

State Control, Regionality or Guidelines? The Production of the Crossbow Brooch

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Introduction

Many debates on the production of military metal items juxtapose Roman state or military controlled production (*fabrica*) with observable regional differences across the provinces. Yet, distilling an exact provenance from metal artefacts is very difficult due to the high chance of recycled materials, a potentially large distance between the ore-extraction site and production site, as well as the high mobility of military items. Furthermore, given the large geographical extent of the activities of the Roman army, very few production sites have been excavated or production waste and semi-finished goods found *in situ* that can provide us with valuable insights into the nature of military production workshops.

In this paper, the case of the late Roman crossbow brooch will be put forth to revisit the debate on its production. Certain observations made on both the object and context information suggest new lines of thinking to approach Roman military productions. Various analyses have uncovered that, instead of regarding uniformity in contrast to variation, standardisation can be present in the shape of the brooch, while maintaining stylistic freedom in the decorative details. Furthermore, the degree of standardisation or variation can even allow us to investigate different ways in which the production has been organized. Moreover, the evidence provided by typological, stylistic, morphometric and compositional analyses on the crossbow brooches from the Low Countries illustrates that perhaps a *fabrica* could conceptually be seen as a fluid production environment and as a changeable concept over time. It was subjected to changes in military organisation and the larger transformations in the Roman Empire.

Production Models of the Crossbow Brooch

The crossbow brooch is a well-known type of late Roman metal artefact that has been found across the entire Roman territory, although mainly clustering in the frontier regions.¹ It emerged as a separate type from a wide range of bow brooches in the 3rd century as a simple military item and knew a non-linear development until the 6th century, when it symbolised the former power and authority of the Roman state.²

Throughout the 20th century, typological brooch studies subdivided the crossbow brooch into various subtypes based on regional stylistic patterns.³ Most typologies assumed a chronological development from one subtype into the next until Swift's

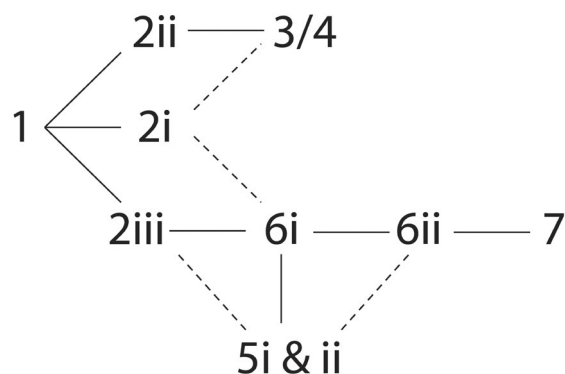


Fig. 1: Swift's non-linear typological model of the crossbow brooch development.

interregional study⁴ introduced a non-linear evolution model (fig. 1), illustrating the existence of chronological overlap and regional diversity.

Nevertheless, scholars used style-based typological models to answer questions concerning the social, economic, and symbolic value of the crossbow brooch⁵, as well as to create production models based on the distribution of subtypes and specific stylistic elements. Throughout various studies, one idea emerges constantly: the crossbow brooches were manufactured in a large state-regulated production centre in Pannonia. As Swift states, this notion is not based on any concrete evidence⁶ and can be traced to the desire to connect the large numbers of brooches found in Pannonia to a production in the *fabricae* mentioned in the *Notitia Dignitatum*.

Furthermore, this idea is supported by the assumption that the crossbow brooch marks an officer's rank and their standardised appearance. However, none of the typological studies in the 20th century assessed the degree of standardisation in and between regional distributions. While it has been confirmed that the crossbow brooch did mark military and state officials, the socio-historical evaluation of the crossbow brooch⁷ demonstrated the complex social transformation of these objects and their symbolic values. This necessitates differentiation based on the specific societal and chronological contexts.

