

Martin Auer

POTTERY REGIONS IN *NORICUM*

## Evidence for Communities of Practice?

*In this paper the pottery production in Noricum is examined based on the data about pottery regions in this area created during the author's PhD work. Using different attributes of the vessels, the paper aims to explain intraregional equality and variability within different communities of potters. This approach is suggested by the occurrence of morphologically and stylistically equal vessels in different regions, which show distinct differences regarding the technology used to create them. The processes of knowledge transfer which can be traced through the spatial analysis of certain pottery attributes are compared with ethno archaeological data to gain new insights into the manufacturing process and its social embedment.*

This paper covers an aspect of the author's PhD-work about Pottery Regions in *Noricum*, namely the organisation of the pottery production in this province. The production process of pottery in Roman *Noricum* is often considered to be rather uniform. As known from the closer investigated production of Samian ware it is assumed that there have to be potters' quarters in or around the towns. Furthermore the potters working there have to be specialists in their handicraft using the throwing wheel and kilns for their work. However, also the production of Samian ware – although always operating on a big scale with huge production series – is not uniform, as the examples of Scoppieto and La Graufesenque clearly indicate. Whereas in La Graufesenque the pottery workshops were rather small units, where all major tasks of production have been conducted, the workshop in Scoppieto is organized in a considerably different way. Here the steps of production are separated and processed in big workgroups<sup>1</sup>. Unfortunately, the archaeological evidence for pottery workshops in *Noricum* is lacking<sup>2</sup>. Whether there are similarities to the production of fine ware is not determinable at the moment. On the other hand it is clear, that the workshops in *Noricum* operated on a much smaller scale, distributing their products on a regional level only. In addition the pottery produced in *Noricum* is rather coarse, containing inclusions of quartz or calcite (marble/limestone) and has been used prevalingly for cooking, storage and transport purposes.

The first work on the issue of regional pottery in the bigger area of the Eastern Alps was written in the 1940ies by August Schörgendorfer<sup>3</sup>. In his work he essentially examined complete vessels and put them into a morphological order. Schörgendorfer included all of the pottery found in the region, independent of its origin (also clearly imported vessels), tried to define distribution areas and reflected on the provenance of

the different types. During the following decades the locally and regionally distributed pottery was not an interesting study object for most of the archaeologists. Although it was documented and described, new typological studies did not take place. With the increasing accuracy of archaeological and publication work during the last decades several typologies for locally and regionally distributed wares were established<sup>4</sup>. These all have in common, that they are valid for a single find spot only and are almost exclusively based on morphological features, predominantly rim morphology.

Due to the fact that settlement material is usually very fragmented, it is not always easy to assign the material to a certain morphological type. And it can be even harder to reproduce such an assignment for the reader of a publication. In addition, the different typologies for every find spot often lead to small typological groups, containing less than 10 vessels in average when taking into account also the selected subtypes<sup>5</sup>. Together with some uncertainty concerning the assignment of very small fragments this seems not to be a good basis for an interregional comparison of pottery coming from the whole province of *Noricum*. Furthermore, rim morphology seems not to be a criterion, which allows the detection of production series of certain potter communities or even single potters as is shown by ethnographic studies. During the

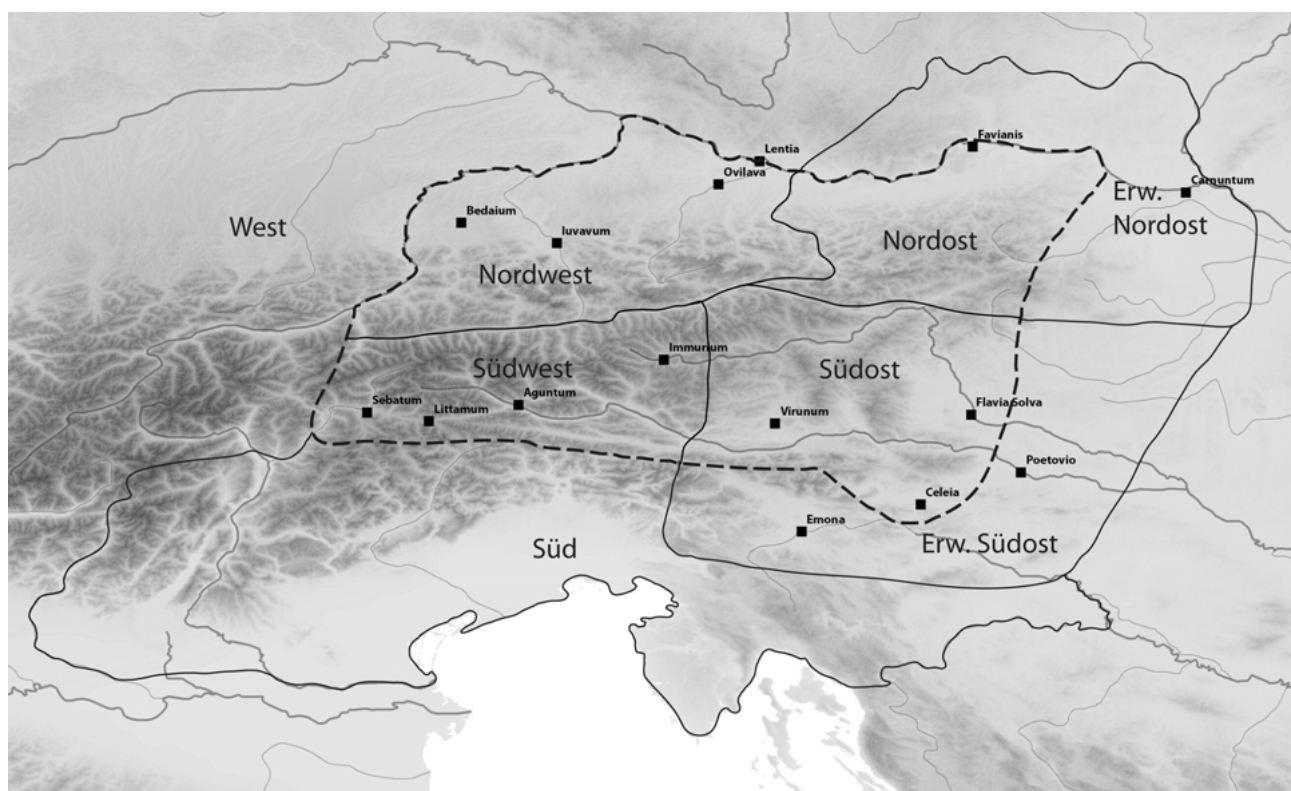
<sup>4</sup> *Bedaum/Seebuck* (P. FASOLD, Das römisch-norische Gräberfeld von Seebuck-Bedaum. Materialh. Bayer. Vorgesch. A 64 [Kallmünz/Opf. 1993]); *Altheim* (M. SCHULZ/S. JÄGER-WERSONIG, Archäologische Forschungen in Altheim 1991–1998. ÖAI Sonderschr. 40 [Wien 2006]); *Favianis/Mautern* (St. GROH / H. SEDLMAYER, Forschungen im Vicus Ost von Mautern-Favianis. Die Grabungen der Jahre 1997–1999. RLÖ 44 [Wien 2006]); *Kalsdorf* (U. LOHNER-URBAN [ed.], Untersuchungen im römerzeitlichen Vicus von Kalsdorf bei Graz [Wien 2009]); *Iuvavum/ Salzburg* (KALTENBERGER 1998).

findspot	total amount	number of types (subtypes)	ratio: pots/bowls per type (subtype)
<i>Bedaum/Seebuck</i>	110 pots 204 bowls	19 (19) 9 (9)	5.8 (5.8) 22 (22)
<i>Altheim</i>	106 pots	5 (36)	21.2 (2.9)
<i>Favianis/Mautern</i>	5,052 pots 828 bowls	31 (119) 23 (51)	19 (1.6) 162.9 (42.4)
<i>Kalsdorf</i>	215 pots 135 bowls	12 (47) 15 (17)	17.9 (4.6) 9 (7.9)
<i>Iuvavum/Salzburg</i>	112 pots 110 bowls	4 (65) 2 (39)	28 (1.7) 55 (2.8)

<sup>1</sup> Summarized by MURPHY 2016, 137–139.

