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## RITUAL KILLING, MELTING DOWN, RE-USE - FRAGMENTED OBJECTS IN THE SANCTUARY OF OLYMPIA

Holger Baitinger\*

**Key Words:** *Olympia, Votive Offerings, Fragmentation, Bronze Scrap, Hoards.*

**Parole chiave:** *Olimpia, Offerte votive, frammentazione, rottami di bronzo, ripostigli.*

**Abstract:**

*In Olympia and in other Greek sanctuaries, many fragmented bronze objects have been discovered. In their poor state of preservation they are comparable with objects from bronze scrap hoards of the European Bronze Age, a highly discussed topic in prehistoric archaeology. Indeed, both in Olympia of the Geometric Period and in Bronze Age scrap hoards large objects were damaged, while smaller pieces often remained intact. This may signify the intention of melting down the fragments in a casting crucible. The interpretation of fragmented objects remains complex because of the ambivalent character of bronze scrap, which was usable not only as raw material, but also as a medium of exchange and as a store of value.*

*A Olimpia e in altri santuari greci sono stati scoperti molti oggetti di bronzo frammentati. Dato il loro cattivo stato di conservazione, essi sono paragonabili a oggetti provenienti dai ripostigli di rottami di bronzo dell'età del Bronzo europeo, argomento molto discusso in archeologia preistorica. Infatti, sia ad Olimpia nel periodo geometrico che nei ripostigli di rottami dell'età del Bronzo, gli oggetti di grandi dimensioni sono stati danneggiati mentre quelli più piccoli sono rimasti spesso intatti. Questo può sottintendere l'intenzione di rifondere i frammenti. L'interpretazione degli oggetti frammentati rimane complessa a causa del carattere ambivalente dei rottami di bronzo, che erano utilizzabili non solo come materia prima, ma anche come mezzo di scambio e come riserva di valore.*

Fragmentarily preserved objects have a special power of attraction for archaeologists. It is both a challenge and a satisfaction to classify such fragments from a historical perspective and to evaluate them in their context, because it is often quite difficult to gain information from such unimpressive objects. These problems can be demonstrated using two small bronze fragments discovered in Delphi and Olympia as an example (fig. 1). Only a specialist in the Italian Iron Age like Klaus Kilian was able to identify these pieces as parts of Villanovan crested helmets originated from central Italy<sup>1</sup>.

Already at the end of the 19<sup>th</sup> century, the famous German archaeologist Adolf Furtwängler pointed out the existence of numerous fragmented objects in Olympia, especially in the area of the “black layers” around the Pelopion<sup>2</sup>. These early Altar layers dating to the 7<sup>th</sup> century B.C. contained a huge number of votive offerings of the Proto-geometric and Geometric periods. Furtwängler also recognized the early starting of fragmentation and re-use of votive offerings in Olympia in the 6<sup>th</sup> or even 7<sup>th</sup> century B.C., because parts of Geometric tripods were secondarily used

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<sup>1</sup> KILIAN 1977; for this type of helmet see VON HASE 1988.

<sup>2</sup> FURTWÄNGLER 1890, p. 2: “Die Zerstörung der älteren Bronze-weihegeschenke und die Zersplitterung der Fragmente hat schon in recht früher Zeit begonnen. Dafür sind namentlich die Reste gewisser sehr stattlicher DreifüÙe ein Beweis, deren Blechplatten schon

im 6. oder gar 7. Jahrhundert v. Chr. zu Inschriften verwendet und zurechtgeschnitten wurden [...]. Auch hat man öfter ursprünglich zusammengehörige Stücke [...] an den entgegengesetzten Enden der Altis gefunden. Diese Thatsache frühzeitiger Zersplitterung und Verschleppung einzelner Stücke hindert aber nicht alle aus dem Fundorte auf die ursprüngliche Aufstellung zu machenden Schlüsse”. For the “black layers” see KYRIELEIS 2006, pp. 27-55.

