

## STUDYING THE SHAPES OF GREEK VASES: HISTORIOGRAPHY AND NEW METHODOLOGIES

### 1. INTRODUCTION

«Now that the painters of nearly all important Attic vases, and most of the less important, have been determined, the whole material must be re-studied from the point of view of potters; and this time we must be prepared to hold the painters at arm's length. It will not be enough to note the general proportions of the shape: the eye must become accustomed to perceive minute refinements of curve and line. Then it will be possible not only to write the history of Attic vases from the point of view of the potters, but, in the long run, to shed fresh light on the painters with whom they collaborated» (BEAZLEY 1944, 42).

The fact that these thoughts were Beazley's, and were published as early as 1944, highlights a paradox which is still mostly valid in the historiography of research in Greek figured pottery. While this branch of Classical studies focused for decades on the development of Beazley's lifework, i.e. the attributions of Greek vases to anonymous painters, the study of the potter's work, i.e. the variations in vase shapes and their connections with craftsmen's habits as well as workshop practices, remained broadly neglected and were never systematically analyzed. Yet, Beazley was perfectly aware of the necessity to pursue these avenues.

In spite of this negative assessment, it is important to stress that some scholars developed frameworks and methodologies to approach what we might call 'micro-typologies' of Greek vases. This paper offers a synthesis of the various and somewhat disparate works on the shapes of Greek vases and their attributions to anonymous potters. Building on this historiography, the paper also presents the methodological guidelines followed by the authors in their works on Greek shapes.

This article might appear somewhat *at odds* with the other contributions in a volume on the virtual modelling of ancient pottery. If virtual 3D modelling might soon replace drawings made by hand, the systematic and large-scaled study of the potter's work of ancient vases – in combination with the stylistic studies of the figured decoration – remains necessary and methodologies will have to follow similar steps. The methods discussed here are fundamental, not only for a better understanding of the organization of potters' workshops but also to appreciate their local interactions and intercultural relationships with other Greeks and non-Greeks.

## 2. STUDYING THE WORK OF ATTIC POTTERS: A SHORT HISTORIOGRAPHY

### 2.1 *Pioneering studies*

The pioneering studies on Greek shapes were developed between the 1930s and the 1950s and are mainly represented by C.H.E. Haspels, J.D. Beazley and H. Bloesch. These early approaches, like most of the more recent studies they inspired, strongly depended on a first classification based on *epoiesen* signatures (interpreted as potters' signatures) and on the stylistic analysis of figured decoration. Beazley would attribute unsigned vases to a specific painter by studying his manner in representing certain anatomical details – such as the ears, hands and muscles – or the folds of clothes. Besides the identification of single hands, Beazley also assembled vases under anonymous *Groups* of painters (ROBERTSON 1989, xvi-xvii), consisting in more nebulous clusters where individual hands could not be distinguished. The goal of early researchers – heavily relying on painted decoration – was to apply the same methodology to the potters (HEMELRIJK 1991, 251).

Haspels' book on Attic black-figured *lekythoi*, published in 1936, is the first of these pioneering studies (HASPELS 1936). Still highly relevant today, this work is more than a simple typo-chronology of *lekythoi*. Haspels organized her corpus according to morphological types and workshops' specific characteristics: she divided the entire *lekythoi* production into seven groups according to shape and chronology and by acknowledging the synchronicity and chronological overlaps of various profiles manufactured in different workshops. The last group she discussed, *From About 500 onwards*, was a worthy attempt to identify workshops and their development, collaborations between potters and painters, the characteristics of leading craftsmen and groups of vases they were related to, but probably potted and painted by other minor workers. The second part of the volume, the *Appendices*, reinforced Haspels' workshops analysis by shedding further light on seventeen groups of vases that share additional morphological and stylistic traits. The influence of Beazley, who was Haspels' professor and who probably carefully reviewed the manuscript (AUDIAT 1938, 292), is especially strong in this section, as the seventeen groups are mostly named after painters. In a 1938 review, Audiat, though praising Haspels' work, regretted her limited focus on vases that were well-painted, but disregarding «l'armée innombrable des lécythes sommairement décorés». Haspels' methods and knowledge might have been able to shed some light on the vast quantities of neglected vases for which Beazley's methods are of no use (AUDIAT 1938, 293-294). This remark is of the utmost importance, since it is one of the major claims of the present article that studies of shapes may lead to a better understanding of the huge amount of poorly painted vases.

As noted in the introduction, Beazley should also be considered as a pioneer in shape studies, although this aspect of his research is often overlooked.

As he laconically wrote in his seminal work on stylistic attributions of Attic vases to painters (ARV<sup>2</sup>, xliii): «‘Class’ refers to shape». This means that vases grouped by Beazley under a *Class* present the same shape with a further range of specific morphological details (ROBERTSON 1989, xvi). The term is therefore connected with the potter’s work, but it lacks precision since it is not always clear if a determined *Class* refers to a sub-type crafted by several workshops, a single workshop or a single craftsman.