<sup>2</sup> AUER 2017.

<sup>3</sup> A. SCHÖRGENDORFER, Die römerzeitliche Keramik der Ostalpenländer (Brünn, München, Wien 1942).



**Fig 1.** Research area and named subdivisions.

Classes:	Morphology	Style	Technology	Function
Attributes:	Rim (form, inclination) Neck (none - pronounced) Shoulder (accentuation) Body (rounded, elongated, inlination) Bottom (flat, footring, pedestal foot).	Kind of decoration Position of decoration	Sherd quality (raw material, temper) Forming techniques Burning atmosphere	Lid seating Kerned rim Traces of wear Remains of contents Capacity

**Tab 1.** Classes and attributes used for the typology of Norican pottery products.

production process of a single potter who intends to produce several specimens of the same vessel form, rim morphology can differ widely within single production series<sup>6</sup>. Thus rim morphology is potentially misleading regarding pottery regions and the research on communities of practice<sup>7</sup>. However, this does not mean that rim morphology is not a valid tool for the classification of big amounts of material. As the pottery is often poorly preserved, only the rims remain as a common feature. Only they allow a classification of all rim

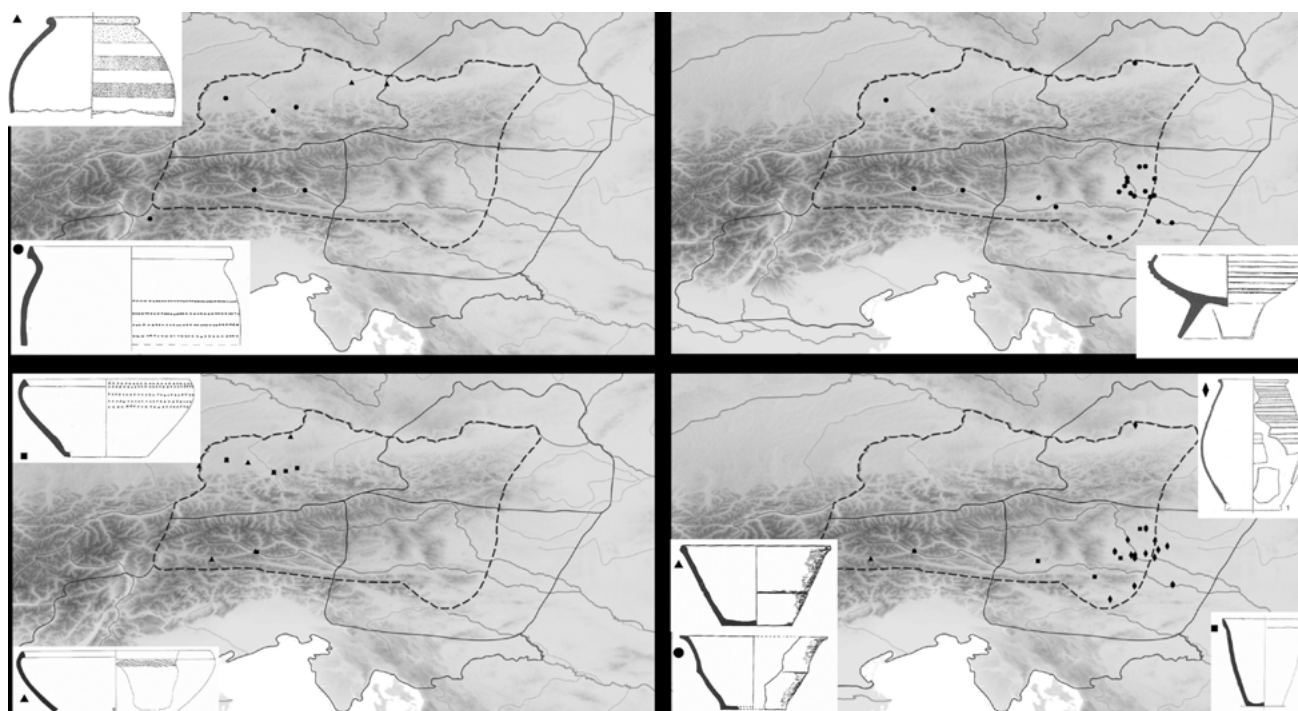
sherds from a certain location. But if searching for parallels at other find spots, it would be more valuable to create a real typology, not only a classification<sup>8</sup>.

Anyway, the pottery produced in *Noricum* has to offer much more analyzable attributes than just rims. For my

<sup>6</sup> MILLER 1985, see esp. fig. 9.

<sup>7</sup> For a definition see: E. WENGER, *Communities of Practice: Learning, Meaning and Identity* (New York 1998).

<sup>8</sup> For a distinction between classification and typology see: R. VOSSEN, *Klassifikationsprobleme und Klassifikationssysteme in der Amerikanischen Archäologie*. *Acta Praehist. et Arch.* 1, 1970, 37–38; L. S. KLEIN, *Archaeological Typology*. BAR Internat. Ser. 153 (Oxford 1982); B. HAYDEN, *Are Emic Types relevant to Archaeology?* *Ethnohistory* 31, 1984, 79–92; M. K. H. EGGERT, *Prähistorische Archäologie. Konzepte und Methoden*<sup>2</sup> (Göttingen 2005) 122–145; RICE 2005, 274–306; D. W. READ, *Artifact Classification. A Conceptual and Methodological Approach* (Walnut Creek 2007).



**Fig. 2.** Regional distribution of pottery types in *Noricum* (1<sup>st</sup>–3<sup>rd</sup> century AD).

research on pottery regions I organized the attributes of the pottery in four classes: Morphology, style, technology and function. Certain attributes which are observable on the vessels and vessel fragments can be assigned to these four classes (**table 1**). For a study on pottery regions the first three classes are the most valuable ones. Functional attributes are not always available in the published material and play a minor role regarding pottery regions. Morphology and style are easily characterized using published material; technology is not taken into account in all publications about pottery in *Noricum*. For the definition of types, relevant to a spatial analysis, morphology and style were combined in the first instance, in which morphologically equal vessels were divided in stylistic variants. The emerging typology of 18 types<sup>9</sup> concentrates largely on the western parts of the province, which results from the starting point of the work in the *Municipium Claudium Aguntum* in the southwest of the province (**fig. 1**).

