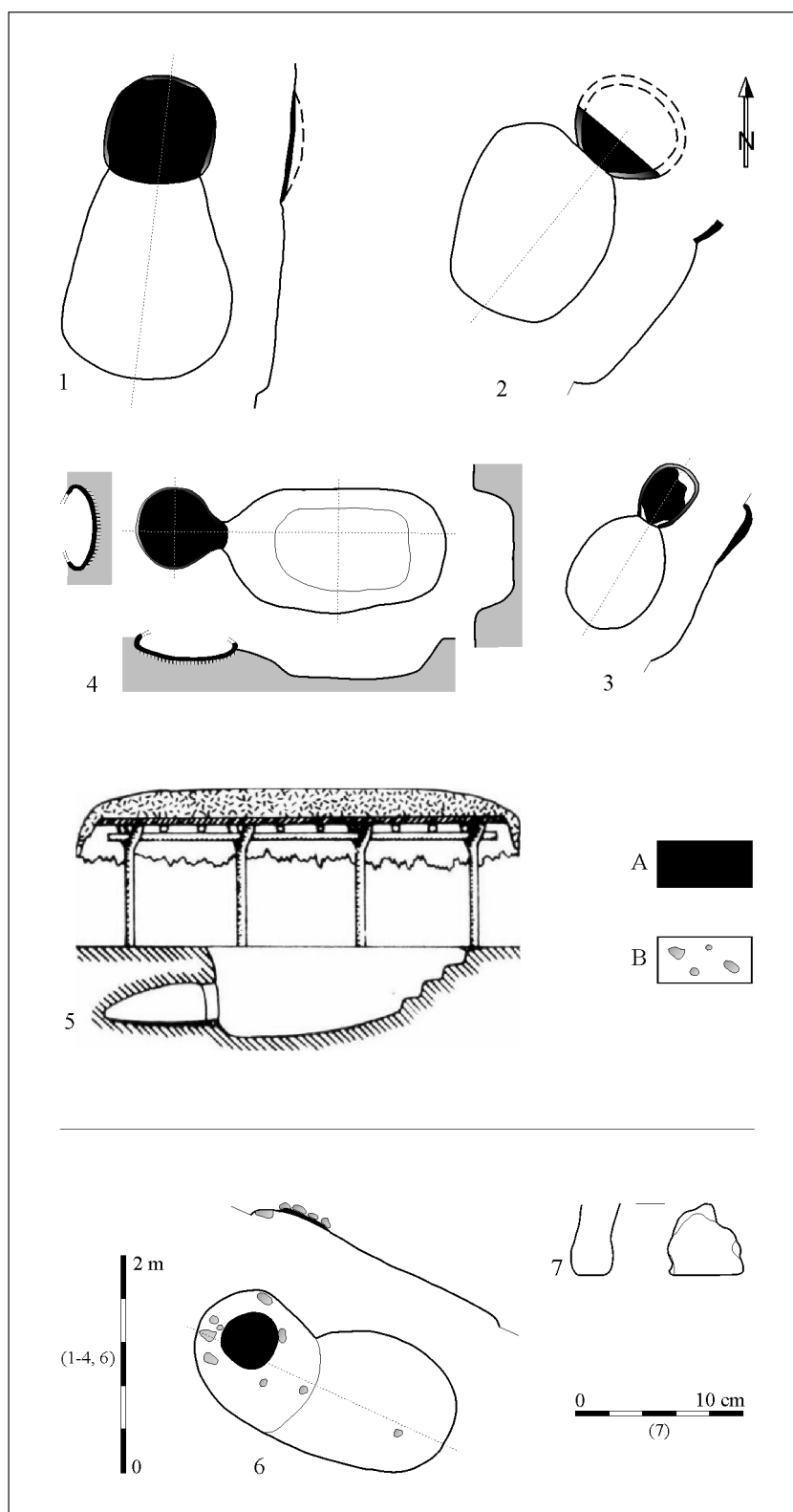


Fig. 14. 'Bread-baking ovens' outside the dwellings (isolated ovens): Marca-Sfârăuș, feature C.33/2012 (1); Aghireș-Sub pășune, features C.61/2008 (2) and C.105/2009 (3); Zalău-Mihai Viteazul Blvd., feature C.1/1998 (4). 5: proposal for the reconstruction of such a structure (Fodor 1986, 186 fig. 1). 6-7: a relatively similar structure, but at the end of a pit was a hearth probably lined with stones (a fragment of baking bell comes from this feature - Marca-Sfârăuș, feature C.31/2012. Graphic processing after Băcuet-Crișan, Bejinariu 2020 (1, 6-7), Băcuet-Crișan *et al.* 2009 (2-3), and Băcuet-Crișan 2006 (4). A - clay oven (probably a stone-lined hearth at no. 5). B - stones.

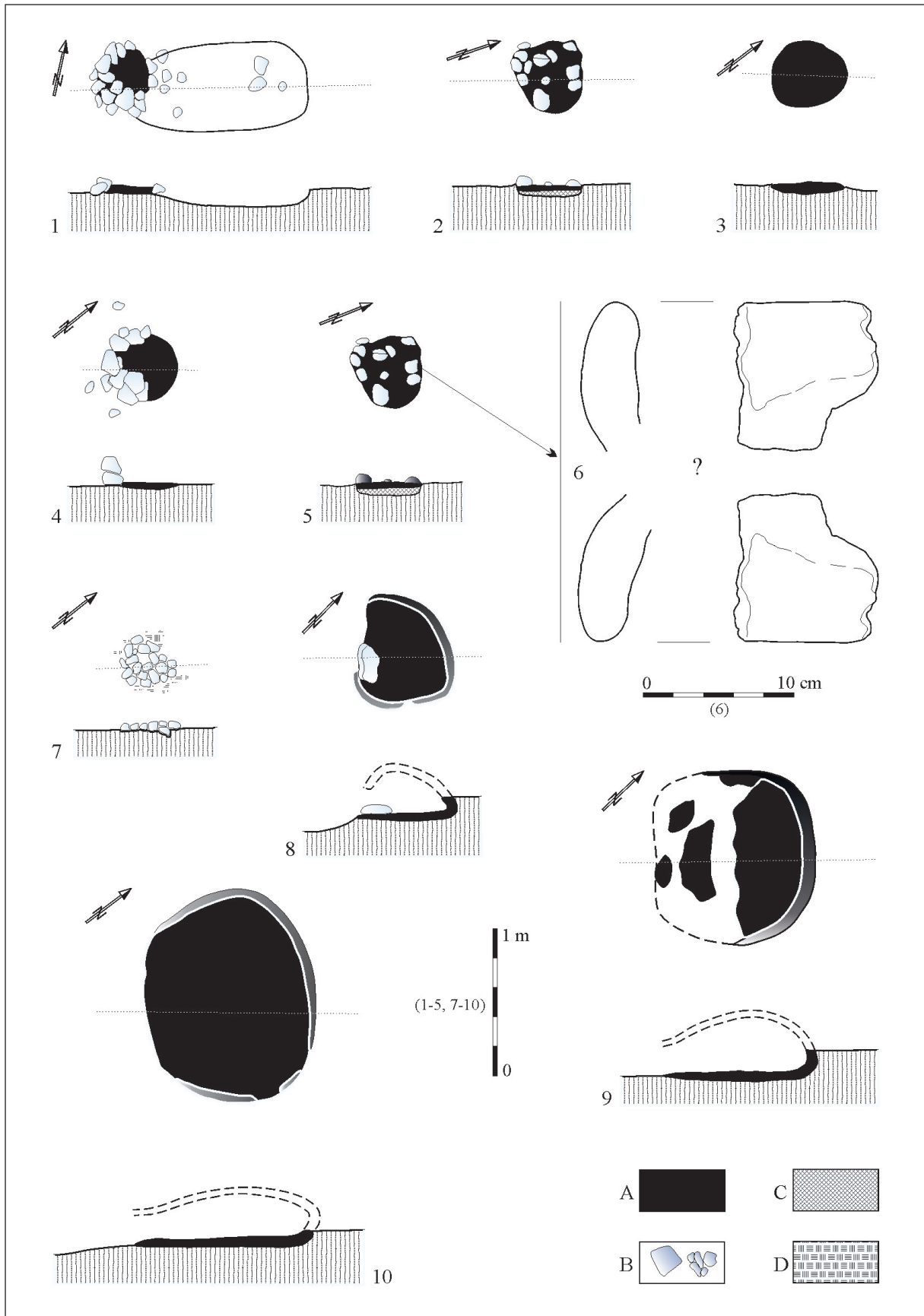


Fig. 15. The Aghires-Sub pășune settlement, fire devices placed outside the dwellings: hearts, mostly bordered by stones (1-7) and clay ovens on the ground level of the settlement (8-10). Features C.30-1/2008 (8), C.45/2008 (9), C.52/2008 (10), C.58/2008 (3), C.63/2008 (1), C.98/2008 (4), C.102/2009 (7), C.110/2009 (2), and C.113/2009 (5). A: fireplace. B: stones. C: scorched earth under the fireplace. D: charcoal and ash. Graphic processing according to Bacuț-Crișan *et al.* 2009.

families, at any rate, their flat distribution indicates connection with a specific household in certain settlements.<sup>174</sup>

Open hearths or fireplaces delimited by stones used indoors or outdoors could replace clay or stone oven functions,<sup>175</sup> but were not suitable to bake bread or flat-bread unless baking bells were used.<sup>176</sup> If their efficiency was higher in terms of low fuel consumption and easy set up, their more restricted area also indicates specific functions, such as roasting small pieces of meat. Regarding the outdoor fire devices, firstly of the hearths, certain differences between settlements are obvious, such notes being more secure when sites investigated to a larger extent are compared, although widely dated to the 8<sup>th</sup> – 9<sup>th</sup> century (sometimes the second half of the 7<sup>th</sup> century). In the Porț–La baraj settlement from only one hearth, stone delimited<sup>177</sup> was identified, while in Zalău–Mihai Viteazul Blvd.<sup>178</sup> and Lazuri–Lubitag<sup>179</sup> settlements, hearths are missing entirely. To a wider extent, outdoor hearths or stone delimited hearths were highlighted in the settlement at Marca–Sfârâuș<sup>180</sup> and especially in the settlement of Aghireș–Sub pășune (Fig. 15).<sup>181</sup> It is likely that for shorter timespans, within the same communities changes occurred in fire devices' design, perhaps even in connection with certain specific culinary practices. On the other hand, one may assume that certain traditions survived as reflection of differences between early medieval communities from north-western Romania and even within delimited geographical micro-areas.<sup>182</sup>

### **Structures more likely with mixed functions** (Figs. 16–17)

These are rare, like for instance in the settlements of Aghireș–Sub pășune and Porț–La baraj (Fig. 16/1–2). Such structures, alongside other build forms, are commonly positioned nearby houses, yet which differentiates them from houses is the exclusive presence of ovens carved in one wall, so they could not heat the indoors (Fig. 16/3).<sup>183</sup> Although traces did not survive or these could not be identified (as pillared construction), one may assume they were at least roofed. A single existing oven, which could not operated for extended periods, suggests these constructions were in use for rather shorter periods of time.

