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THE DENDROCHRONOLOGICALLY DATED HORIZONS (173–230/231 AD) OF CHAM-HAGENDORN (CANTON ZUG, SWITZERLAND)

In 1944/45, the remains of a Roman water mill were discovered in Cham-Hagendorn¹ (**fig. 1**). In 2003/2004 the site was investigated anew. Thereby, the archaeologists uncovered earlier Roman remains. A smithy (Horizon 1a) is followed by a two-phase sanctuary (Horizon 1a/Horizon 1b). The water mill (Horizon 2) is then replaced by a younger smithy (Horizon 3). The site's last Roman horizon (Horizon 4) cannot be defined further. Thanks to the recent excavations, all structures were able to be fitted into a stratigraphical framework. The site was situated by a stream, which continually flooded thus destroying the aforementioned structures. In the cases proven, the rebuilding usually led to a change in the site's function (**fig. 2**).

Due to the wood preservation, the three oldest horizons (Horizons 1a, 1b and 2) could be dated with dendrochronology. Horizon 1a has a felling date between 162(?)/173 and 200 AD, Horizon 1b around 215/218 AD and Horizon 2 around 231 AD. The water mill (Horizon 2) was destroyed around 260 AD. This can be proved as a drinking-cup produced in Treves was found in the material as by the 28 annual inundations². Horizon 3 and its smithy could only have existed for a short period. The forms and types of the pottery differ only marginally from the preceding horizons. Younger coins are missing as well. In the last horizon, Horizon 4, the structures and finds are elusive. Thus, the site may have been gradually abandoned. The whole occupation probably continued until ca. 270/275 AD.

A settlement (*vicus*, *villa rustica*) or other buildings were not observed in the vicinity. The results from the micromorphology and from the botanical analyses speak for an isolated site.

However, the Cham-Hagendorn complex probably belonged to the *fundus* of the *villa* Cham-Heiligkreuz, located 1.5 km to the south-west.

Both excavations yielded a rich – and to some extent a high-quality – spectrum of finds as well as a well preserved pottery ensemble (**fig. 3**).

The Cham-Hagendorn ensembles Horizon 1a, 1b and the beginning of Horizon 2 are dated dendrochronologically, thus enabling a review of previous chronological classifications for the moulded terra sigillata bowl Drag. 37 (**fig. 4**).

The terra sigillata bowl Kat. 14 from Horizon 1a (160/170–210/215 AD) is stylistically very close to those ascribed to the central gaulish potter Laxtucissa, whose production dates to the second half of the 2nd century AD³. The bowl probably arrived at Cham-Hagendorn in this period.

The bowl Kat. 393 from Horizon 3 (about 260/270 AD) was made in all probability in the workshop of Ciriuna. According to the current state of research, this potter worked between 140–180 AD in Heiligenberg (F)⁴. This Drag. 37 bowl was thus in use for a long period of time – over 80 years or for more than three generations⁵.

The moulded bowls of Cibisus from the Alsace only occur in Horizon 1b (up until 225/230 AD): Four bowls (Kat. 9–12) come from Horizon 1a (**fig. 5**); two from Horizon 1b (Kat. 197–198) (**fig. 6**). According to K. Roth-Rubi and R. Rothkegel, the production dates from the middle to the last third of the 2nd century AD⁵. The dated horizons of Cham-Hagendorn now show that in Central Switzerland the Cibisus bowls were in use up until the first third of the 3rd century AD⁶.

A moulded bowl Kat. 390 belonging to the production of the workshop Reginus was found in Horizon 3 (ca. 260/270 AD). As an analysis of the stamps (*Punzen*) suggests, a further moulded bowl (Kat. 117) from the silted-up stream (Pos. 309; ca. 160/170–225/230 AD) could also come from the Reginus workshop. According to his postulated production in Heiligenberg (F) as well as his subsequent activity in Rheinzabern (D), the bowl Kat. 390 would also have been in circulation for a long period of time – over 80 years or three generations before being buried. H. Bernhard classifies Reginus I to the

¹ The following remarks are a shortened version of the comprehensive analysis of the site published in 2014 (SCHUCANY/WINET 2014, especially Chap. 4.4 as well as p. 506 f.). The figures have been published with the permission of the Department of Monument Preservation and Archaeology of the Canton of Zug (ADA ZG) as well as the Canton Museum of Prehistory (KUMZ). I would like to thank Christa Ebnöther, Berne, and Caty Schucany, Berne, for valuable comments as well as Andy Lawrence, Berne, for the translation into English.