After this brief methodological introduction the focus will be turned on communities of practice and the possibility of specifying them by means of the attributes of the pottery produced in *Noricum*. Regarding chronology, the period from the beginning 2<sup>nd</sup> to the beginning 3<sup>rd</sup> century AD will be discussed. The first point to take notice of is that the pottery shows severe differences in the western and the eastern parts of the province during the period of interest<sup>10</sup>. Although some types – like tripods – are distributed throughout the entire province, they also show an emphasis in the southeastern region. Other vessel forms are either found in the entire west of the province or in the east and some types are restricted

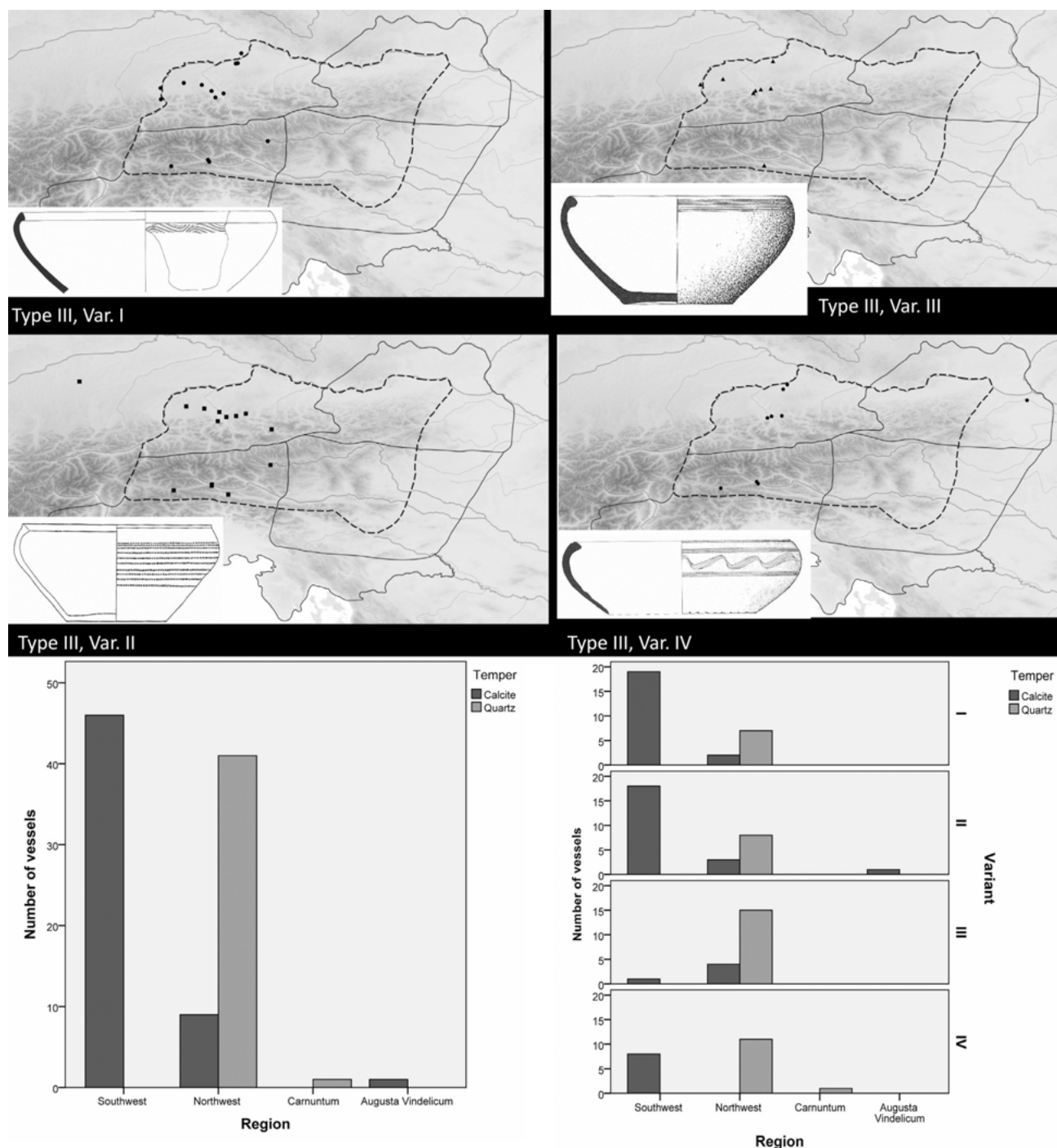
to a micro region like the southwest (**fig. 2**). The tripods in figure 2 are only recognized until the mid of the 2<sup>nd</sup> century, afterwards they are replaced by a morphological different type of tripods.

For a more detailed view the focus will be turned on type III bowls first (**fig. 3**). All stylistic variants of this bowl are only distributed in the western part of the province. Variant I is decorated with wavy lines, variant II with horizontal grooves, variant III with rows of notches, and variant IV combines horizontal grooves with wavy lines. There are also other variants which persist of only very few vessels and will not be discussed here<sup>11</sup>. Although there seem to exist more find spots in the south than in the north, the overall quantities in both regions are comparable. There are simply more known and excavated find spots in the north than in the south. One vessel belonging to variant IV was also found in *Carnuntum* (*Pannonia*), another one belonging to variant II in *Augusta Vindelicum* (*Raetia*). As these are the only vessels of type III found outside the western Norican region we can interpret them as imports, irrespective of the reason for importing them. Possible reasons beside trade would be personal transportation in a marriage portion or the like. Almost all of these vessels share the same technological features. They are handmade and finished on the wheel, tempered with calcite or quartz and burnt in a not fully oxidizing atmosphere. Chronologically, there is a clear focus on the second half of the 2<sup>nd</sup> and the first half of the 3<sup>rd</sup> century AD. Secure data for characterizing the temper used in these vessels is only available for about half of the type III bowls at the moment, but this data clearly indicates, that there is a big difference between the northwest and the southwest. Whereas in the southwest calcite is the only temper verified so far, quartz is

<sup>9</sup> AUER 2015.

<sup>10</sup> CH. HINKER, Ein Brandhorizont aus der Zeit der Markomannenkriege im südostnördischen Municipium Flavia Solva. *Zentraleurop. Arch.* 4 (Wien 2014); AUER 2015.

<sup>11</sup> AUER 2015 35–37.



**Fig. 3.** Stylistic variants of Type III bowls and their distribution throughout the research area. Temper quality shows severe differences between the north and the South.

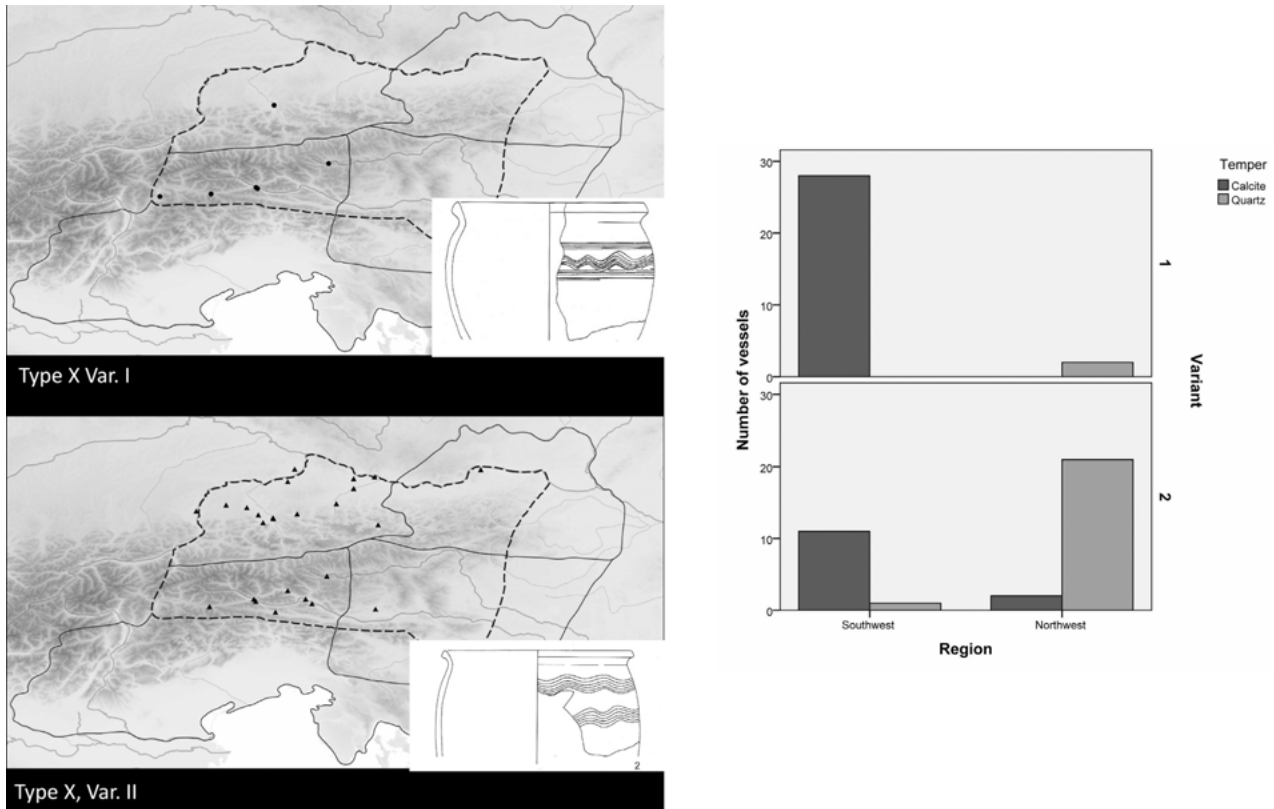
predominating in the northwest. With the exception of variant IV, which has not been attested with calcite temper, this is true for all variants in the northwest. This indicates that the type was produced in different locations. These regional temper preferences are detectable in several types distributed in western *Noricum* during the later 2<sup>nd</sup> and 3<sup>rd</sup> century.

