

Proceedings of
the XXIst International Congress
on Ancient Bronzes

edited by Dávid Bartus, Zsolt Mráv and Melinda Szabó

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Budapest 2024



Proceedings of
the XXIst International Congress
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Budapest, 20–24 September 2022

Edited by
Dávid BARTUS – Zsolt MRÁV – Melinda SZABÓ

Budapest, 2024

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The *Drunken Satyr* from the Villa dei Papiri at Herculaneum

New Perspectives

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Abstract: Prior to the international loan exhibition *Buried by Vesuvius: Treasures from the Villa dei Papiri* at the Getty Villa in Los Angeles (26 June – 28 October 2019), the Museo Archeologico Nazionale di Napoli (MANN) generously lent the ancient bronze statue of a *Drunken Satyr* for study, analysis, and conservation. Discovered in pieces in tunnels excavated through what has come to be recognized in the outer peristyle garden of the Villa dei Papiri at Herculaneum on July 10, 1754 and restored in 1759 at the Royal Foundry at Portici, the *Drunken Satyr* was praised as one of the most beautiful bronze statues to survive from antiquity. This paper provides an overview of its history and presents the results of recent study, analysis, and treatment that shed greater light on the techniques of the statue's ancient manufacture and its alteration and state of preservation at the time of recovery. It also addresses the nature and extent of the post-antique restorations that can be identified and their ramifications on the statue's appearance. These collective findings allow for a more comprehensive understanding of the *Drunken Satyr*.

Keywords: *Drunken Satyr*, Herculaneum, Villa dei Papiri, bronze statue, conservation

Introduction

The study and conservation of the *Drunken Satyr* from the Villa dei Papiri at Herculaneum presented here was undertaken as part of a larger partnership between the J. Paul Getty Museum in Los Angeles and the Museo Archeologico Nazionale di Napoli (MANN).¹ A significant aspect of these

1 The authors are grateful to the organizers of the 21st International Congress of Ancient Bronzes held in Budapest in September 2022 for their superb organization of that event, and to colleagues in both Los Angeles and Naples for their collaboration on the project described here, particularly MANN director Paolo Giulierini for entrusting us with priceless artifacts from the MANN collections over the course of many years. We are also grateful to Paola Rubino De Ritis, Stefania Saviano, Marcus Adams, Tahnee Cracchaiola, Mustafa Eck, Susanne Gaensicke, Monica Ganio, Rita Gomez, Richard Hards, David Saunders, William Shelly, Jefferey Spier, Christopher Sprinkle, Marie Svoboda, Karen Trentelman, Nancy Turner, Sarah Waldorf and Carol C. Mattusch.

collaborative conservation and exhibition loan projects—which began in 2006 and have included treatments of the *Ephebe* from the House of the Ephebe at Pompeii (MANN 143753), the *Apollo Saetante* and *Diana* from Pompeii (MANN 5629 and 4895), and the *Tiberius* from Herculaneum (MANN 5615)—has been the ability to provide greater analytical information and empirical evidence about the materials, techniques, and manufacture of ancient bronze statues. Collectively these projects not only provide insight into various facets of ancient manufacture and technique, but also highlight post-antique restoration methods employed during the eighteenth and nineteenth centuries.² This is particularly true in the case of the *Drunken Satyr* (MANN 5628), which, as part of the sculptural scheme recovered from the Villa dei Papiri, quickly became famous after it was recovered in July, 1754, after which it was afforded great attention as well as considerable resources to make it presentable for display.

The Villa dei Papiri was discovered by chance in 1750 and excavated by work crews led by the Swiss military engineer Karl Weber, on behalf of the King of Naples. Weber not only extracted statues in bronze and marble, frescoes, opus sectile floors, and carbonized papyrus scrolls from great depths, but also drew a plan plotting his finds, marking his as one of the earliest excavations that can claim to be scientific. Working in cramped tunnels more than 20 meters below the surface, Weber and