Unquestionable is the use of ovens to bake bread and cook food in general, such structures operating like “summer kitchens”. Also, from case to case, they could be used as supply storage spaces (grains, first of all and tools), and when the outside temperature allowed, for sleep.<sup>184</sup>

From the same settlement of Aghireș–Sub pășune comes the interesting example of a structure used with a number of changes occurring over two phases. It was assumed it originally functioned as small house, provided with an oven carved in the wall of one of the shorter sides; later, after disuse, indoor was built a clay oven, with a working space (pit) in front (Fig. 17/1).<sup>185</sup> Connection elements with the roof of the presumed house were not identified, however it is not excluded that the part near the first oven lay indoor the original construction, sunken into a sort of clay “bench”. There are parallels for such structures “with bay-shaped stoves”, being mainly explained in connection with bread baking and grain drying and grinding.<sup>186</sup> It is unclear why in order to continue operations on site the original oven was not rebuilt or replicated, and why they chose to build “a bread-baking oven” (possibly with another purpose, as well) inside the first structure.

<sup>174</sup> Stanciu 2016a, 65 fig. 39; Ruttkay 1990, 345; Méri 1963, 274 (the Arpadian period).

<sup>175</sup> Ruttkay 1990, 338, 340–341.

<sup>176</sup> Bálint 1990, 24, 60 and Pleterski 2008, 142.

<sup>177</sup> Matei, Băcuet–Crișan 2011, 33 (C.16/2007), 127 pl. 43.

<sup>178</sup> Băcuet–Crișan S. Băcuet–Crișan D. 2003, 32–38.

<sup>179</sup> Stanciu 2016a.

<sup>180</sup> Băcuet–Crișan, Bejinariu 2020, 32–35 (with sometimes unclear explanations).

<sup>181</sup> Băcuet–Crișan *et al.* 2009, 25–38.

<sup>182</sup> This should be the topic of a presumably interesting distinct examination. For example, intensified presence of indoor clay ovens and hearths, existing houses or other structures with less common shapes (such as those from the settlement of Porț–La baraj), planning of the inhabited space layout, of course in connection with the specificities of the geographical conditions on site.

<sup>183</sup> Ruttkay 1990, 343; Šalkovský 2001, 93, 95; Pryshcepa, Gorbanenko 2016, 117.

<sup>184</sup> Sometimes quern-stone fragments and even grain seeds were identified in connection with such structures (Pryshcepa, Gorbanenko 2016, 117–119).

<sup>185</sup> Băcuet–Crișan, Bejinariu 2020, 29 (C.31/2008), 179 pl. 79.

<sup>186</sup> Pryshcepa, Gorbanenko 2016.

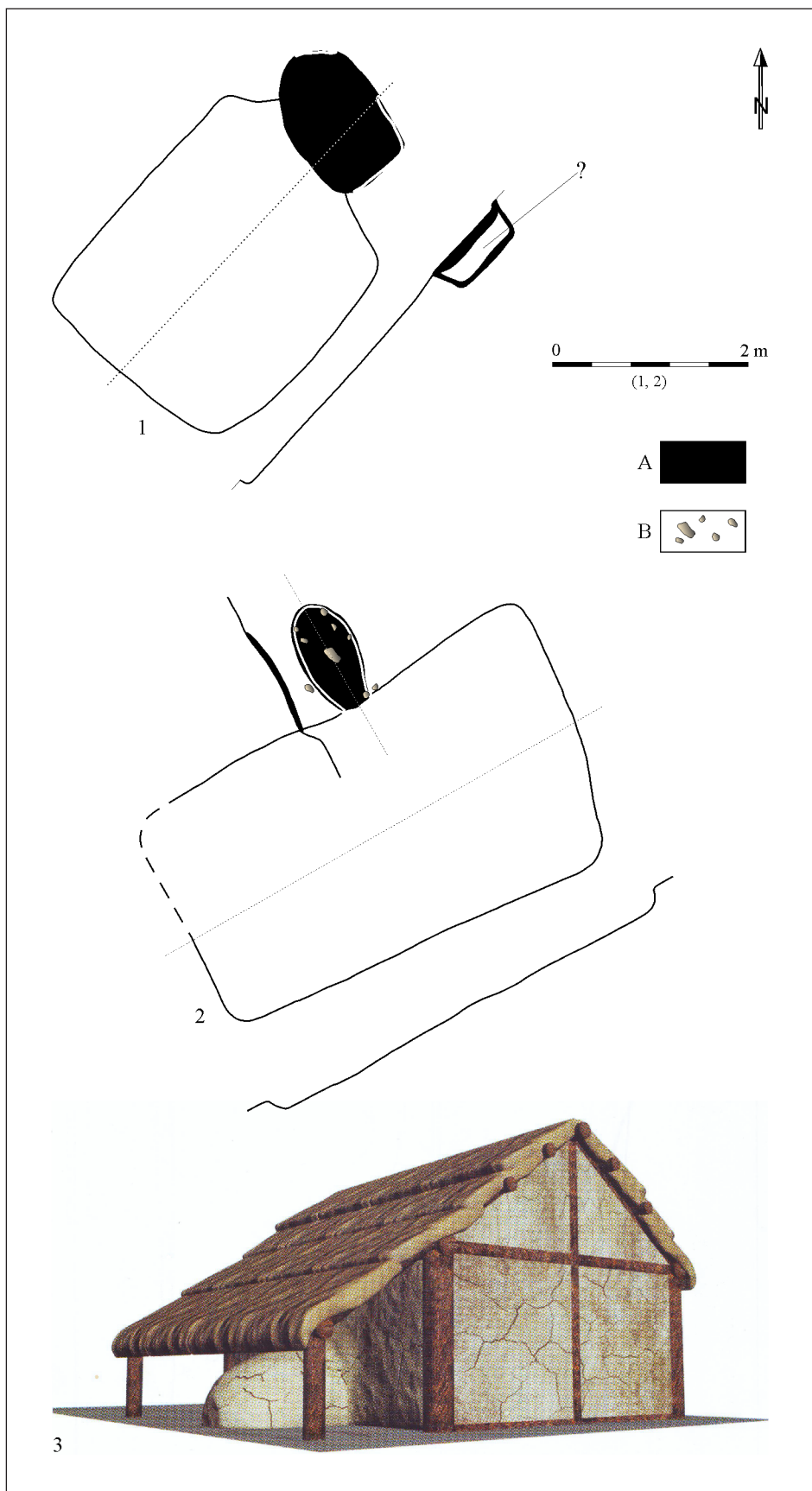


Fig. 16. Examples for structures provided with clay ovens located outside the dwelling itself. Aghireș–Sub pășune, feature C. 43/2008 (1) and Porț–La baraj, feature C. 40/2007 (2). 3: proposal for the reconstruction of dwelling C. 107 from the settlement of Aghireș–Sub pășune; one aspect must be noted, that is, the outdoor clay ovens could not heat the interior of the dwelling, but in this case there was a fire installation inside this structure (source – Băcuet–Crișan 2014). Graphic processing after Băcuet–Crișan, Bejinariu 2020 (1) and Matei, Băcuet–Crișan 2011 (2). A – oven. B – stones.



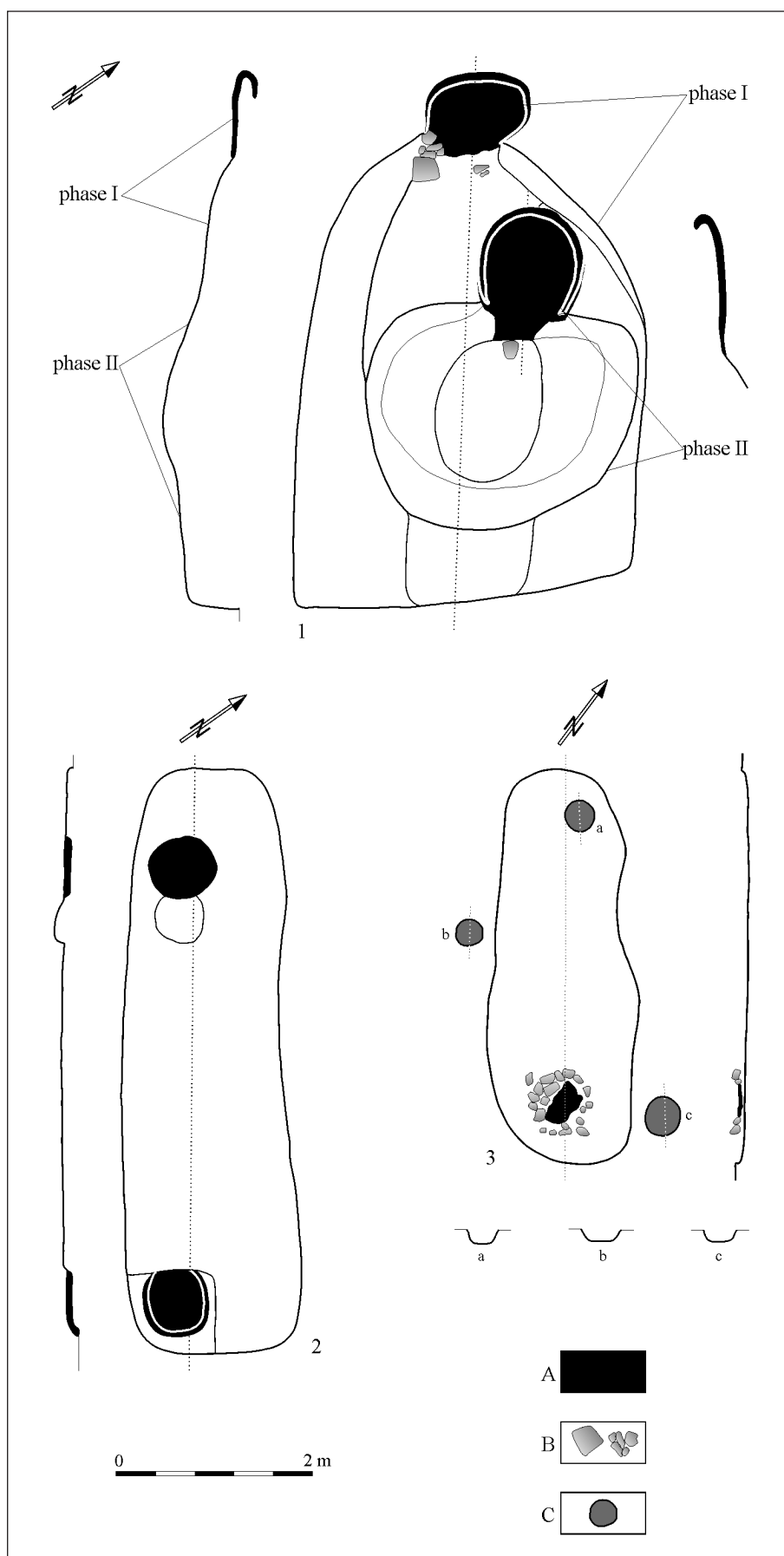


Fig. 17. Non-residential structures or with mixed functions, provided with fire installations. Aghireş–Sub pășune, features C. 31/2008 (1), C. 29/2008 (3), and C. 71/2008 (2). Graphic processing after Băcuciu-Crișan *et al.* 2009. A – fire installations. B – stones. C – post holes.