For example, type X pots<sup>12</sup> hold very similar properties (fig. 4). Variant I is generally underrepresented in the northwest, but the only specimen whose temper is determined

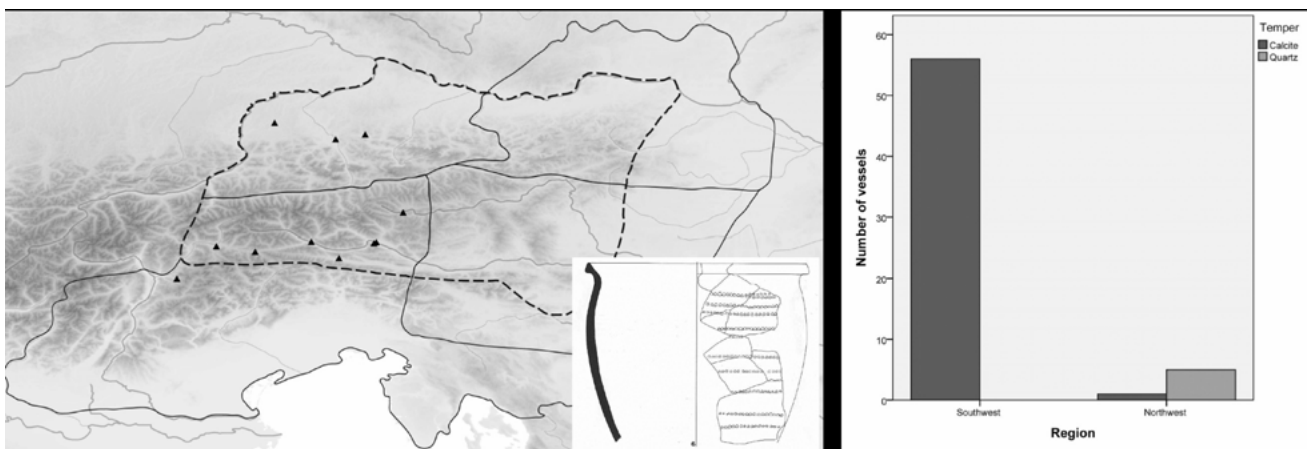
contains quartz again. Variant II shows the same properties as the bowls mentioned before. The same is true for type XVII, a pot decorated with rows of notches on the bigger part of the vessel<sup>13</sup> (fig. 5). This evidence could easily be explained through different raw materials in the north and in the south, so that calcite tempered vessels in the north would be seen as imports and vice versa. But this explanation does not work considering the rest of the analysed material. Type VIII with its several variants is only found in the northwest with only

<sup>12</sup> Ibid. 55–58.

<sup>13</sup> Ibid. 70.



**Fig 4.** Distribution and temper quality of two stylistic Variants of Type X pots.



**Fig. 5.** Distribution and temper quality of Type XVII pots.

few occurrences in other regions, from which just one comes from the southwest<sup>14</sup>. Regarding the temper common for vessels of this type, it can be recognized that calcite tempered pots are present in the northwest, although this kind of pottery is hardly known in the southwest (fig. 6). So if the presumption of the import of calcite tempered vessels from south to north does not work, this will also be true for the types mentioned before. Most likely the technological differences do not arise from trade, but from different potter communities, who used differing techniques of production. In addition to differences in the usage of temper, the type VIII pots are also thrown on

a fast wheel<sup>15</sup>. This differs from the type X and type XVII pots as well as from type III bowls, which are predominately hand-made and finished on the slow wheel. In fact the exact forming techniques are currently under investigation, but as there are dozens of possibilities<sup>16</sup> it is hard to decide which of these techniques has been used. However, there is another interesting point regarding type X. Whereas most of the pots

<sup>14</sup> AUER 2017 Abb.16.

<sup>15</sup> Throwing tables can be used in different ways, within which the potential of the tool is not always fully exploited: NICKLIN 1971; ROUX/CORBETTA 1989; A. DESBAT, *Le tour de potier romain, Rota Figularis*, questions techniques. SFECAG Actes Congrès Chartres 2014 (Marseille 2014) 537–546.

<sup>16</sup> E. g. BANNING 2000, 169–175.

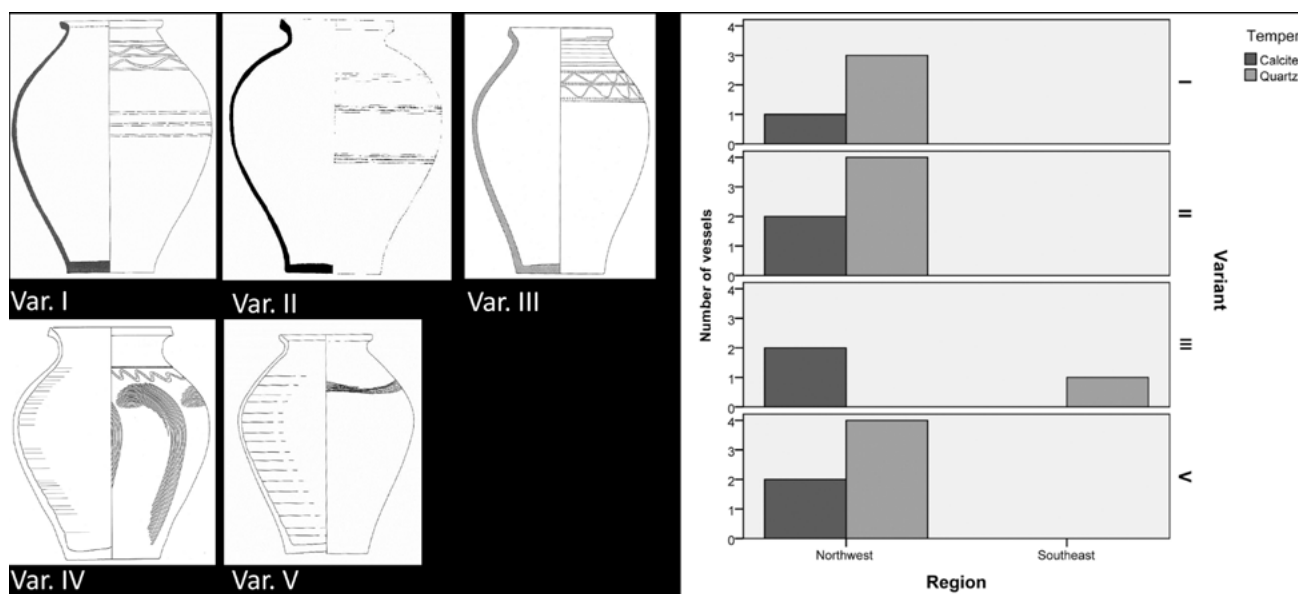


Fig. 6. Stylistic Variants and temper quality of Type VIII pots common in the north-western region.

are handmade and finished on the wheel, there are several wheel made (fast wheel) pots in the north-western region. Type X variant II occurs in *Iuvavum* (nowadays Salzburg) in both techniques; both of the pots are quartz-tempered<sup>17</sup>.