However, Beazley carefully observed the potter’s work, for instance, in his grouping of black-figured *lekythoi* attributed to the Sappho and Diosphos Painters. These two distinct hands worked on the same shapes and shared the same techniques as well as many stylistic and iconographic features. Building on these observations, Beazley considered this workshop to be a collaboration of two painters with a single potter – the Diosphos Potter – identified by recurring morphological details on his *lekythoi* (ABV, 507; ARV<sup>2</sup> 1963, 300-304; *Para*, 246). Unfortunately, Haspels’ and Beazley’s morphological approach was never theorized nor systemized.

In 1940, Bloesch published what R.M. Cook defined as «the first serious attempt to do for the potters who made Attic vases what has been done for the painters who decorated them» (COOK 1945, 122). For his project, Bloesch studied the morphology of about 900 Attic cups dated between 530-430 BC, starting from Exekias’ work (see also BLOESCH 1951, for a similar study on amphorae and *hydriai* connected with Andokides). He went further than Haspels by using profile drawings as a method to compare small morphological details and tiny variations between vases. Although he still relied on stylistic attributions and signatures, he grouped the productions of various potters by observing the features of the cups’ bowl, rim, handles and foot, defining the characteristics of each potter and their connections. However, as noted by Cook, Bloesch’s attributions are difficult to validate given the very limited number of illustrations compared to the total of studied vases (COOK 1945, 123). There is a further problem: in his drawings of cups, amphorae and *hydriai*, Bloesch mostly published small parts – mainly the foot and rim of the vases – to save space in the plates. This choice makes it difficult for the reader to analyze shapes that s/he can never study directly. According to our experience with *kyathoi* and *alabastra* (see *infra*), one analyzes a shape visually faster and more effectively when comparing complete profiles of vases. Partial drawing should therefore be discouraged in publications for the sake of morphological studies.

Despite this last issue, it is important to remember that Bloesch’s most significant contributions to the studies of shapes are the systematic drawing of large corpora of vases sharing a same shape and type, and the use of photography to complete the corpus when drawing is not possible (KATHARIOU 2017, with bibliography, proposes a continuation of Bloesch’s work for the workshops of the Meleager and Jena Painters).

## 2.2 Recent developments: from the 1980s onwards

After Bloesch's publications, research focused on painters and, to the best of our knowledge, no significant work on Attic potters was published before the 1980s.

For instance, in 1984, B.F. Cook studied a particular Class of *lekythoi*: Class 6L (COOK 1984, 149-152). He defined two variations in the shape of these vases, located on the foot. However, faced with the difficulty of interpreting these morphological variants, Cook specified that it was impossible to determine whether there were one or two potters. If the identification of different Classes (or coherent typological groups) and consequently of different workshops is a simple process, it is far more difficult to distinguish a potter's hand among the vases in a same Class, because of the close links uniting the potters of a workshop.

The same year, Mackay proposed to work, like Bloesch, on the basis of profile drawings and her work on Exekias' amphorae (MACKAY 1984; 2010, see Fig. 1) was very innovative. She compared the profiles of vases of the same type by reducing proportionally all the drawings to the same height, using a

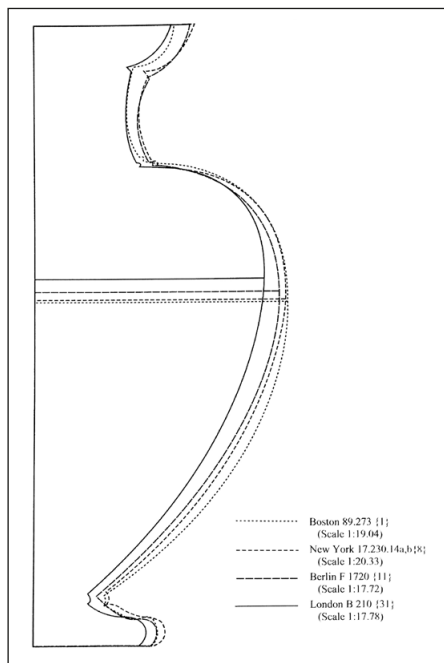


Fig. 1 – After MACKAY 2010, 390, fig. 3. Superposition/envelope of profiles (brought to the same height) of amphorae made by Exekias.

complex mathematical formula. Her method also gives an average profile of each vase and reduces occasional distortions of the potter's work, by combining several profiles of a same vase. Mackay started her work with four profile drawings for each amphora, then continued with only two drawings, as she realized that Exekias' work was very precise.