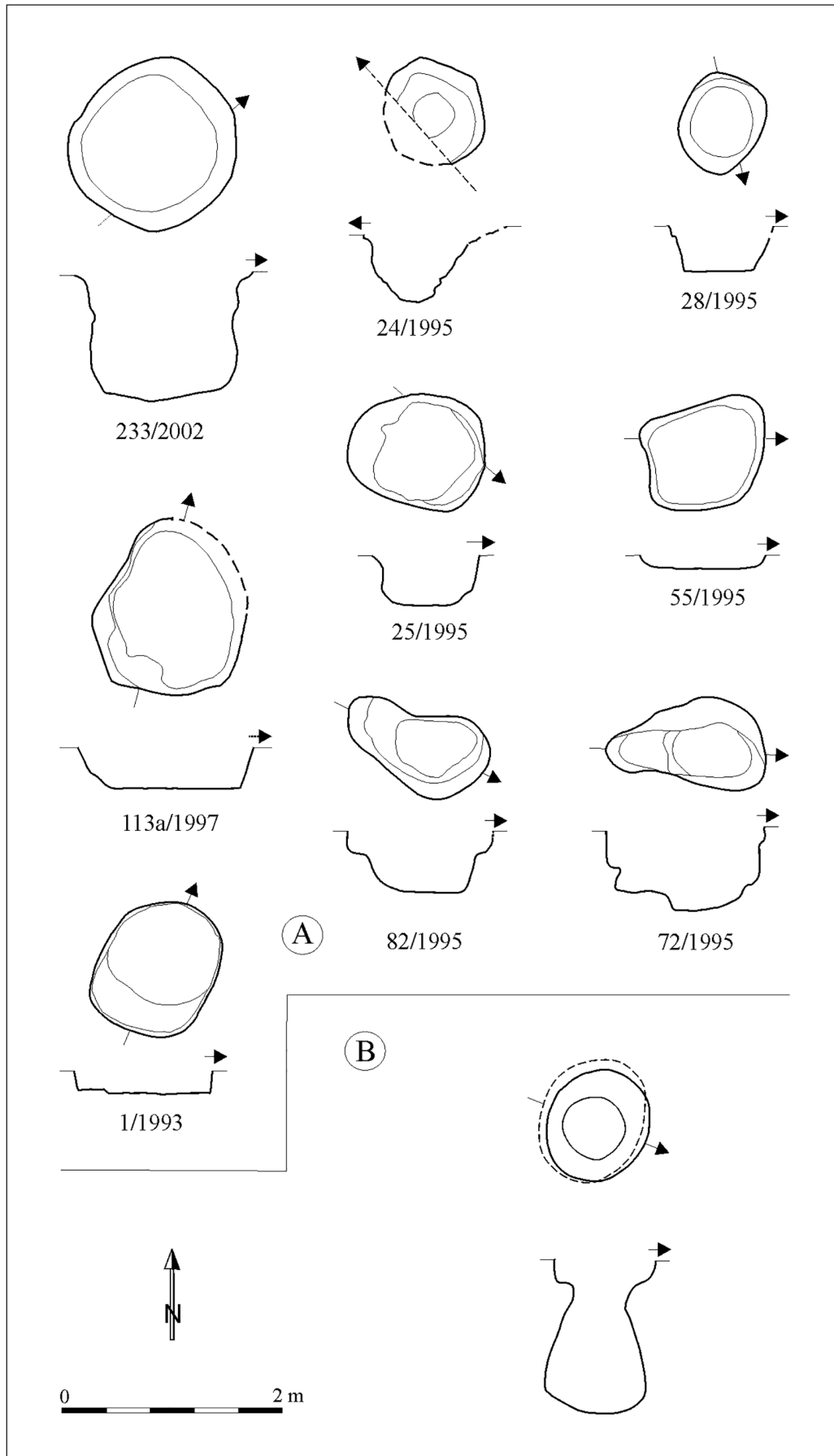


Fig. 18. Various pits, probably mostly used for storing supplies. The settlements from Lazuri-Lubi tag, the markings for features are indicated (A; source – Stanciu 2016a) and Aghireş-Sub păşune, feature C. 55/2008 (B – graphic processing after Băcuet-Crişan, Bejinariu 2020).

Structures sunken from the old ground level, of smaller sizes and elongated flat shape (in one case, some of the postholes supporting the roof survived – Fig. 17/3) and provided with indoor fire devices, usually hearths (examples in Fig. 17/2–3) are also curious. The flat shape of such structures and their limited area are issues contradicting the use as houses. Relatively similar there is a feature from the settlement at Marca-Sfârăuș, which yielded a baking bell fragment, suggestive of at least one of the functions of such structures (Fig. 14/6–7).<sup>187</sup>

### **Storage pits** (Figs. 18–19)

Smaller pits are not too many in the settlements from north-western Romania, while their function was varied, becoming, at least by the end of their use, waste pits, as evidenced by the remains found in their filling; most often, these contained remains discarded subsequent to oven cleaning, animal bones being almost constantly present. Their shape was usually flat oval or circular (Fig. 18/A). Fewer had vertical straight walls, so those circular must have been generally cylindrical in shape, in others walls were more or less curving towards the base, sometimes forming steps.<sup>188</sup> Less common are pits with a flat sharpened oval shape and irregular walls (Fig. 18/A.72-1995 and 82-1995). Because their upper parts did not survive, it is impossible to say whether they narrowed in this segment, which was specific to storage pits.<sup>189</sup> Such a pit is reported only for a feature in the settlement at Aghireș-Sub pășune (Fig. 18/B).<sup>190</sup> Indications on any special works such as wall and bottom plastering and/or burning for improved insulation and protection against rodents and insects, yet possibly, such traces did not survive.

Although relatively few, such pits were identified in all settlements from north-western Romania investigated to a more or less larger extent, commonly distributed in-between the houses.<sup>191</sup> They are also known in other geographical areas, with similar shapes and volumes,<sup>192</sup> yet it is uncertain whether all were used as storage pits, those with limited area and low depth in particular.<sup>193</sup> It was occasionally presumed that some might have been used to cool wares that contained concoctions intended for immediate consumption, especially when these smaller pits lay in the near vicinity of the dwelling.<sup>194</sup> It is believed that the purpose of larger and deeper pits was to store and preserve grains and vegetables, as food supplies, but also for subsequent harvests. For these food supplies be preserved in good conditions dry soil was compulsory, as well as also seed drying. Ethnographic parallels and some archaeological contexts often indicate that the walls and bottom of such pits were straw insulated, usually rye or spelt straws, more resistant or a straw, cane or reed netting was used to cover the upper part of the storage pit. The closure had to be tight, the upper part being sealed with clay or earth resulted from the pit's excavation, sometimes mixed with straws and manure. Although rare, occasional traces of a covering roof made of light materials were identified, nevertheless, most of the times a conical mound was erected above the storage pit sometimes made of clay mixed with straw and manure, waterproof material, which hindered water infiltrations. Certain minerals, plant or even animal by-products could be used to better store grains and for protection against insects and rodents. Usually, the pit was opened only once, and if in good condition, it could be reused.<sup>195</sup>

In connection with the production possibilities of each community, but also as possible reflex of economic and social differences among its members, it is worth to examine the storage capacity of the storage pits. Feature 233/2002 from the settlement of Lazuri-Lubitag draws attention, with a volume around three m<sup>3</sup>, substantial, much above the average for this settlement or other settlements (Fig. 18/A.233).<sup>196</sup> In the Moravian settlement of Břeclav-Líbivá, large size pits also drew attention, with

<sup>187</sup> Băcuet-Crișan, *Bejinariu* 2020, 34, 185 pl. 84.

<sup>188</sup> In the upper part their area varies from 0.50 sqm up to 1.80 sqm and their volume (considering the depth from the old ground level) varies between 0.70 m<sup>3</sup> and 3 m<sup>3</sup>. These specifications refer to the pits from the settlement of Lazuri-Lubitag.

<sup>189</sup> For instance, Herrmann 1985, 76 and Brather 2008, 174.

<sup>190</sup> Băcuet-Crișan, *Bejinariu* 2020, 31 (C.55/2008), 199 pl. 99/C.55.

<sup>191</sup> Băcuet-Crișan 2014, 64.

<sup>192</sup> For example, a classification of the numerous circular or oval pits from the settlement of Mužla-Čenkov I, with habitation dated between 9<sup>th</sup> – 12<sup>th</sup> century (Hanuliak, Kuzma, Šalkovský 1993, 61 fig. 10, 62 fig. 11/1–14, 201–222 pls. 16–37). See also Donat 1980, 80–82.

<sup>193</sup> Băcuet-Crișan 2014, 64.

<sup>194</sup> Hanuliak, Kuzma 2012, 263.

<sup>195</sup> Herrmann 1985, 76–77; Miret i Mestre 2005; Donat 1980, 81–82, with fig. 21; Corbu 2013, 70–73. Ethnographic parallels for such pits in Dumitrescu 2010, 390–391.