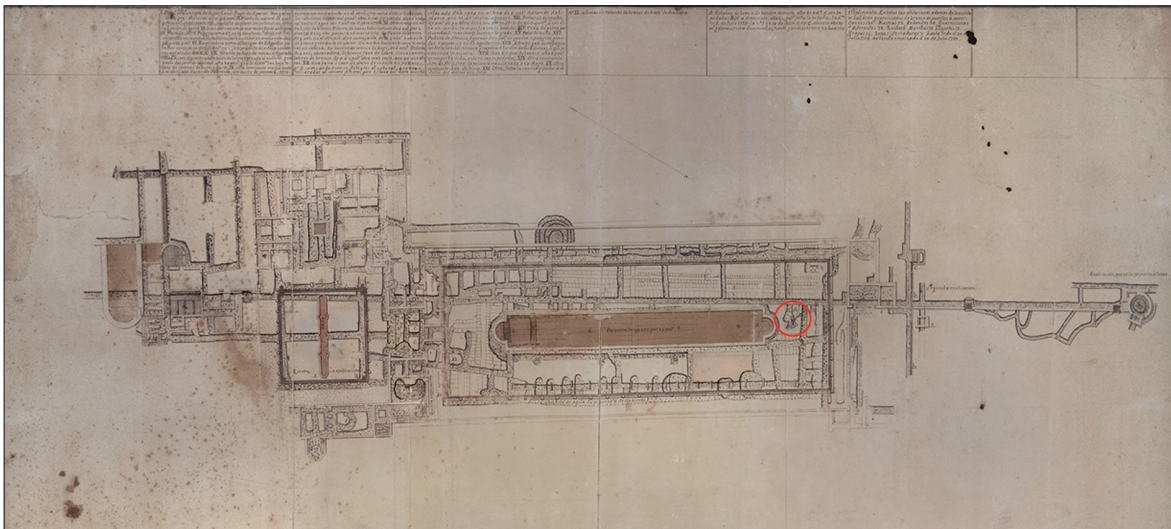


Fig. 1. Karl Weber's plan of Bourbon excavations of the Villa dei Papiri, 1754–1758 (photo: su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

his workmen extracted more large-scale bronzes than from any other ancient domestic site, over 60 sculptures. The *Drunken Satyr* was discovered on July 10, 1754 at the west end of the large peristyle garden, with other toppled statues, at the spot marked B on Weber's plan (Fig. 1). Opposite it, at the far end of a large pool, another statue was eventually found, of a younger satyr, apparently asleep (MANN 5624). These two figures present a contrast of age, alertness, and pose, a kind of compare-and-contrast for viewers evident throughout the selection and disposition of the Villa's sculptures.³

2 For the Ephebe, see https://www.getty.edu/art/exhibitions/naples_ephebe/; RISSER – SAUNDERS 2013, and MELILLO 2013; for the Apollo Saetante and Diana, see https://www.getty.edu/art/exhibitions/apollo_pompeii/ and RISSER – SAUNDERS 2015; for the Tiberius, see <https://www.getty.edu/art/exhibitions/tiberius/> and RISSER – SAUNDERS 2017, all with additional previous bibliography.

3 See, e.g., LAPATIN 2019; ZARMAKOUPI 2010; MOESCH 2009; LAHUSEN–FORMIGLI 2007; MATTUSCH 2005, and COMPARETTI – DI PETRA 1883. For excellent pre-conservation photographs of the Satyr see SAMPAOLO – SPINA 2018. For Weber and his enterprise see esp. PARSLow 1995; GUZZO et al. 2018.

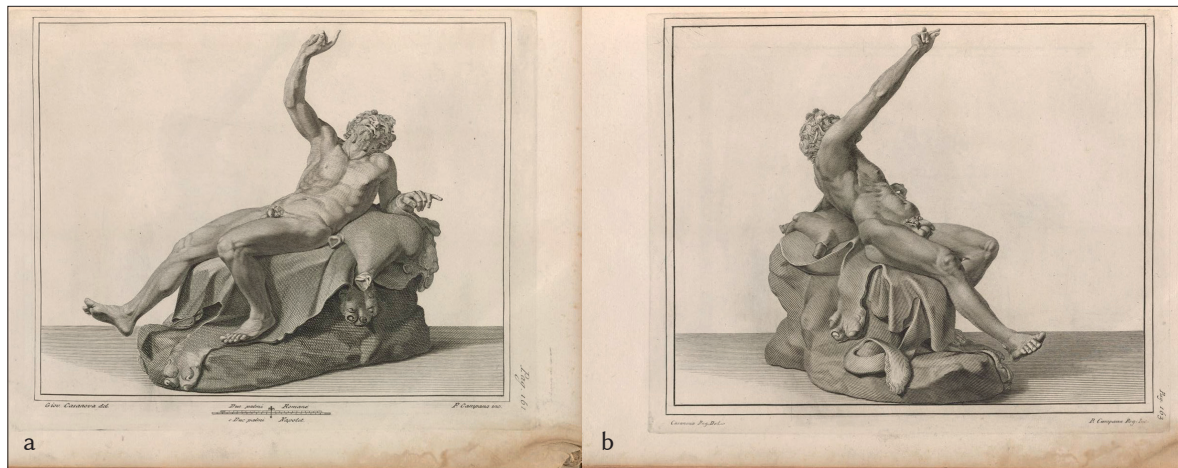


Fig. 2. a–b – Engravings of the *Drunken Satyr* by Pietro Campana after drawings by Giovanni Casanova from *Le Antichità di Ercolano esposte*, vol. 6 (1771), Pls XLII–XLIII (photo: Getty Research Institute Special Collections and Visual Resources).