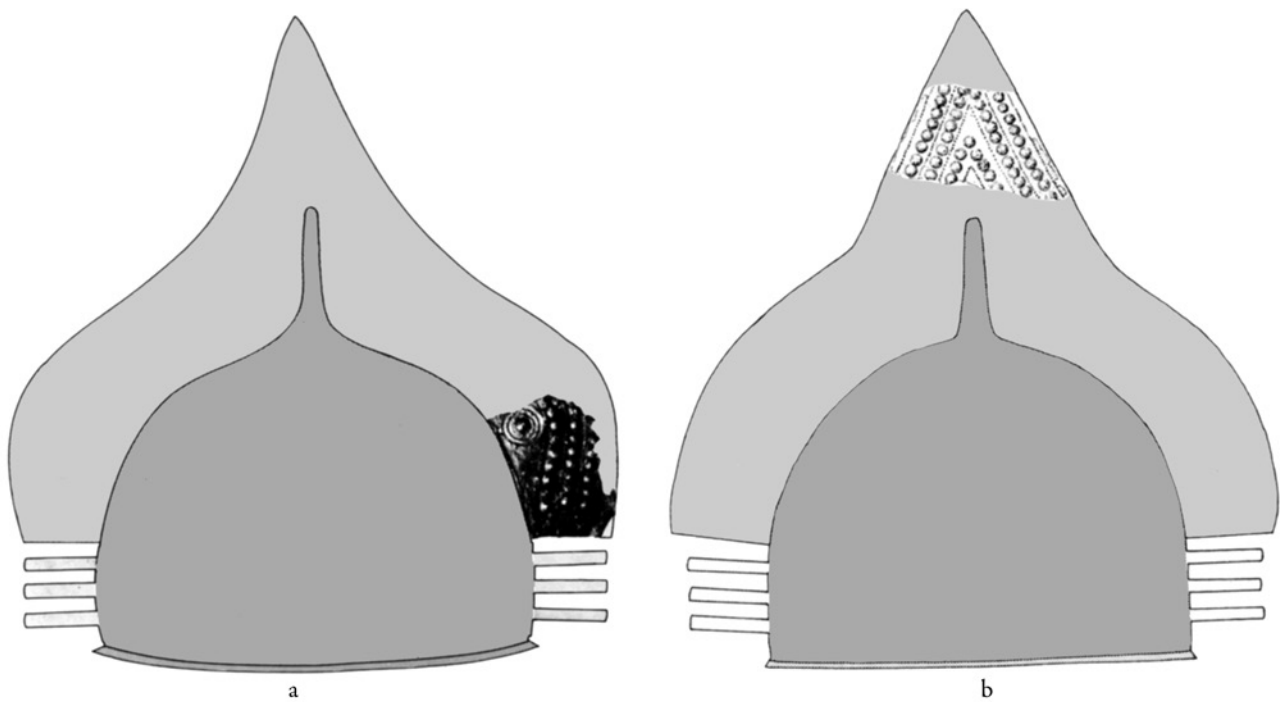


Fig. 1. Fragments of two Villanovan crested helmets from Delphi and Olympia (after KILIAN 1977, 432 fig. 2a-b).

for Archaic inscriptions<sup>3</sup>. Hence, the practice of fragmentation was already common in the heyday of the sanctuary, in the Archaic Period. Nevertheless, studies explicitly addressing the phenomenon of fragmentation of votive gifts in Olympia have remained quite rare since Furtwängler's fundamental publication in 1890<sup>4</sup>.

An important contribution by Helmut Kyrieleis in his volume on the excavations in the Pelopion area published in 2006 can be particularly emphasised. His starting point was the observation that numerous bronzes from Olympia had been "bent, broken or forcibly wrenched from their original context before ending up underground", and "that most of this damage and destruction was not accidental or caused by later earth movements etc., but derive from intentional violence"<sup>5</sup>. Among the early Olympian bronzes, in particular Geometric tripods show clear traces of intentional destruction (fig. 2)<sup>6</sup>. Obviously, these objects had to be cut into pieces, often with considerable effort. As a rule, only fragments of the tripods have survived, but almost never the complete object. Stratigraphic observations prove that these destructions already appeared in the heyday of the sanctuary, as Furtwängler had already stated more than 100 years before. Kyrieleis concluded that it was not a matter of metal theft, but such actions were "only conceivable with the consent or by order of the sanctuary's administration"<sup>7</sup>. As votive offerings were not allowed to be removed from the sanctuary due to sacral regulations (*ouk ekphora*), most of them were melted down for the purposes of the sanctuary, whereas "the parts of the dismantled votive offerings that did not end up in the melting furnace were kept for ritual reasons, in order to remain in the possession of the deity as *pars pro toto*"<sup>8</sup>.

In fact, metal workshops are frequently attested in Greek sanctuaries, also in Olympia<sup>9</sup>. Thus, the fragments of larger votive gifts would have been deposited in a secondary act in the sanctuary. The picture drawn by Helmut Kyrieleis largely corresponds to the results of Tullia Linders based on written sources from later periods<sup>10</sup>. However, a

<sup>3</sup> E.g. DITTENBERGER, PURGOLD 1896, pp. 7-10 no. 3; pp. 13-16 no. 5; pp. 37-40 no. 15.

<sup>4</sup> E.g. JACKSON 1983; FRIELINGHAUS 2006; LINDENLAUF 2006; BAITINGER 2018.

<sup>5</sup> KYRIELEIS 2006, 95: "Auch unter den am Pelopion gefundenen Bronzen sind wieder viele, die verbogen, zerbrochen oder gewaltsam aus ihrem ursprünglichen Zusammenhang gerissen worden waren, bevor sie unter die Erde gekommen sind [...]. Daß die meisten dieser Beschädigungen und Zerstörungen nicht zufällig oder durch spätere Erdbewegungen etc. entstanden sind, sondern auf absichtliche Gewaltwirkung zurückgehen, ist nicht zu bezweifeln". This and the following translations from the German into English were undertaken by the author.

<sup>6</sup> WILLEMSEN 1957; MAASS 1978.

<sup>7</sup> KYRIELEIS 2006, p. 96: "Es muß sich vielmehr um systematische Zerstörungsaktionen handeln, welche doch wohl nur mit Zustimmung bzw. im Auftrag der Heiligtumsverwaltung denkbar sind".

<sup>8</sup> KYRIELEIS 2006, p. 97: "Man kann sich nach diesen, gerade in Olympia so auffallenden Gegebenheiten dem Eindruck nicht entziehen, daß die nicht in den Schmelzofen gewanderten Teile der zerlegten Votive aus kultischen Gründen aufbewahrt wurden, um als *pars pro toto* im Besitz der Gottheit zu verbleiben".

<sup>9</sup> HEILMEYER 1969; ZIMMER 1990; BAITINGER, VÖLLING 2007, pp. 207-213.