² SCHUCANY/WINET 2014, Kat. 335. All numbers with the prefix «Kat.» stand for the catalogue numbers in the publication SCHUCANY/WINET 2014.

³ J.-A. STANFIELD/G. SIMPSON, Les potiers de la Gaule centrale. *Rév. Arch. Sites* 37 (Gonfaron 1990) 229.

⁴ TRUMM 2002, 49 f.

⁵ ROTH-RUBI 1986, 22 f. Rothkegel dates the production of Cibisus to the first half of the 2nd c. AD: R. ROTHKEGEL, Der römische Gutshof von Laufenburg/Baden. *Forsch. u. Ber. Vor- u. Frühgesch. Baden-Württemberg* 43 (Stuttgart 1994) 73.

⁶ A bowl of Verecundus resp. Verecundus/Cibisus (Kat. 199) was also found in Horizon 1b.

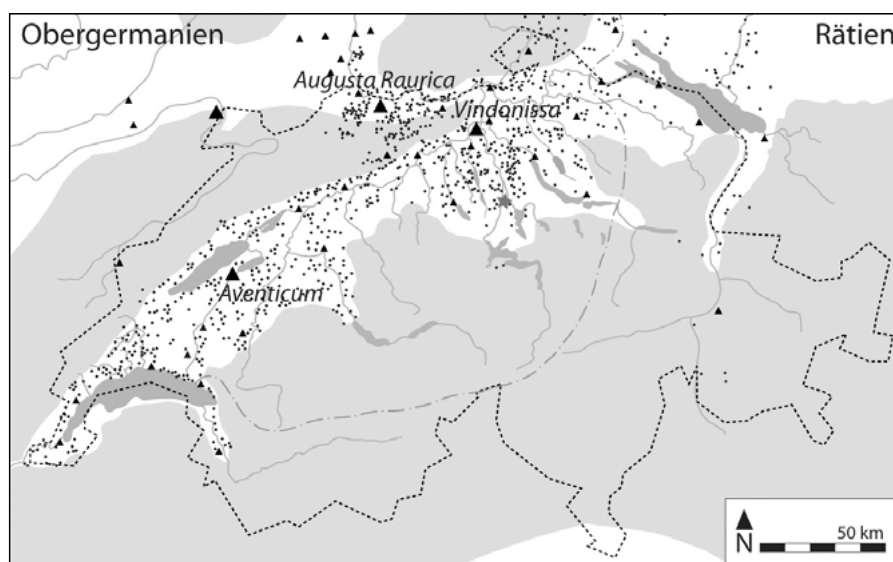


Fig. 1. Map with the situation of Cham-Hagendorn (star) and the places of Roman Switzerland (map: C. Schucany, Berne).

	5th inundation (post-roman?)
Horizon 4	latest horizon (ca. 270/275 AD)
	4th inundation (ca. 265/270 AD)
Horizon 3	later smith's workshop (ca. 260/270 AD)
	3rd inundation (ca. 260 AD)
Horizon 2	water mill (<u>230/231 AD</u>)
	2nd inundation (225/230 AD)
Horizon 1b	later sanctuary (<u>218 AD</u>), including embankment (<u>215 AD</u>)
	1st inundation (210/215 AD)
Horizon 1a	earlier smith's workshop (<u>162?/173 AD</u>) earlier sanctuary (from 200 AD)

Fig. 2. Overview of the development and function of the site of Cham-Hagendorn. Dendrochronological dates: bold and underlined.

group Ia whose production he dates from 150 to 175 AD⁷. A. W. Mees dates the production of Reginus I to ca. 180 AD⁸. The production of Heiligenberg dates from the first half to the second half of the 2nd century AD⁹.

