AVAR CHRONOLOGY REVISITED, AND THE QUESTION OF ETHNICITY IN THE AVAR QAGANATE

Peter Stadler

The Avar age (ca. 570 to ca. 800) was a period of great significance for the early medieval history of Europe. The Avar qaganate was the creation of an elite of nomadic horsemen of eastern origin. Its early history is known from literary sources, but for the later part (ca. 700 to ca. 800), very few, if any such sources are known. However, the Avar age can now be studied in great detail on the basis of archaeological excavations of cemeteries and, lately, of settlements as well. During the last fifty years or so, considerably energy has been invested in sorting out a firm chronology for the archaeological assemblages of the Avar age. Even though the chronology of Avar history seemed clearly anchored to known moments in history, in fact only the date for the Avar conquest of the Carpathian Basin (568) has received general acceptance. By contrast, the end of the Avar qaganate, an event historians place in the early 800s, has been dated by various archaeologists at various points in time between 800 and 900. More often than not, such differences in understanding basic chronology stem from conflicting views on the medieval history of the region, themselves based on differing views of national(ist) histories. For example, most prominent among scholars inclined to date the end of the Avar qaganate as late as possible within the ninth century are Hungarian archaeologists and historians who insist that the first generation of Magyars in Hungary coexisted with the last generation of Avars.

While absolute dates for the chronology of the Avar age remain under discussion, great progress has been achieved in establishing a relative chronology of archaeological assemblages, especially for the later parts of the Avar age for which no coin-dated assemblages have so far been found. More than forty years ago, Ilona Kovrig, the grande dame of Avar archaeology, has proposed a chronological model based on the division of the Avar age into Early, Middle, and Late periods. Her chronology has meanwhile been greatly improved with the assistance of an

---

1 An expanded version of this paper appeared in Stadler 2005.
2 Kovrig 1963.
ever-increasing number of new assemblages and computer-assisted methods to order them chronologically. The division into Early, Middle and Late Avar periods has been accepted by virtually all scholars with an interest in the Avar age, even though they tend to favor quite different absolute dates for the beginning and end of each one of these periods.

The relative and absolute chronology of the Avar age

The refinement of Kovrig’s chronology has been made possible by the application of new methods, especially the development and improvement of the image database “Montelius.” Named after the Swedish archaeologist Oskar Montelius (1843–1921), the database came into being in Vienna in 1999 and already has over 500,000 images pertaining to prehistoric and early medieval assemblages in Europe, all entered by some 60 archaeologists, students, and volunteers. The coverage is almost complete for the Avar period, with over 140,000 published artifacts. The database consists of a collection of images of archaeological artifacts allowing for the display of data in at least two different modes. On one hand, the complex-view mode is not very different from the way in which new archaeological information is presented visually in most publications, namely ordered by means of closed-find units (burial, settlement feature, or hoard assemblages). Figure 1 shows just one such example, a Browser ACD. See image displaying artifacts found in the rich Avar-age burial in Kunbábony, which some regard as the tomb of one of the seventh-century Avar qagans. By contrast, in the typological mode, artifact images are grouped by formal similarity, the basic procedure for working with typology. In the typological mode, image could be manipulated with the Drag ’n Drop tool activated by the computer mouse. All changes operated in the typology structure are immediately brought to the “background” database. Figure 2 shows an example of a typology-mode view of pots with a S-shaped comb-punch decoration. A number of different functions provide support for the work on such an enormous typology. To input the image of any one artifact into the

---

3 Oskar Montelius refined the concept of closed find first introduced by Christian Jürgensen Thomsen and in the process laid the foundations of typology as a key method for archaeological research. See Montelius 1903.

Figure 1. Image Database “Montelius”, an example of the complex mode view: selected artifacts from the qagan burial in Kunbáfony (Hungary).
database takes less than 60 seconds. In the typology mode, the search for formal analogies for any artifact takes only about 30 seconds. The allocation of one image to an existing type takes a few seconds more. A new type is created easily by creating a new folder. An existing type can easily be split up into two or more sub-types. In conclusion, a great advantage over conventional typological methods is that comparisons may thus be made 100 times faster than normally.

Figures 3 and 4 display in a schematic way how images are entered into the Image Database “Montelius” and evaluations obtained on that basis. Figure 3 starts from the “raw” publications, either monographs or articles. Illustration plates displaying assemblages are scanned, and individual artifacts are then separated by means of image processing. Every single artifact image is then described in the mask of the program MonteliusEntry. On the other hand, the “raw” publication is also the source of written information, which can be catalogued along with artifact images. By means of the Montelius section of the program package known as WinSerion, images can then be presented either in the complex mode or the typological mode. Figure 4 shows what can be expected from WinSerion, once the data is entered into the database. WinSerion allows for various kinds of seriation, in order to reveal patterns in the archaeological material considered. Moreover, local or global maps generated by means of AutoCad offer the opportunity of mapping finds by means of a WinSerion embedded Geographical Information System feature. Furthermore, WinSerion enables the user to
Figure 3. A model for the creation of the Image Database “Montelius” on the basis of the published archaeological record.