<sup>10</sup> LINDERS 1989-1990.



Fig. 2. Pieces of Geometric tripods from Olympia (after MAASS 1978, pl. 14).

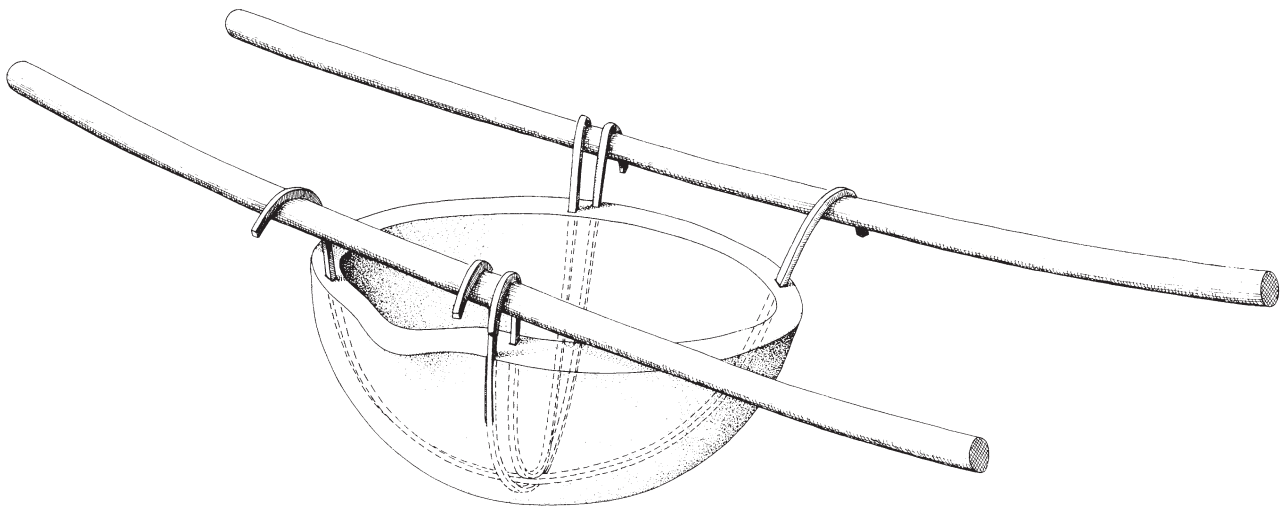


Fig. 3. Reconstruction of a movable crucible discovered in Olympia (after VÖLLING, ZIMMER 1990, 664 fig. 6).

special appreciation or a specific area for such “re-depositions” cannot be determined in Olympia; fragmented objects were found in Altar layers like the “black layers” in the *Pelopion* area, in wells, in the stadium banks and elsewhere in the sanctuary. The findspot does not always prove a sacred connotation, but offers rather a broader spectrum of interpretation.

Legs of Geometric tripods and other bronze objects were broken into quite small pieces and could be melted down in a casting crucible – such as the movable crucibles discovered in Olympia (fig. 3)<sup>11</sup>. Remarkably, Geometric votive animals were rarely affected by such damage. According to Susanne Bocher’s research, 91% of over 4,000 bronze animal statuettes from Olympia are completely preserved<sup>12</sup>. The larger votive offerings like tripods were damaged while smaller objects like votive figurines usually remained intact. Therefore, obligatory sacral rules for the destruction of dismantled votive offerings did not exist, at least in the Geometric Period.

Many of the questions raised are also the main focus of attention when interpreting hoards of the Bronze or Early Iron Age containing intact or fragmented bronze objects. In particular scrap hoards, which occur in large numbers at the end of the European Bronze Age, have long been the subject of controversial research. The interpretations swing between “founders’ or traders’ deposits” and “sacred deposits”<sup>13</sup>. While older studies up to the 1980s distinguished between profanely hidden hoards and sacred deposits, a paradigm shift occurred – at least in German research – in the 1990s. In the 1997 exhibition catalogue *Gaben für die Götter (Gifts to the Gods)*, Bernhard Hänsel interpreted all bronze hoards as

<sup>11</sup> VÖLLING, ZIMMER 1990.

<sup>12</sup> BOCHER 2013, p. 360.

<sup>13</sup> E.g. GEISSLINGER 1984; HUTH 1997, pp. 177-200; HUTH 2008; EGGERT 2012, pp. 78-83.

sacred depositions<sup>14</sup>, an all-encompassing interpretation that had not been customary until then. Scholars of Hänsel's "Berlin School" have since sought to support this interpretation with further studies and arguments. After Hänsel's universal interpretation, a critical evaluation of each individual complex could ultimately be dispensed with, a point worthy of criticism, since Walter Torbrügge had stated in 1985 that "the hoards, according to their highly diverse make-up in regional and chronological selection, cannot be treated all alike"<sup>15</sup>. The turning away from the "individual find check" and Hänsel's demand that proof should only be provided for "profane" deposits can hardly be sustained, as in Archaic societies the "sacred" and the "profane" often go hand in hand. Unlike Kyrieleis, Hänsel did not think about the dedication of complete objects, which were destroyed after some time of exhibition in a sanctuary, but he postulated the dedication of bronze scrap (*Brucherz*) in a pre-monetary sense as a material and exchange value in the communication with supernatural powers. In 1997, Louis Nebelsick assumed an "ecstatic mode of sacrifice" behind the destruction, which he compared with "the Dionysian rites, marked by ecstasy and frenzy"<sup>16</sup>. Later, for example, Svend Hansen used Greek sanctuaries in several important articles as a background for understanding European Bronze Age hoards<sup>17</sup>. As demonstrated, the interpretation of such hoards was and is still influenced significantly by the situation in Greek sanctuaries.