<sup>196</sup> For example, pits of large sizes in the settlements of Břeclav-Líbivá, where most of them have the volume of over 1 m<sup>3</sup>, up

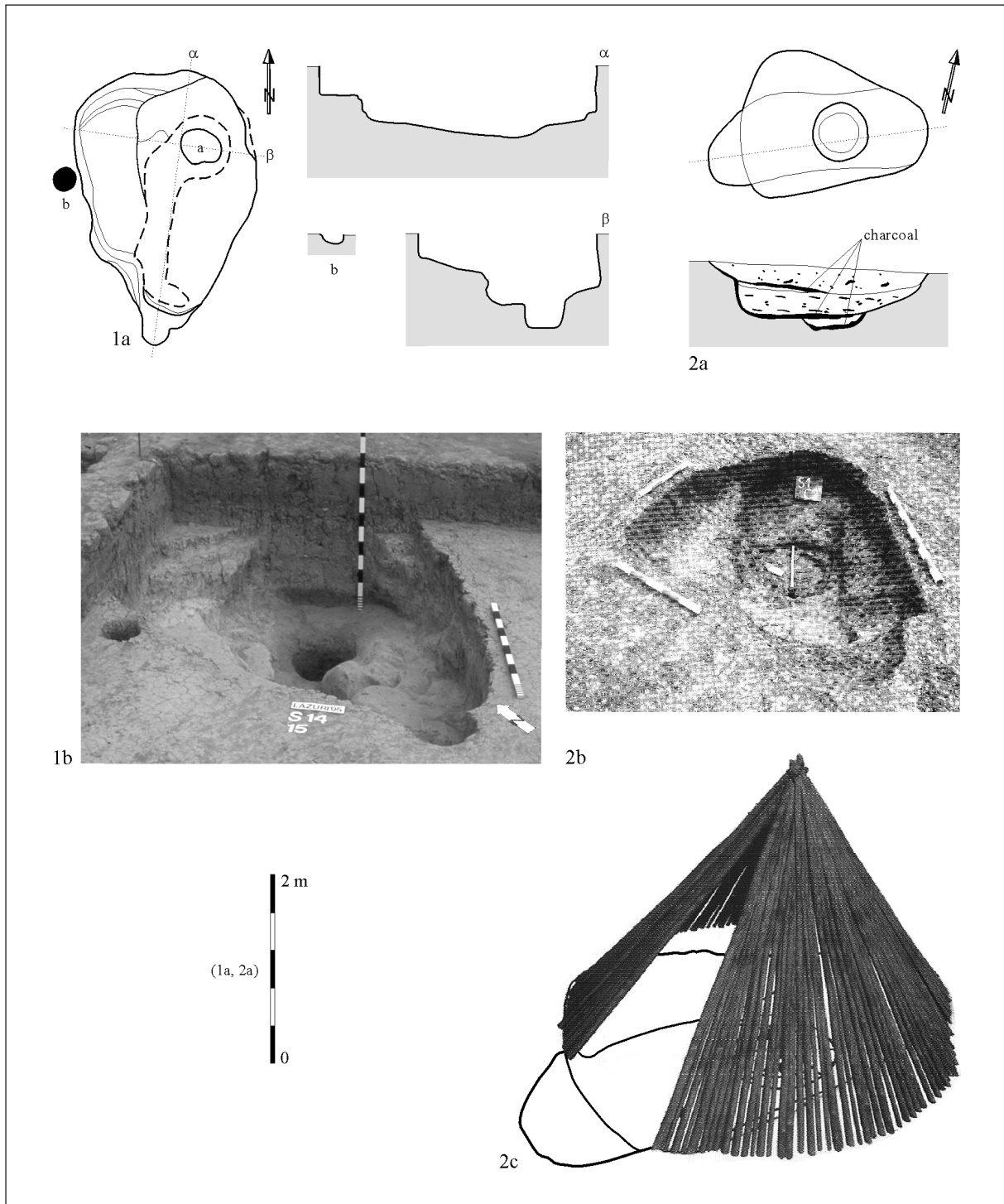


Fig. 19. The settlements in Lazuri–Lubi tag, feature 15/1995 (1 – source Stanciu 2016a) and Zalău–Școalaveche/Valea Mâții (2, source Băcuet-Crișan *et al.* 2009). 2c: reconstitution proposal Băcuet-Crișan 2014.

capacities of up to three m<sup>3</sup> and it was presumed that the smaller contained supplies necessary for consumption within the community, while the grains from the larger pits were designed to supply the centre at Břeclav-Pohansko, nearby.<sup>197</sup> Although such an explanation cannot be proposed for the pit of Lazuri, it is possible in this case we are dealing with supplies meant for the entire community or some families, possibly grains stored for future crops.

to 2.67 m<sup>3</sup> (Macháček 2001, 47 fig. 7) or Chl'aba, with a pit which measures 3.3 m<sup>3</sup> (Hanuliak 2016, 106, 129 pl. V/feature79). Those with determined volume from the settlement of Vlădeni–Popina Blagodeasca have capacities between 1.6 m<sup>3</sup> and 3.3 m<sup>3</sup> (Corbu 2013, 70–73).

<sup>197</sup> Macháček 2001, 44.

In areas with excess soil humidity such pits were inadequate to store grains, therefore one should consider existing special structures, specifically designed for this purpose and built at ground level, yet whose traces did not survive. One may consider structures made of wattle or intertwined branches, insulated with plaster and protected against bad weather by a light roof. Furthermore, grains, vegetables and even dry fruits could be stored in textile sacks, twig baskets or wooden crates stored in constructions similar to houses, with an oven carved in the wall or even entirely missing any fire device, such structures being also known in north-western Romania.

In the same settlement of Lazuri there is yet another much deeper, stepped structure similar to a cellar used outside the house. It is likely that the hole identified in the north-eastern side had belonged to a post supporting a conical roof, yet this explanation is uncertain (for instance, a larger vessel could be placed there). A secure posthole is that nearby the western side, yet difficult to explain in relation with an ordinary roof (Fig. 19/1).<sup>198</sup> A similar feature was reported in the settlement from Zalău – Școala veche dated to the 10<sup>th</sup> – 11<sup>th</sup> century, which also contained much charcoal in the filling, yet neither in this case were identified traces of onsite burning (Fig. 19/2). It was interpreted as storage space (evidently, grains or certain foods), the similar structure from Lazuri likely fulfilling the same function.<sup>199</sup>

## Animal husbandry

### *Artefacts related to animal husbandry* (Fig. 20)

Few such objects were identified within the settlements, yet they rather convincingly support such activity. Under the common designation, “sheep shearing scissors”, such a tool was found only in the settlement of Cuceu–Valea Bochii (Fig. 20/1).<sup>200</sup> Customary for the entire duration of the 1<sup>st</sup> millennium AD, but known before and used a long time after the period of interest here,<sup>201</sup> these were used to shear sheep and wool processing, but they could be just as useful for making apparel, for instance.<sup>202</sup> They were present in male graves from the Avar Khaganate as well, and a more recent examination evidenced their distribution especially along the left bank of the Tisza, a region suitable for sheep wintering. Such scissors are frequently present in Moravian tool and weapon hoards as well.<sup>203</sup>

Connected to animal husbandry are the cowbells of bronze sheet (material more expensive than iron at the time), notable being the two exemplars identifier in the settlement of Marca–Sfârâuș, although excavations there did not extend over a wider area (Fig. 20/2–4).<sup>204</sup>

The importance of horses is well-known in the Avar Khaganate environment, illustrated by the burial practices in general and the various components of the horse harness placed in warrior graves. This image is also mirrored by some burial finds from the south-western segment of the territory under examination here, located to the north-eastern periphery of the Avar Khaganate. Examples include a bit from a grave at Valea lui Mihai (Fig. 20/6)<sup>205</sup> or another item from Săcueni (Fig. 20/5),<sup>206</sup> places in the same northern part of Bihor county.

### *The bone material* (Figs. 21–25)

Specialized analyses of bone materials have been available for only certain settlements so far, respectively Lazuri–Lubitag, Popeni–Pe pogor and Cuceu–Valea Bochii.<sup>207</sup> Without too many

<sup>198</sup> Stanciu 2016a, 268–269 (feature 15.1995), 401 pl. IV.

<sup>199</sup> Băcuet-Crișan *et al.* 2009, 11, 13, 110 pl. 10 and Băcuet-Crișan 2014, 46–67, 298–299 pls. 118–119.

<sup>200</sup> Matei, Stanciu 1994, 138, pl. VII/6. It is less likely, but there could be two neighbouring settlements, today the locations are designated with different toponyms, Popeni–Pe pogor and Cuceu–Valea Bochii. For this explanation, see also Băcuet-Crișan 2006, 2.

<sup>201</sup> Stanciu 2016a, 243 footnote 912, with references to bibliography.

<sup>202</sup> With reference to the Roman period see also Duvauchelle 2005, 76–78, 186–189 pls. 38–41.

<sup>203</sup> Stadler 2005, 98, 145 pl. 177. For Eastern regions see Koloda, Gorbanenko 2018, 115, with fig. 5.10.

<sup>204</sup> Băcuet-Crișan, Bejinariu 2020, 34 (C.43/2012), 55, 206 pl. 95/4, 220 pl. 109, 225 pl. 114.

<sup>205</sup> Némethi 1983, 146 pl. 7/2.

<sup>206</sup> Cosma 2014, 565 fig. 3, 570.

<sup>207</sup> Lazuri–Lubitag: Gudea, Cosma 2002, 60–92; Stanc 2009a; Stanciu 2016a, 244). Popeni–Pe pogor and Cuceu–Valea Bochii: Stanc, Malaxa, Băcuet-Crișan D. 2020. In the settlement of Lăpușel–Ciurgău, animal bones are extremely few and badly preserved due to the acidity of the soils there.