Scholars have held a regional production model in contrast to a central production model: the former using the style-distribution evidence as an argument for multiple local and/or regional workshops or *fabricae*,⁸ and the latter arguing for a single state-run *fabrica*.⁹ The creation of a non-linear typology offered Swift the opportunity to introduce a more complex narrative, which combines some elements of regionality and centrality.¹⁰ She observed a mainstream trend throughout all types, while simultaneously noting smaller distinct subgroups with a more limited distribution. From this, a dominant production in Pannonia was suggested, as well as several regional manufacture centres in the Danubian and north-western provinces along the Rhine and in Britannia.

However, this new model still emerged from the distribution patterns of a style-based typology, which is governed by consumption behaviour and the presence of the

social classes associated with it (i.e. the military and late Roman officials), and as such is not an ideal singular proxy to investigate production. Moreover, it can be argued that locating production centres or *fabricae* by distribution patterns of style and typology is an archaeological construction, in which these facilities too often become rigidly fixed in time and space. Furthermore, it assumes a close source-to-site relationship between the production place and the place of burial, loss, or discard. This, however, has been supported by the few compositional studies, which revealed analytical evidence for local brooch productions on sites that have yielded crossbow brooches: in Richborough,¹¹ Socchieve,¹² and Oudenburg.¹³ While this is still not direct evidence, a local production of crossbow brooches is already more likely, especially for the 3rd and early 4th century types. Swift also used some analytical results,¹⁴ although only a distinction between a possible British or continental origin could be made, due to the lack of comparative studies.

Composition as a Reflection of Access to Raw Materials

The idea of using compositional signatures to distinguish between continental and British products, or to identify state-produced brooches from the Pannonian *fabrica*, was investigated by the non-destructive analysis of crossbow brooches from Belgium and the Netherlands by means of X-Ray Fluorescence spectroscopy.¹⁵ Overall, the compositional signal throughout all types of brooches appeared mainly influenced by fluctuations in tin and lead (representing (lead) bronze), and less so by zinc (representing brass and gunmetal). No distinct alloys could be tied to stylistic traits. Although, some type 2 and a large part of the type 3/4 brooches deviate from the main compositional fluctuations by an increased number of brooches with more zinc and less tin. This observation supports Swift's notion of the introduction of a main central continental brass/gunmetal production in addition to the British (lead) bronze brooches.

However, given the manufacture methods, metal flow, and recycling practices that accompany metal production, repairs and modifications, it seems unlikely that exact metal alloy recipes would have existed to manufacture these brooches. While certain material properties are needed for functional objects, it can be argued that the composition of the hinge and pin would be the most important to obtain the desired flexibility and durability. The access to raw materials and fresh metal ores, however, would have been a much more decisive factor in the alloy composition of local or regional brooch productions. Access to zinc is sometimes considered to have been monopolised by the Roman army,¹⁶ but even if this is not the case, the noted decline in brass products in late Roman Britain¹⁷ does argue in favour of the use and control of brass by a privileged group, such as perhaps the military. When a similar situation is observed among the composition of the brooches from northern Gaul as in Britannia, the distinction does not lie between a regional British production and a central continental