Based on our experience of *kyathoi*, we confirmed that reducing the similar profiles of two vases of very different sizes can be very helpful (see *infra* Fig. 5; TONGLET 2018, 182-184). Thanks to today's technology, this graphic operation is easier and faster to perform and laborious calculations have become unnecessary. Mackay's tendency to reduce distortions of the original vase by producing a kind of 'average profile' is less convincing. First of all, outside the field of Classical studies, anthropological studies regarding the standardization of pottery productions have shown a broad tendency among potters to place his/her pride and proof of talent in his/her capacity to reproduce identically the same shapes (e.g. ARCELIN-PRADELLE, LAUBENHEIMER 1983, 131). This way of thinking clearly applies to Attic potters, and their proven ability to reproduce exactly the same shapes (and sizes, if necessary) was demonstrated by M. Langner in a seminal study of late red-figured Attic pottery from the potter's perspective (LANGNER 2013). It is also our opinion that we should work with the actual profile of a vase without trying to 'correct' it, as proposed by Mackay. When different craftsmen might

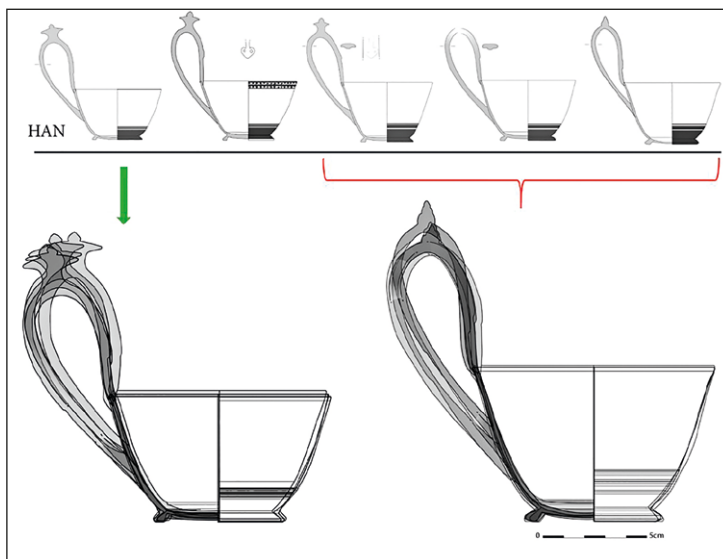


Fig. 2 – Serialization of potter HAN's work. Above: five chronological variants. Below left: envelope of the first variant. Below-right: envelope of variants 3-5.

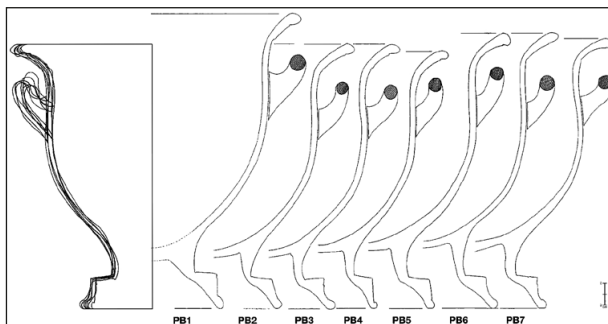


Fig. 3 – After LANGNER 2013, 138, fig. 13. Comparison of the profiles of various bell kraters made by one potter.

be at work, it is particularly important to stick to the physical reality – and therefore imperfections and variations – of every single piece. In fact, while some potters like Exekias were able to approach perfection, others did not: and this is where and how we find them (e.g. EUWE 1996, 70-71; TONGLET 2018, 149, fig. 52c, 180-181, fig. 57). Inconstancy and imperfections can be a potter's mark.

Finally, it is important to note one capital contribution of Mackay's work to the field of Greek pottery studies: bringing the drawings of various vases on the same vertical axis (Fig. 1). Comparisons and identification of variations are deeply eased by the graphical superposition of these images. This technique, called 'envelope' was theorized in another archaeological field (Delft pottery) by C. Orton in the 1980s (ORTON 1987). While this serialization by superposition was followed by some scholars like Tonglet (Fig. 2, below), other researchers, e.g. JUBIER-GALINIER (1999; 2003) and ALGRAIN (2014) continued to use the serialization by juxtaposition (Fig. 2, above). In his above-mentioned work, LANGNER (2013) proposed a most interesting visualization of profile comparisons: his figures show both an envelope presenting the left profiles of different vases reduced to the same height and, on the other side of the axis, the right profiles of these same vases presented side by side in their actual scale (Fig. 3). This might be the best visual presentation for vases of large sizes (containers), as opposed to smaller drinking or perfume vessels that do not need to be systematically reduced to the same height.

One last important matter must be evoked before closing this very brief synthesis: the importance of secondary decoration, i.e. the scheme of black lines, bands and ornamental patterns framing the main figured decoration and sometimes decorating the foot and handle(s). This topic will be developed below but, we must already stress the significant role played by Dutch scholars – several monographs published in the *Allard Pierson Series* of

Amsterdam (TONGLET 2018, 22 note 60 for a bibliography) – in the study of these elements in combination with the analysis of potters' work. Among the works of the 'Dutch School', H.A.G. Brijder's books on Komast and Siana cups are illustrated by plates presenting the drawn cup-profiles combined with their secondary ornamentation (e.g. BRIJDER 1983, one of the earliest). It is our opinion that every study of Greek shapes and potters should provide a similar illustrative apparatus.