In 2013, I noticed similarities between bronzes from Sicilian hoards of the Early Iron Age and those from Olympia<sup>18</sup>. This applies not only to the types represented, but also to their largely fragmentary state of preservation. The numerous bronze spearheads with small holes at the lower end of the blade found in the huge metal hoard of Mendolito di Adrano (prov. of Catania, Sicily) are also predominantly fragmented like their counterparts from Olympia (fig. 4)<sup>19</sup>. In some cases, they show traces of bending and cutting blows. The same treatment of the objects in both contexts suggests a similar or even identical background.

In Sicily, a large number of fragmented bronze objects was discovered in extra-urban Greek sanctuaries. In some cases, a collection of objects of different ages and origins was deposited, especially in the sanctuary of Demeter at Bitalemi near Gela on the southern coast of Sicily. In the oldest layer in Bitalemi, dating from the second half of the 7<sup>th</sup> century to about 540 B.C., numerous fragmented bronzes of various origins have been found, not only Greek and Sicilian ones, but also many pieces from present-day France<sup>20</sup>. Most of these bronzes were buried individually in the sand, but in 31 cases they were combined to form scrap hoards with a weight of between 350 grams and 11,7 kilograms.

Another example is a building erected about 500 B.C. in the sanctuary of S. Anna near Agrigento on the Sicilian south coast, where a large clay pithos containing 150 kilograms of bronze and copper was discovered<sup>21</sup>. About two thirds of the pithos were set into the ground, so the depot was accessible, at least to the priests and to persons involved in the cult. It just shows that bronze scrap played an important role in extra-urban sanctuaries in Sicily between the 7<sup>th</sup> and 5<sup>th</sup> century B.C., either as votive offerings or as a real "temple treasure" as in S. Anna. These findings remind us of the function of sanctuaries as banks attested in later periods.

Do the similarities between finds from Sicily and those from Olympia indicate that at least some of these bronzes arrived in Greece not in their entirety, but rather as a complex of scrapped bronzes in the sense of a "pre-monetary" dedication? This idea points in a similar direction to the sacral interpretation of Bronze Age scrap hoards by scholars of Hänsel's "Berlin School".

In the cases of both the bronzes from Olympia and from Bronze Age hoards, the crucial question is why these metal objects were deposited to such an extent and not completely recycled. If there had been a "recycling system" organised by the sanctuary administration in Olympia, all the votive offerings should have been melted down for the purposes of the sanctuary after a period of exhibition. Strictly speaking, the number of metal objects in Olympia would then have to be as low as in any "normal" settlement site. In fact, the opposite holds true.

Of course, a systematic comparison of fragmented bronzes from Olympia with those from scrap hoards cannot be given in this article, but at least some similarities shall be highlighted. As already mentioned, in Olympia a large part of the tripod legs was hacked into pieces of 10 to 20 cm length, while more than 90% of the votive animals remained intact<sup>22</sup>. In

<sup>14</sup> HÄNSEL 1997.

<sup>15</sup> TORBRÜGGE 1985, p. 19: "Fazit aller bisherigen Untersuchungen bleibt jedenfalls, daß die Horte nach ihrem höchst unterschiedlichen Erscheinungsbild in regionaler oder periodischer Auswahl nicht über einen Kamm zu scheren sind".

<sup>16</sup> NEBELSICK 1997, p. 40: "Ein religiöser Kontext für den in diesem Essay postulierten ekstatischen Opfermodus mit seinen sepulkralen und chthonischen Bezügen läßt sich durch Analogien zu den durch Ekstase und Raserei geprägten dionysischen Riten plausibel machen"; see also NEBELSICK 2000.

<sup>17</sup> HANSEN 1996; HANSEN 2013; HANSEN 2016; HANSEN 2020.

<sup>18</sup> BAITINGER 2013; BAITINGER 2018.

<sup>19</sup> ALBANESE PROCELLI 1993, pp. 119-139 nos. M 98-M 307 figs. 28-40 pls. 22-28A; 178-181 (Type M 3); BAITINGER 2001, pp. 38-39, 147-150 nos. 530-558 pls. 15-17; 69b.

<sup>20</sup> ORLANDINI 1965-1967; VERGER 2003; VERGER 2011; TARDITI 2016.

<sup>21</sup> FIORENTINI 1969; BAITINGER 2017.

<sup>22</sup> BOCHER 2013, pp. 357-360, especially p. 357: "Auffällig bei den Dreifußen in 'Standardgröße' ist, dass fast keine vollständigen Exemplare im Fundgut vertreten sind. Der Großteil der Dreifußbeine scheint sorgfältig und gezielt in 10-20 cm lange Stücke zerhackt und dann entweder in Brunnen, den Stadionwällen oder der 'schwarzen Schicht' deponiert worden zu sein".