According to its stamps, the moulded bowl Kat. 315 from Horizon 2 (230–260 AD) was probably produced in the Rheinzabern workshop of Comitalis IV (fig. 7). The bowl Kat. 13 from Horizon 1a (160/170–210/215 AD) could, according to the similarity in its ovolo, also be a product of the Comitalis IV workshop. The production of moulded bowls in Rheinzabern (D) starts around 150 AD and continued up until the middle of the 3rd century AD¹⁰.

The chronological sequence of the potters (resp. the mould makers or the workshop) is still debated¹¹. According to H. Bernhard, Comitalis IV belongs to his group IIa. Chronologically speaking, this group begins after 175 AD, as the production of group Ia ends around 175 AD on the grounds of the destructions layers of the Marcomanni wars¹². F.-K. Bittner, who has not only criticized Bernhard's chronology but also continued to work on it, dates the production of Comitalis IV to 190 AD¹³. A. W. Mees warns against interpreting the Bernhard groups as chronological units, as these groups overlap and could thus be simultaneous¹⁴.

Mees' own classification, based on a correspondence analysis of the stamps (*Punzen*) and their association with well dated find ensembles, proposes a chronological period

⁷ BERNHARD 1981, 87; ESCHBAUMER 2001, 288.

⁸ MEES 2002, 325 Beil. 7.

⁹ Ibid. 75, 183.

¹⁰ ESCHBAUMER 2001, 288. There are different opinions about the beginning of Rheinzabern: 150–170 AD (MEES 1993, 227) as well as 140–150 AD (BERNHARD 1981, 87) or later than the middle of the century (see ROTH-RUBI 1986, 24).

¹¹ BERNHARD 1981; ESCHBAUMER 2001, 288.

¹² Ibid.

¹³ F.-K. BITTNER, Zur Fortsetzung der Diskussion um die Chronologie der Rheinzaberner Relieftöpfer. Bayer. Vorgeschbl. 51, 1986, 231–259 Tab. 10.

¹⁴ MEES 1993, 229.



Fig. 3. Some pottery of Cham-Hagendorn (photo: R. Eichenberger, KUMZ).

for Comitalis IV from 175–200 AD¹⁵. However, only one bowl comes from a dated site, namely the fort Niederbieber (D) resulting in a *terminus post quem* of 185 AD¹⁶. This date can be applied to the bowl Kat. 13 from Horizon 1a; in the case of bowl Kat. 315 however, this would mean a very long period of use before it was discarded.

Helvetian terra sigillata occurs up until Horizon 2 (up until 260 AD)¹⁷. E. Ettliger and K. Roth-Rubi dated the production of the Helvetian moulded-bowls according to their relations to the Raetian potter workshops, as the finds they published in 1979 were not able to be dated by their association with archaeological structures¹⁸. In the first half of the 3rd century, the Helvetian moulded bowls reached their widest distribution¹⁹. Ettliger and Roth-Rubi presume that these bowls were in use up until 260 AD. Their occurrence in Cham-Hagendorn (e.g. **fig. 8**) underlines the chronology postulated by E. Ettliger and K. Roth-Rubi.

The ensemble of Cham-Hagendorn contains several moulded bowls that were relatively new when discarded (**fig. 4**). This applies especially to the bowl from Horizon 1a. From the bowl from Horizon 1b, three must have been discarded quite soon, whereas two bowls were used for 30 years or a generation be-

fore they fell victim to an inundation. Kat. 197 (**fig. 6**) comes from the construction layer of the water mill, Kat. 198 from the sediment of the second inundation. It is however possible that these vessels were discarded earlier and then transported, either in the wake of the second inundation or building activity within Horizon 2, to its ultimate find spot. While both bowls from Horizon 2 were discarded at the same time or only a brief period after their production, the two bowls from Horizon 3, in contrast, must have 80 years or more than three generation older when they entered the gravelly layer of Horizon 3. As they are preserved in large fragments – Kat. 390 is almost a complete vessel broken into a few large sherds – the vessels could have hardly come from older layers. Even if we were to prolong the production time of these potters (Reginus, possibly Ciriuna) to the beginning of the 3rd century AD, the bowls would have been of a considerable age at the time of their disposal.

