

- **Technical study of the Mensa Isiaca, Museo Egizio, Turin, Italy**

The *Mensa Isiaca* is a rare and especially complex example of the use of ancient colored metal inlay in the first century AD. The J. Paul Getty Museum, Getty Conservation Institute, and Turin's Museo Egizio have been engaged in a study of the ancient technology of the object using a variety of analytical methods, including Macro X-ray fluorescence scanning.
- **Technical study of a fragmentary ancient gold textile in the J. Paul Getty Museum's collection (79.AO.75.125.1–.56)**

A collaboration with the Interdepartmental Program for Conservation of Archaeological and Ethnographic materials at University of California, Los Angeles (UCLA) on a student's independent study project led to an intensive technical investigation of 49 fragments of woven gold textile and seven of golden cords with the Getty's Antiquities Conservation and Antiquities Curatorial departments and the Getty Conservation Institute. The research was presented at the international symposium *VII Purpureae Vestes*, Granada, Spain, October 2–4, 2019.
- **Experiments to combine photogrammetry data with digital x-radiographs**

3-D scanners are used increasingly for digital reconstructions of museum objects. An alternative photogrammetric method was used on the Getty's bronze Herm (79.AB.138) to create a digital model based on a series of over 200 high resolution photographs. An additional 24 digital X-radiographs (one every 15 degrees) were generated to test whether a 3-D radiographic model could be created. Further uses of 3-D imaging and X-radiography are under investigation.
- **Technical study of an Etruscan travertine boar sculpture (83.AA.366)**

Freestanding large-scale sculptures of boars from the ancient Mediterranean are rare and the life-size travertine boar in the J. Paul Getty Museum's collection is without known parallel. The goal of this study is to gain knowledge about the object's materials and condition with the aim to illuminate its ancient origins and use, and subsequent history.
- **Incorporating 3-D Scanning Technology into Mount Production**

Getty mountmakers are using 3-D technology to design and fabricate mounts for temporary exhibitions. In summer 2019, they traveled to the Louvre Museum where they 3D-scanned over 70 objects that will be loaned for an exhibition on ancient Mesopotamia at the Getty Villa from March–July, 2020. In Antiquities Conservation, the digital files were processed and 3-D printed, precisely replicating the original objects or selected parts. These prints are used to produce seismic mounts that will protect the objects while on display during the exhibition. This new approach has revolutionized the process of exhibition mountmaking, saving critical time during installation.
- **The use of magnets in the conservation of large-scale sculptures**

A new method of temporary treatment: combining steel pins with customized magnets to hold fragments of a Roman marble sarcophagus together. Full story: <https://blogs.getty.edu/iris/of-muses-and-magnets-or-inspiration-for-a-new-technique-in-stoneconservation/>

- **Climate control with low power solid polymer membranes**
 Exhibit cases typically employ passive or active methods to control case microenvironments. Experiments with low power, solid polymer membranes suggest a third method might prove useful for desiccation of cases containing sensitive bronzes. Membranes extract water by dividing water molecules (into hydrogen and oxygen) and recombining on them on the opposite side of the membrane, in effect removing water as vapor.
- **Technical study of Etruscan gold jewelry in the J. Paul Getty Museum's collection**
 Together with the Getty Conservation Institute, select Etruscan gold objects are being studied to analyze materials and techniques of their manufacture. Techniques include examination with a digital microscope, elemental analysis, and X-radiography. The Etruscan gold project will serve as a pilot study to develop guidelines for the study of ancient jewelry.
- **Technical study of marble sculptures and frescoes on loan from the Archeological Museum of Naples and Herculaneum for the exhibition *Buried by Vesuvius: Treasures from the Villa dei Papiri* (June 26–October 28, 2019)**
 Objects on loan to the Getty underwent technical examination to investigate techniques and materials of manufacture, using multispectral imaging, examination with a digital microscope and elemental analysis using portable X-ray fluorescence. Fiber optics spectroscopy was conducted by the Getty Conservation Institute.
- **Technical study of Assyrian reliefs from the British Museum loaned for the exhibit *Assyria: Palace Art of Ancient Iraq* (October 2, 2019–September 5, 2022)**
 Assyrian reliefs on long-term loan to the J. Paul Getty Museum will undergo technical examination to learn more about the ancient pigments used in their decoration. Techniques will include multispectral imaging, examination with a digital microscope, and elemental analysis using portable X-ray fluorescence.