

MASTER-HAND ATTRIBUTIONS OF CLASSICAL GREEK SCULPTORS BY 3D-ANALYSIS AT OLYMPIA - SOME PRELIMINARY REMARKS

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The subject and the problem

The sculptural decoration of the temple of Zeus at Olympia is quite well preserved and fragments are depicted in practically every handbook on Greek art or on ancient art in general, because nowadays they are generally considered to be one of the most important and most magnificent works of ancient Greek art. Perhaps the most difficult and the most distressing problem related to them regards the identity of the master(s) of these works. Despite the high artistic quality and their excellent workmanship, nobody really knows, who the sculptor (or the sculptors) of these pieces actually was (were) and where he (they) came from. (Fig. 1 and 2)

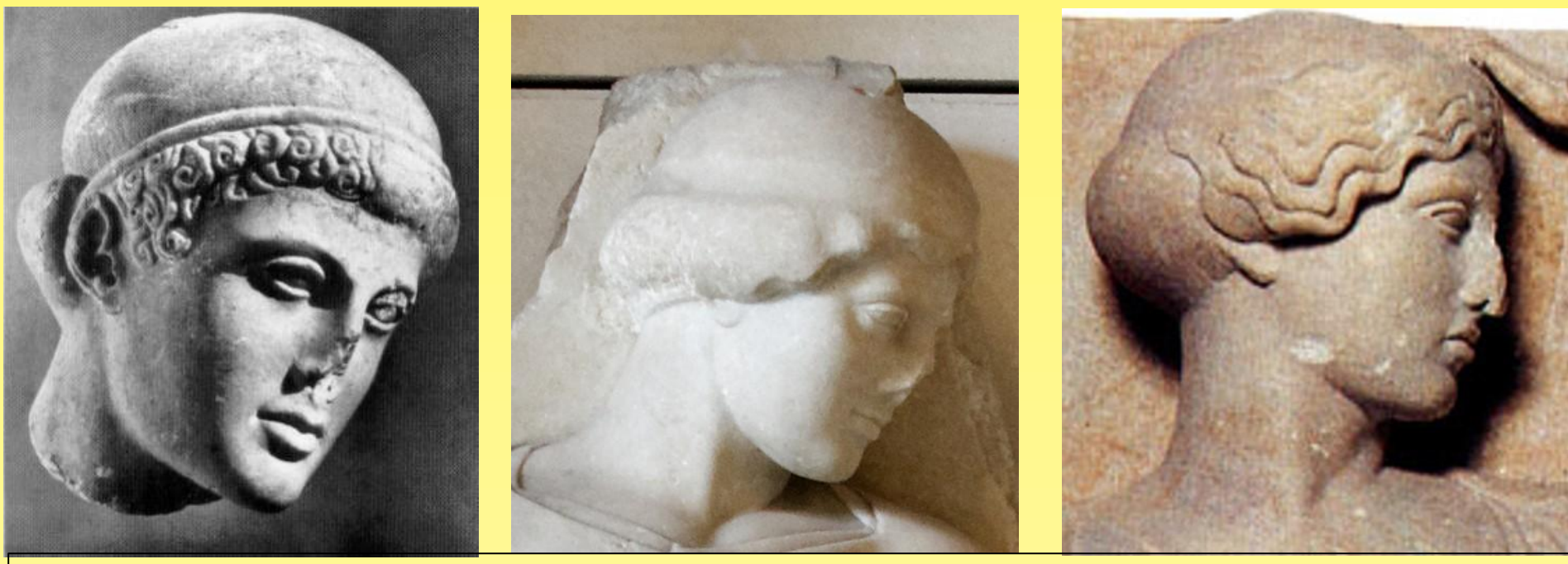


Figure 1. Heads of Athena from the metopes of the temple of Zeus at Olympia. The good state of preservation and high artistic qualities are clearly recognisable.

Aims and methodology

In order to determine the place of origin of the so-called "Olympia master(s)" a combination of the latest 3D scanning technologies with a traditional art historical method is proposed. The method developed may easily be applied or adapted to many other similar problems of classical archaeology and history of art in general.

The Morelli method

The method of detecting master-hands in different works of art by observing idiosyncrasies in the rendering of small details has been developed by Giovanni Morelli during the 19th century and is commonly referred to as master-hand attribution. Sir J. D. Beazley first used this method to identify attic black-figure and red-figure vase-painters (Figure 3) and thus revolutionized our understanding of ancient art.



Figure 3. Two heads by the same painter (Kleophrades-painter), identified and named by J. D. Beazley. The similarities in the rendering of anatomical details (lips, nose, eyes, ears) are obvious enough.