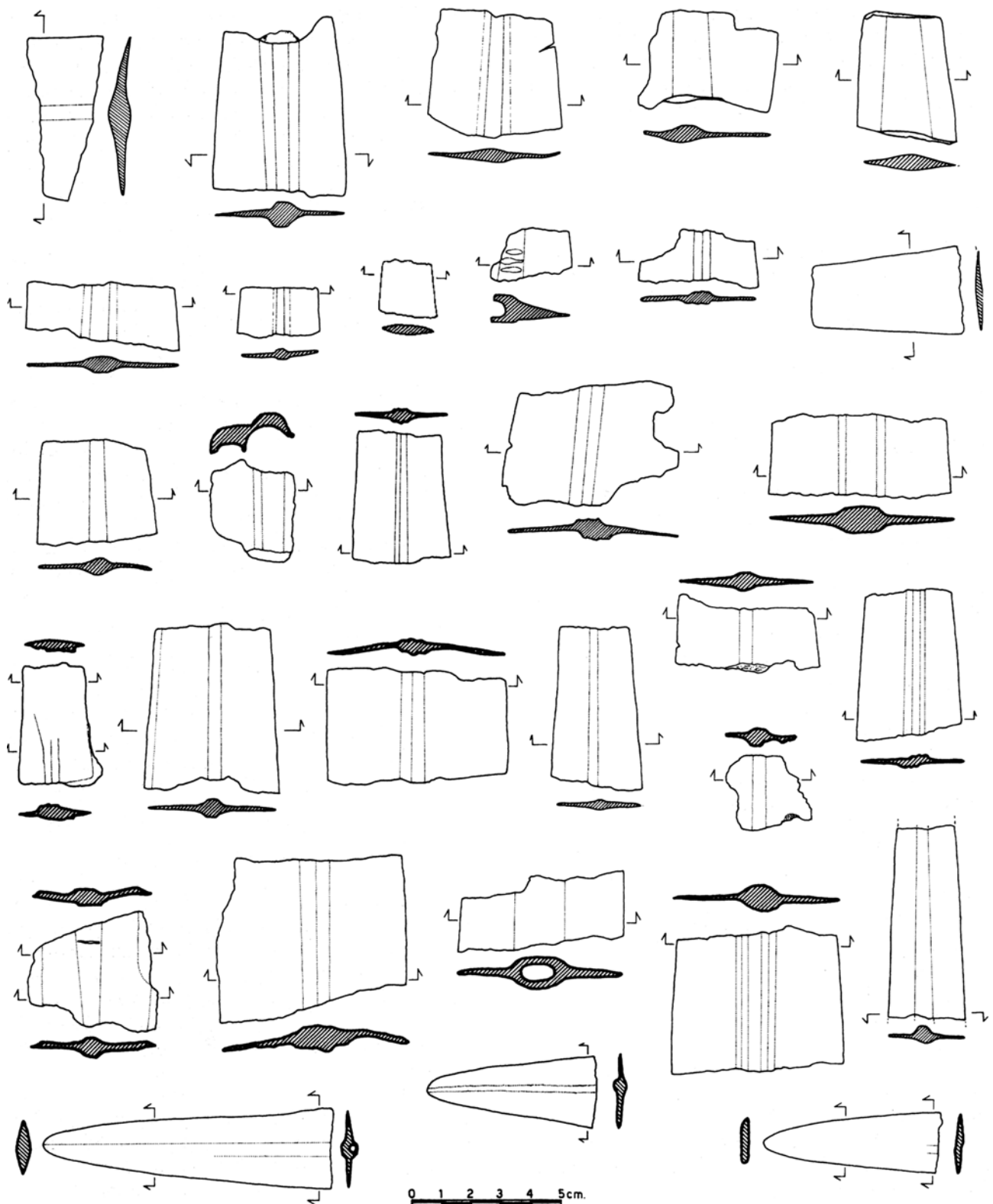


Fig. 4. Fragments of bronze spearheads from the hoard of Mendolito di Adrano, province of Catania, Sicily (after ALBANESE PROCELLI, 136 fig. 38).

Bronze Age hoards the situation is quite similar, as Christoph Huth points out: “Large items like swords are always fragmented. The smaller and more massive an object is, the greater the probability that it escaped destruction and remained intact. The maximum size of the objects corresponds approximately to the diameter of crucibles”<sup>23</sup>.

<sup>23</sup> HUTH 2008, p. 138: “Große Dinge wie Schwerter sind immer fragmentiert. Je kleiner und massiver ein Objekt ist, desto größer ist

die Wahrscheinlichkeit, dass es der Zerstörung entgangen und intakt geblieben ist”.