Figure 4. A model of the possible uses of the Image Database “Montelius” for archaeological studies.
evaluate and compare automatically all maps produced by such means. This is done by means of an algorithm known as “analysis of the N-next neighbors” (ANN). Seriation produces relative chronologies, which can then be compared with the results of the spatial analysis performed by means of ANN. Absolute data allow a linkage between relative chronologies and absolute dates. The methods applied (sequencing and wiggle matching) are based on Bayesian statistics, and their primary purpose is to turn a relative into an absolute chronology.

Over 61,000 burial assemblages are known so far for the entire Avar age. However, seriation by reciprocal averaging is only possible for slightly more than 4,000 male burial assemblages with some 3,600 artifact categories. Figures 5 and 6 display the results of that seriation. While in Figure 5 columns represent types and rows are assemblages, the x and y axes in Figure 6 show the eigenvectors of assemblages and artifact categories. In each one of the two graphs, there is a point for every artifact found in an archaeological assemblage, for a total of over 20,000 points. For both figures, the beginning of the chronological sequence is set on the upper left corner of the graph, with the end in the lower right corner.

Another method of seriation, which is similar in principle, but produces visibly different types of graphs, is correspondence analysis (CA).5 The results of seriations by correspondence analysis are displayed in Figure 7 for all burial assemblages with male skeletons, and in Figure 8 for those with female skeletons. Every triangle in these graphs indicates an assemblage (grave). The bigger the triangle, the more different types are to be found in that assemblage. A standard CA seriation should produce a parabola-shaped distribution of triangles. This is clearly the case for the seriation of male, but not so for the female graves. In fact, the seriation of female graves produces a pattern consisting of two parabola-like distributions joined at the center of the graph. I shall return shortly to the interpretation of this analysis.

The different methods produce similar results for the highly refined relative chronology. I have previously attempted to calibrate the relative

---

5 The method was invented and developed by Jean Paul Benzécri and his team of the laboratory for Mathematical Statistics at the University of Paris VI (Benzécri 1973). See Bølviken et al. 1982; Shennan 1990, 283–86. Following the publication in English of the first book based on Benzécri’s ideas (Greenacre 1984), the CA gradually made its appearance in Scandinavian and British, later in American, German, and Austrian archaeology. For exemplary applications to medieval archaeology, see Hines, Nielsen, and Siegmund 1999.
Figure 5. Seriation by reciprocal averaging of over 4,000 Avar-age male burials.
Figure 6. Seriation by reciprocal averaging of the eigenvectors of over 4,000 Avar-age male burials.
Figure 7. Seriation by correspondence analysis of over 4,000 Avar-age male burials.

Figure 8. Seriation by correspondence analysis of Avar-age female burials.
chronology thus obtained to an absolute chronology by means of con-
temporary Byzantine gold coins, which have been found in about thirty
burial assemblages. However, the number of coins is too small, espe-
cially when compared to the large number of assemblages considered
for analysis and will not increase without excavation of other several
thousands of new graves. As a consequence, it is statistically impossible
to obtain an accurate absolute chronology on the basis of coins alone.

I therefore moved onto more precise methods of independent dating,
namely radiocarbon. Unlike coins, the number of radiocarbon samples
can be easily multiplied from already excavated graves. We collected
about 100 samples from archaeologically well-dated burial assemblages
from Hungary and Austria. All radiocarbon measurements were done at
the Vienna AMS facility VERA.6 We began by dating the collagen from
human bones. Collagen is stored in the skeleton only until about the
twenty-fifth year of life, after which it can be reconstructed only from
deconstruction products of old collagen, that is without using any new
or “fresh” carbon.7 The choice of samples took into consideration the
possibility of checking radiocarbon dates against the evidence of coins
from the same assemblages that have been tested. The results were over-
whelmingly the same, given of course the margin of error for standard
radiocarbon measurements.8 Figure 9 and 10 illustrate the degree of over-
lap between seriation and radiocarbon dating of 38 samples from male
graves. The method used for comparison is known as “wiggle matching”
and was performed with Oxcal 3.9 in a somewhat modified way.9 As the
radiocarbon method does not give good results for the eighth and ninth
centuries, samples were only taken from burial assemblages roughly
dated between 568 and 700. Confronting seriation with radiocar-
bon dates leads to the conclusion that the Late Avar period begins
in ca. 680, and not as previously assumed (mainly on the basis
of seriation) in 700 or 720. This results in a considerable shift to earlier