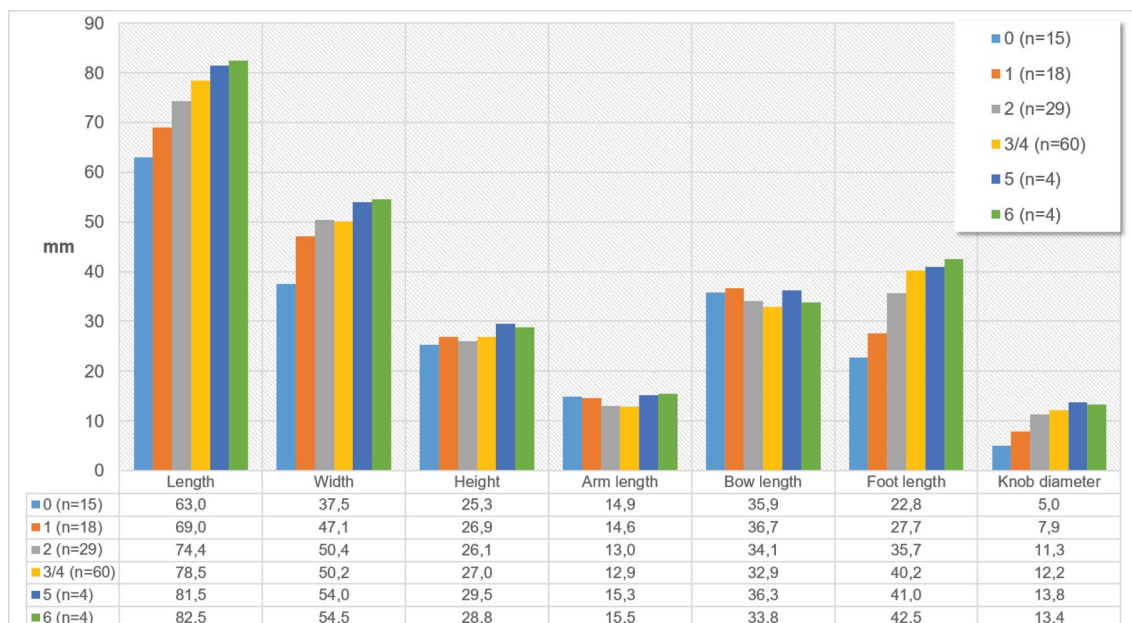


Fig. 2: The averages (in mm) of the general brooch dimensions (length, width, and height) and feature measurements (arm, bow, foot length, and knob diameter), sorted per type of crossbow brooch (subtype 0–6).

production. However, this could work as an argument in favour of associating the brass/gunmetal brooch groups that have a centralised production with access to fresh zinc sources, and aligning the (leaded) bronze groups with local and regional productions across the Roman west. The results of the stylistic and dimensionality evaluation below further support this idea.

An Evaluation of Style and Dimensionality

Alongside the compositional study, the style and dimensionality of crossbow brooches from Belgium and the Netherlands were studied by multiple approaches to provide a more detailed understanding of the various processes that governed the production and consumption of crossbow brooches.¹⁸

Swift already claimed that, despite their generally uniform look and their role as a social identifier, it is very rare for two crossbow brooches to be exactly the same.¹⁹ The various features are decorated with a myriad of styles, motifs, and shapes that are driven by processes of uniformity and regionality, as well as expressions of identity and craft expertise. Given the multidimensionality of a (crossbow) brooch, it is difficult to classify a specific style as a local/regional trait, or to decide whether decorative elements are markers of a specific social class or rather reflect the individual taste of the owner, gift-giver, or craftsman. Therefore, a multivariate stylistic evaluation was applied to develop