### 3. FURTHER METHODOLOGICAL DEVELOPMENTS IN BRUSSELS

At the Université libre de Bruxelles (CReA-Patrimoine), the interest in shape studies was triggered by research programs about the distribution, production and uses of ancient pottery in the Mediterranean world (TSINGARIDA 2009; TSINGARIDA, VIVIERS 2013). The study of shapes, contexts and markets shed new light on cultural interactions between Attica and other regions such as Eastern Greece, the Near East, Egypt and Etruria. It also highlighted a need for a deeper understanding of the potters' practices and their attitude towards outside influences (e.g. TSINGARIDA 2008a; 2008b). In this framework, two monographs, written by the authors of the present paper, offered solid results: a book on the Attic *alabastron* – a perfume container the shape of which originated in Egypt – published by Algrain in 2014, and two volumes on Attic *kyathoi* and their Etruscan models, published in 2018 by Tonglet. In the line of previous works on shapes, and with the conscious desire to *hold the painters at arm's length*, those two books focused on a shape rather than on a specific painter or group.

The methodology consists of three stages: shape study, analysis of the secondary decoration and re-evaluation of Beazley's (and his followers') stylistic groupings. In practice, these three stages do not always follow each other in that order. Researchers must often juggle between them, going back and forth. If the purpose of the corpus is to study the work of potters, scholars cannot of course disregard the broad chronological classification of Attic vases and previous attribution works: they can start the morphological study within stylistic groups but they must move beyond this. Stylistic attributions might be a starting point for initial morphological groupings. However, in the early stages of research, they should not influence researchers nor discourage them to link or isolate vases on morphological grounds.

#### 3.1 *Setting aside the main figured decoration and organizing series*

An extensive study of ancient shape requires numerous drawings. As we will see later, each drawing must include not only the profile but also the decorative scheme of the vase. When studying a potter's work, we soon try to define typological criteria to distinguish one potter from another and to

group vases within the same workshop. The most straightforward method is the serialization of vase profiles. Serialization by juxtaposition of drawings (Fig. 2, above) must anticipate any work on ‘envelopes’ (e.g. serialization by superposition, *supra*; Fig. 2, below), which can be an additional step in the process. Serialization helps to determine morphological criteria which are specific to each potter. Obviously, these criteria will be more similar between potters who work in the same workshop and who often collaborate than between potters from different workshops. Particular attention must be given to the:

- General proportions of the body.
- Height of the vase, since for the same shape, a potter can work with identical quantities of clay.
- Width of the body and the lip: since the potter is looking down when throwing a vase s/he can therefore appreciate its diameter and that of its lip easily, which is why diameters are often more standardized than heights on the same shape.
- Profile of the foot and the lip.
- Position and shape of handles/lugs.
- Plastic decoration, if present, adds important clues when a same mould or manual shaping technique is used on different vases.
- Recurrences in the decorative scheme: position and type of secondary decoration framing the figured area.

After a first classification of the drawings, morphological groups can be enlarged to include vases for which only photographs are available. The advantage of the serialization process is that, thanks to drawings (and photographs), vases that are not stylistically attributed may be regrouped on the basis of morphological criteria. It is important to compare the profiles that have been attributed to the same painter or group, by juxtaposing (series), then – if needed – by superposing (envelope) them. This first comparison can confirm attributions based on style as well as exclude wrongly attributed vases.

### 3.2 Secondary decoration

While the figured decoration is not included in the drawing, the profile must clearly show the secondary decoration, made of different kinds of black bands and lines, floral friezes or geometric patterns, that frame the main figured decoration. Structuring the decorative scheme of the vase was likely to be the work of the potter: black lines and bands were traced while the vase was turning on the wheel (MERTENS 2006, 186). The secondary decoration also includes the way the handles are painted (outside face or entirely) or the bands and circles decorating the outside parts and underfoot of cups. All these are often specific to a painter or a workshop.