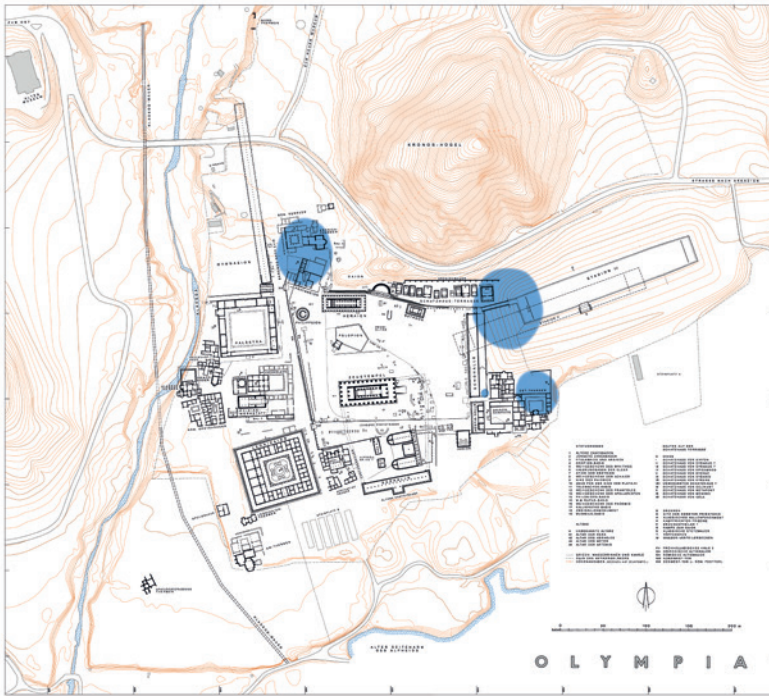


Fig. 5. Areas of discovery of fragments of the silver *sphyrelaton* from Olympia (Graphic: M. Ober/RGZM, based on the map of the German Olympia excavation, Athens Department of the German Archaeological Institute).

Matching fragments remain quite rare in scrap hoards, given the number of objects they contain. This can be explained by a longer “life span” of the hoards: pieces were taken out and others added repeatedly<sup>24</sup>. In Olympia, fragments from different contexts fit sometimes together, too. The find spots in Olympia are partly adjacent, partly far apart. The latter is explained by rearrangement processes, but this cannot always be proven due to the difficult stratigraphic situation in the sanctuary. Such adaptations are known from tripods or other parts of bronze vessels, but also from offensive weapons made of bronze. Smaller objects, like votive animals or jewellery, are not represented in this list due to their small size, but also due to the difficulty of identifying fragments belonging together.

A wide scattering of elements can also be observed in bronze fittings belonging to the substructure of a silver *sphyrelaton* similar to the famous silver bull from Delphi<sup>25</sup>. This valuable, approximately life-size sculpture was dismantled and taken apart after a relatively short life span in the early Classical Period, which is why nothing of the precious silver plates has survived. The 15 preserved fragments of the *sphyrelaton* were found widely scattered, but concentrated in the northwest of the stadium, in the so-called southeast district and close to the Prytaneion in the northwest of the sanctuary (fig. 5). This is not a random distribution at all. Did the position of metal workshops play a significant role? Evidence of bronze casting and other craft activities has been proven at least in the northern banks of the stadium and in the southeast district<sup>26</sup>.

To sum up: the spectrum of interpretations of fragmented votive offerings, cult equipment or other objects in Olympia is quite broad. This is related to the ambivalent character of scrapped bronzes, which could be used as raw materials for recycling, as a store of value or as a medium of exchange. Therefore, the following list of interpretations is certainly incomplete:

1. Fragmented bronze votive offerings can relate to metal workshops working on the edges of the sacred district and using dismantled votive offerings for recycling. Traces of destruction can perhaps prove a “material test” by the bronze caster, who analysed the composition, hardness and casting properties of the material on the base of colour, sound and resistance. Pliny the Elder reported that for the casting of statues and panels one third of copper scrap was added<sup>27</sup>. Hence, bronze scrap was used for the casting due to its special properties.
2. Fragmented votive offerings made of bronze may have been largely recycled and melted down again, while a small part of it was dedicated again or deposited in the sanctuary as *pars pro toto* following the regulations of *ouk ekphora*.
3. Fragmented bronze objects may have reached Olympia as “pre-monetary” dedications owing to their material value, especially from Western Greek colonies in Sicily.

<sup>24</sup> HUTH 1997, pp. 181-195; HUTH 2008, p. 138.

<sup>25</sup> BAITINGER 2010.

<sup>26</sup> BAITINGER, VÖLLING 2007, pp. 207-213.

<sup>27</sup> Plinius, *Naturalis historia*, 34, 97: *additur tertia portio aeris collectanei, hoc est ex usu coempti. peculiare in eo condimentum attritu domiti et consuetudine nitoris veluti mansuefacti.*



4. Wherever people settle or stay for some time, they leave their traces. As a rule, settlements usually produce only small quantities of bronzes because they can be recycled and melted down. In Olympia, too, at least some of the objects must have been lost by chance or deliberately discarded. Such objects cannot be included under the heading of votive offerings or cult equipment.
5. Fragmented objects could be used in the sanctuary in a quite pragmatic way. For example, fragments of tripods were used as bearers of inscriptions<sup>28</sup>, a bronze fitting from the construction of a silver *sphyrelaton* was bent and used as a key<sup>29</sup> and the tip of a spear butt was obviously used as a chisel<sup>30</sup>.
6. Last but not least, among the fragmented bronzes are also discarded votive gifts which have been accidentally or intentionally damaged (“ritual killing”).

Fragmented objects are fascinating for archaeologists. They have to be interpreted not only as pieces of formerly complete votive gifts but also as traces of ritual or profane activities in or close to the sacred district of Olympia. The systematic comparison of fragmented objects from Greek sanctuaries and from European scrap hoards seems to be an important and promising perspective for further research.

<sup>28</sup> DITTENBERGER, PURGOLD 1896, pp. 7-10 no. 3; pp. 13-16 no. 5; 37-40 no. 15.

<sup>29</sup> BAITINGER, VÖLLING 2007, pp. 118-124 no. 505 pls. 46. 79.

<sup>30</sup> BAITINGER 2001, pp. 59-197 no. 1007 pls. 48. 76a.