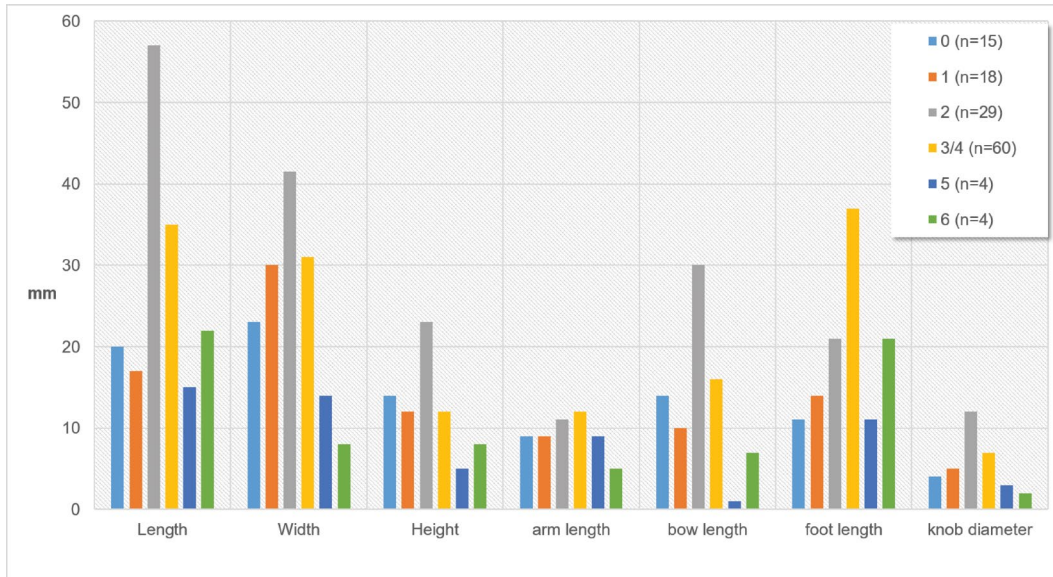


Fig. 3: The range (in mm) between the minimum and maximum values of the general brooch dimensions and feature measurements, per type of crossbow brooch (subtype 0–6).

a regional diachronic profile of the crossbow brooches, which recorded the frequency and variation of different traits of every feature (foot, bow, arm, knobs and cuffs).²⁰

Additionally, a morphometric approach to determine the fluctuations and changes in size as a marker for standardisation, or lack thereof, was explored by measuring the total and partial dimensions of the brooch.²¹ This technique provided a check on the style-based typological evaluation. And, while dimensionality is connected to style, it is considered that the brooch's proportions are more closely related to the shape and manufacturing process, and thus less subjected to fluctuations due to design or personal taste. The exploration of the range of brooch measurements (figs. 2–3) and the calculation of the coefficient of variation²² proved a valuable addition to the stylistic evaluation to assess the relationship between production freedoms and requirements. Most useful for estimating the latter was the length/width ratio of the brooch (fig. 4), which was dictated by the need to have a fixed form that validated a crossbow brooch as an authentic marker of authority.²³

Changes in the Life of the Crossbow Brooch

To fully unravel the stylistic changes of the crossbow brooch and their reflection on production models, it is necessary to place them in their proper archaeo-historical context.²⁴ The origin of the crossbow brooch can be placed in the 3rd century. The lack of direct iconographic and historical evidence, combined with their abundant archaeological