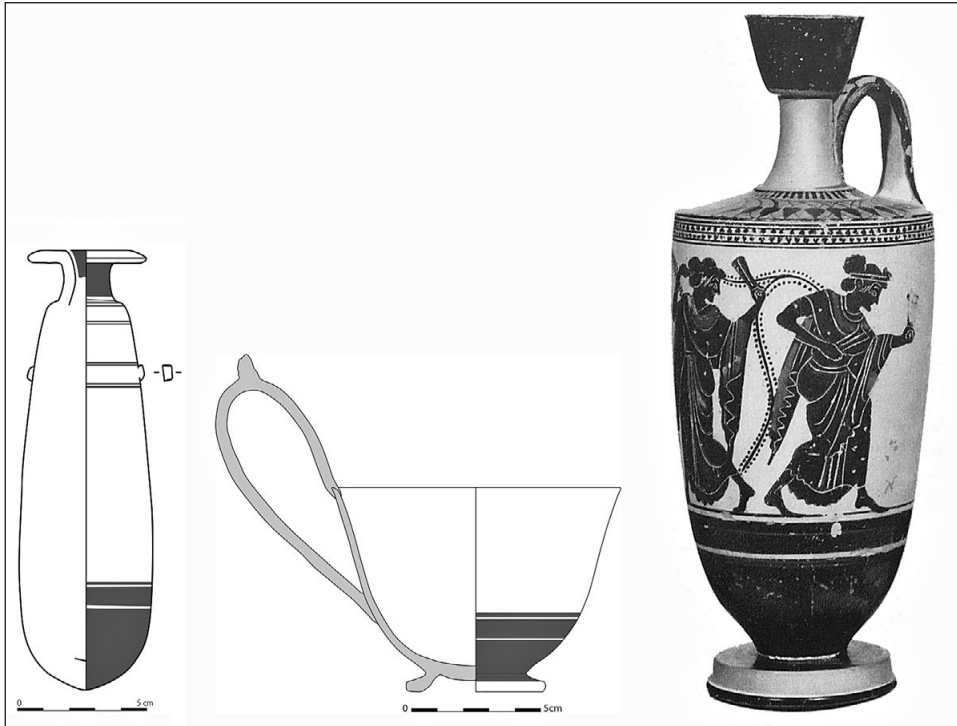


Fig. 4 – The workshop of the Sappho-Diosphos potter-painters. Left: *alabastron* attributed to the Diosphos potter-painter (ALGRAIN 2014, cat. DIO 11); centre: *kyathos* attributed to a potter of the workshop (TONGLET 2018, cat. OXF.10); *lekythos* attributed to the Sappho potter-painter (Zurich, private collection).

Let us turn back to the case of the Sappho and Diosphos workshop, which – as proved by JUBIER-GALINIER (e.g. 1999; 2003) – was eventually based on two craftsmen, two potter-painters, working side by side, who were both potting and painting their own vases (and not two painters with one potter, as Beazley previously suggested). The two potters-painters used mostly the same secondary decoration on their *alabastra*, decorating the upper part of the vases with a decorative frieze located on the shoulder and separated from the main decoration by two or three black lines including one that is sometimes quite wide. The decorative pattern on the shoulder usually consists of an ivy branch with small leaves. The lower secondary decoration is generally made up of a thin black line, a black band and a black bottom (Fig. 4). These different elements are separated by two reserved lines, a configuration that will occur repeatedly on the Diosphos potter-painter's *alabastra*. Regarding the Sappho potter-painter's work, the organization of the lower secondary

decoration is not limited to his *alabastra* since it is identical not only on his *lekythoi* (HASPELS 1936, 101; ALGRAIN 2014, 98) but also on the *kyathoi* recently attributed to the workshop (TONGLET 2014, 10). The organization of the secondary decoration, despite possible variants, is therefore specific to one craftsman and is identified on different types of vases that he decorates. Among the production of the Sappho-Diosphos workshop, morphological similarities clearly connected the bottom parts of *kyathoi* and *lekythoi*, as on Fig. 4, raising new problems on the difficult attribution of different shapes to one potter (TONGLET 2014, 9).

### 3.3 *Returning to the figured decoration*

Serialization is not complete until the painter's work has been considered. The vase is an entity comprising both shape and decoration: all its elements must be taken into account to justify an attribution. Besides stylistic attribution, one must assess the general organization scheme of the figured decoration. For instance, Attic *kyathoi* were sometimes decorated with large eyes (of different types), with or without figures facing the handle, with or without ivy or vine patterns (with different recurring types). These schemes are consistent with morphological variants and secondary decoration and help to classify stylistically unattributed vases within a workshop.

The process must then be completed with a re-evaluation of the stylistic classifications of the painted work, as proposed by Beazley and his followers, through the prism of the potters' work. This fundamental step results in the groupings of associated potters and painters (workshops). The basic stylistic groups known for *kyathoi* and *alabastra* were thus reorganized with new attributions/exclusions and new connections between workshops. Obviously, as for the figured decoration, not all vases – and especially fragments – can be attributed to a potter, or even to a workshop, but cross-checking stylistic and morphological attributions may help reduce the bulk of unclassified vases. In the case of *alabastra*, for instance, Algrain was able to identify a group of vases which were probably the work of the same potter (*Potter of the checkered alabastra*) and which had not been grouped together previously on stylistic bases because of hasty and dispersed attributions (ALGRAIN 2014, 127-132).