This again indicates different groups of potters who produced very similar vessels regarding morphology and decoration, but did use differing techniques to do so. This picture fits perfectly into ethnographic observations, which prove that technological change is often avoided by potters<sup>18</sup>. So are there communities of potters in the sense of communities of practice which impart technological knowledge and are on the other hand open for new influences regarding vessel morphologies and decorations? The evidence of a first typological study, although based on a rather fragmented state of knowledge regarding technical attributes, does say so.

One more sign for technological traditionalism and stylistic change indicating an organisation of potters in *Noricum* in several communities of practice shall be discussed at this point. The decoration of pots with rows of notches (fig. 5) can be attributed to the vessels using diverse technologies that will not be further discussed here<sup>19</sup>. This decoration is

especially common among the pottery found in *Immurium* (Moosham)<sup>20</sup> and is also widespread in the south-western region, especially in *Aguntum*<sup>21</sup>, where the total quantity of pots is much higher than in *Immurium*, so that the percentage of type XVII pots in *Immurium* outstrips *Aguntum* by far. The type occurs in the first half of the 2<sup>nd</sup> century AD but reaches its peak in the second half of the 2<sup>nd</sup> and beginning of the 3<sup>rd</sup> century<sup>22</sup>. Because of the overall quantity one could be tempted to see the origin of this type around *Immurium* which is – regarding all other types analysed – part of the south-western pottery region. The type is not found east of *Immurium*, but there is another pottery type (type XVI) which shows a very similar decoration on morphologically different vessels (fig. 7). This type is defined by means of decoration and the generally rounded body, which clearly extends the rim diameter. In addition these vessels are quartz-tempered (or contain endemic quartz)<sup>23</sup> and wheel thrown. In fact the rim morphology suggests several subtypes, but also when subsuming these, the type is only found in the eastern part of *Noricum* with emphasis in the southeast. The earliest pots of this type can be detected around the mid of the 1<sup>st</sup> century A. D. and the distribution of the type reaches its peak during the second century. In the late 2<sup>nd</sup> century the numbers decrease<sup>24</sup>.

Putting together the distribution of type XVI and type XVII it can be seen that type XVI reaches the border to the western region, but is not attested in the southwest up to now, whereas the opposite is true for type XVII. As type XVI occurs almost hundred years earlier than type XVII, the reception of the decorative scheme in the south-western pottery repertoire could be explained as a result of contacts

<sup>17</sup> KALTENBERGER 1998 Taf. 7,38; 10,57.

<sup>18</sup> D. E. ARNOLD, *Ceramic Theory and Cultural Process* (Cambridge 1985); O. P. GOSSELAIN, *Social and Technical Identity in a Clay Crystal Ball*. In: M. T. STARK (ed.), *The Archaeology of Social Boundaries* (Washington, London 1998) 78–106; C. A. POOL, *Why a kiln? Firing Technology in the Sierra de los Tuxtlas, Veracruz (Mexico)*. *Archaeometry* 42, 2000, 61; 76; S. PEELO, *Pottery-Making in Spanish California: Creating Multi-Scalar Identity through Daily Practice*. *Am. Ant.* 76, 2011, 642–666; K. P. FAZIOLI, *Rethinking Ethnicity in Early Medieval Archaeology: Social Identity, Technological Choice, and Communities of Practice*. In: S. D. STULL (ed.), *From West to East. Current Approaches to Medieval Archaeology* (Cambridge 2014) 29.

<sup>19</sup> BANNING 2000 fig. 9,20; N. KUHLMANN, *Ein Rollrädchen aus der kaiserzeitlichen Siedlung von Morgenitz, Lkr. Vorpommern-Greifswald*. *Arch. Ber. Mecklenburg-Vorpommern* 19, 2012, 95–98; A. HAOUR ET AL., *African Pottery Roulettes Past and Present. Techniques, Identification and Distribution*<sup>2</sup> (Oxford 2016); R. A. KRAUSE, *A Universal Theory of Pottery Production*. Irving Rouse, *Attributes, Modes and Ethnography* (Tuscaloosa, Alabama 2016) 39–48.

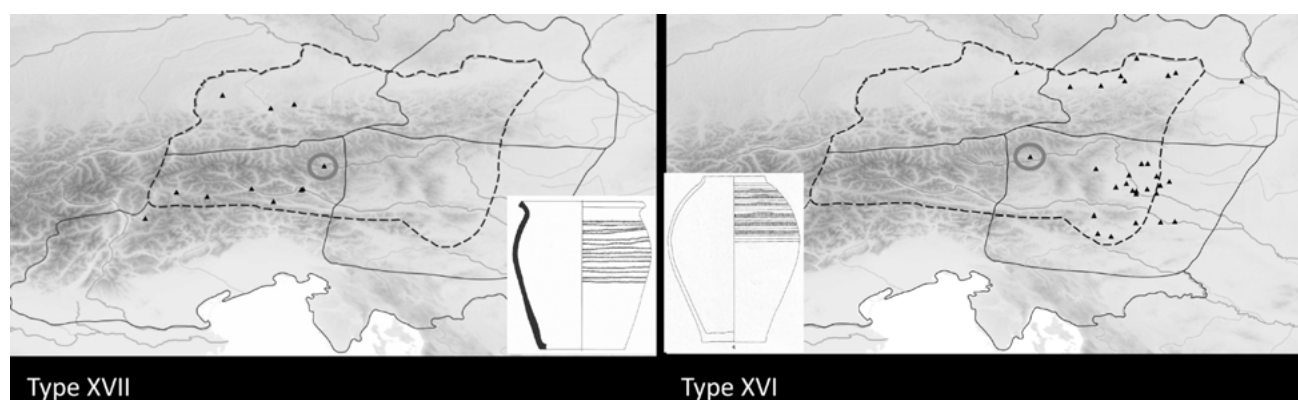
<sup>20</sup> AUER 2015 Kat. Nr. 1589–1631.

<sup>21</sup> Ibid. Kat. Nr. 1555–1578.