6 VERA is an acronym for Vienna Environmental Research Accelerator. The direc-
tor of this facility is Walter Kutschera, whose name is well-known among USA-based
scholars involved in radiocarbon measurements. All samples have been prepared for
measurement by Eva-Maria Wild and her team.
7 Wild et al. 2000.
8 For the principles and problems of radiocarbon dating, see Taylor 1987. For its
impact on prehistoric archaeology, see Renfrew 1973.
9 See Bronk Ramsey 2001.
Figure 9. Wiggle matching of radiocarbon dates with sequence dates from the seriation of Avar-age burial assemblages.
The shift is certainly to be explained by the fact that the coins, on which previous dates were based, were in circulation at the time of burial, while most artifacts found in burial assemblages may have been manufactured and acquired between the twentieth and thirtieth lifetime year of the person with whom they were buried. In other words, the date of the burial is later by a few years than the date of production and acquisition that can be established for the artifacts. On a more general level, the shift to earlier dates of the later segment of the Avar chronology undermines all assumptions among Hungarian archaeologists about the coexistence of the last Avars and the first generation of Magyars in the Carpathian Basin. In the light of the revised chronology, the end of “Avaria” must now be placed shortly after 800, perhaps as late as 822, even though no direct dates are available so far. By the same token, the beginning of the Middle Avar Period is set at ca. 630.

Table 1 displays the overall effects of the new revised chronology of Avar burial assemblages obtained by means of combining seriation with radiocarbon dates. The column “Years AD 1” shows the new dates in contrast to the old chronology displayed in column “Years AD 2.”

![Figure 10. Wiggle matching of radiocarbon dates with sequence dates from the seriation of Avar-age burial assemblages.](image)
Table 1: The chronology of the Avar age according to a combination of seriation and radiocarbon dates

<table>
<thead>
<tr>
<th>Phase</th>
<th>Abbreviation</th>
<th>Years AD 1</th>
<th>Years AD 2</th>
<th>Sequence-dates 1</th>
<th>Sequence-dates 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Avar I</td>
<td>EA I</td>
<td>568</td>
<td>600</td>
<td>0</td>
<td>90</td>
</tr>
<tr>
<td>Early Avar II</td>
<td>EA II</td>
<td>600</td>
<td>630</td>
<td>90</td>
<td>180</td>
</tr>
<tr>
<td>Middle Avar I</td>
<td>MA I</td>
<td>630</td>
<td>655</td>
<td>180</td>
<td>360</td>
</tr>
<tr>
<td>Middle Avar II</td>
<td>MA II</td>
<td>655</td>
<td>680</td>
<td>360</td>
<td>550</td>
</tr>
<tr>
<td>Late Avar I</td>
<td>LA I</td>
<td>680</td>
<td>720</td>
<td>550</td>
<td>700</td>
</tr>
<tr>
<td>Late Avar II</td>
<td>LA II</td>
<td>720</td>
<td>760</td>
<td>700</td>
<td>850</td>
</tr>
<tr>
<td>Late Avar III</td>
<td>LA III</td>
<td>760</td>
<td>822</td>
<td>850</td>
<td>1000</td>
</tr>
</tbody>
</table>

The archaeology of “ethnic groups” in the Avar qaganate

The correspondence analysis of burial assemblages with female skeletons shown in Figure 8 resulted in two parabola-shaped distributions joined in a single curve at the center of the graph. Since the chronological sequence goes from the left to the right of Figure 8, the two parabola-shaped distributions are to be dated to the Early Avar period. A close examination of both distributions indicated the upper parabola consists of assemblages with artifacts viewed as “Germanic,” while the lower parabola includes assemblages with “Byzantine-Avar” artifacts. In both cases, the labels attached to such artifacts are based primarily on the evaluation of analogies found for most of these artifacts in pre-Avar assemblages in the Carpathian Basin or contemporary assemblages in Central and Western Europe, in Italy or in the Balkans. Whatever their names, the two distinct parabolas suggest that during the Early Avar period, “Germanic” women were distinguished in dress from “Avar” women wearing mostly dress accessories of Byzantine origin. By the Middle Avar period, that distinction disappeared, as a consequence of a dramatic blending of traditions, and no such distinctions existed during the Late Avar period. If there is any need of labels for that period, then the most recent assemblages on the right side of the graph could easily pass for “Slavic” graves.

Besides chronology, chorology is of great importance for deciphering and “reading” the material culture of the Avar age. With WinSerion,
functional and archaeological artifact categories were mapped separately. Over 7,000 maps were thus generated, only a few of which will be presented and discussed in the remaining part of this chapter. Given that no archaeologist is capable of evaluating that many maps at the same time, I developed and employed the “analysis of the N next neighbors” precisely for facilitating the understanding of all map distribution considered at any point in research.\textsuperscript{10} The method allows, for example, the concomitant evaluation of thousands of Avar-age ceramic pots deposited in Middle or Late Avar graves, all in a single map. The result of that analysis delineate fourteen clusters, which may well be just as many different settlement areas, within which trade seems to have been more intense than with other areas. Such clusters could of course be checked for other diagnostic artifacts, such as Late Avar casts. The spatial distribution of the fourteen clusters is shown in Figure 19.