This aspect of our investigation provided a better understanding of the workshops' organization, and we were able to confirm and develop theories made by other scholars on other shapes. This was the case for the Sappho-Diosphos, then Haimon, workshop, completing the studies of its *lekythoi* by Jubier-Galinier, with its *alabastra* and *kyathoi* (ALGRAIN, 2014, 95-113; TONGLET 2014; 2018, 176-233). These combined studies demonstrate that pre-existing stylistic attributions made after Haspels and Beazley for such late black-figure workshops, especially to the Haimon Painter, were anarchic and should be reassessed (ALGRAIN 2014, 111-113; JUBIER-GALINIER 2016).

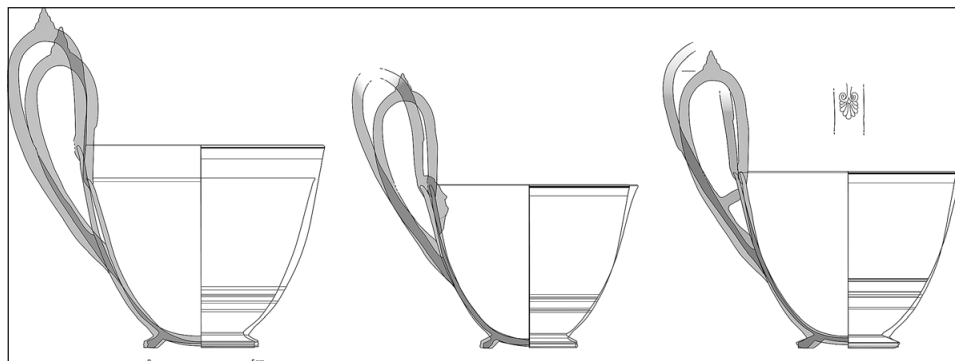


Fig. 5 – Comparisons of potters HAI and BRU. Left: envelope grouping *kyathoi* made by potters BRU (the tall one) and HAI1, normal scale. Centre: envelope grouping *kyathoi* made by potters BRU (the tall one) and HAI1 proportionally brought to the same height. Right: envelope grouping *kyathoi* made by potters BRU (the tall one) and HAI2 proportionally brought to the same height.

Indeed, the Haimon Painter had become a sort of ‘label’ for most late ‘poorly’ painted black-figured vases.

In a few cases, the confrontation of Beazley’s workshop organization, based on painted style, with new morphologic classifications, led to stunning reconsiderations. Here is one example regarding the Haimon Painter and his Group. The *kyathoi* of this workshop were mainly attributed to one potter, conventionally named HAI (for ‘Haimon’). The characteristics of these *kyathoi* show that this potter HAI previously worked in another workshop with another group of painters. Therefore, in this first workshop, we named him HAI1, and in the Haimonian workshop, we named him HAI2. He was a good craftsman; his vases are large, fine and balanced; the black glaze is of excellent quality and the secondary decoration is applied with care. This contrasts with the ‘bad reputation’ of the Haimonian painters and their sketchy figured style. In his first workshop – when he is HAI1 – there is also a limited group of seven red-figured large *kyathoi*. These vases were attributed to Onesimos, the Oinophile and the Brygos Painters and were thrown by a single potter, conventionally called BRU (for the example in Brussels). Thanks to the fine comparison of the envelope method, we could safely identify this potter BRU as potter HAI1-2 (TONGLET 2018, 182-183, 242). Like Mackay, we brought proportionally the drawn profile of a big BRU *kyathos* to the height of several HAI1-2 *kyathoi*. The envelopes of these manipulations speak for themselves and confirm this identification (Fig. 5). Without the morphological study, who would have connected a craftsman from the Haimon Painter’s workshop with good red-figure cup-painters like the Brygos Painter? Thus, if late black-figure is often neglected, a very good potter actually worked in

the Haimon Painter's workshop (HAI/BRU could even have been the Haimon Painter). Aesthetic judgement by modern scholars may blur our understanding of the actual organization and aims of ancient workshops and mask the mobility and career trajectories of their potters.

#### 4. CONCLUSIONS: THE POTTER'S WORKSHOP AND BEYOND

The benefits of morphological studies are manifold. They offer valuable information about the vase-making operating chain, some of which may lead to identify specific characteristics of a potter. For instance, most of the *alabastra* potted by the potter Pasiades present the morphological peculiarity of having a pointed and thick-walled bottom, which is probably due to the technique he used. Indeed, there were at least two different ways of making an *alabastron*. The first, often used by Pasiades, consisted in throwing the vase *from bottom to top*, with a thick-walled flat bottom on the wheel. The vase was made in one piece and after a period of drying, the potter scraped the excess clay from the bottom to give it a rounded or pointed shape (SCHREIBER 1999, 69-70). This technique explains why the bottom of vases in this group have a very thick wall and are slightly pointed (Fig. 6). As the lip is made last, the variation of the excess of clay left to make the vase explains