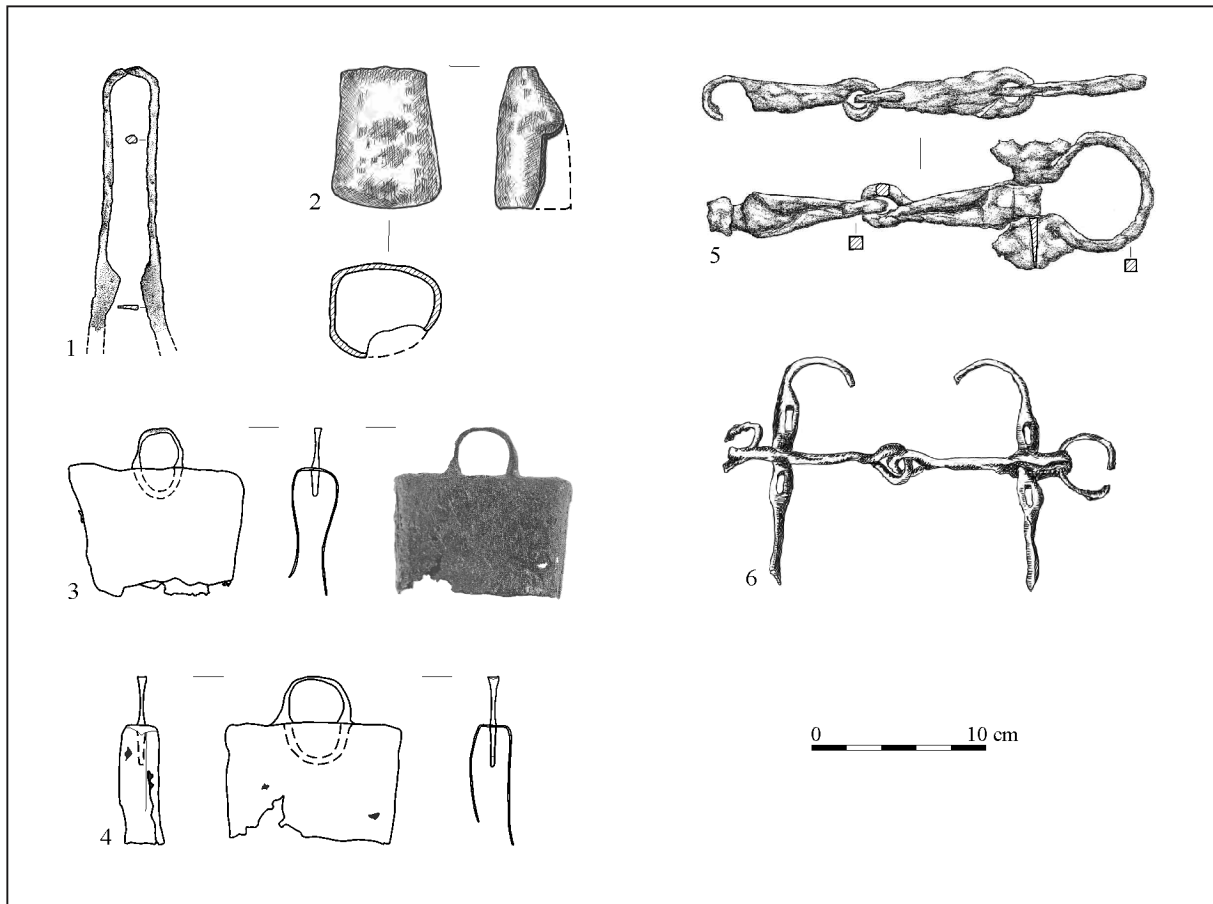


Fig. 20. Artifacts related to animal husbandry. The settlements Cuceu–Valea Bochii, feature L.2 (1 – source Stanciu, Matei 1994), Ghenci–Lutărie, feature G.1/1986 (2, source Némethi 1992–1993), Marca–Sfârâuș, features 43/212 (4) and trench S.V/2012 (3 – the drawings of both items are taken from Bacueț–Crișan, Bejinariu 2020), and probably a settlement in Săcueni–Cartierul țigănesc (5, source Cosma 2014). 6: Avar grave from Valealui Mihai–Rétalj (6, source Cosma 2002). Iron: 1–2, 5–6. Bronze sheet: 3–4.

differences, large cattle prevail, used as food source and obviously as animals of burden, followed by the choice for the domestic pig and ovicaprids. Certain differences among the settlements, such as the more extensive presence of ovicaprids in the site of Popeni or the absence of domestic chicken from Popeni and Cuceu may be still subjects of debate, yet these notes are rather relative as they may be influenced by the quantity and quality of the bone material yielded by each settlement.

However relative it would be, the image that such statistics offers in relation to an important aspect of the performed economic activities and sustenance of the early medieval communities from north-western Romania, it is similar to that known for the entire Carpathian Basin, area where certain local trends were noted as well.<sup>208</sup> Without great differences, this image seems to be common to other regions nearby, for instance most early medieval settlements in the eastern and southern vicinity of the Carpathians, including the Dobrudja, a province located between the Danube and the Black Sea.<sup>209</sup>

Irrespective of all explanations, according to a not too old examination, in the northern regions of the Alps, Central Europe and even farther to the north, during the 8<sup>th</sup> – 13<sup>th</sup> century, weight of pig consumption was higher.<sup>210</sup> Association between cattle, pig and ovicaprids, in this order, was specific to the early medieval settlements from the Eastern half of Europe, nevertheless a comparison between

<sup>208</sup> Bartosiewicz 2003.

<sup>209</sup> Stanc 2006, 53–56, 66–69, 79–101 and Stanc 2009b, 64–74. In Dobrogea, at Dumbrăveni (Constanța county), likely a 9<sup>th</sup> – 10<sup>th</sup> century monastery, the collected bone material draws attention by the very high percentage (55.28%) of sheep bones (Stanc 2009, 98–100, with indication of bibliography).

<sup>210</sup> Brather 2008, 176, 177 fig. 46, 178 tab. 5. Examples in Janiak 2008, 100 and Poláček 2008, 277. In non-agrarian settlements, pork consumption was even more marked (Brather 2008, 192). However, there are cases evidencing dominance of cattle or even of wild animals in some settlements (Herrmann 1968, 87–90 and Herrmann 1979, 50, 54–65 with footnote 12). The adjustment of animal economy to geographical conditions, respectively the high relief, is evidenced in Slovenia's case (Toškan 2022).

the settlements from this stretched geographical area could evidence serious differences in this hierarchy. It was occasionally noted the relatively constant position of ovicaprids, while the quantitative ratio between cattle and pigs varies in proportionally reversed terms.<sup>211</sup> In medieval Russia, for instance, sheep meat consumption was not preferred, while various sources reference the consumption of horse meat until a late period.<sup>212</sup>

In the Lazuri settlement more or less bones of animals were found in almost all investigated archaeological features. Pit 115/1997 (datable as it cut through the filling of a second half of the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century house) draws attention as it was entirely filled with bones of many animals, without a certain order. Out of a total of twenty-five determinable remains, half are cattle, followed by pig, sheep and goat.<sup>213</sup> Such distribution could be specific to the entire settlement. It is not excluded this pit was the result of a community feast held on a certain occasion.

Regarding the structures identified within the settlements, the question of how at least some of the domestic animals were protected during winter and how their food was ensured still remains to be answered. For the absence of more secure evidence in the field, one may assume that cattle shelters might have been in existence somewhere in the settlement's vicinity.<sup>214</sup> The importance of woodlands, much more stretched in the past and of the natural or deforested clearings, extensively harnessed by the traditional communities, should not be overlooked. In autumn, once acorns and beechnuts were ripe, pigs could be sheltered throughout winter in woodlands and in simple shelters under the surveillance of individuals who built seasonal houses there. For cattle, taken to the forest in summer times and occasionally left there in winter times<sup>215</sup> as well, ethnographic data reference light fenced structures set in clearings that also offered shelter to caretakers. For the early 19<sup>th</sup> century – perhaps slightly overstated – it was noted that animal stables were scarce or even absent in villages from Moldova.<sup>216</sup> Thus, one should not expect that in ancient

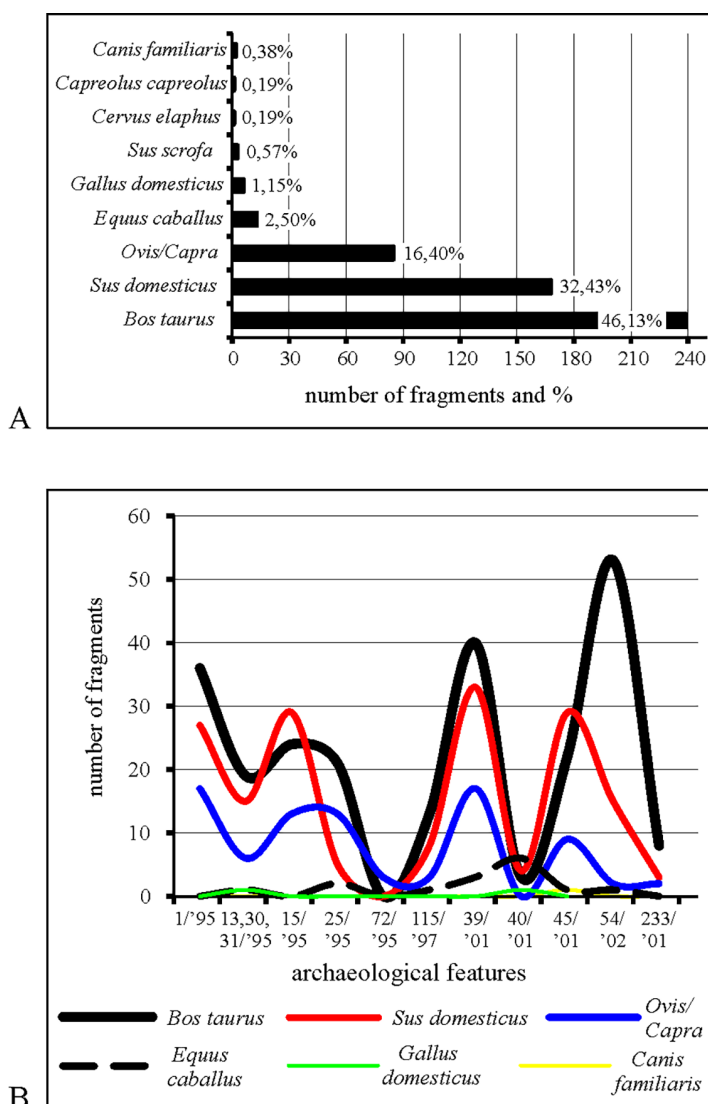


Fig. 21. Quantitative distribution of animal species in the settlement in Lazuri-Lubi tag. All investigated structures are taken into account, according to the number of bone fragments that can be determined (A). Distribution in features, according to the number of bone fragments that can be determined (B). Source: Stanciu 2016a.

<sup>211</sup> Corman 1998, 73, 2066 chart 5.

<sup>212</sup> Woronin 1959, 247–248.

<sup>213</sup> Stanciu 2016a, 271–272, 414 pl. XVII/5–5a.

<sup>214</sup> Constantinescu 1972, 50. In an area near the settlement of Coconi, in Dridu-La metereze a cattle stable was investigated to a large extent, originally believed a 11<sup>th</sup> – 12<sup>th</sup> century fortress and ascribed to the Patzinaks (Ioniță 1996–1998, especially p. 314–315).

<sup>215</sup> Stahl 1998, vol. I, 214–256, 261–262.

<sup>216</sup> Stahl 1998, vol. 1, 259, with references to the source.

times domestic animals had been sheltered differently, especially since there is not much difference in climate conditions.

The view that cattle and in particular horse stables are an important, unless even a decisive criterion which defines peasant households is disputable. The fact that animals were not sheltered throughout the year would be indicative of not only certain animal husbandry practices, but also of certain social differences in terms of private property.<sup>217</sup> Nonetheless, ethnographic examples show, this could be, especially in the case of the early medieval period, a strictly economic issue, respectively the communities' choice for simpler and more efficient animal husbandry. On the other hand, remains of fencing works or light constructions did not survive in settlements or their identification is challenging.