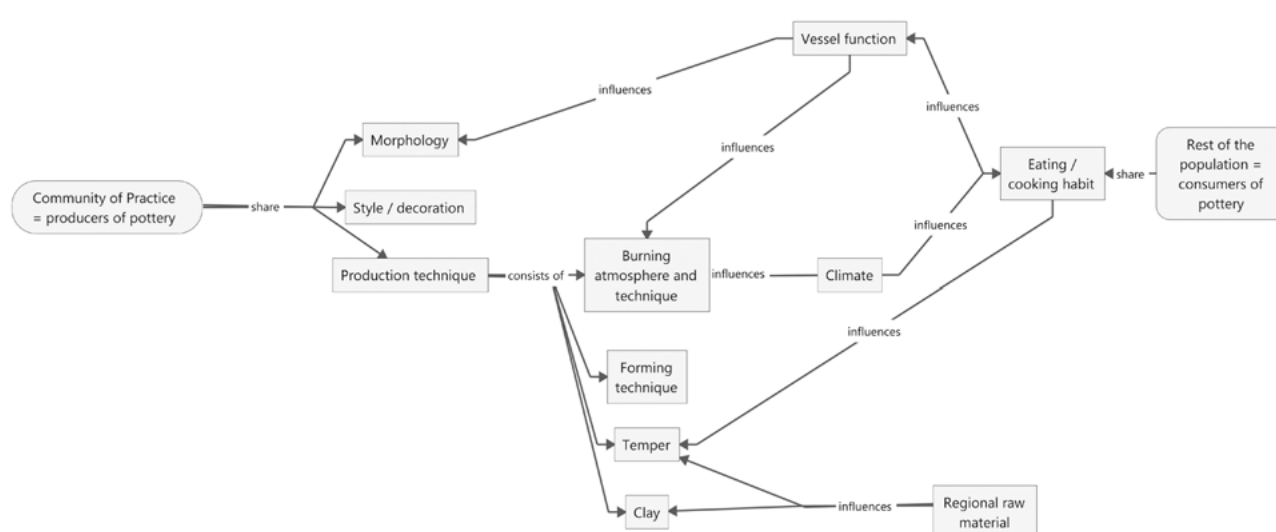
<sup>22</sup> Ibid. 70.

<sup>23</sup> The distinction between endemic particles, which are originally included in the clay and real temper is not always possible. Especially quartz is not necessarily added as temper: A. O. SHEPARD, *Ceramics for the Archeologist*<sup>5</sup> (Ann Arbor, reprint 1985) 161–163; RICE 2005, 406–413.

<sup>24</sup> AUER 2015, 69.



**Fig 7.** Distribution of Type XVI and Type XVII pots. The red circles mark *Immurium*/Moosham (left) and Kapfenstein (right) which are connected by the river Mur.



**Fig 8.** Influences on pottery attributes from the producer's and the consumer's point of view.

between east and west. The high quantity of type XVII in *Immurium*, which in fact is a minor settlement construed as a *vicus* or *mansio*, could result from contacts along the Mur River. So far as we know there is no intensive exchange of locally produced pottery along this route, but an exchange of ideas between different communities of practice could have led to the diffusion of the decorative scheme from East to West during the 2<sup>nd</sup> century.

The evidence from an analysis based on the material therefore suggests an organisation of pottery production in *Noricum* in several communities which had their own working techniques. These could have operated next to another without changing their technological practices<sup>25</sup>. However, contacts between the communities lead to the establishments of widespread types of pottery which are very similar regarding morphology and style, but differ in technological aspects which are partly predetermined through local conditions – as it is true for raw materials as clay and temper.

For the interpretation of the distributional pattern of certain pottery types a differentiation between pottery producers and the consumers of the wares is essential. The research on pottery consumption in *Noricum* is still at its beginnings. Most of the publications use pottery as a chronological marker and pay little attention on consumer's assemblages. However, consumers do have certain demands on pottery which are mainly influenced by eating and cooking habits. Also decoration may play a certain role for the consumers, but without having the possibility to analyse different archaeological usage contexts, this remains indeterminable. Whereas function and morphology are subject to different influences outside the producers group, decoration seems to be imparted inside the communities of practice (**fig. 8**). The same is true for forming techniques which are not subject to any influence outside the producer's community. The diagram of interconnection also shows that the distribution of certain pottery types is at first instance not a tool to define overall archaeological cultures including consumers and producers on the same scale, but allows for taking a closer look on the producers and their interactions. Although the consumers

<sup>25</sup> As archaeologically traced in the Roman workshops of Amphoralis and Yvelines (France): MURPHY 2016, 141.

certainly play an important role, their direct influence on most of the vessel properties is limited.

The consumer's point of view is hard to reconstruct using the artefact as evidence. As most of the pottery available for the author's work is not connected to contexts of usage<sup>26</sup> there is little to say about the consumers of these pots and bowls. However, the producers group can be characterised to a certain extent. For a better understanding of the organisation of pottery production in *Noricum* it would be necessary to investigate workshop structures, which was not possible up to now<sup>27</sup>. Regarding the vessels discussed in this paper, the lacking uniformity of shapes as well as forming and burning techniques, inferable from the artefacts themselves point to an organisation of the work in small workshops. These may be characterized as household/workshop industry according to Van der Leeuw<sup>28</sup>. During the period from the mid second to the mid 3<sup>rd</sup> century AD potters in western *Noricum* did prefer forming techniques which do not include the fast throwing wheel. The reasons for that can be multi-layered, beginning with learnt techniques which were passed on through generations<sup>29</sup> and ending with the fact that the rough temper of the clay may have been a problem when using the fast wheel, because the potter's hands could have been scratched by sharp-edged particles<sup>30</sup>. Regarding burning techniques the composition of the clay clearly restricts the possibilities. Especially calcite temper, like limestone and marble cannot be fired much higher than 650° C, otherwise the chemical reactions of the particles lead to the destruction of the vessel. By reducing the oxygenation in a reducing burning atmosphere these effects can be controlled and the burning temperature can be raised up to 800°C<sup>31</sup>. The pottery kilns excavated in *Noricum* so far do not indicate that this kind of pottery was made in the known kilns. In any case it is much easier to create a not fully oxidising atmosphere using a pit firing as ethnographic evidence indicates<sup>32</sup>. Pit firing is hardly ever recognized archaeologically because of the inconspicuous traces this activity may leave<sup>33</sup>. In *Noricum* pit firing is only

mentioned for the Late Antique pottery production at the Hemmaberg<sup>34</sup>. However, based on the technological features of the pottery it is very likely that this technique was also used in earlier times.

When comparing this evidence to ethnographically investigated pottery productions, it can be presumed that rather small workshops are organized as a kind of family business<sup>35</sup>. This kind of social organisation in pottery production is not only documented ethnographically, but is also evident in better known Roman pottery workshops<sup>36</sup>, so that it is not far-fetched to presume this kind of organisation in *Noricum* as well. Therefore the communities of practice which exchange their knowledge – as can be seen in the brief examples mentioned in this paper – could be situated in a kinship network which again finds close analogies in ethnographic studies<sup>37</sup>. Within such a structure processes of innovation are usually very slow, what raises the question why certain innovations regarding new decorative schemes and morphologies do occur. The first explanation can be found in migrating potters, who introduce new shapes, forms and even techniques in a region far from their origins. These processes have been recognised in the environment of the Roman army<sup>38</sup> and could also have been present on a geographically smaller scale inside the province *Noricum*.

However, this does offer some possibilities for the interpretation of certain attributes of the material presented in this paper. When building techniques, clay preparation (tempering), morphology and style are newly appearing in a certain region migrating potters or trade would be possible explanations (depending on the quantity of these new vessels). As ethnographic studies indicate, potters are very reluctant to change their forming techniques. This is due to the motion sequence a potter has to perform to create a vessel. These motions can be characterized as *habitus* – often learnt as a child – which is considered by the potter to be the only right way to construct the artefact. Therefore the use of the potter's wheel is nothing to be switched on and off by the potter, but an exclusive decision<sup>39</sup>. Getting back to the examples mentioned in this paper the co-occurrence of morphologically and stylistically equal vessels, which have been produced by using different forming techniques is a clear indicator for knowledge transfer between the producer communities. For

<sup>26</sup> The bigger part of the pottery analysed comes from old excavations with insufficient data record or from infillings of pits or the like where no direct connections to the context of usage is given.