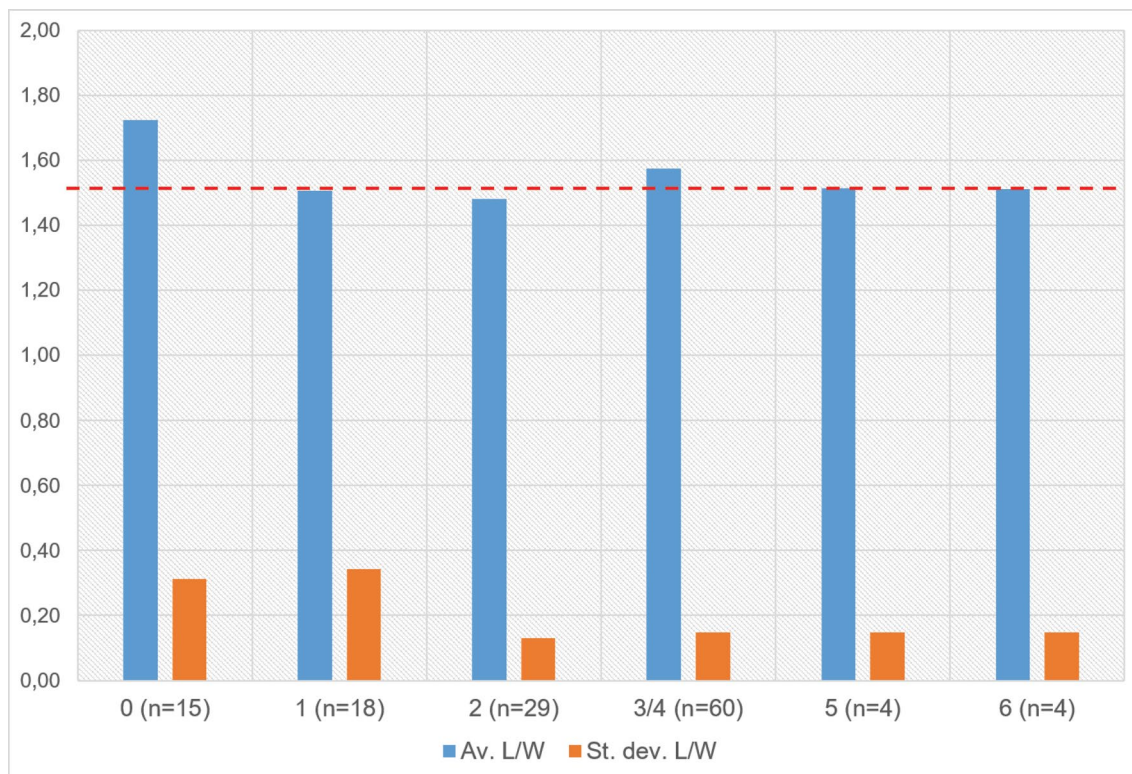


Fig. 4: Illustration of the length/width ratio per subtype, with indication of the 3 : 2 ratio (by the red dotted line).

presence in a military setting, suggests that their owners in the 3rd century belonged to a lower military class. This is supported by the simple design of these type 0 brooches,²⁵ which display the least variation in shape, style and size, suggesting a high degree of uniformity. The existence of three brooches from Oudenburg with the exact same measurements²⁶ supports the idea of batch production by the use of moulds in small local workshops.

A first significant change can be observed during the 3rd–4th century transition, corresponding with the Tetrarchy and the early Constantinian dynasty. Type 0 is replaced by types 1 and 2, although partially overlapping in chronology. Their main archaeological context is still military, although the appearance of iconographic evidence and the gradual shift to mainly burial contexts indicate a change in their symbolic value towards a dual social message. On the one hand, there are anonymous military members in the iconographic record that can be linked to the rather simple type 1–2 brooches, which probably still reflected a connection with (lower) military classes. On the other hand, the iconographic sources depict identifiable public officials with crossbow brooches. Here, the introduction of new shapes and styles can be viewed as the result of more wealthy individuals adopting a military dress-style, but still wanting to express their higher status and wealth in the highly decorated and inscribed brooches.²⁷

Overall, there is an increase in decorative traits and dimensional variation. This can also be explained in part by a changed manufacture technique of assembling different parts that were cast or worked separately, giving more liberties to the workshops or reflecting the varying skills of craftsmen.

The type 2 brooches continued in the 4th century, although type 3/4 then became the dominant type of crossbow brooch. Swift proposed type 3/4 as the mainstream trend, associated with imports from the Pannonian *fabrica*, and the remaining type 2 products as parallel regional developments. In the Belgian-Dutch brooches, very few new traits are introduced in type 3/4. The large variation in the decorative styles is mainly due to the cross-combination of many different traits in a higher number of brooches. In addition to the diminished decorative variability, there is an increased dimensional standardisation. These observations conform to a more controlled production for or from the military, while there is still some small-scale imitation for prestige, presumably from a restricted number of workshops.

The final development traceable through the brooches from northern Gaul is the 4th-5th century transition. Iconographic evidence shows an increased preference to display individuals of power and prestige with crossbow brooches, often state officials performing their duties, as in the consular diptychs. In addition, the historical references give us an indirect indication that the former 'military garb' was widely adopted by the civilian official ranks while performing their tasks. In the archaeological record, we see a persistence of the type 3/4, while alongside types 5 and 6 develop separately, but somewhat parallel, tied to changes in production and workshops. Interestingly, no new shapes or styles emerge, only existing styles develop further. Furthermore, types 5 and 6 differ in the selection of stylistic traits to the point where they appear very much distinct from each other. Again, there is a noticeable shift in the manufacturing technique to mainly working sheet metal into the desired form. This might also be related to the more frequent use of precious metals or fine decorative traits, introducing the possibility that these brooches were custom-made, and adding to the overall increase in stylistic freedoms. However, the standardised base-form did continue, aligning types 5-6 with the controlled production of type 3/4. At this point, crossbow brooches were no longer associated with anonymous military members; they were intended to serve as identifiable symbols of state authority, which is the reason for the simultaneous expressions of uniformity and variation.

Fluid *fabricae*?