The *Drunken Satyr* is neither a unique find nor an original work, but rather the best preserved of several surviving replicas of an earlier Hellenistic type, which most scholars place in the second century BC on stylistic grounds. Replicas survive in dark and light stones, and the figure also appears on coins, while variants can be seen in Pompeian painting, such as frescoes from the Casa di Sirico (VII.1.47) and the Casa dei Principe di Montenegro (VII. Insula Occidentalis, 10) at Pompeii, depicting Hercules in the same pose, drunk and subject to the Lydian queen Omphale (MANN 9000).⁴



Fig. 3. Detail of seam between ancient and restoration sections (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

4 For sculptural replicas see: [MATTUSCH 2005](#), esp. 321–326. The type also appears on a coin of Nikaia minted under Commodus, see [FRIEDLAENDER 1869](#), 97, no. 1, Pl. 23.1. For paintings see, e.g., [BRAGANTINI – SAMPAOLO 2009](#), 258–259, no. 107; see also [ANTICHITÀ DI ERCOLANO IV](#), 1765, Pl. 4, for an image of a half-draped female, similar snapping the fingers of her raised right hand while reclining on her bent left arm and holding a drinking horn in that hand.



Fig. 4. Detail of marks associated with mechanical cleaning (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

The statue from Herculaneum was first published some fifteen years after its discovery, fully restored, with two engravings, in the sixth volume of the luxurious *Antichità di Ercolano* (1771) (Fig. 2.a,b). A few years earlier, in 1764, the pioneering art historian Joachim Johann Winckelmann described the statue, which he saw in the Museo Ercolanese: “...an older drunken satyr lying on a wineskin with a lion skin thrown over him. He supports himself with his left arm and snaps the fingers of his raised right hand, like the statue of Sardanapulus at Anchiæ, in a sign of joy, as is now customary in dancing.” “The belly of the fine drunken bronze Silenus sags like a leather sack, but his thighs express the agility of the bodies of satyrs or fauns in the prime of youth [...]” One



Fig. 5. Ancient portions (satyr and feline face), 18th-century restorations (lion skin and marble outcrop) (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

could say that the Silenus is a masterful work.⁵ By then the statue had been fully restored by Tommaso Valenziani, working under the supervision of Camillo Paderni: the right arm, which had been found separately, had been reattached, and the wine and lion-skin heavily restored. A new stone base had also been also fashioned.

The statue was frequently reproduced thereafter, and was eventually transferred to Naples, along with other works from the Museo Ercolense. It features in famous 1787 engraving designed by Louis Jean Desprez, engraved by Robert Daudet, with figures engraved by Jean Duplessis-Bertaux, that imaginatively depicts artifacts being transferred from Portici to the new Museo Borbonico in Naples, that appeared in the second part of the first volume of Jean-Claude Richard, Abbé de Saint-Non, *Voyage*



Fig 6. Composite x-ray of the *Drunken Satyr* (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

Pittoresque ou Description des Royaumes de Naples et de Sicile.⁶ The sculpture has long been a highlight in the museum, now the Museo Archeologico Nazionale,⁷ and was even featured in Roberto Rossellini's 1954 *Viaggio In Italia*, evoking a kind of sexual reawakening in the character of Kathrine Joyce, played by Ingrid Bergman.

When the Getty Villa was constructed along the coast of Southern California in the early 1970s

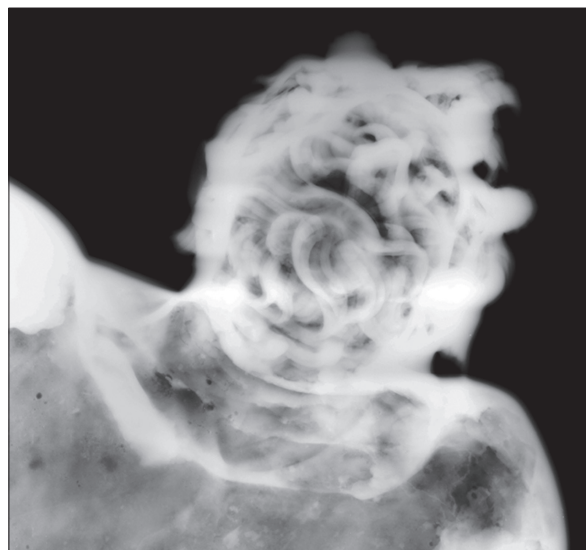


Fig. 7. Radiograph showing bib-like feature indicating a wax-to-wax join (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