At least in some regions, old animal breeding practices, more securely documented for the medieval period or times closer to nowadays, were mainly collective in nature, obviously in natural relationship with geographical variables, climate, but also under the influence of community traditions. This includes firstly sheep breeding and transhumance of smaller or larger sheep flocks, also connected to the processing of the so important dairy products.<sup>218</sup>

**Complementary food sources – hunting and fishing**

As highlighted by archaeozoological data, wild animals completed part of protein sources, especially since in the discussed geographical area woodlands covered large land areas in the past.

The results of bone material analyses performed for the three settlements mentioned above evidence significant disproportions between the number of domestic

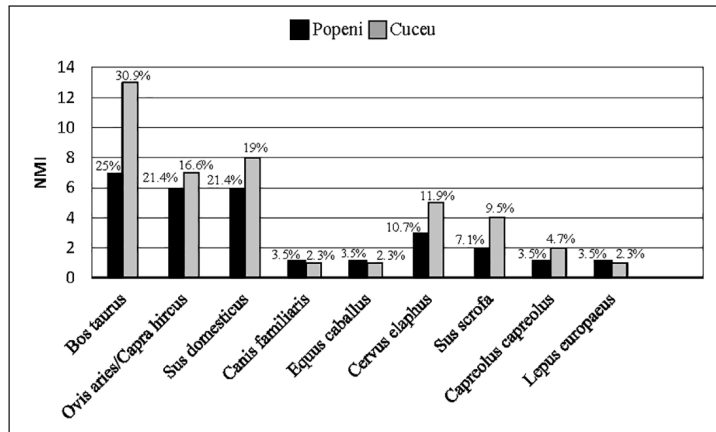


Fig. 22. Quantitative distribution of animal species in the settlements of Popeni–Pe pogor and Cuceu–ValeaBochii in relation to the minimum number of specific individuals (NMI). Source: Stanc, Malaxa, Băcuț-Crișan D. 2020.

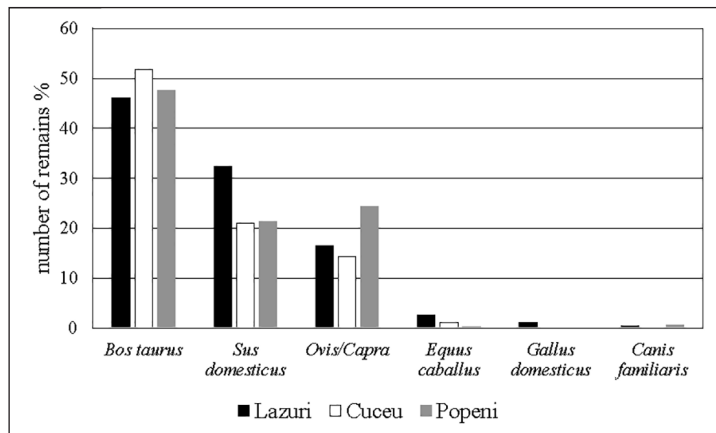


Fig. 23. Quantitative distribution of animal species in the settlements Lazuri–Lubi tag, Cuceu–Valea Bochii, and Popeni–Pe pogor. Calculation according to the percentage returned to determinable bone fragments.

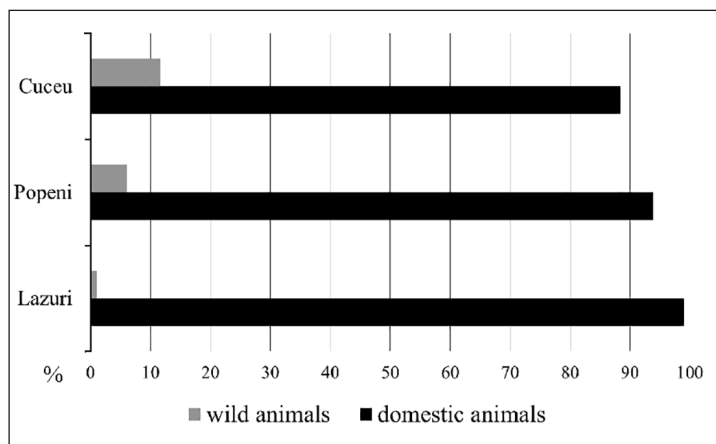


Fig. 24. Proportions between wild and domestic animals in settlements from Cuceu–Valea Bochii, Popeni–Pe pogor, and Lazuri–Lubi tag. Calculation according to the percentage returned to determinable bone fragments.

<sup>217</sup> Donat 1985, 184–185.

<sup>218</sup> Stahl 1998, vol. I, 258–259.



animals and the presence of game, to the peremptory favour of the former (Fig. 24). Circumstances in the region here confirm those recorded in the entire Carpathian Basin and evidence the secondary importance of the game.<sup>219</sup> It is possible that in certain communities hunting was more important, as suggested by the more significant presence of this activity in the settlement of Cuceu-Valea Bochii compared to the settlement of Lazuri-Lubitag, from where very few wild animal bones were collected. Apparently, differences also existed between game species, preferentially boar in the settlement of Lazuri-Lubitag and stag in the settlements of Popeni or Cuceu (Fig. 24). It is not excluded this was due to the uneven presence of wild species, in accordance with the geographical specificity of various micro-areas and possibly, consumption choices. The so rare presence of rabbit is curious in the settlements from north-western Romania, so much more so as this meat source was available to the commoners.<sup>220</sup> Some of the few arrowheads, possibly also the longer knives discovered in the settlements<sup>221</sup> could be used especially for hunting, yet wild animals could also be captured by bait too. In relation to a geographical area like the one corresponding to the northwestern part of Romania (and the Upper Tisza region in general), where most species of wild animals are still present today, such an image does not appear convincing.

Fish bones have not been reported to date in the early medieval settlements from north-western Romania, although the food resource must have been harnessed especially since the region is crossed by many rivers, to which add the stretched marshlands, some of which storing water constantly throughout the year.<sup>222</sup> One should include here a number of clay tube-shaped items (well-fired, compact, about 4-8 cm long and diameter not exceeding 3 cm), such as those discovered in the settlements of Lăpușel and Sarasău in the north-west<sup>223</sup> or Transylvania (Fig. 26).<sup>224</sup>

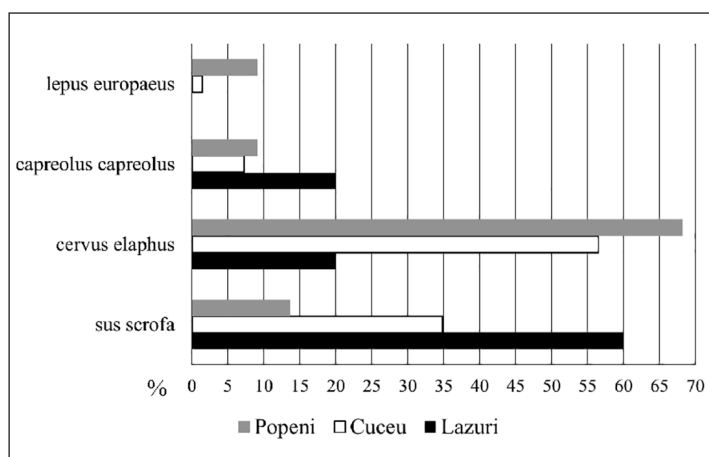


Fig. 25. Quantitative distribution of wild animal species in settlements from Popeni-Pe pogor, Cuceu-Valea Bochii, and Lazuri-Lubi tag. Calculation according to the percentage returned to determinable bone fragments.

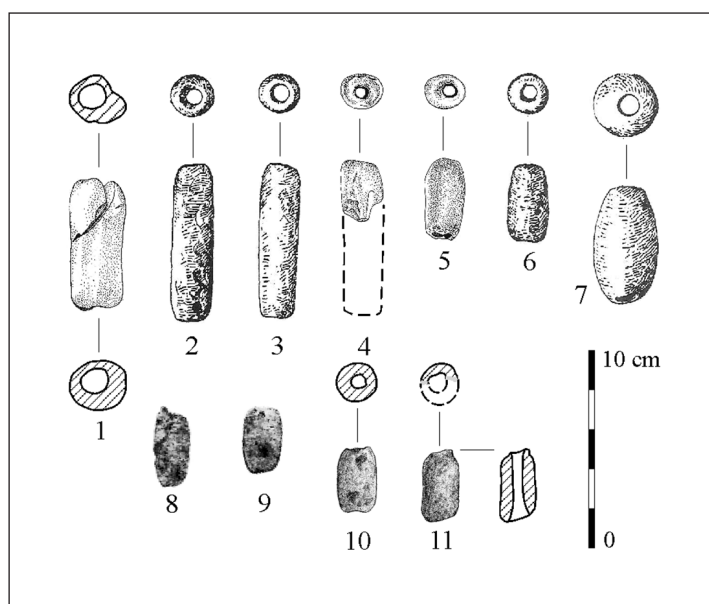


Fig. 26. Burnt clay tools in the settlements in North-West Romania – tubular items, possible weights for the fishing net. 1, 4-5, 12: Lăpușel-Ciurgău (source Stanciu 1994). 2, 3, 6, 7: Sarasău-Zăpodie (source Popa 1971). 8-9: Filiaș-Pârăul lui Kálmán Tanorok (source Székely 1974-1975). 10-11: Jucu de Sus-TETAROM III (source Bonta 2017).

<sup>219</sup> Bartosiewicz 2003, 115 with tab. 6.

<sup>220</sup> Bartosiewicz 2003, 115.

<sup>221</sup> Stanciu 2016a, 252 fig. 211/1-16, 258 fig. 215.

<sup>222</sup> Similarly to bird bones, they are small and most – also in relation to soil specificity – did not survive or are in such a poor condition that the archaeologist failed to notice them (Bartosiewicz 2003, 108).

<sup>223</sup> Lăpușel-Ciurgău: Stanciu 1994, 35-36, with pl. XX/9-11. Sarasău-Zăpodie: Popa 1971, 614 fig. 11, 662.