## Literature

- ALBANESE PROCELLI 1993 = ALBANESE PROCELLI R.M., *Ripostigli di bronzi della Sicilia nel Museo Archeologico di Siracusa*, Palermo 1993.
- BAITINGER 2001 = BAITINGER H., *Die Angriffswaffen aus Olympia* (OF 29), Berlin/New York 2001.
- BAITINGER 2010 = BAITINGER H., *Ein silbernes Sphyrrelaton aus Olympia?*, in *AM* 125, 2010, pp. 119-132.
- BAITINGER 2013 = BAITINGER H., *Sizilisch-unteritalische Funde in griechischen Heiligtümern. Ein Beitrag zu den Votivsitten in Griechenland in spätgeometrischer und archaischer Zeit*, in *JRGZ* 60, 2013, pp. 153-296.
- BAITINGER 2017 = BAITINGER H., *The Metal Votive Objects from the Sanctuary of S. Anna in their Sicilian Context*, in SOJC N. (ed.), *Akragas. Current Issues in the Archaeology of a Sicilian Polis* (Archaeological Studies Leiden University 38), Leiden 2017, pp. 109-127.
- BAITINGER 2018 = BAITINGER H., *Vom Wert der Objekte: Zum Transfer und zur Weihung von Metallobjekten im mediterranen Raum in archaischer Zeit*, in KREINER L. (ed.), *Opfer- und Festplätze von der Bronze- zur Latènezeit* (Archäologie im Landkreis Dingolfing-Landau 5), Rahden/Westf. 2018, pp. 9-35.
- BAITINGER, VÖLLING 2007 = BAITINGER H., VÖLLING TH., *Werkzeug und Gerät aus Olympia* (OF 32), Berlin/New York 2007.
- BOCHER 2013 = BOCHER S., *Aspekte früher Ritualpraxis anhand des geometrischen Votivspektrums im Heiligtum von Olympia*, in GERLACH I., RAUE D. (eds.), *Sanktuar und Ritual. Heilige Plätze im archäologischen Befund* (Menschen – Kulturen – Traditionen 10), Rahden/Westf. 2013, pp. 355-362.
- DITTENBERGER, PURGOLD 1896 = DITTENBERGER K., PURGOLD K., *Die Inschriften von Olympia* (Olympia V), Berlin 1896.
- EGGERT 2012 = EGGERT M.K.H., *Prähistorische Archäologie. Konzepte und Methoden* (UTB 2092), Tübingen 2012<sup>4</sup>.
- FIorentINI 1969 = FIorentINI G., *Il santuario extra urbano di S. Anna presso Agrigento*, in *Cronache di Archeologia e Storia dell'Arte* 8, 1969, pp. 63-80.
- FRIELINGHAUS 2006 = FRIELINGHAUS H., *Deliberate Damage to Bronze Votives in Olympia during Archaic and Early Classical Times*, in MATTUSCH C.C., DONOHUE A.A., BRAUER A. (eds.), *Common Ground: Archaeology, Art, Science, and Humanities, Proceedings of the XVI<sup>th</sup> International Congress of Classical Archaeology Boston, August 23-26, 2003*, Oxford 2006, pp. 36-38.
- FURTWÄNGLER 1890 = FURTWÄNGLER A., *Die Bronzen und die übrigen kleineren Funde von Olympia* (Olympia IV), Berlin 1890.
- GEISSLINGER 1984 = GEISSLINGER H., *Depotfund, Hortfund*, in *Reallexikon der Germanischen Altertumskunde*<sup>2</sup> vol. 5, Berlin 1984, pp. 320-338.
- HÄNSEL 1997 = HÄNSEL B., *Gaben an die Götter. Schätze der Bronzezeit Europas. Eine Einführung*, in HÄNSEL A., HÄNSEL B. (eds.), *Gaben an die Götter. Schätze der Bronzezeit Europas*, Berlin 1997, pp. 11-22.
- HANSEN 1996 = HANSEN S., *Weihgaben zwischen System und Lebenswelt*, in GEHRKE H.-J., MÖLLER A. (eds.), *Vergangenheit und Lebenswelt. Soziale Kommunikation, Traditionsbildung und historisches Bewußtsein* (ScriptOralia 90), Tübingen 1996, pp. 257-276.
- HANSEN 2013 = HANSEN S., *Bronzezeitliche Deponierungen in Europa nördlich der Alpen. Weihgaben ohne Tempel*, in GERLACH I., RAUE D. (eds.), *Sanktuar und Ritual. Heilige Plätze im archäologischen Befund* (Menschen – Kulturen – Traditionen 10), Rahden/Westf. 2013, pp. 371-387.
- HANSEN 2016 = HANSEN S., *A short History of Fragments in Hoards of the Bronze Age*, in BAITINGER H. (ed.), *Materielle Kultur und Identität im Spannungsfeld zwischen mediterraner Welt und Mitteleuropa. Akten der Internationalen Tagung am Römisch-Germanischen Zentralmuseum Mainz, 22.-24. Oktober 2014* (RGZM Tagungen 27), Mainz 2016, pp. 185-208.
- HANSEN 2020 = HANSEN S., *Votive Offerings between the Carpathian Basin and the Aegean in Hoards and Sanctuaries*, in MARAN J., BÄJENARU R., AILINCĂI S.-C., POPESCU A.-D., HANSEN S. (eds.), *Objects, Ideas and Travelers. Contacts between the Balkans, the Aegean and Western Anatolia during the Bronze and Early Iron Age. Volume to the Memory of Alexandru Vulpe. Proceedings of the Conference in Tulcea (10-13 November 2017)*, Bonn 2020, pp. 165-185.
- VON HASE 1988 = VON HASE F.-W., *Früheisenzeitliche Kammbhelme aus Italien*, in *Antike Helme. Sammlung Lipperheide und andere Bestände des Antikenmuseums Berlin* (RGZM Monographien 14), Mainz 1988, pp. 195-211.
- HEILMEYER 1969 = HEILMEYER W.-D., *Gießereibetriebe in Olympia*, in *JdI* 84, 1969, p. 1-28.
- HUTH 1997 = HUTH CH., *Westeuropäische Horte der Spätbronzezeit. Fundbild und Funktion* (Regensburger Beiträge zur Prähistorischen Archäologie 3), Regensburg/Bonn 1997.