<sup>27</sup> The archaeological evidence for so called pottery workshops in *Noricum* is in almost all cases restricted to a single kiln: AUER 2017.

<sup>28</sup> S. E. VAN DER LEEUW, Dust to Dust: A transformational view of the ceramic cycle. In: S. E. Van der Leeuw/A. C. Pritchard (eds.), *The Many Dimensions of Pottery. Ceramics in Archaeology and Anthropology* (Amsterdam 1984) 709–792 Fig. 1; discussed in G. M. FEINMAN, Rethinking Our Assumptions: Economic Specialization at the Household Scale in Ancient Ejutla, Oaxaca, Mexico. In: J. M. Skibo/G. M. Feinman (eds.), *Pottery and People. A Dynamic Interaction* (Utah 1999) 81–98.

<sup>29</sup> NICKLIN 1971; GOSSELAIN 1992, 572; H. L. LONEY, Society and Technological Control: A Critical Review of Models of Technological Change in Ceramic Studies. *Am. Ant.* 65, 2000, 646–668; J. L. CREESE, Social Contexts of Learning and Individual Motor Performance, in: WENDRICH 2012, 43–60.

<sup>30</sup> U. STEINKLAUBER, Rekonstruktion des spätantiken Töpferofens von Hörbing bei Deutschlandsberg, Steiermark. *Arch. Österreich* 9/2, 1998, 66–71.

<sup>31</sup> R. J. HOARD ET AL., A Materials-science Approach to Understanding Limestone-tempered Pottery from the Midwestern United States. *Journal Arch. Science* 22, 1995, 823–832.

<sup>32</sup> RICE 2005, 97–98; D. ALBERO SANTACREU, Materiality, Techniques and Society in Pottery Production (Warsaw, Berlin 2014) 76–91.

<sup>33</sup> MILLER 1985, 228.

<sup>34</sup> S. LADSTÄTTER, Die materielle Kultur der Spätantike in den Ostalpen. Eine Fallstudie am Beispiel der westlichen Doppelkirchenanlage am Hemmaberg. *Österr. Akad. Wiss., Phil.-hist. Kl., Mitt. prähist. Komm.* 35 (Wien 2000) 134–135.

<sup>35</sup> AUER 2017.

<sup>36</sup> W. CZYSZ, Handwerksstrukturen im römischen Töpferdorf von Schwabmünchen und in der Sigillata-Manufaktur von Schwabegg, in: K. Strobel (ed.), *Forschungen zur römischen Keramikindustrie. Produktions-, Rechts- und Distributionsstrukturen. Akten I. Trierer Symposiums antike Wirtschaftsgeschichte* (Mainz 2000) 55–88; MURPHY 2016.

<sup>37</sup> MILLER 1985; GOSSELAIN 1992; M. T. STARK, Pottery Exchange and the Regional System. In: Longacre/Skibo 1994, 169–197; C. KRAMER, Pottery in Rajasthan. *Ethnoarchaeology in Two Indian Cities* (Washington, London 1997).

<sup>38</sup> V. SWAN, Ethnicity, Conquest and Recruitment: Two Case Studies from the Northern Military Provinces. *Journal Roman Arch. Suppl.* 72 (Portsmouth/Rhode Island 2009).

<sup>39</sup> D. E. ARNOLD/J. HUTTAR WILSON/A. L. NIEVES, Why was the Potter's Wheel Rejected? Social Choice and Technological Change in Ticul, Yucatan, Mexico, in: Ch. A. Pool/G. J. Bey (eds.), *Pottery Economics in Mesoamerica* (Tucson/Arizona 2008) 59–87.



the community to which the new decoration and/or morphology is introduced this is a process of invention which has to be embedded into the larger learning environment. Learning in small scale workshops will already begin at childhood – the presence of children in Roman pottery workshops is well attested for, also archaeologically<sup>40</sup>. The process of learning can be variable, but usually<sup>41</sup> the apprentice starts with minor tasks – cleaning the working rooms, preparing temper, preparing clay... – before taking part in single steps of the production and finally forming a vessel him/herself. This leads to the creation of certain traditions within a community, because the first vessels an apprentice produces will usually resample the vessels of the more experienced workers from whom he/she learned the production. Innovation is hardly possible at this stage. Therefore the introduction of new styles and morphologies is carried out by innovative potters who have contacts with other communities of potters or at least the products of these. Another way of introducing new vessel properties and even new technologies would be the incorporation of a new potter from a different community. This new potter could be incorporated by marriage for instance and his/her way of producing could serve as an example for the following apprentices. To which extent inventions were accepted inside an existing community cannot be decided, but it seems to be some kind of cultural constant that it is a long process until innovative artisans are accepted<sup>42</sup>. On the other hand the agreement to innovation could also be forced by consumers demand. If the products of a certain community are especially successful, then it is more likely that other communities start to make similar products as well. In such a situation only morphology and maybe also style would be affected, the forming technique is of no interest to the consumer. The role which style and decoration may play for the consumer is undeterminable with the current state of research. It is possible that certain styles are seen as a guarantee for quality because they are originally connected with the products of a certain group<sup>43</sup>, but style can also refer to the content or function of the vessels<sup>44</sup>, or simply be a kind of personal

preference. Regarding the dissemination of morphologically and stylistically equal vessels in *Noricum* it is striking that there are strong connections between the northwest and the southwest, whereas the pottery in the eastern part of the province follows different criteria. Although the geographical situation would rather suppose a separation of the north and the south through the Alps, pottery regions show a different picture. There have to be strong commonalities which are reflected in the pottery used. These could be eating and cooking habits as well as other circumstances that may have forced a strong connection within the mountainous regions of the province. In accordance to the presumed organisation of the workshops on a small scale level the craftsmen seem to have close ties within this region. Therefore it may be presumed, that the potter communities in western *Noricum* operated close to each other, including migrating potters and marriage ties, which stimulated knowledge transfer.

This short attempt to characterise the possible social organisation of pottery workshops based on the analysis of the products and their distribution shall be seen as an impulse for possible research questions which can be connected with the sherds collected during fieldwork. The similarities and dissimilarities between the pottery vessels produced in different regions are not occurring by chance. Nor are they always an indication of different cultural or ethnical groups. Maybe we have to break down our view to the smallest scale – e. g. the apprentice in a pottery workshop – in order to explain the background of artefact variation<sup>45</sup>. The proposal made in this paper is of course no final solution, but indicates the huge potential offered by the material record for an analysis of the social organisation and the network between the less wealthy people in the Roman Empire, e. g. people involved in handicraft activities. Future research will aim to connect the producers and the consumers of the artefacts on the same analytical level to broaden the scope of the material culture studies as one of the major tasks of (Roman) archaeology.

*martin.auer@uibk.ac.at*

<sup>40</sup> MURPHY 2016, 144; Ethnographic evidence: ROUX/CORBETTA 1989; P. L. CROWN, Socialization in American Southwest Pottery Decoration, in: J. M. Skibo/G. M. Feinman (eds.), *Pottery and People. A Dynamic Interaction* (Utah 1999) 25–43.

<sup>41</sup> According to the ethnographic record: e. g. P. L. CROWN, Learning to Make Pottery in the Prehispanic American Southwest. *Journal Anthr. Research* 57, 2001, 451–469; H. WALLAERT-PÊTRE, Learning How to Make the Right Pots: Apprenticeship Strategies and Material Culture, a Case Study in Handmade Pottery from Cameroon. *Journal Anthr. Research* 57 (4), 471–493; E. HASAKI, Craft Apprenticeship in Ancient Greece. Reaching beyond the Masters. In: Wendrich 2012, 171–202; WALLAERT 2012, 20–42.