5 Trans. MATTUSCH 2011, 52, 88, 186.

6 SAINT-NON 1782, Pl. opposite p. 54.

7 See, e.g., MILANESE 2009.

on the model of the ancient Villa dei Papiri, it seemed natural that a replica of the *Drunken Satyr* be placed at the end of the long pool in the Outer Peristyle along with other bronzes cast by Historic Chiurazzi Foundry.⁸ Similarly, another replica cast by the Chiurazzi graces the streets of modern Herculaneum. When, in the 2010s, the Getty and our partners in Naples began planning a major exhibition about the ancient Villa, to be mounted in its modern replica, we together decided it made sense to bring the *Satyr*, which had suffered over the more than 250 years since its discovery, to Los Angeles early for conservation, prior to the opening of *Buried by Vesuvius: Treasures from the Villa dei Papiri*.⁹

Study and Analysis

As outlined above, archival records are an important aid to understanding the historic timeline of the *Drunken Satyr* and the potential sequence and extent of restoration.¹⁰ While significant resources, such records are susceptible to embellishment or understatement as well as the motivations of their authors in relation to the Royal Bourbon court and administration. As such, these records can indicate but cannot not fully elucidate the condition of the *Drunken Satyr* at the time of its recovery or the nature and scope of restoration. These aspects, as well as the techniques of ancient manufacture and the true nature, number, and extent of historic restoration campaigns could only be more fully understood through careful study and targeted analysis of the object itself.

Enhanced visual examination was undertaken in a preliminary attempt to identify and differentiate between ancient parts of the statue and historic restorations. This revealed several interesting features, the most obvious being a distinct surface morphology where smoother chromatically consistent surfaces were distinguishable from rougher more inconsistent ones (Fig. 3). The later of these regularly evidenced numerous cuts, parallel scratches, and dents that appeared to be the traces of chisels, rasps, and files employed in manual cleaning (Fig. 4). The point of change or transition from one surface type to the other characteristically had a distinct delineation, often in the form of a variegated line. Interpreting these lines as potential boundaries between ancient and restoration had an unexpected result. If these signs were read correctly, only about half of the *Drunken Satyr* as we know it would be ancient, the remainder being an eighteenth-century conception. Significantly, a portion of the lion's face and part of the *otre* or wine skin are ancient, and they guided the eighteenth-century restorers (Fig. 5).

Scientific analyses including x-ray fluorescence (XRF), x-ray diffraction (XRD), and scanning electron microscopy with energy dispersive x-ray analysis ((EDX) SEM) were employed to elaborate on



Fig. 8. Endoscopic image showing wax drips translated into bronze (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

8 LAPATIN 2019, 6–7, 92.

9 https://www.getty.edu/art/exhibitions/villa_papiri/ and LAPATIN 2019.

10 SCATOZZA HÖRICH 1982; STRAZZULO 1982; STRAZZULO 1998; D'IORIO 2021.



Fig. 9. *Drunken Satyr* viewed from below showing excision of portions of the left elbow, lower back, buttocks, and thighs (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

this hypothesis, both defining and confirming the nature of the restorations, but also characterizing each in turn, examining both materials and techniques responsible for the overall figural composition known today. This helped to guide the conservation treatment, allowing for the major phases of the composition to be individualized and their specific chemical/physical conditions, alterations, and stability assessed. Each will be examined in greater detail below.