What such maps can certainly show is not only how many different settlement areas there were in the Avar qaganate, but also that that polity was by no means homogeneous from a cultural point of view. In other words, and \textit{pace} István Bóna, Avars were most likely not the only inhabitants of the Avar qaganate. Whether settlement areas identified by means of the “analysis of the N next neighbors” could be further equated with more or less known ethnic groups within the qaganate, is of course a possible, albeit by no means unique, interpretation. Equally significant is the mapping of functional types within one and the same cemetery in order to identify spatial clusters possibly associated with the use of that cemetery by different groups.

The tendency among archaeologists and historians is to treat the culture of the Avar age as uniform, especially during the Middle and Late Avar periods. However, a careful examination of the archaeological record reveals many local and regional variants. Regional variants are particularly difficult to interpret in historical terms. When taking into consideration several other sets of data, from written sources to anthropological information and natural resources available in any given area, it becomes clear that while it may be possible in certain cases to identify

\textsuperscript{10} This method is not to be confounded with the statistical method known by the same name. My method is based on checking map distributions by means of a statistical test, to see whether or not distributions are random. Non-random distributions are then included in the matrix of assemblages, which is again evaluated by means of CA. The resulting eigenvectors are then subjected to a mono-variate cluster analysis. The obtained clusters are again mapped on a combined distribution map for all investigated maps of individual characteristics.
“workshops” in metalwork or the production of pottery, one should not exclude the possibility of strong commitment to local traditions, possibly linked to groups of immigrants. Archaeologists have now received a stern warning about the misuse or abuse of the ethnic interpretation of the archaeological record, while sociologically-minded historians have offered alternative directions of research. However, irrespective of all cautionary tales, the distribution and combination of artifact category in a manner as precise as possible remains a task of outmost importance for modern archaeology. The use of large databases and statistical analysis allows now a much more refined understanding of cultural patterning than previously possible. It is of course just as clear that the surviving archaeological record contains only a small portion of the “living” culture at any given moment in time. Language, songs, gestures, and so many realia that did not survive in the archaeological record, will be forever irretrievable by archaeological means.

Archaeologists can nevertheless recognize cultural patterns and distinguish between groups on the basis of combinations of cultural elements. Any discussion about how such patterns and groups should be interpreted must start with functional types, namely with the distribution of artifact categories for which distinct functions may be asserted. Such categories are stored in the Image Database “Montelius” in the field “Typ01.” Sometimes adjustments needed to be done “by hand” if diagnostic characteristics were obscured by too large a classification. For example, “lance” proved to be too general; instead, more narrowly defined types, such as “spear,” “leaf-shaped lance,” and “winged lance” had to be taken consideration. It goes without saying that extra caution is therefore needed in the interpretation, for occupational groups could easily be mistaken for “ethnic groups.” A cluster of burial assemblages with winged lances is not necessarily an indication of a group of Franks, but is certainly an indication of a group of specialized warriors.

The matrix showing the incidences of assemblages and functional types was then subjected to a seriation by correspondence analysis. Recurrent artifact categories with more than 500 occurrences were eliminated for computational reasons. Other categories, such as iron buckles, were regarded as without any diagnostic potential and were likewise excluded. The scattergram in Figure 11 shows the result of

---

11 Brather 2004; Geary 2002. See also Curta 2007, with a critique of Brather.
12 For the software, see WinSerion homepage at http://www.winserion.org/.
Figure 11. Zoomed detail of the correspondence analysis scattergram of functional types of artifacts from Avar-age burial assemblages.
the correspondence analysis of burial assemblages with both male and female skeletons. One of the most evident conclusions is the separation of functional types into two gender-specific sets. In the space for factors 2 and 3, the correspondence analysis shows a clustering of functional types, which can only be interpreted in terms of gender. The upper right corner of the scattergram is occupied by artifacts most commonly found with female burials, while the lower left corner is reserved for artifacts usually found with male burials. Between these areas of the scattergram are those functional types which are not gender-specific. Functional types are displayed in such a way, that symbols shown next to each other (sometimes even overlapping) correspond to artifact categories that frequently appear together in the burial assemblages. The more frequently functional types appear together, the larger the symbols used on the scattergram.

The following six clusters can be identified for assemblages with male skeletons:

*Cluster 1*: quiver mounts, bone reinforcement plates for the reflex bow, plait clasps, (earrings in male graves).

*Cluster 2*: bag fasteners, bone mouthpiece for drinking horn, T-shaped mounts, bone or antler instrument for untying knots, saber, armor plates, single- and double-edged swords.

*Cluster 3*: *spatha*,

*Cluster 4*: plowshares, scythes, chisels, sickles, horseshoes.