Since the human eye can not automatically and reliably extract characteristic features from 3D objects and photographs can not faithfully reproduce three-dimensional details (Figure 4), the use of the Morellian attribution method in the analysis of three-dimensional art was rather limited so far. The obvious biological and technological constraints may, however, be overcome by using virtual 3D models produced by 3D scanning.



Figure 2. Head of Apollo from the West pediment of the temple of Zeus (right) and the „Blond boy” from the Acropolis at Athens (left). The obvious and strong similarity gave rise to different hypotheses concerning the origin of the Olympia-master.

Previous research

Classical archaeologists have tried since more than a century to identify the "Olympia master" with a local, an Athenian, a Spartan, North-Peloponnesian, Parian or other sculptor, but practically everybody arrived at different solutions. All the traditional methods have already been tried to solve the problem, but none has proved to yield convincing results. Even the basic question, whether there was one single master or several different ones, remained controversial.

The new approach: Morelli in 3D

The basic idea is to start from two commonly accepted and fully justified assumptions of the Morelli method:

- 1) that unconscious idiosyncrasies in the rendering of frequently occurring anatomical and other details do exist;
- 2) that the trained human eye is capable of detecting these traits in 2D, i.e. one can distinguish the individual characteristics of different artistic personalities.



Figure 4. Two ancient heads (left: "Ares Borghese"; right: "Doryphoros") and their profiles compared. The striking similarities of the profiles are not readily discernible for the human eye, neither in the photographs, nor in reality.

Assuming in addition on the basis of the available evidence (Figure 4) that similar idiosyncrasies exist not only in two-dimensional but also in three-dimensional art, even if they can not always be identified by ordinary human observers, one can conclude that the detection of master-hands in three-dimensional art simply requires the extraction of reliable and thus (in contrast e.g. with normal photographs) really comparable 2D images from the existing 3D data. This task is perfectly feasible on the present technological level, but was apparently not exploited so far. The 3D analysis proposed here will focus on the stylistic idiosyncrasies (proportions, special renderings of individual anatomical or other features), which will become recognizable through the systematic extraction of certain 2D patterns.

Implementation

The well-preserved frieze of the Siphnian treasury at Delphi (dating ca. 530-525 BC.) will be scanned and analysed, because in this case there is a sculptor's signature preserved on the frieze, stating that some parts or figures were made by the same artist. This case study provides a test, because it can be reasonably assumed, that some figures were produced (or at least designed) by the same individual, while others were not. As the frieze is quite well-preserved, there are many possibilities for making comparisons concerning proportions, special features in anatomy and other details e.g. drapery or armor. Using these results, it will be determined, whether the pedimental statues and metopes of the temple of Zeus were made or designed by a single man/workshop or by two or more different ones.

The last step involves the scanning and analysis of nearly contemporary Greek sculptures (from large size marble works to small-scale terracotta and bronze figurines) with known proveniencies. The analysis of their stylistic details and the comparison of these results with those obtained at the sculptures of the temple of Zeus could point to the localisation of the „Olympia master" sculptor.

Conclusion

Pausanias, a Greek traveler during the 2nd century AD has described the temple of Zeus at Olympia in detail and recorded the opinion of his local guides concerning the master sculptors of the pediments as follows:

"The sculptures in the front pediment are by Paeonius, who came from Mende in Thrace; those in the back pediment are by Alcamenes, a contemporary of Pheidias, ranking next after him for skill as a sculptor." (Description of Greece 5,10,7)

These ancient attributions are usually and most plausibly considered as erroneous (cf. Figure 6), but modern scholarship was equally unable to suggest better ones. Even if the names of the sculptors will most probably remain unknown, the methodology outlined above will at least enable us to determine their places of origin. In addition, the method can be applied afterwards to other similar problems and will contribute to our understanding of sculpture in general.

Bibliography

- H.-V. Herrmann (ed.), Die Olympia Skulpturen. Darmstadt: Wissenschaftliche Buchgesellschaft, 1987.
- R. R. Holloway, The Master of Olympia: the Documentary Evidence, http://www.brown.edu/Departments/Joukowsky_Institut_e/publications/pa-pers/olympia/olympia.html (accessed 29/05/2014)
- H. Kyrieleis, 2006. "Paros und Olympia. Zu den Skulpturen des Zeustempels in Olympia" In Γενεθλιον. Αναμνηστικός τόμος για την συμπλήρωση είκοσι χρόνων λειτουργίας του Μουσείου κυκλαδικής τέχνης, Athens: Goulandris Museum of Cycladic Art, 183-201.
- G. Treu, Olympia III. Bildwerke aus Stein und Thon. Berlin, 1897.
- J. Vakkari, "Giovanni Morelli's 'Scientific' Method of Attribution and its Reinterpretations from the 1960's until the 1990's," Konsthistorisk Tidskrift, vol. 70/ 1-2, 2001, pp. 46-54.