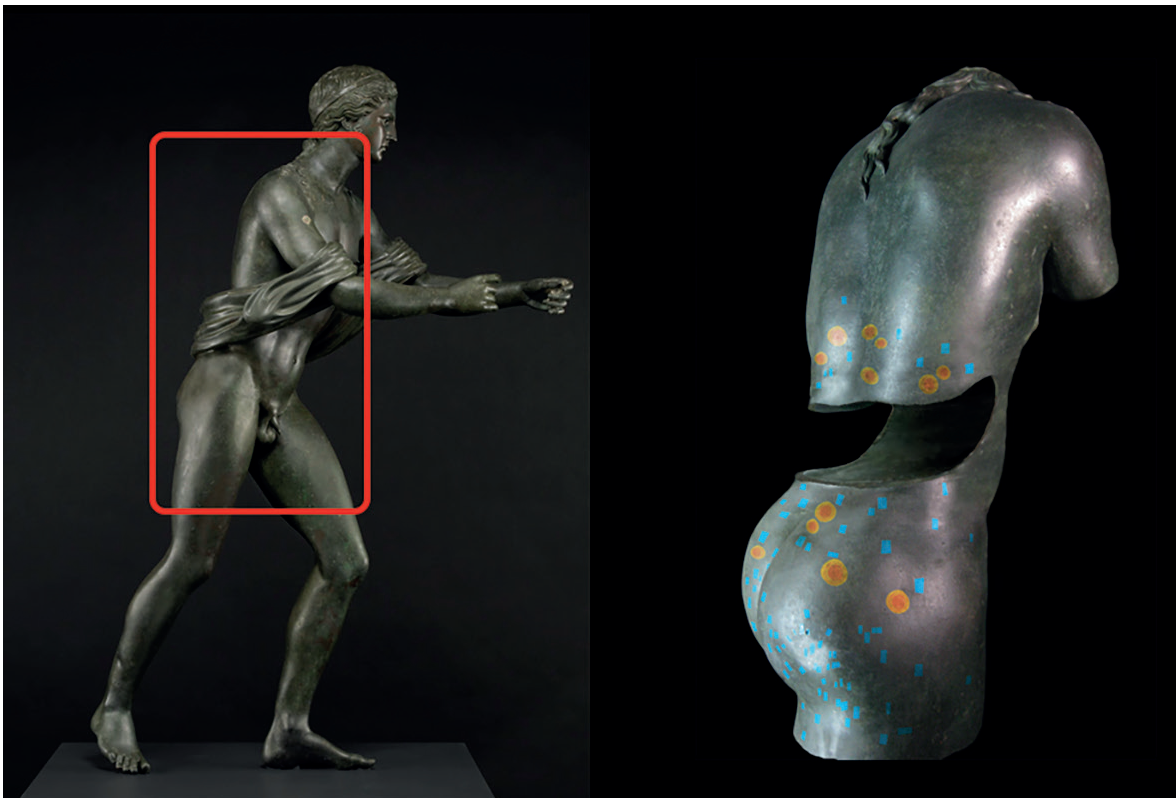


Fig. 10. Digital reconstruction of excised area of the *Apollo Saettante* (photo: J. Paul Getty Museum / Soprintendenza Speciale per i Beni Archeologici di Napoli e Pompei).

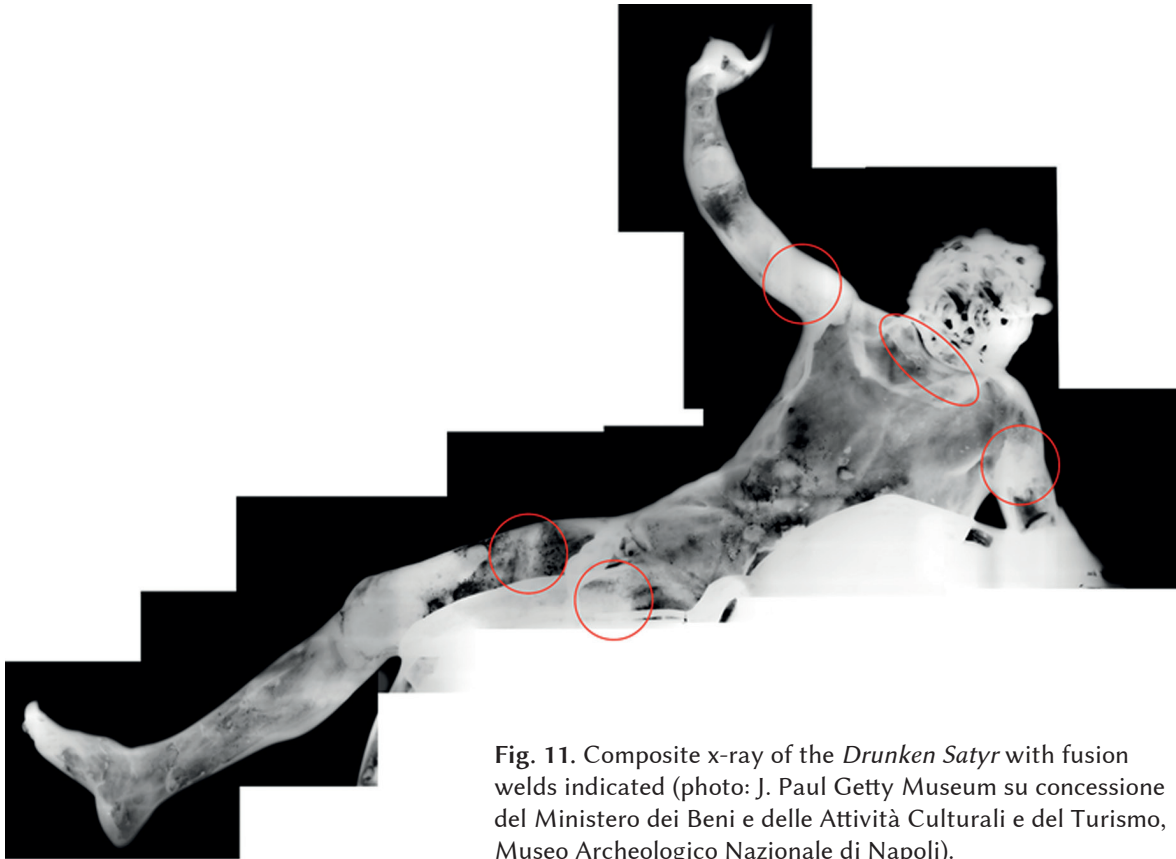


Fig. 11. Composite x-ray of the *Drunken Satyr* with fusion welds indicated (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

Ancient Manufacture

Radiography revealed the ancient bronze figure itself to be comprised principally of six-individually cast sections—the torso, right and left legs, both arms, and head—and that these were fashioned through the indirect lost-wax technique (Fig. 6). Certain features, such as the regular bib-like shape in the upper-chest, show clear evidence of wax-to-wax joins and appear related to the reassembly of wax model portions, confirming the use of molds in production (Fig. 7). The relative smoothness



Fig. 12. Detail of underside of the *Drunken Satyr* showing tearing and distortion (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).