- HUTH 2008 = HUTH CH., *Horte als Geschichtsquelle*, in *Vorträge des 26. Niederbayerischen Archäologentages*, Rahden/Westf. 2008, pp. 131-162.
- JACKSON 1983 = JACKSON A., *Some deliberate Damage to Archaic Greek Helmets dedicated at Olympia*, in *Liverpool Classical Monthly* 8, 2, February 1983, pp. 22-27.
- KILIAN 1977 = KILIAN K., *Zwei italische Kammhelme aus Griechenland*, in *Études Delphiques* (BCH Suppl. 4), Athènes-Paris 1977, pp. 429-442.
- KYRIELEIS 2006 = KYRIELEIS H., *Anfänge und Frühzeit des Heiligtums von Olympia. Die Ausgrabungen am Pelopion 1987-1996* (OF 31), Berlin-New York 2006.
- LINDENLAUF 2006 = LINDENLAUF A., *Recycling of Votive Offerings in Greek Sanctuaries. Epigraphical and Archaeological Evidence*, in MATTUSCH C.C., DONOHUE A.A., BRAUER A. (eds.), *Common Ground: Archaeology, Art, Science, and Humanities, Proceedings of the XVI<sup>th</sup> International Congress of Classical Archaeology Boston, August 23-26, 2003*, Oxford 2006, pp. 30-32.
- LINDERS 1989-1990 = LINDERS T., *The Melting Down of discarded Metal Offerings in Greek Sanctuaries*, in *ScAnt* 3-4, 1989-1990, pp. 281-285.
- MAASS 1978 = MAASS M., *Die geometrischen Dreifüsse von Olympia* (OF 10), Berlin 1978.
- NEBELSICK 1997 = NEBELSICK L.D., *Auf Biegen und Brechen. Ekstatische Elemente bronzzeitlicher Materialopfer – Ein Deutungsversuch*, in HÄNSEL A., HÄNSEL B. (eds.), *Gaben an die Götter. Schätze der Bronzezeit Europas*, Berlin 1997, pp. 35-41.
- NEBELSICK 2000 = NEBELSICK L., *Rent asunder: Ritual Violence in Late Bronze Age Hoards*, in PARE CH.F.E. (ed.), *Metals make the World go round. The Supply and Circulation of Metals in Bronze Age Europe, Proceedings of a Conference held at the University of Birmingham in June 1997*, Oxford 2000, pp. 160-175.
- ORLANDINI 1965-1967 = ORLANDINI P., *Gela – Depositi votivi di bronzo premonetale nel santuario di Demeter Thesmophoros a Bitalemi*, in *AIIN* 12-14, 1965-1967, pp. 1-20.
- TARDITI 2016 = TARDITI CH., *The Metal Objects from the Sanctuary of Bitalemi and their Context*, in BAITINGER H. (ed.), *Materielle Kultur und Identität im Spannungsfeld zwischen mediterraner Welt und Mitteleuropa. Akten der Internationalen Tagung am Römisch-Germanischen Zentralmuseum Mainz, 22.-24. Oktober 2014* (RGZM Tagungen 27), Mainz 2016, pp. 49-67.
- TORBRÜGGE 1985 = TORBRÜGGE W., *Über Horte und Hortdeutung*, in *AKB* 15, 1985, 17-23.
- VERGER 2003 = VERGER ST., *Des objets gaulois dans les sanctuaires archaïques de Grèce, de Sicile et d'Italie*, in *CRAI* 2003, pp. 525-571.
- VERGER 2011 = VERGER ST., *Dévotions féminines et bronzes de l'extrême nord dans le Thesmophorion de Géla*, in QUANTIN F. (ed.), *Archéologie des religions antiques. Contributions à l'étude des sanctuaires et de la piété en Méditerranée* (Grèce, Italie, Sicile, Espagne) (ARCHAIA I), Pau 2011, pp. 15-76.
- VÖLLING, ZIMMER 1995 = VÖLLING TH., ZIMMER G., *Bewegliche Tiegel – Ein Neufund in Olympia*, in *AA* 1995, pp. 661-666.
- WILLEMSEN 1957 = WILLEMSEN F., *Dreifusskessel von Olympia. Alte und neue Funde* (OF 3), Berlin 1957.
- ZIMMER 1990 = ZIMMER G., *Griechische Bronzegusswerkstätten. Zur Technologieentwicklung eines antiken Kunsthandwerkes*, Mainz 1990.