A number of considerations arose from this crossbow brooch study on the nature of production modes. By combining both production and consumption perspectives, it became clear that central production does not necessarily have to oppose regionality, as we can see aspects of both returning in most subtypes. Furthermore, the higher standardisation and restrictions in the overall shapes, in contrast to the highly varied

decorative freedoms, argues for the potential existence of guidelines to legitimise a crossbow brooch's authority. The length/width ratio has been used here to demonstrate the stability and relative degree of standardisation in the overall dimensions over time that would have been needed to identify the crossbow brooch as an *insignia*.

In general, the more functional military brooches (types 0–1, 3/4 and part of type 2) illustrate a higher restriction in style than the 'imitation' brooches (part of type 2 and types 5–6) for outside-military use by state officials and elites in the 4th century. However, the term "imitation" is not used here in the traditional sense, but rather to indicate that these brooches fall outside the conventional typological model that mainly represents the military brooches, although they contained the same symbolism of authority for their owners. The major difference lies with the reduced restrictions on appearance. These more luxurious brooches also served to display wealth and connections with powerful people; they most likely were part of the state-elite gift giving practice. Evidence of this can be found in the historical and epigraphical sources, which recount the donation of proper attire by peers when a new member joins the ranks.

Furthermore, the identification of potential guidelines or rules for production opens up the possibility to have 'local' central production workshops for each region. Additionally, the idea of traveling 'central' workshops or production 'masters' can also be entertained. Moreover, the differentiation between 'regular military' and 'elite imitation' introduces the option for long-distance production orders of commissioned custom-made items by elites to display their wealth and influence to each other.

In conclusion, it can be stated that the research on the different production modes of the crossbow brooch is far from finished. Nevertheless, some considerations can be introduced to revisit the idea of what a *fabrica* has to be: a state-controlled production centre or rather a (licensed) local/regional military workshop. Or could a military workshop have become a *fabrica* when a state-supported craftsman arrived to make *insignia*? Or were a certain set of regulations circulating among several production centres? In any case, the story of military productions has proven to be more complex than merely contrasting central vs. regional models.

Notes

¹ Swift 2000, chapter 2.

² Van Thienen 2017.

³ e.g. Van Buchem 1941; Van Buchem 1966; Keller 1971; Ettliger 1973; Jobst 1975; Riha 1979; Feugère 1985; Hull – Hawkes 1987; Pröttel 1988.

⁴ Swift 2000.

⁵ Keller 1971, 27; Jobst 1975, 93; Clarke 1979.

⁶ Swift 2000, 3–4.

⁷ Van Thienen 2017.

⁸ e.g. Keller 1971; Jobst 1975; Clarke 1979.

⁹ e.g. Riha 1979, 171.

¹⁰ Swift 2000.

¹¹ Bayley – Butcher 2004.

¹² Giunlia-Mair et al. 2007.

¹³ Van Thienen – Lycke 2017; Van Thienen – Vanhoutte 2012.

¹⁴ Swift 2000, 81–88; Bayley 1992.

¹⁵ Van Thienen – Lycke 2017.

¹⁶ Dungworth 1997.

¹⁷ Pollard et al. 2015.

¹⁸ Van Thienen 2016, chapter 8.

¹⁹ Swift 2000, 62.

²⁰ A complete overview of the stylistic study is forthcoming, for now see Van Thienen 2016, 314–347.

²¹ Van Thienen – Lycke 2017, 56–58 table 3.

²² Van Thienen – Lycke 2017, 56: method after Eerkens 2000; Eerkens – Bettinger 2001.

²³ Van Thienen 2016, 341–343.

²⁴ For a complete narrative and overview of the available evidence, see Van Thienen 2017.

²⁵ Type 0 is an addition to Swift's model to incorporate the crossbow brooches' direct predecessor, also known as the early light crossbow brooch or Armbrustscharnierfibel.

²⁶ Van Thienen – Vanhoutte 2012, 147 fig. 4.

²⁷ For examples, see Deppert-Lippitz 2000.

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Fig. 1: after Swift 2000, 27, fig. 11. – Fig. 2–4: by author.

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