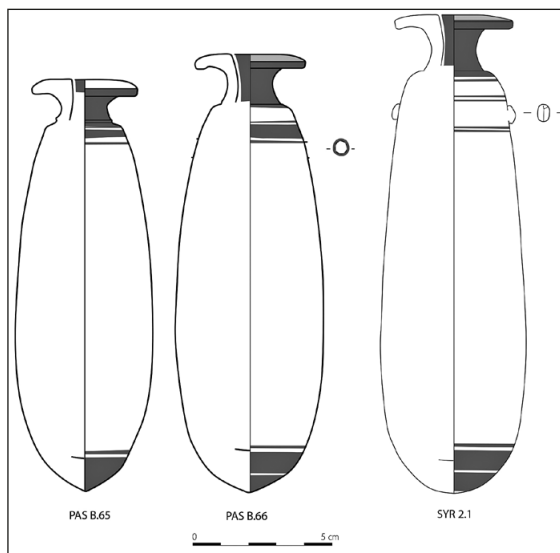


Fig. 6 – Profiles of two *alabastra* (left) attributed to the potter Pasiades and one *alabastron* attributed to the potter Syriskos 2 (right). Drawings by Algrain, including secondary decoration.

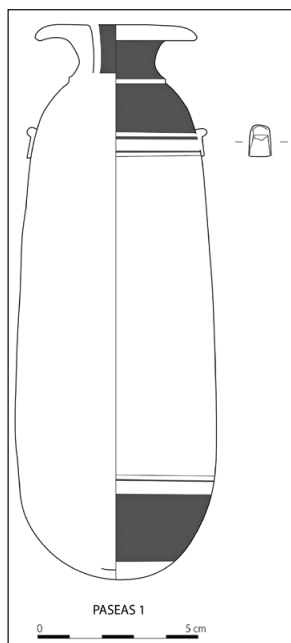


Fig. 7 – Profile of an *alabastron* made by the Paseas potter with a thin-walled bottom (ALGRAIN 2014, cat. PASEAS 1).

why we may find a wide range of shapes and lip widths in the production of a single potter. The second technique, which Algrain witnessed in a potter's workshop in Tarragona in 2007, was used to make vases with a thin bottom and consisted in throwing the vase in one piece but upside down, *from the lip to the bottom*. The bottom was gradually rounded and closed. The bottom wall had thus the same thickness as the body. In this case, we can notice that the shape of the lip has less significant variations within the work of the same potter (Fig. 7; NOBLE 1965, 25-26). As most of the Attic *alabastra* were potted upside down, Pasiades' technique is one of the strong criteria to attribute vases either to him or his workshop (ALGRAIN 2014, 68-73).

Our approach, combining morphological and stylistic criteria with schemes in the secondary decoration and figured scenes, led to the elaboration of a constellation of recurring characteristics which we organized as systems (for each potter and workshop). Indeed, simple elements found on small *kyathoi* fragments – the way a handle is painted, the shape of a plastic element, the underside of a foot – sometimes suffice to attribute the

fragments to a workshop, or even to a potter. The method is thus useful in the archaeological field or in museums' shard collections and helps to refine relative chronology.

Morphological studies may also help us better understand the organization of a workshop by identifying different hands at work, although the method has its limits. As the study of the painters has shown, it is sometimes difficult to trace the career of a potter on a series of vases. Some potters are very consistent with their work while others introduce over a period of time a lot of variations on the same shape. Thus, the main difficulty is not to distinguish the production of different workshops, but to determine the number of potters at work in the same workshop. In several workshops, Algrain has highlighted the existence of a large group of *alabastra* which can be attributed to a single potter, and one or more variants, which were usually attributed to one or more potters. For example, the potter Pasiades made many *alabastra* for the Syriskos Painter. Within the same workshop, a few vases have morphological characteristics that differ too significantly from the vases potted by Pasiades to be attributed with certainty. They were therefore attributed to a second and a third potter, conventionally called the potters of Syriskos 1 and 2 (Fig. 6). However, it is quite possible that these two variations are in fact the work of Pasiades, at a later stage of his career, and that we cannot recognize it because our vision of his work is inherently fragmentary (ALGRAIN 2014, 85-90).

Furthermore, shape studies of *alabastra* showed that 'workshop units' – a group of potters and painters working side by side during the same period – numbered two to three potters. As is the case with Beazley's groups of painters, which include followers and pupils, it is impossible to demonstrate in all certainty that this estimate corresponds to what really occurred in Athenian workshops of the late Archaic period. Nevertheless, it can serve as a basis to reconsider the organization of Athenian workshops. The very notions of 'painter', 'potter', 'workshop' and 'time' ('time unit') and the way we want to define these notions deserve further theoretical research. A first attempt was proposed elsewhere by TONGLET (2018, 93-97) and could not be developed in the present paper which focuses more on practical methodology.