Also, the occurrence of the colour-coated beaker Niederbieber 33 in the dendrochronologically dated horizons of Cham-Hagendorn shall be discussed along with the hitherto known dates. The beaker Niederbieber 33 belongs to the leading forms of the eponymous fort of Niederbieber (D)²⁰. However in the fort of Hesselbach (D) (110–160 AD) and in Siesbach

¹⁵ Ibid. 2002, 335.

¹⁶ Ibid. 125–127 Abb. 82 Beil. 9. Comitalis IV belongs to Jaccard-group 4 of Mees. This chronology dates the potter to the mentioned period (MEES 2002, 125–127; 335).

¹⁷ Horizon 1a: Kat. 7–8; Horizon 1b: Kat. 194–196; Horizon 2: Kat. 314.

¹⁸ ETTLINGER/ROTH-RUBI 1979, 23.

¹⁹ Ibid. This hypothesis should be proved in future (TRUMM 2002, 51).

²⁰ F. OELMANN, Die Keramik des Kastells Niederbieber. Mat. Röm.-Germ. Keramik 1 (Frankfurt a. M. 1914); A. HEISING, Perspektiven der Limesforschungen am Beispiel des Kastells Niederbieber. In: P. Henrich (Hrsg.), Perspektiven der Limesforschung. Beitr. Welterbe Limes 5 (Stuttgart 2010) 56–71.