Fig. 13. Detail of the incised lips, colored teeth and one of the inlaid eyes (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).



Fig. 14. Detail of the interior surface of the left thigh (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

features (figure and lionskin) was removed to allow the *Satyr* to be more easily assembled, situated, and attached to its base.

Looking at the extent of removal, an alternative motive can also be suggested with direct implications for the casting process. By removing these areas on closed shapes, the division between interior and exterior can be fundamentally altered. This would have increased the connection between

and gradual transition in wall thickness from thick to thin in highly sculpted areas such as the head or hands suggest the application of the wax in a fluid state to the interior of the molds. Physical evidence uncovered during endoscopic examination further confirmed the use of a liquified wax, most obvious in areas of seemingly crystallized drips translated from wax to bronze (Fig. 8).

The average thickness of the bronze is between 2.2 to 3.6 mm. The slight variation can be interpreted as evidence of this same method, particularly considering that the use of pre-cast wax slabs or sheets should have resulted in a more consistent thickness or at least created radiographically discernible features such as edge-to-edge joins or overlapping.

Examination of the underside of the bronze revealed excisions of portions of the anatomy, particularly the left elbow, the entire lower back, buttock area, and the reverse of the upper thighs (Fig. 9). This evidences a deliberate step in ancient manufacture, whereby the sections of contact to the (presumed) ancient lion skin were removed. The fact that these excisions were done in the wax is indicated by the softness of the edges, the exterior edge being slightly rounded inwards and the interior edge flaring outwards.

This type of removal at the points of contact between features was also seen in the *Apollo Saettante* where the swath of drapery passed over the lower back and portions of the forearms (Fig. 10). This was interpreted as having an economizing effect on the post-casting assembly process, implying coordination between various processes within the workshop and the foundry.¹¹ The *Satyr* appears to provide further evidence of the same process. Here the interplay between two distinct compositional

11 See note 2 above.

the core and vestment, further immobilizing each in relation to the other. Consequently, the number of chaplets necessary to prevent movement during casting could be greatly reduced. This would have had implications for the time and effort necessary to remove the refractive material around and within the cast bronze as well as the amount of cold patching needed for completion.

The six major components of the figure were joined post-casting by means of fusion welding. Much evidence for this is obscured by eighteenth-century interventions, but the neck and leg joins are still legible (Fig. 11). Several smaller components, such as the pinecones in the hair and pubis area were also separately cast and joined by fusion welding.

Tearing and distortion in the area of the figure's lower back seems to indicate a point of attachment in antiquity where the force of the volcanic eruption of AD 79 caused deformation immediately prior to the figure becoming detached from its base (Fig. 12). The regularized bottom edge of the left thigh, coupled with the eighteenth-century repair to the surrounding portion of the left leg, may suggest this area to have been damaged by distortion because it was an anchor point as well.

The original colour of the *Satyr* could not be determined. The current color is the result of a comprehensive re-patination campaign in the eighteenth century. Recesses, folds, and other less accessible areas did not reveal unaltered portions that might suggest the statue's original appearance.

The bronze itself was identified to be a highly-leaded tertiary alloy with approximately 17.2–19.1% lead and 5.9–6.8% tin. This is typical of other analysed bronzes from Herculaneum and, unaltered, would have had a golden hue.

The eyes of the figure still preserve original bovine bone inlays, while the lips have clear delineation for inlay but no discernible increased levels of copper. The teeth, revealed by endoscopy to be partially inserted, have a very high tin content, potentially suggesting that these were preferentially treated with tin to create a silvery, white colour (Fig. 13).



Fig. 15. Cast-on welds with excess material to encapsulate screws to join and immobilize fragments (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).



Fig. 16. Exterior detail showing the smoothed and patinated bolts legible as small circles (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).



Fig. 17. Endoscopic image of anchor to secure lion skin to the rock (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).



Fig. 18. Bolt head holding lion skin to marble base (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

Taken together, the facial features suggest an intentional selection and application of materials to create chromatic distinction, rendering the figure more life-like. One can presume that the flesh and hair portions, though of the same alloy composition, may have similarly been treated for distinction and mimicry. As to the lion and wine skins, their presence, but not extent, is confirmed as part of the ancient sculptural composition. The same basic alloy that was employed for the figure was used for both. Nonetheless, these compositional elements may have been treated in some way to further enhance the colourful illusion of reality already so well encapsulated in sculptural form.