Many studies focus on one painter and unconsciously place him/her at the center of a network of potters and students who collaborated with him/her. However, the study of a character like Euphronios shows that, while he started out as a painter, he ended his career as a potter (WILLIAMS 1990). The potter's position therefore seems to be more important in the hierarchical organization of the workshop. This situation is, after all, logical. Furthermore, it has already been demonstrated that the same workshops produced both figured and black-glaze pottery (SPARKES, TALCOTT 1970, 13-14). Undecorated pottery, easy to make and requiring much less

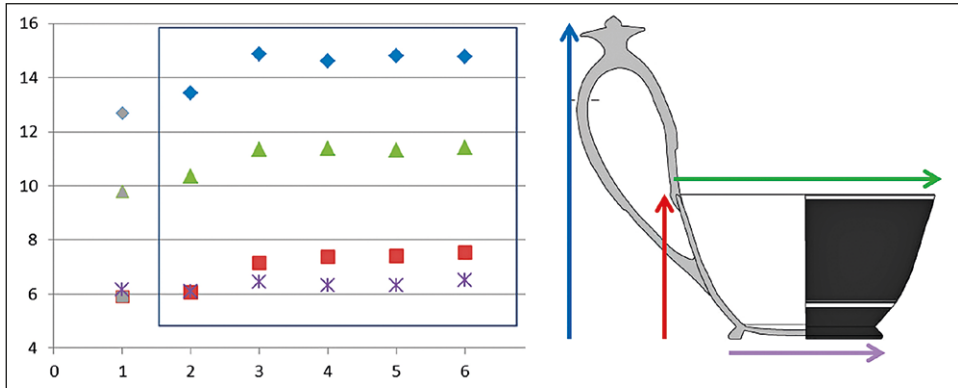


Fig. 8 – Graph comparing the averages of measurements (cm) taken on various *kyathoi* groups. Col. 1: Etruscan bucchero model; col. 2: first variant of potter HAN; col. 3-6: later variants of potter HAN.

man-hours, was arguably the most important part of a workshop’s output. It is thus, in turn, important to develop studies which place the potter at the center of the workshop and of a network of collaborators (potters and painters), pupils and followers.

The interest of shape studies goes well beyond the attribution of a vase to a potter, or a better understanding of the organization of Athenian workshops. The study of shapes, even carried out on a small scale, can shed light on cultural exchanges between different regions. In the case of *kyathoi*, charting average measurements of vases (diameters of rim, cup and foot; height with and without handles; Fig. 8, right), specific to potters and workshops, helped us to visualize the arrival and impact of new Etruscan bucchero models (Fig. 8, col. 1) on the Athenian production of that shape (Fig. 8, col. 2). The first Attic series were close to the foreign model, but soon evolved into more elongated versions, quite opposed to the ‘squatness’ of the Etruscan pottery repertoire (TONGLET 2018, 112, 140-150, 317). Some of the earliest *kyathoi* attributed to potter ‘HAN’ were in fact unstable because of their heavy handle (Fig. 8, col. 2); a problem that the potter corrected in later variants (Fig. 8, col. 3-6) by lengthening the bowl (see also Fig. 2).

Furthermore, Algrain’s most recent morphological study (ALGRAIN 2020) on the Greek *kantharos* demonstrated several interesting points linked to interregional exchanges and influences. Firstly, the Etruscan *kantharos*, at the origin of the Greek *kantharos*, did not arrive first in Athens but in Boeotia and it is therefore not Athens which influenced Boeotia in the creation of this shape but the other way around. Secondly, although Boeotia’s role in ceramic production is often overlooked in publications, the study showed that Boeotian potters had a lasting influence on the production of Attic *kantharoi* and their

variants. These facts mean that the networks in which Boeotia was included and the distribution of its pottery during the 6<sup>th</sup> century ought to be reassessed.

Data on the operating chain, reassessment and new proposals for attributions, information on the organization of workshops, on interregional exchanges and on modes of transmission of shapes: the contributions of morphological studies are varied and multi-faceted. Considering only a small part of the figured vases from ancient Greece have been studied from this perspective, a huge field of research is thereby open for future scholars.

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## ABSTRACT

While the branch of Classical studies on Greek figured pottery focused for decades on the development of Beazley's lifework – i.e. attributions of Greek vases to anonymous painters – the study of the potter's work, the organization of workshops, their networks and relative chronology (although sporadically studied by several scholars, e.g. Haspels, Bloesch, Mackay, Jubier-Galinier) remained broadly neglected and were never systematically analysed. Yet, Beazley was perfectly aware of the need to restore the potter and his/her wheel to the centre of the workshop. In this paper, we first outline the history of the research on the shapes of Greek vases and their attributions to anonymous potters, showing why this work is fundamental to understand the organization of potters' quarters (in Greece and elsewhere) and describing the most recent methodologies which we developed in this regard. In the second part, we build on case studies to move past stylistic attribution in order to show how the study of vase shapes in general can help archaeologists understand broader questions like the mechanisms of intercultural exchanges in the ancient Mediterranean.