<sup>224</sup> Filiaș-Pârăului Kálmán Tanorok (Székely 1974-1975, 42, pl. X/15-16) and Jucu de Sus / Răscruci-TETAROM III (Bonta

Most likely these were used as lighter weights for fishing nets, especially since they were yielded by settlements located on larger river banks (the Tisza, Lăpuș, the Someșul Mic). They were occasionally explained as loom weights<sup>225</sup> (but they are too light), elsewhere they were believed beads worn at neck, a suggestion more difficult to agree with.<sup>226</sup> Similar clay items are reported in the medieval settlement of Coconi, which lay on a lake shore nearby the Danube, also explained as fishing net weights.<sup>227</sup>

## Conclusions

From one geographical area to another, the second half of the 1<sup>st</sup> millennium AD corresponded to a period when the structures of European society shifted, evolving on the path of the medieval model (feudal). Overall, content, pace and effect differences between the Western<sup>228</sup> and Eastern parts of the continent were often underlined. In addition, variables for more limited regions were noted. In this respect, without further details, it would be easy to prove that the territory of today's Romania was explained with too much consistency as a territory of synchronous, uniform developments and joint results.<sup>229</sup>

Also, the second half of the 6<sup>th</sup> century was characterized as a phase of continuous expansion of the Slavs in Eastern Europe and habitation consolidation, a process accompanied by stable social organization.<sup>230</sup> Nonetheless, this explanation restricts the course of evolutions that more likely occurred over longer timespans, covering also good part of the 7<sup>th</sup> century, namely the Early and Middle Avar periods, common denominations to the archaeologists for the Carpathian Basin. At any rate, with reference to the environment established for the Slavs of the period and especially for the geographical area of interest here, evidence on the existence of social and economic differences is too little.

Archaeological data show that during the 7<sup>th</sup> century, in more secure terms, the second half of the 7<sup>th</sup> century, corresponded to a period of structural transformations occurring throughout the Central Eastern and Eastern Europe, emphasized during the following period. Certain local trends were constantly noted, so this process was highlighted by the more complex organization of settlements (more structures, other than dwellings), emergence of fortified settlements in some territories, later some fortified residential centres, initiation of show-wheel turned pottery production and generally, advances in the production activities, last but not least in agriculture. Closely connected with these changes, relaunched habitation has always been noted, which meant demographic growth recorded in various locations (Fig. 2).<sup>231</sup>

As for north-western Romania and the number of sites date to the 8<sup>th</sup> – 9<sup>th</sup> century (more difficult to prove, but some extending in the 7<sup>th</sup> or 10<sup>th</sup> century) comparison with previous habitation records, namely the second half of the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century, attributed to the early Slavs (“Lazuri – Pișcolt horizon”) is most eloquent. In terms of habitation inhabitancy, the difference between the two periods is substantial, even though the former covers about three centuries and the latter one century. One should add that more restricted chronological framing of settlements from one period or another is questionable, while one and the same community could vary within a micro-region. It is noteworthy that most information is known precisely from areas where field surveys were more persistent.

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2017, 119 fig. IV.3).

<sup>225</sup> Popa 1971, 613.

<sup>226</sup> Székely 1974–1975, 42.

<sup>227</sup> Constantinescu 1972, 78, pl. I/2–6. Similar in shape and sizes are also the clay bellows tubes used in metallurgical furnaces, such as the one found in a house from the east-Carpathian settlement of Lozna, together with many iron blooms and clay crucibles (Teodor 2011, 17, 125 fig. 42/2). However, these clay bellows components most often have their heads outlined and were modelled coarsely, while the longitudinal orifice diameter is larger than the diameter of items reported in Fig. 26. For clay tubes used in bellows: Podliska 2008, 143–175 with fig. 11 and Bialeková 2008, 340 fig. 8.

<sup>228</sup> Regarding the progress of agriculture and generally, the socio-economic changes occurring in Western Europe, a brief yet convincing examination in Crabtree 2010.

<sup>229</sup> A suitable example: Olteanu 1983. Justified critical position in Popa 1991a and Popa 1991b. See also Curta 2013.

<sup>230</sup> Barford 2001, 55–56.

<sup>231</sup> Olteanu 1983 (with many disputable interpretations); Gojda 1991, 25–33; Parczewski 1993, 136–138; Barford 2001, 67–80; Ruttkay 2002; Dulicz 2006, 243–250; Buko 2008, 78; Filipchuk 2008; Macháček 2010, 345–353, 381–385; Gorbanenko, Pashkevich 2010, 58, 92, especially pages 109–110, 186–201, 219–220, 236–243, 248–252; Stanciu 2016a, 76–85.

Lastly, the difference between the two periods is confirmed by the horizontal extension of more recent habitation, advancing to the uplands, the network of previous settlements clustering only on main river valleys. Habitation was relaunched during the 7<sup>th</sup> century in north-western Romania, which may be explained by successive movements in time of Slavic populace groups in particular arrived from the north or north-west, under the control of the Avar Khaganate, as it was sometimes presumed.<sup>232</sup>

The climate improvement since the 7<sup>th</sup> century must have positively influenced habitation in the upper Tisza basin area, while pollen analyses indicate that in north-western Romania between AD 500–1500 human influences on woodlands increased, fire being mentioned in connection with deforestations and use of the land thus obtained for grazing or soil cultivation.<sup>233</sup>

The demographic growth must have triggered increased food demand, hence the extension of cultivated lands nearby settlements, especially by practising the so-called slash-and-burn agriculture.<sup>234</sup> Agricultural equipments also required improvement in order to farm more stretched land plots and productivity growth. Likely, primary tillage further necessitated versions of plough fully made of wood (just as other tools exclusively made of this material), attested in certain regions until late Middle Ages,<sup>235</sup> however it provided only superficial ploughing. Unlike the previous chronological segment, an essential plough part, the iron ploughshare is documented in this period. It was the main plough element directly supported on the ground ensuring efficient working of even rocky or recently deforested lands.<sup>236</sup> The use of such ploughs with animal traction is also suggested by cattle pre-eminence among domestic animals, as evidenced by the examination of the archaeozoological material. Coulters ploughs, iron components of simpler or improved ploughs which ensured enhanced output and higher ploughing quality have not been reported to date.<sup>237</sup>

An important indicator for grain growth in direct connection with their harvesting are the iron sickles, known items being rather few, occasionally deposited in graves and thus carrying a symbolical value. They have a balanced shape, preserving the quality of most sickles used in the Roman period and Late Antiquity.<sup>238</sup> Garden hoes or spade iron frames reference mainly the more extensive and efficient practising of gardening, however such tools could also be used for other purposes, such as excavating wells and pits, in general.

Habitual in settlements are the remains of quern-stones, devices so necessary to grind grains. They have ordinary shapes and design in various places, suitable stone being supplied by the uplands, usually lying at quite large distances from many of the settlements. The choice of raw material and its working required experience, proper tools and individuals skilled in their production. Grain consumption is indirectly recorded by the high frequency of clay pans in house inventories, many examples being found in the same location, which highlights a net difference compared to the previous period. Baking bells started to emerge as novelty element likely during the second half of the 7<sup>th</sup> century, relatively

<sup>232</sup> Examples: Rusu 1973, 197; Comşa 1987, 224; Popa, Harhoiu 1989, 265; Teodor 1994–1995, 361; Stanciu 1999. Such interferences are difficult to identify, possibly except for the emergence in north-western Romania (including the north-western part of the Transylvanian Basin) of cremation barrow graves, with the deposition of the cremation remains in wooden boxes. This could be a more restricted “colonisation” taking place by late 7<sup>th</sup> century or during the first half of the 8<sup>th</sup> century, by new Slavic groups, movement occurring under the control of the Avar Khaganate, with whom the newcomers’ elite had close contacts, as recorded by grave goods. See also Stanciu 1999, with references to bibliography. Also, Cosma 2021 and Cosma 2022. At times, such demographic displacements may be justified in clearer terms. As a result of the Francs intervention in the eastern part of the Carpathian Basin and dissolution of the Avar Khaganate in Moravia, a true demographic growth may be noticed, the newly arrived population likely originating from nearby Danubian regions, as suggested by anthropological analyses (Macháček 2009, 262–263, with references to bibliography).

<sup>233</sup> Feurdean, Astaloş 2005.

<sup>234</sup> For instance, Brather 2008, 171 and Gorbanenko, Pashkevich 2010, 261–264. Bordering towards the north-east the slopes of the Carpathians, the region of the Upper Tisza Basin was always wooded, and the micro-toponymy indicates, at least for the region of the Ukrainian Carpathians, the predominance of names connected to the logging and burning of forests. See Sokil-Klepar 2015.

<sup>235</sup> Vogt 1976, 206–212, 215–2166; Brather 2008, 166–167; Gorbanenko, Pashkevich 2010, 118–119, 125 with fig. 4.10.

<sup>236</sup> Neamţu 1966, 294–295. See also Beranová 1993, 98 fig. 1/1–3, Gorbanenko, Pashkevich 2010, 120 Fig. 4.11/3–6, and Koloda, Gorbanenko 2018, 32–35. For the reconstructed of such plough (the Celtic and the early medieval period types), its use and efficiency, see also Beranová 1993, 101–104.

<sup>237</sup> Henning 1987, 61–63 (the shorter and slightly curved items are widely spread during the early medieval period). Without discussing the dating of early medieval exemplars, we highlight that in the eastern vicinity of Carpathian Basin, oldest coulters ploughs were dated to the 9<sup>th</sup> – 11<sup>th</sup> century. See also Bilavschi 2016, 118–126 with fig. 3.

<sup>238</sup> Henning 1987, 88.