Eighteenth-Century Interventions

Portions of the interior of the *Satyr* suggest what the exterior may have looked like upon recovery in 1754 and why mechanical cleaning with chisels, rasps and files was necessary (Fig. 14). Likewise, looking at the damage suffered by the *Satyr*, it is possible to hypothesize as to the structural state of the figure at the time of recovery. All the limbs were severely damaged at or near the original fusion welds and the right arm, at least, was detached. The arms were rejoined and reinforced with a primitive form of welding whereby molten bronze was poured into the rupture to fill any voids and melt the surrounding edges to create a metallurgical join. An abundance of bronze was used, filling the space on either side of the joint with excess material that would encapsulate the bolts that had been previously added nearby and solidify around them to form a type of mechanical riveting that further reinforced and immobilized both sides (Fig. 15). The bolts were inserted first, threaded through holes drilled in the bronze.

This technique appears to have been used throughout the figure wherever bronze sections were to be rejoined, whether ancient or eighteenth-century additions. The cast-on bronze is very different in composition to the

ancient alloy, having roughly 1% tin, 2.5% lead and 3% arsenic. This method of joining also explains the great number of small circles visible on the surface of the entire assemblage, ninety-six in total.



Fig. 19. Marble base with clear delineation between finished and unfinished surfaces (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

Afterwards the protruding bolts were cut off on the exterior, smoothed, and visually incorporated during repatination (Fig. 16).

In the few instances where eighteenth-century restorations were attached to ancient bronze, the ancient metal edges were regularized by cutting and filing. Wax appears to have been modelled directly onto the regularized ancient portions, then removed, and translated into bronze.

The eighteenth-century restoration is limited to the rejoining of the ancient sections and completing the portions of the wineskin and feline face of the lionskin. All other portions of the composition must be interpreted not so much as restorations, but as eighteenth-century creations intended to complete a narrative.

The bronze lion's skin is composed of sixteen separately cast sections. These are similar in composition to the cast-on welds, but with less lead and are remarkably consistent to one another suggesting they were cast with the same batch of metal. Each section was metallurgically joined to the next using the same method described previously. While crude, this joining technique was effective enough for a complex composition to be created piece-meal.

The joined lionskin was mechanically attached to the rock outcropping through fifteen anchor points consisting of inverted U-shaped iron sections leaded into the stone and drilled and tapped to receive threaded bolts (Fig. 17). Like the rivets, the bolts were screwed through holes previously drilled in the bronze. The larger head of the bolt served to compress the metal to the stone and keep it in place (Fig. 18).

The rock outcropping itself has been identified as *Bardiglio di Luni* marble. Its carved details were clearly cut with foreknowledge of the figure and the desired configuration of the lionskin. Even so, some details were incorrect, and the stone needed to be altered to accommodate the bronze it was intended to support. This is most obvious in the detachment and inversion of the stone nodule around which the lion's tail curls. Portions of the base's roughed-out upper surface also had to be further reduced to better accommodate the figure.

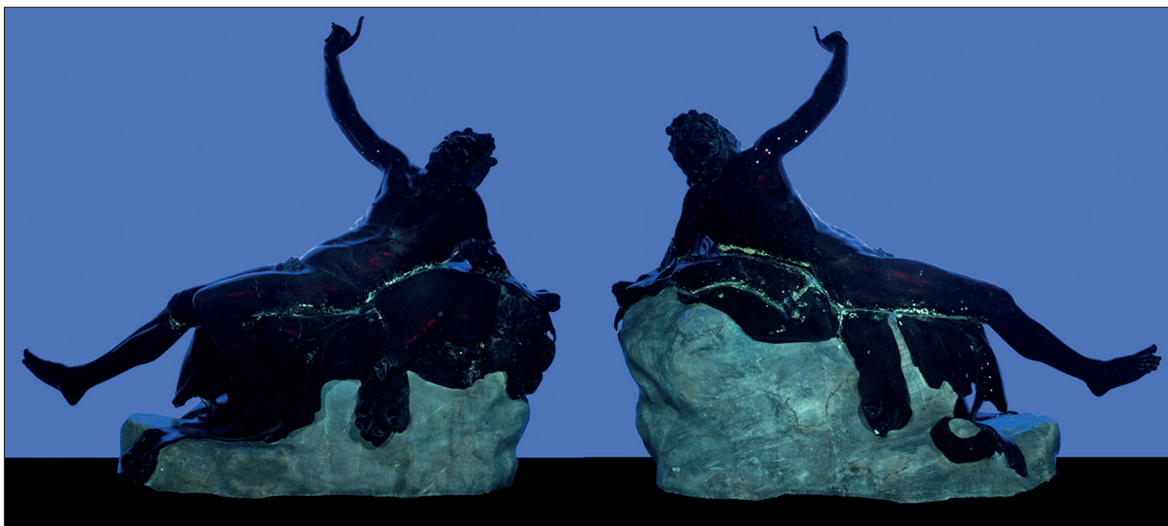


Fig. 20. Ultraviolet image showing luminescence of organic binding agent between major features (photo: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

The fact that there are distinct areas of finished and non-finished stone demonstrates pre-existing knowledge of what parts of the base would be covered by the bronze versus those that would not (Fig. 19). These areas of distinction were clearly realized in the stone carvers' workshop. Later alterations appear to have been performed in the foundry at the time of fitting. Such alterations suggest that the rock was initially carved without direct comparison to the bronze lionskin and, likewise, that the bronze was created prior to the finishing of the stone otherwise one might have more easily accommodated the other.