*Cluster 6*: blacksmith tools, anvil, rasp.

Five more clusters have been identified for assemblages with female skeletons:

---

13 The weapon known to archaeologists of the early Middle Ages as *spatha* goes back to the first century or perhaps to similar weapons of the Latène tradition of the last centuries B.C. The typical weapon of the Roman legionnaire, the *spatha* was a straight, 0.75 to 1.0 m long, double-edged sword with a long tip. As such, the *spatha* is much broader than either single- or double-edged Avar-age swords found in horsemanship burial assemblages. The latter later developed into the Middle and Late Avar sabers.

14 A *sax* (also known as *scramasax*) is a single-edged, long knife.
Cluster 7: “Slavic” bow fibulae, spiral pendants, weights, scales, keys, chains, and combs;

Cluster 8: choppers, “Germanic” bow fibulae, garter sets for leg bindings, crosses, casket mounts, belt buckles with dentil ornamentation (Zahnschnitt), pendants.

Cluster 9: strapends with dentil ornamentation (Zahnschnitt), T-shaped mounts, belt mounts and bracelets, “Merovingian” pendant set.

Cluster 10: hair ornaments, diadems.

Cluster 11: earrings with spiraled pendants.

Table 2: Classification of clusters by “ethnic groups”

<table>
<thead>
<tr>
<th>Group</th>
<th>Male</th>
<th>Female</th>
<th>Horses</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Avar”</td>
<td>Cluster01, Cluster02</td>
<td>Cluster10, Cluster05</td>
<td></td>
</tr>
<tr>
<td>“Germanic”</td>
<td>Cluster03, Cluster06?</td>
<td>Cluster08, Cluster09</td>
<td></td>
</tr>
<tr>
<td>“Slavic”</td>
<td></td>
<td>Cluster11</td>
<td></td>
</tr>
<tr>
<td>“Byzantine”</td>
<td>Cluster06?</td>
<td>Cluster07</td>
<td></td>
</tr>
</tbody>
</table>

Cluster 4 includes mostly agricultural tools and implements which appear more often in hoards than in burial assemblages.\(^{15}\) Similarly, Cluster 6 includes mostly blacksmithing tools and could thus be attributed to another “occupational group,” namely that of craftsman burials.\(^{16}\) That Cluster 6 is close to both the “Germanic” Cluster 3 and the “Byzantine” Cluster 7 may indicate that no ethnically specific attributes were linked to the social status associated with craftsmen in Avar society. Much ink has been so far spilled on the presence of artifacts of Byzantine origin in Avar-age burial assemblages. Dezső Csallány was among the first to call attention upon the so-called “Byzantine” belt buckles, a line of research now continued by Ursula Ibler and Vladimir Varsik.\(^{17}\) In a recent monograph, Éva Garam has gathered in its entirety all artifacts found in Avar-age burials, which have been regarded as of Byzantine origin.\(^{18}\) While her work deals primarily with the Early and Middle Avar

---


\(^{16}\) See Orsolya Heinrich-Tamaski’s contribution to this volume.


\(^{18}\) Garam 2001.
periods, Falko Daim has recently analyzed a group of Late Avar belt buckles and mounts to which he attributed a Byzantine origin. What all those studies have shown is that most artifacts regarded as Byzantine were most likely imports and are therefore not necessarily an indication of the presence within "Avaria" of a Byzantine population.

The fact that bow fibulae which Joachim Werner first called "Slavic" appear in Cluster 7 together with other "Byzantine" artifact categories seems to confirm the conclusions of Florin Curta’s studies, which have meanwhile raised serious doubts about regarding such fibulae as badges of Slavic ethnic identity. On the other hand, there can be no doubt about the presence of the Slavs inside the qaganate, which is well documented in written sources. But there are apparently no "Slavic" artifact categories, an indication of the low resolution at which labels of "ethnic groups" have so far been used in Avar archaeology. The famous lock or ear-rings with S-shaped twisted end may well be a chronologically specific artifact category, given that such rings appear at the end of the Avar chronology, but continued to occur in post-Avar assemblages dated to the ninth century long viewed as "Slavic." I shall return shortly to the problem of the Avar-age Slavs. Meanwhile, a number of burial aspects, such as inhumations with tunnel-shaped shafts, have been cited for ethnic attribution, but work on this part of the database is still in progress. Until then, the attribution of such graves to groups of nomads from the steppes north of the Black Sea (Bulgars or Cutrigurs) may be treated with caution. Cluster 3, 8 and 9, which can be assigned to "Germanic tribes", lead over to the following section.