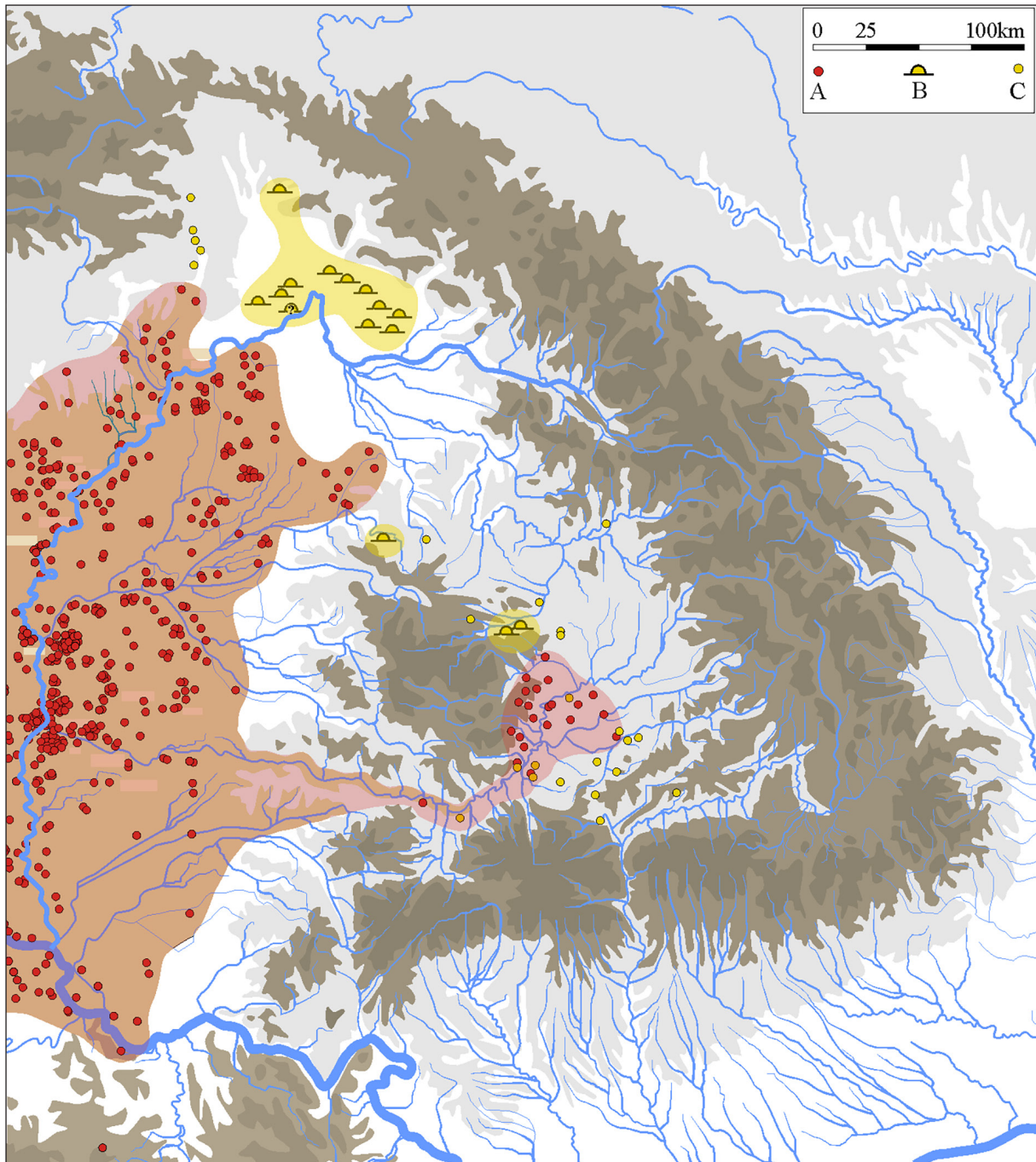


Fig. 27. The eastern part of the Carpathian Basin (the Tisza Plain, the Transylvanian Basin and to the northwest the Upper Tisza region). Moving eastward, a peripheral area of the Avar Khaganate with a dividing line of funerary practice, between inhumation and cremation. The habitation image is indicated by the evidence of burial sites. A: in direct connection with the environment of the Khaganate, flat inhumation graves. B: barrow graves, with the practice of cremation. C: Biritual flat necropolises (incineration/inhumation) or in which only cremation was practiced. The Transylvanian cemeteries that are included in the late 'Reihengräberhorizon' (inhumation) have not been recorded.

frequently reported in 8<sup>th</sup> – 9<sup>th</sup>/10<sup>th</sup> century settlements. These household clay made tools were served the same purpose, but were also suitable to cook certain foods. Roasting trays are often documented in direct connection with the construction of stone or clay ovens, rarely attested before, likely once with late 6<sup>th</sup> century, mostly used to dry grains, but also fruits or vegetables, the latter a part of diet that cannot be neglected.

Most often, it is difficult to provide secure explanations of the various structures identified in dwelling vicinity or irregularly distributed within the settlement, yet most certainly connected with bread baking and clay ovens, sometimes set up in the walls of sunken structures similarly shaped and sized to the houses. Their function must have been mixed, the same applying to other structures as

well, lightly built yet protected against bad weather, like working spaces, tool and supplies storerooms, which could have also been used as houses when outdoor temperatures allowed it. Ethnographic parallels count, yet do not always guarantee arguments for time distant situations.

At times, interpreting some smaller pits as spaces for grain storage is unsecure, especially in soils with excess of moisture. Unlike the previous period, larger clay vessels cannot be referenced, in which grains could be preserved (“storage vessels”). Existing storerooms with base set above the ground level, light constructions, reinforced by wooden posts and intertwined branch or trellis walls protected by an ordinary roof, must be considered, yet the remains of such structures are difficult to identify on site.

Positive data are missing or are too few for the geographical area examined here, namely the paleobotanical remains, which could reference various farmed grain species in reasonable terms.<sup>239</sup> Natural regional conditions,<sup>240</sup> the climate and its fluctuations, but also the persisting cultural traditions conveyed and adopted by smaller or larger communities also counted. Regarding other geographical areas, it is less clear if during the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century, prevailed the millet and “bread wheat” culture, the latter preferred in certain regions since early the 6<sup>th</sup> century.<sup>241</sup> Although seed finds are not too many, millet was identified as the main grain cropped in the “Prague culture” environment, however certain regional differences and even between settlements were emphasized.<sup>242</sup> Next, with regional variations, rye, bread wheat and oats, followed by barley and millet were the main grains cropped in Central-Eastern and Eastern Europe, a marked trend at least in Ukraine towards late 1<sup>st</sup> millennium AD.<sup>243</sup> Such shift may be related to enhanced agricultural tools, firstly evidenced by the diffusion of iron ploughshares, which made possible deeper ploughing,<sup>244</sup> but with the need for improved diet.

Specific data now available for the Carpathian Basin and especially for areas near north-western Romania are insufficient. The presence of the rye in crops is not attested for the Early and Middle Avar period, namely during the last third of the 6<sup>th</sup> century and 7<sup>th</sup> century, yet consistent evidence record this grain and especially the millet presence in sites from the Late Avar period.<sup>245</sup> As for millet and its consumption, as supplementary food, confirmation is provided by the results of stable isotopes analysis, hence from the view of the diet of some communities.<sup>246</sup> Although for the lack of a more restricted chronological sequencing, the record of the domestic vines in north-western Romania during the second half of the 1<sup>st</sup> millennium AD is surprising, likely inherited from the former Roman province environment, in whose vicinity this region developed for the short period of the 2<sup>nd</sup> – 3<sup>rd</sup> century AD.<sup>247</sup>

Animal husbandry played an important role in the sustenance of population and even though unanswered, the question whether this activity’s contribution was greater than commonly believed is justified. Archaeozoological data are relatively few and indicate predominance of large cattle, domestic pig and ovicaprids, possibly in this precise order. One may presume this reconstruction records a relatively common model for north-western Romania, nevertheless there are certain differences and trends within various microareas because interactions between the features of the natural environment and specific cultural traditions were always important in this field, for agriculture in general.<sup>248</sup> Common trait to the entire Carpathian Basin, completion of food resources by hunting wild animals was an activity of secondary importance.

<sup>239</sup> In connection with part of the Someş Plain, pollen samples taken from the nearby mountains indirectly reference the grains cultivated since mid 1<sup>st</sup> millennium AD, but it is unlikely that this information is valid for the entire plain or a more extended space (Feurdean, Astaloş 2005).

<sup>240</sup> With reference to the Carpathian Basin, see Gyulai 2006, 71.

<sup>241</sup> E.g. Beranová 1980, 378, Parczewski 1993, 109, and Szmoniewski 2016, 35. The millet, also eaten as porridge, is a grain with high nutritional potential and was cultivated for a long time not only in the Slavic environment. It did not required deep ploughing or pretentious soils, suitable soils are damp, it was drought resistant, while vegetation and growth periods were short (for instance Gorbanenko, Pashkevich 2010, 194 and Gyulai 2014a).

<sup>242</sup> Gorbanenko, Pashkevich 2010, 155, 186, 198–199 figs. 6/18 and 6/19; Gorbanenko 2017; Szmoniewski 2016, 35–36; Pleinerová 2000, 230 tab. 10 (feature 212), 231; Fusek 1994, 144.

<sup>243</sup> Wasylkowa *et al.* 1991, 207–239; Brather 2008, 173, along with comments and references to bibliography; Gorbanenko, Pashkevich 2010, 187–190, 194, 199–201.

<sup>244</sup> E.g. Gorbanenko, Pashkevich 2010, 174, 199–200.

<sup>245</sup> Gyulai 2006, 65–66 tab. 1, Gyulai 2014a, 40–41, and Gyulai 2014b, 39.

<sup>246</sup> In nutrition terms, there were differences between even horizontally close communities. See also Faragó *et al.* 2022.

<sup>247</sup> Grindean *et al.* 2015, 116–117 fig. 3, 123.

<sup>248</sup> E.g. Bartosiewicz 2003, 111–113.

Regarding the north-western territory of Romania, there is little information related to the previous period, namely the second half of the 6<sup>th</sup> century and first half of the 7<sup>th</sup> century, bone material being analysed only for the Lazuri–Lubitag settlement. Results indicate the same association of main domestic species (cattle, domestic pig and sheep/goat), which is a common aspect of many contemporary settlements similar to Lazuri, however in the latter, pig was more consistently present. Also, the separate examination of archaeological features yielding animal bones point to a rather confusing image, proportions between the three mentioned species varying much, which should deserve more attention and discussion.<sup>249</sup>

Farming and animal breeding were key components of economic structures specific not only to early medieval society, yet reconstruction opportunities are much restricted in the examined area by the small amount of positive data, while the lack of information supplied by literary sources is difficult to supplement. Evidence of land farming, artefacts representative for agricultural outfitting are few, yet their rareness could be justified, since at the time iron was precious, while its and non-ferrous metals recycling ensured materials easy to obtain and assumingly cheaper.<sup>250</sup> The progress of economic activities and organization of the society as a whole, with social hierarchies in the process of formation, were interlinked. Improvement of agricultural tools was closely related to the advance of specialized crafting production and ability to harness natural iron resources, activities mirrored by the quantity and quality of the finished products.

Inquires about the content of processes that over the 7<sup>th</sup> – 9<sup>th</sup>/10<sup>th</sup> century led to on site shifts in the feudal society remain important. For the lack of written information and without forcing data provided by archaeology, possible more convincing answers are still awaited. In contrast with the previous period and the simple model of the early Slavic culture, agricultural machinery conspicuously evolved in the following period, which must have meant increased production. Agriculture and sustenance of early medieval communities in the geographical area discussed here and the entire Upper Tisza area remain topics for further investigations, while interdisciplinary approaches are greatly expected.

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<sup>249</sup> Stanciu 2011, 310–312.

<sup>250</sup> For instance, Fleming 2012. Without further details, one also consider tool and weapons storages, but also the iron ingots (in at least certain areas), referring the importance of iron, alongside its social connotations. At least for areas near north-western Romania, see Curta 1997 and Canache, Curta 1994.

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