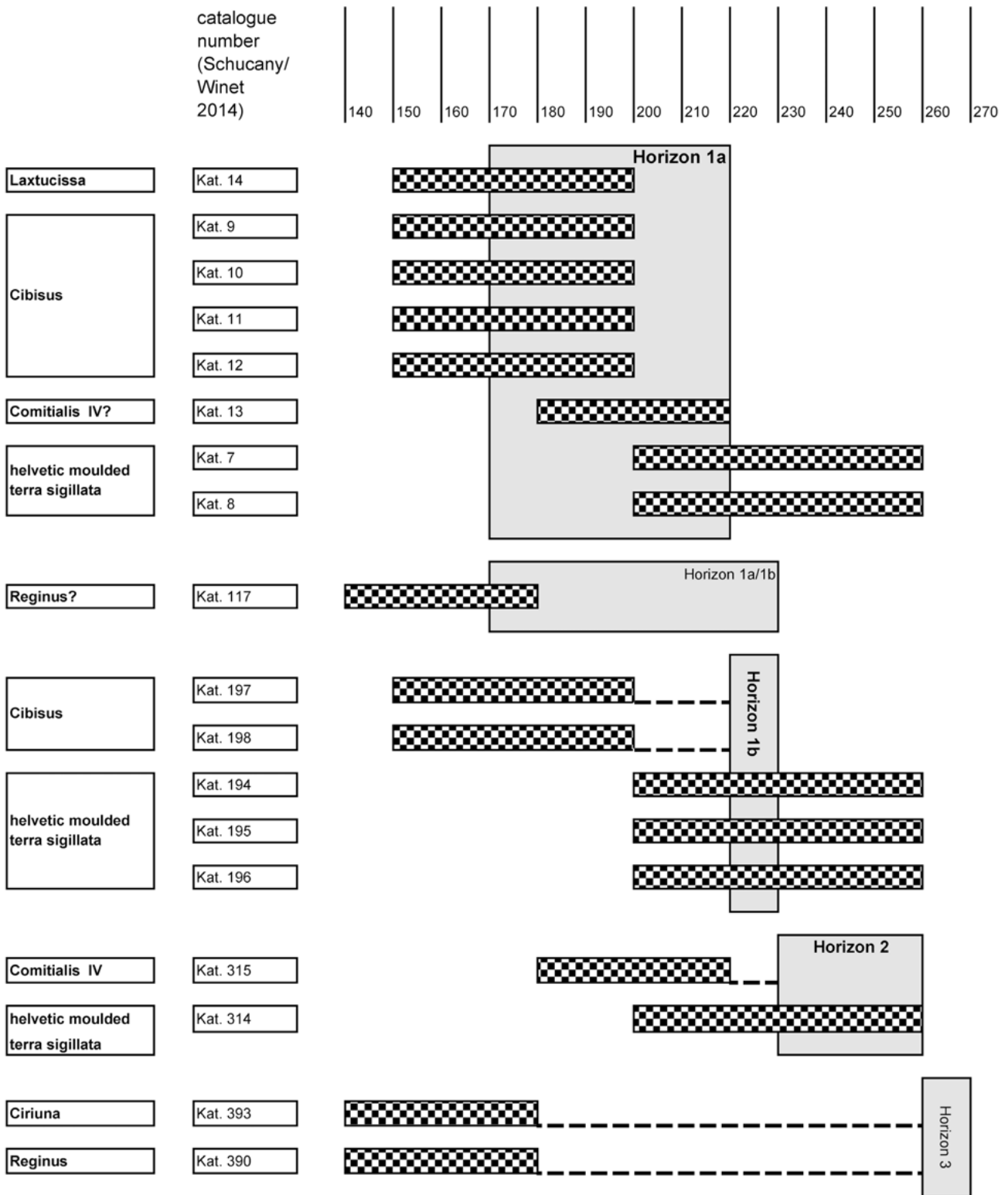


Fig. 4. Occurrences of the terra sigillata moulded bowls in the horizons of Cham-Hagendorn (grey), compared to the production/typological chronology (raster) (diagram: C. Schucany, ADA ZG).

Fig. 6. Cham-Hagendorn: Moulded bowl of Cibisus (SCHUCANY/WINET 2014 Kat. 197). – Scale: 1:3. Stamp: 1:1 (drawing: S. Nüssli Bouzid, ADA ZG; photo: R. Eichenberger, KUMZ).

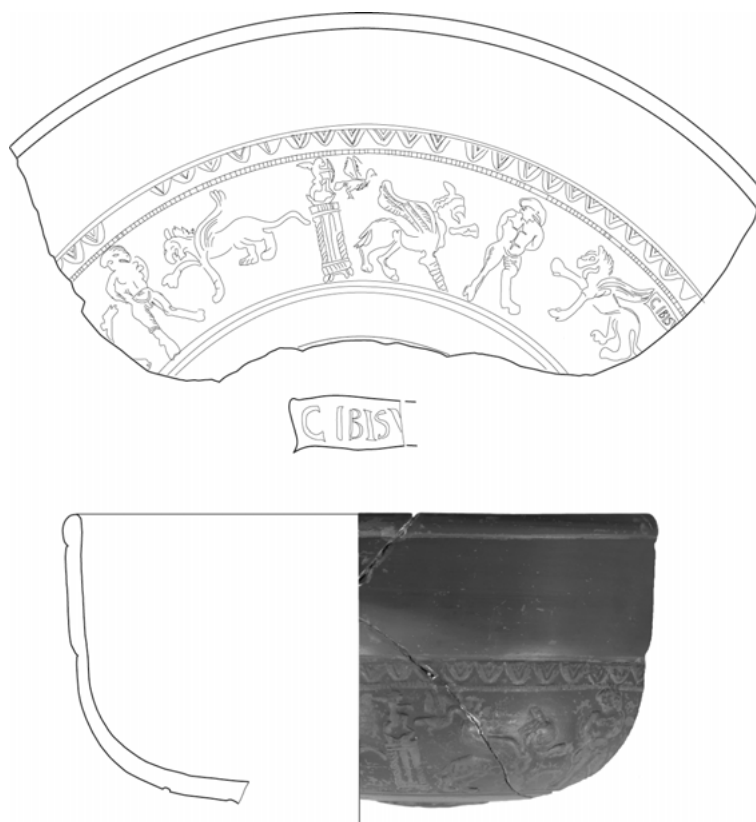


Fig. 5. Cham-Hagendorn: Moulded bowl of Cibisus (SCHUCANY/WINET 2014 Kat. 9). – Scale: 1:3. Stamp: 1:1 (drawing: S. Nüssli Bouzid, ADA ZG; photo: R. Eichenberger, KUMZ).