The "Germanic" population of the Avar qaganate

Clusters 3, 8, and 9 have been tentatively labeled "Germanic" because of the artifact categories used for their definition. For a long time, most

19 Daim 2000.
20 Bálint 1983 advanced the idea that the cluster of "Byzantine" artifacts in southwestern Hungary, in the region of the Balaton Lake and around Pécs, may signal the presence of the Servesianoi mentioned in the Miracles of St. Demetrius.
22 The idea that the lock ring with S-shaped end is "Slavic" goes back to Lubor Niederle and is well entrenched in the archaeology of the early medieval Central Europe since Eisner 1933 and Korošec 1951.
23 For inhumations with tunnel-shaped shafts, see Lőrinczy 1994 and 1995.
Hungarian archaeologists rejected the idea that any Germanic groups may have existed within the Avar qaganate. They argued instead that in 568, with the departure of the Lombards to Italy, all Germanic elements had moved away leaving Pannonia completely deserted. The most articulate advocate of such a theory was István Bóna, whose ideas must be viewed as a reaction to the ethno-chronological interpretations of Joachim Werner. On the basis of a cavalier treatment of the Várpalota cemetery, Werner believed that since “Lombard” and “Avar” graves in that cemetery were found side by side, not all Lombards had taken off to Italy in 568. Bóna rightly retorted that the “Lombard” and “Avar” burials in Várpalota were not coeval and that a relatively long period of time separated the ones from the others. However, with his reaction Bóna threw the baby out together with the bathwater. He began rejecting any arguments, valid or not, pertaining to Germanic cultural elements of the Avar age. A widely recognized authority on the archaeology of the early Middle Ages, both in his country and abroad, Bóna silenced any opinions that contradicted his theory. This may explain why his former student Gábor Kiss was able to write an excellent study of the earrings with mounted bead in Pannonia, without any reference whatsoever to their ethnic attribution.

Archaeological excavations in the late 1960s and 1970s produced even more evidence of “Germanic” cultural elements in the Transdanubian region of Hungary. As a consequence, Attila Kiss proposed that after their defeat by the Avars, large groups of Gepids were forcefully moved to Pannonia. Nevertheless, the problem may now be revisited in the light of an ever increasing number of finds. The excavation of large cemeteries such as Környe, Kölked Feketekapu A and B, Zamárdi, and Budapest-Budakalász has produced sufficient evidence to demonstrate that after the Avar conquest of 568, “Germanic” cultural elements not only survived but also developed in direct contact with the Merovingian world. This points to a certain prosperity during the Avar age of a relatively large population, which the Avars had found in Pannonia. Cemetery A in Kölked Feketekapu began most likely in the aftermath

---

24 Bóna 1971 and 2000. Bóna ignored Werner’s studies published after his book on Lombards in Pannonia (Werner 1962). His only direct comments on Werner’s ideas about the Várpalota cemetery may be found in Bóna 1971, 301, but in reference to Dezső Simonyi.

25 Kiss 1983. Earrings with mounted beads are now seen as “Germanic.”

26 Attila Kiss first presented his ideas in 1979 (Kiss 1979). See also Kiss 1984, 1987, and 1996. For cemetery B, including an aristocratic female burial attributed to a Gepid lady, see Kiss 2001.
of the Avar conquest. Some time after the local community began burying its dead, an “Avar governor” was also buried on the outskirts of the graveyard, together with his wife and child. During the first occupation phase, until about 580 or 590, the burial of the “Avar governor” was the only connection to “Avaria” of the “Germanic” community in Kölked Feketekapu. A population of different origin and conspicuous Avar culture began settling among the natives only after that. The newcomers opened ground for a different cemetery (cemetery B), in which there is clear evidence of a blending of cultural traditions. Cemetery B ends at some point in the 600s, after which occupation ceased completely. A new occupation occurred only in the 700s, when members of yet another group settled in Kölked Feketekapu. By that time, all “Germanic” cultural elements had disappeared without any trace. The third occupation phase in Kölked Feketekapu is therefore characterized by the “standardized” culture of the Late Avar period.

But what were the cultural differences between “Germanic” and “Avar” burials? As mentioned before, the main distinctions are to be drawn in clothing and weapons. Combs, belt sets ornamented with dentil ornamentation (Zahnschnitt), spathae or short dagger-like swords known as sax appear only in “Germanic” burials. By contrast, gold earrings (which appear in burials of both males and females), plait clasps, quivers and bow bone reinforcement plates, single-edged and double-edged swords with P-shaped attachments are all typical for “Avar” burials. Whatever the ethnic identity of those burying their dead in “Germanic” graves, the evidence from the two cemeteries excavated in Kölked Feketekapu clearly points to sharp distinctions in material culture, which may have well marked ethnic boundaries. There are several ways in which this situation may be explained historically. The “Germanic” cultural elements may indicated the presence of a Lombard group that did not migrate to Italy; of a Gepid group forcefully resettled from the eastern regions of the Carpathian Basin; of a group of Sueves who had survived under Lombard and now under Avar rule; a mixture of all these groups, as well as others not mentioned in the written sources.