<sup>42</sup> NICKLIN 1971; M. DIETLER/I. HERBICH, TICH MATEK, The Technology of Luo Potter Production and the Definition of Ceramic Style. *World Arch.* 21, 1989, 148–164; M. DIETLER/I. HERBICH, Habitus, Techniques, Style: An Integrated Approach to the Social Understanding of Material Culture and Boundaries. In: M. T. Stark (ed.), *The Archaeology of Social Boundaries* (Washington, London 1998) 232–263; H. M.-L. MILLER, Types of Learning in Apprenticeship. In: Wendrich 2012, 224–239; WALLAERT 2012.

<sup>43</sup> J. W. ARTHUR, Living with pottery. *Ethnoarchaeology among the Gamo of Southwest Ethiopia* (Utah 2006); M. ARONSON/J. M. SKIBO/M. T. STARK, Production and use technologies in Kalinga pottery. In: Longacre/Skibo 1994, 83–111.

<sup>44</sup> The distinct morphology and decoration of certain clusters within the larger group of the so called „Auerbergstöpfe“ may point in this direction

(AUER 2015, 42–46), especially because these pots are interpreted as transport vessels (Ch. FLÜGEL/P. DONAT/G. PETRUCCI, Fleischkonserven als Produkte römischer Almwirtschaft. Schwarze Auerbergkeramik vom Monte Sorantri bei Raveo [Friaul-Julisch-Venetien, Nordostitalien]. *Bayer. Vorgeschbl.* 71, 2006, 209–232; P. DONAT/P. MAGGI, Produzione, funzione e commercializzazione di Vasi Auerberg nei territori di Aquileia, Tergeste, Forum Iulii, Iulium Carnicum e Iulia Concordia. In: G. Cuscito/C. Zaccaria (eds.), *Aquileia della origini alla costituzione del ducato langobardo. Territorio, Economia, Società* 1. *Ant. Altoadriatiche* 65 (Trieste 2007) 149–223.

<sup>45</sup> For a comparable behavioural approach: M. B. SCHIFFER/J. M. SKIBO, The Explanation of Artifact Variability. *Am. Ant.* 62/1, 1997, 27–50.

## Bibliography

- AUER 2015 M. AUER, *Municipium Claudium Aguntum. Keramikregionen als Interaktionsräume. Eine westnordische Perspektive* (unpublished PhD, Innsbruck 2015).
- AUER 2017 M. AUER, Zur Organisation des Töpferhandwerks in Noricum – Familienunternehmen oder Großbetrieb? *Ethnograph.-Arch. Zeitschr.* 55, 2014 (2017), 121–158.
- BANNING 2000 E. B. BANNING, *The Archaeologist's Laboratory. The Analysis of Archaeological Data* (New York 2000).
- GOSSELAIN 1992 O. P. GOSSELAIN, Technology and Style: Potters and Pottery among Bafia of Cameroon. *Man* (New Ser.) 27, 1992, 559–586.
- KALTENBERGER 1998 A. KALTENBERGER, Ausgrabung St. Peter: Salzburg 2. Römerzeitliche lokale Gebrauchsware und mittelalterliche Keramik 1980–1995. *Jahresh. ÖAI* 67, 1998, 244–298.
- LONGACRE/SKIBO 1994 W. A. LONGACRE/J. M. SKIBO (eds.), *Kalinga Ethnoarchaeology. Expanding Archaeological Method and Theory* (Washington 1994).
- MILLER 1985 D. MILLER, *Artefacts as Categories. A Study of Ceramic Variability in Central India* (Cambridge 1985).
- MURPHY 2016 E. MURPHY, Roman Workers and Their Workplaces: Some Archaeological Thoughts on the Organization of Workshop Labour in Ceramic Production. In: K. Verboven/Ch. Laes (eds.), *Work, Labour and Professions in the Roman World. Impact of the Empire, Roman Empire C. 200 B.C.–A.D. 476*, Vol. 23 (Leiden 2016) 133–146.
- NICKLIN 1971 K. NICKLIN, Stability and Innovation in Pottery Manufacture. *World Arch.* 3/1, 1971, 13–48.
- RICE 2005 P. M. RICE, *Pottery Analysis. A Sourcebook* (Chicago 1987, paperback ed. 2005).
- ROUX/CORBETTA 1989 V. ROUX/D. CORBETTA, *The Potter's Wheel. Craft Specialization and Technical Competence* (New Delhi 1989).
- WALLAERT 2012 WALLAERT, Apprenticeship and the Confirmation of Social Boundaries. In: Wendrich 2012, 20–42.
- WENDRICH 2012 W. WENDRICH (ed.), *Archaeology and Apprenticeship. Body Knowledge, Identity and Communities of Practice* (Tucson/Arizona 2012).

## References

**Tab. 1:** Author. – **Figs. 1–7:** Author, created in ArcGIS Arc Map 10.2.2. (Map: U.S. Geological Survey [USGS], GTOPO30: GT30W020N40 [Sioux Falls, SD, September 2012]) and IBM SPSS Statistics 23; based on R. FLEISCHER/V. MOUCKA-WEITZEL, Die römische Straßenstation Immurium-Moosham im Salzburger Lungau. *Arch. Salzburg* 4 (Salzburg 1998) Taf.45,9; 60,1.6; S. BURMEISTER, Vicus und spätrömische Befestigung von Seebruck-Bedaum. *Materialh. Bayer. Vorgesch. A* 76 (Kallmünz/Opf. 1998) Taf. 80,717; N. HEGER, Villa Loig – Die Kleinfunde aus den Grabungen 1979–81. *Salzburger Mus. Carolingo Augusteum Jahresschr.* 27/28, 1981/82 (1985), 49–81 Abb. 30,38–39; M. HELL, Spätantike Basilika in Juvavum. *Mitt. Ges. Salzburger Landeskde.* 107, 1967, 71–113 Abb.16,8; G. LUGER, Der Raumkomplex „Weggrabung Nord“ von Aguntum und die in diesem Bereich gefundene grobtonige Keramik (ungedr. Diss., Wien 1989) Taf.88,1; S. ZABEHLICKY-SCHEFFENEGGER, Dreifußschüsseln mit Töpfermarken vom Magdalensberg. *Acta RCRF* 35, 1997, 127–132 Abb. 2,10; W. ALZINGER, Kleinfunde von Aguntum aus den Jahren 1950 bis 1952 (Wien 1955) Taf. 13,313.353; O. H. URBAN, Das Gräberfeld von Kapfenstein (Steiermark) und die römischen Hügelgräber in Österreich. *Münchner Beitr. Vor- u. Frühgesch.* 35 (München 1984)Taf. 59,D1; Z. KUJUNDŽIĆ, Poetovijske Nekropole. *Katalogi in Monografije* 20 (Ljubljana 1982) Taf.13,3; B. KAINRATH, Die Spuren der Römer auf dem Kirchbichl von Lavant. Fiktion und Wirklichkeit. In: G. Grabherr/B. Kainrath (eds.), *Die spätantike Höfensiedlung auf dem Kirchbichl von Lavant. Eine archäologische und archivalische Spurensuche. IKARUS* 5 (Innsbruck 2011) 13–438 D318; KALTENBERGER 1998 Taf.6,37; S. EHRENREICH, Das Gräberfeld von Katsch in der Steiermark. Neuaufnahme der Funde. *Fundber. Österreich* 32, 1993, 9–40, Taf. 5,4. – **Fig. 8:** Author, created in MindJet MindManager 2016.