Given the extent of metallurgical work undertaken to both rehabilitate the ancient bronze figure and create almost the entire lionskin, it is curious that the connection between these two major



Fig. 21. a–b – Fragments of newspaper dated September 1970 found between *Satyr*, lionskin, and marble base during and after conservation (photos: J. Paul Getty Museum su concessione del Ministero dei Beni e delle Attività Culturali e del Turismo, Museo Archeologico Nazionale di Napoli).

sections was not accomplished using metallurgical techniques. Rather the *Satyr* was adhered to the lionskin with an organic mastic (Fig. 20). To be fair, the points of contact between the figure and the lionskin are very fine and conformal, indicating the skin to have been modelled directly to the *Satyr* in wax. Consequently, the figure is well encapsulated within the confines of the lionskin, nestling slightly below the surface. Given the fitted nature of the lionskin there may have been no easy way of undertaking a discrete hot pour to secure the *Satyr* in place. Equally, because the lionskin was almost entirely a modern construct, it could be that this was a way of allowing for future alteration or change without recourse to retouching the ancient bronze.

The mastic used to join the figure to the lionskin was made up of tree exudates, indicating that this was most likely *pece* or pitch, mixed with recycled corrosion products and various inert mineral pigments to achieve sufficient opacity and a sympathetic colour. It is not inconceivable that the added corrosion was reuse from the mechanical cleaning of the exterior of the *Satyr*. The combined colour was intended to match that of the repatinated bronze pieces.

Repatination served several purposes but was undertaken principally to endow a greater visual homogeneity to disparate fragments to achieve the impression of a complete ancient assemblage. Inherent to this idea was the intention to disguise the extent of restoration and new creation. The ancient portions display an initial cupric oxide layer with extensive intergranular corrosion, underlining its natural formation. Overlying this are copious amounts of nitrates, sulphates, and chlorides suggesting an intentional chemical formation with various acidic solutions. Newly created bronze portions have an initial oxidation layer that suggests the application of heat. Similar overlying corrosion products may be indicative of the use of liver of sulphur to create a base layer and onto which copper chlorides or a solution of copper nitrates and sodium chloride was used.

Nineteenth- and Twentieth-Century Interventions

There is very little evidence of further intervention or additional alteration apart from a crumpled-up section of the Neapolitan newspaper *Il Mattino* from mid-September 1970 recovered beneath the mastic under the right thigh (Fig. 21.a–b). Analysis of this area revealed portions of tree rosin interspersed with polyester resin. This indicates a stabilization or partial replacement of the mastic and suggests that the *Satyr* itself had shifted at some point in relation to the drapery. Archival records from Naples indicate the early 1970s to have been a time in which much of the sculptural collection was reorganized and redisplayed. The step and misalignment between figure and drapery at the front left thigh prior to the most recent conservation treatment may be explained in this way. Aside from this one obvious intervention the *Satyr* appears to have been little changed over the last two and half centuries.

Conclusions

The study, analysis and treatment of the bronze *Drunken Satyr* from the *Museo Archeologico Nazionale di Napoli* provided a unique opportunity to better understand a complex ancient bronze in and of itself and within the context of post-antique restoration practices. The satyr itself is ancient, created in six principal components, and little altered by restoration in detail or orientation. Portions of the *otre* and feline face of the lion skin were also found to be ancient, but their original compositional forms remain unknown as their great majority of what we see today are post-antique bronze work.

The extensive new sections of the lion and wineskins, along with the marble base, show the *Drunken Satyr* is a predominantly ancient figure around which an eighteenth-century composition was created. The techniques employed to rejoin and restore the ancient remains are a hybrid of metallurgical (casting) and mechanical (riveting) approaches and are the same used to create and join the majority of the *otre* and the elaborate lion skin that envelops the rock outcropping. The application

of these practices to ancient and *ex-novo* pieces alike indicates that the restoration was undertaken principally in the foundry and those responsible for the restoration in the eighteenth century were concerned with the creation of a plausible, whole composition as much as authenticity. As such the *Drunken Satyr* is best understood as a significant example of ancient artistic expression and technology contained within an eighteenth-century vision of antiquity.

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