During the last few years, Hungarian archaeologists excavated the until now largest Avar-age cemetery in Zamárdi, on the shore of Lake Balaton. Zamárdi stands out among all other contemporary cemeteries by means of the large number of graves so far revealed (about 6,000) and the conspicuous prosperity of the Avar-age community burying its...
dead in that cemetery, which is evident in the quantity of gold and silver belt sets recuperated from otherwise extensively robbed burials. On the basis of both the size and the wealth of the cemetery, István Bóna even suggested that Zamárdi must have been a center of Avar power, an ordu.\textsuperscript{28} He saw no contradiction between such an idea and the fact that most belt sets found in Zamárdi have a dentil ornamentation (Zahn-schnitt) most typical for "Germanic" assemblages and evidently inspired by the tradition of the Animal Style I. Equally interesting are the good analogies in the western and southern Merovingian regions that can be established for belt buckles and mounts used to decorated shoe laces or for belt-shaped pendants found in female burials. The evidence in any case bespeaks the considerable wealth of a group, possibly of Germanic origin, which throughout the Early Avar period maintained close relations with distant communities in southern Germany and France. The wealth of the Zamárdi community may perhaps be attributed to the participation of its members in the Avar campaigns against the early Byzantine Empire.

"Germanic" traits have a peculiar geographic distribution. Figures 12 and 13 show the cluster of belt sets with dentil ornamentation (Zahn-schnitt) in Transdanubia.\textsuperscript{29} The dentil ornament is currently regarded as a local development of the Animal Style II post-dating the conquest of Pannonia by the Avars. The cluster of finds in Transdanubia may indicate that this style of decoration originated from the lands on the shores of Lake Balaton, which had been under Lombard control before 568, even though artifacts with dentil ornamentation have also been found along the Tisza River in formerly Gepid territory.

Two other maps (Figs. 14 and 15) show the distribution of the archaeologically attested custom of the comb deposition in graves. Attila Kiss’s excavations in cemetery A at Kólked Feketekapu revealed that in both male and female burials combs often appear either on the left or the right side of the skull, which suggests that they were perhaps meant to look as if worn in lifetime. The distribution of graves with combs overlaps that of dress accessories with dentil ornamentation, even if, because of the specific state of research, the comb finds from cemetery A in Kólked Feketekapu seem to dominate the picture. Combs and dress accessories with dentil ornament appear especially in those areas, which before 568

\textsuperscript{28} István Bóna, personal communication, 1990.

\textsuperscript{29} Heinrich-Tamaska 2007.
Figure 12. Distribution map of dress accessories with dentil decoration by ornamental motifs. Data after Heinrich-Tamaska 2007.
Figure 13. Distribution map of dress accessories with dentil decoration by production techniques.
Data after Heinrich-Tamaska 2007.
Figure 14. Distribution map of combs with teeth in a single-row deposited in graves.
Figure 15. Distribution map of combs with teeth in a double-row deposited in graves.
were inhabited by Lombards and Gepids, respectively. This is of course not to say that responsible for the phenomenon must only be Lombards and Gepids surviving under Avar rule. It may well be that other groups within the qaganate adopted those cultural traits. But their distribution is quite distinct from other cultural traits which have been labeled “Slavic” (in the northwestern region of the qaganate), “Romance” (at the southwestern tip of Lake Balaton, the so-called “Keszthely culture,” or “Byzantine”).

The interpretation of the “Slavic” assemblages in the northwestern region of Avaria

Figure 16 shows the distribution of ceramic pots found in Middle and Late Avar assemblages. There are of course a few clusters, but all in all the deposition of ceramic pots in graves was a wide-spread phenomenon. By contrast, Figure 17 shows the distribution of ceramic wares with prick-like comb punch decoration (Kammstich). The distribution is remarkably similar to that of wares with potter’s marks on the bottom of the pot. A combination of all traits pertaining to ceramic wares by means of the analysis of N next neighbors produces the distribution map shown in Figure 19, on which wares with prick-like combed punch decoration and potter’s marks appear as clearly distinct clusters in the northwestern area of the Carpathian Basin (groups 9–12).

At a close examination of the history of settlement in the northwestern region of Avaria, it appears that a substantial occupation of the region only began in the early seventh century, ca. 630. Both seriation and radiocarbon dating confirm that the northwestern region was settled at about the same time as the northeastern region on the Upper Tisza. In the northwest, burial assemblages with wares decorated with prick-like comb punches and potter’s marks are attested throughout the Middle and Late Avar period, from ca. 630 to ca. 800. In other words, throughout much of the Avar age, such traits as prick-like comb punches and potter’s marks seem to have typical primarily for the