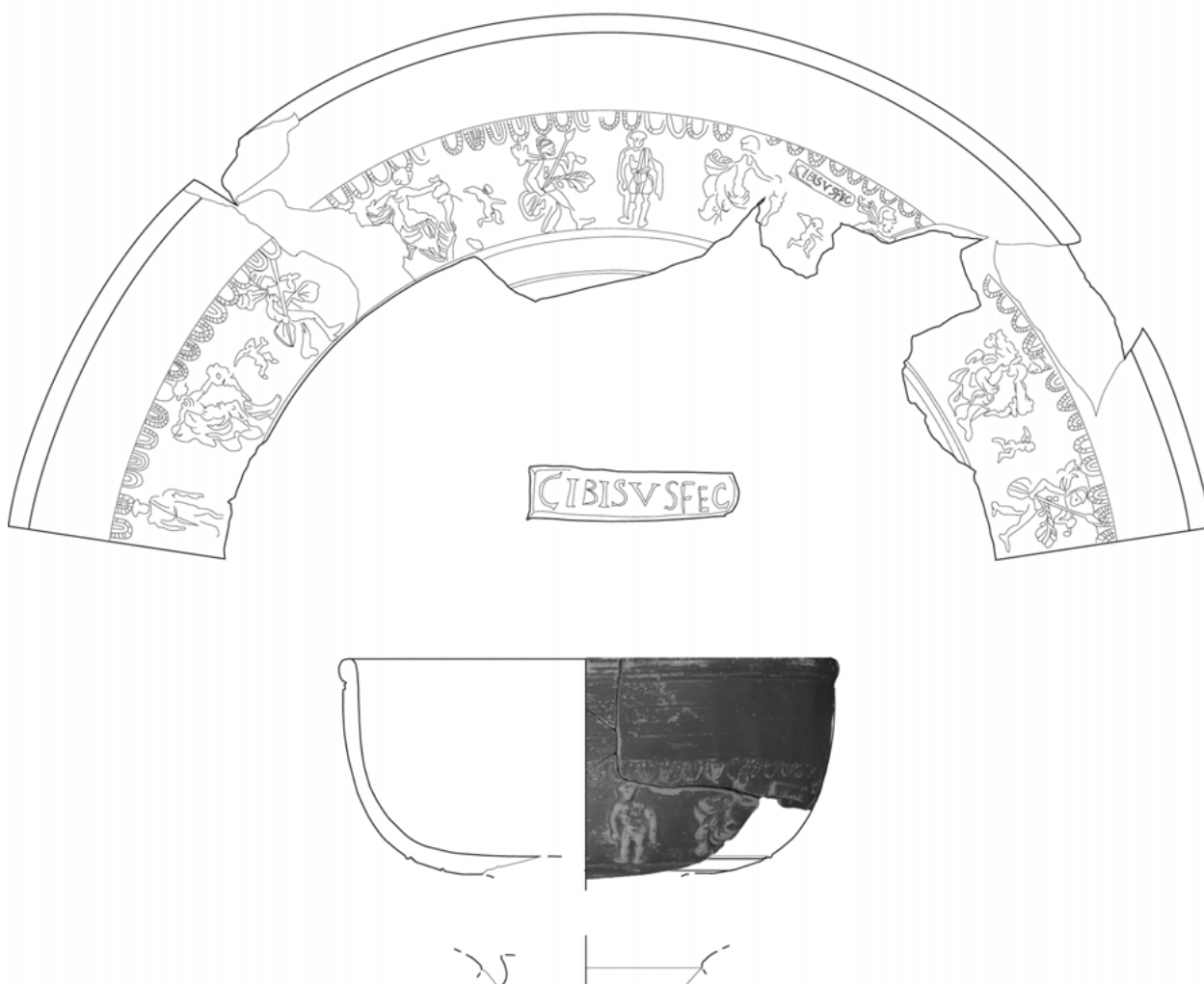




Fig. 7. Cham-Hagendorn: Moulded bowl of Comitialis IV (SCHUCANY/WINET 2014 Kat. 315). – Scale: 1:3. Stamp: 1:1 (drawing: S. Nüssli Bouzid, ADA ZG; photo: R. Eichenberger, KUMZ).

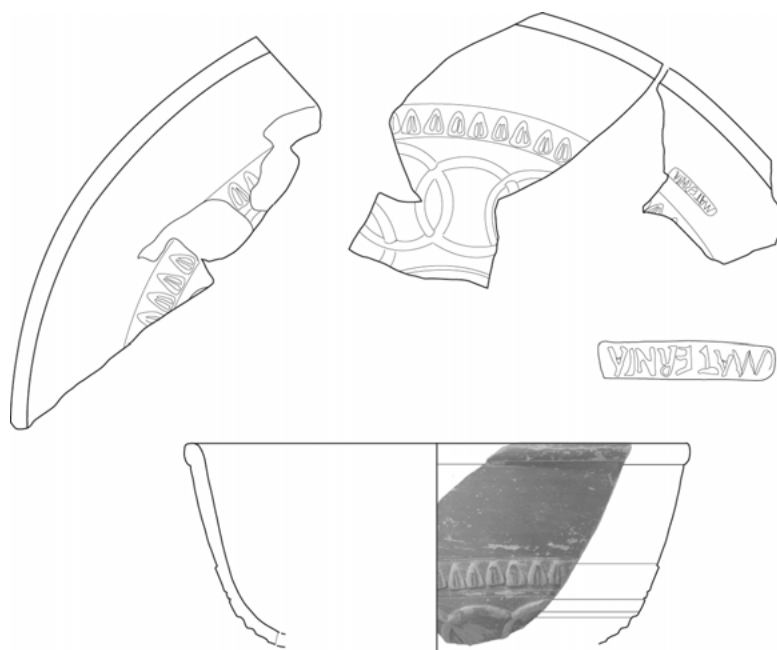


Fig. 8. Cham-Hagendorn: Helvetian moulded bowl of Maternia (SCHUCANY/WINET 2014 Kat. 196). – Scale: 1:3. Stamp: 1:1 (drawing: S. Nüssli Bouzid, ADA ZG; photo: R. Eichenberger, KUMZ).

(D) (164–174 AD) it is not yet present²¹. In the Helvetian territory the beaker Niederbieber 33 is already proven in the 2nd century, as for example in the building layers of the stone construction phase I.6 of *Aquae Helveticae* (CH) which dates to 155/165 AD, as well as in the building layers of the stone construction phase II.1 which dates around 160/175 AD²². In Cham-Hagendorn a beaker of the type Niederbieber 33 (Kat.

33) is already present in the Horizon 1a (160/170–210/215 AD). This type of beaker is thus also present in central Switzerland from the end of the 2nd century/beginning of the 3rd century. Beakers of the type Niederbieber 33 sporadically occur from the end of the 2nd century AD and become more prevalent in the course of the 3rd century AD.

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²¹ D. BAATZ, Kastell Hesselbach und andere Forschungen am Odenwaldlimes. *Limesforschungen* 12 (Berlin 1973) 66 f.; A. ABEGG-WIGG, Der römische Grabhügel von Siesbach, Kreis Birkenfeld. *Trierer Zeitschr.* 52, 1989, 171–278 esp. 228.

²² C. SCHUCANY, *Aquae Helveticae. Zum Romanisierungsprozess am Beispiel des römischen Baden* (Basel 1996) Abb. 164 Nr. 1643 (SP I.6) resp. Nr. 1802 (SP II.1).

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