31 As this is a much debated topic in the archaeology of medieval Eastern Europe, an abundant literature exists on the topic. Only a few, most important titles may be cited here: Comşa 1961 and 1973; Diaconu 1986; Kolos-Szafrańska 1953; and Točík 1962.
Figure 16. Distribution map of ceramic wares in the Carpathian Basin.
Figure 17. Distribution map of ceramic wares with prick-like comb punch ornament.
Figure 18. Distribution map of ceramic wares with potter's marks.
Figure 19. Plotting of the analysis of N next neighbors for all pottery features associated with Middle and Late Avar burial assemblages.
northwestern region of the Avar qaganate. Outside the qaganate, such traits appear only in the neighboring regions—the western and northwestern parts of Lower Austria and Moravia—in which a massive presence of the Slavs is often assumed for the century following the collapse of the Avar qaganate. Within the qaganate, the only other, but much smaller cluster of burial assemblages that produced wares decorated with prick-like comb punches is in the environs of Pécs. It becomes therefore apparent that beginning with Middle Avar I a regional identity may have formed in the northwestern lands of the qaganate, which was marked in funerary contexts by means of both ritual and the deposition in graves of ceramic wares with specific ornaments. It is quite possible that the northwestern lands had been under Avar control since the beginning, but no signs exist of a serious settlement before ca. 630. That date remarkably coincides with the rise of Samo’s polity known from the Chronicle of Fredegar.32

A further indication of the special nature of the northwestern lands of the Avar qaganate is the cluster in that region of the largest number of warrior graves. This suggests a sudden military presence of the Avars in the area, perhaps in the aftermath of Samo’s rebellion. If the region was part of Samo’s polity, it must have returned relatively quickly to Avar rule, this time reinforced by the military posturing of the population settled in the region. Indeed, the only area within the qaganate where such a deliberate policy of settlement is so evident in the archaeological record is the northwest. Avar-age burials, particularly horseman burials, in the northwest seem to have been systematically robbed after ca. 800. Whether or not this phenomenon may be attributed to the revolt of the former Avar subjects, groups 9–12 in Figure 19 must be seen as a reaction to the particular political and military circumstances of the early seventh century. That some of the cultural traits in those groups outlived the Avar qaganate further suggests that that reaction resulted in inventing cultural traditions of long-term political consequences.

The interpretation advanced in this chapter is based on a much improved chronology, itself the result of refined methods combining traditional seriation with radiocarbon dating. My only hope is that an improved chronology may contribute to a new evaluation of the prob-

---

lem of ethnicity in the archaeology of the early Middle Ages. Sebastian Brather’s critique of traditional approaches has done much to advance our awareness of the pitfalls of an archaeology of ethnicity. However, he did not propose anything to replace the supposedly outdated models. The very absence of any alternative is an indication that for Brather ethnicity should be banned from the archaeological vocabulary. My own understanding of the archaeological record avoids the pitfalls of Brather’s agnosticism and advocates instead for the use of refined methods of establishing relative and absolute chronologies, as a preliminary, but necessary phase in the study of cultural patterns that might, under certain circumstances, mark ethnic boundaries.

References

80  PETER STADLER


—. 1979, "Das Gräberfeld und die Siedlung der awarenzeitlichen germanischen Bevölkerung von Kőlked", *Folia archaeologica* 30, 185–92.


Lőrinczy, G. 1994, “Megjegyzések a kora avarkori temetkezési szokásokhoz (A fülkesíros temetkezés)”. In A kőkortól a középkorig Tanulmányok Trogmayer Ottó 60. születésnapjára, ed G. Lőrinczy, Szeged, 311–35.
Shennan, S. 1990, Quantifying Archaeology. Edinburgh.
Stadler, P. 2005, Quantitative Studien zur Archäologie der Awaren I. Vienna.

Illustrations

Figures
1. Image Database “Montelius”, an example of the complex mode view: selected artifacts from the qagan burial in Kunbábony (Hungary).
2. Image Database “Montelius”, an example of the typological mode view: ceramic ware with S-shaped, prick-like comb punch ornament.
3. A model for the creation of the Image Database “Montelius” on the basis of the published archaeological record.
5. Seriation by reciprocal averaging of over 4,000 Avar-age male burials.
6. Seriation by reciprocal averaging of the eigenvectors of over 4,000 Avar-age male burials.
7. Seriation by correspondence analysis of over 4,000 Avar-age male burials.
8. Seriation by correspondence analysis of Avar-age female burials.
9. Wiggle matching of radiocarbon dates with sequence dates from the seriation of Avar-age burial assemblages.
10. Wiggle matching of radiocarbon dates with sequence dates from the seriation of Avar-age burial assemblages.
11. Zoomed detail of the correspondence analysis scattergram of functional types of artifacts from Avar-age burial assemblages.
15. Distribution map of combs with teeth in a double-row deposited in graves.
16. Distribution map of ceramic wares in the Carpathian Basin.
17. Distribution map of ceramic wares with prick-like comb punch ornament.
18. Distribution map of ceramic wares with potter's marks.
19. Plotting of the analysis of N next neighbors for all pottery features associated with Middle and Late Avar burial assemblages.