Conservation Report

Object Number:	37.1375Ea-b	Collection: ECANEA
Artist/Maker:		
Title, Date:	Figure of Osiris, 4th century B.C.E. or later	
Media:	Wood, gold leaf, copper-alloy, polychromy, gesso	
Dimensions:	overall: 9 × 2 1/2 × 1 7/16 in. (22.9 × 6.4 × 3.7 cm)	

Examination & Treatment

Survey Date: **04-Aug-2016** Examiner(s): **Kasey Hamilton**

Project: Egyptian Treasures from the Brooklyn Museum: Korea loan

Overall Condition: Fair

Overall Condition Analysis:

Description:
The object is a gilded wooden figurine of Osiris. It currently exists in two parts: the figure (a) and the base (b). The figure is depicted in a rigid standing position, with both arms bent at the elbows and hands, balled up as fists, meeting at the center of the torso. He wears an atef headdress, the crown representing Osiris. The atef is a combination of the hedjet crown of upper Egypt, with ostrich feathers on either side. The figure's crown appears as the hedjet, but has two rectangular holes in either side, to which feathers would have presumably been attached.

A small copper-alloy uraeus exists at the center of the figure's forehead. The uraeus is a stylized form of an Egyptian serpent, and is another symbol often associated with the god Osiris. The figure wears a large, decorative collar, which is formed by incised lines around the figure's neck and down the figure's upper back. The collar is comprised of three registers, the top two decorated with small, vertical lines, and the bottom with small tear-drop shaped elements. An incised, vertical gridded element extends from the nape of the figure's neck to his mid-back. This may be a component of the collar, or an additional accessory.

The figure is carved from one piece of wood. Surfaces to be gilded are covered with a white ground layer, possibly gesso ($CaSO_4$) or whiting plaster made from limestone ($CaCO_3$). A layer of adhesive, possibly animal glue, would have been applied to the surface of the ground layer before covering with gold leaf. For incised elements, like the decorative collar, it is possible that the lines would have been modelled into the ground layer, and the gold leaf would be applied and pressed into the recesses to take the form.

There are some areas where darker residues (possibly resinous material) exist on the surface - on the figure's backside, within losses in the gilding on the reverse of the head, and on areas of exposed wood beneath the feet. A green material is perceptible on the figure's face, and may be related to original polychromy. The god Osiris is often depicted with green skin, and it is possible that the gilding would have been painted green in areas of exposed skin.

An undecorated, trapezoidal shaped tenon extends beneath the figure's feet. Its function is to fit into a mortise in the rectangular wooden base. The rectangular base is undecorated.

Object history:
No pre-existing conservation records were found for this object. However, entries from the Carolyn Ransom Williams catalogue from 1919 were found describing the object as well as its condition at the time. These records indicate that the object was paraffined in 1918 by a Mr. Hoffman. The condition appears to be mostly unchanged from this previous report. These records were transcribed by Kathy Zurek-Doule, and both the transcription and scanned original copies were uploaded to TMS.

Condition:

The figure is in fair condition overall, and requires some stabilization of the outermost layers.

There are some small chip losses to the figure's chin, as well as a 3/16" long insect hole at the front of the figure's proper right leg.

Approximately 30% of the gilding and ground layers are lost. This includes a major loss of both the gold leaf and ground layer extending from the front of the figure to the back on the PR side. Other losses of both gold leaf and ground layers include the area at the figure's feet, the proper right forearm and hand, the front top half of the hedjet, as well as a figure-four shaped area of loss at the back of the figure's head. Cracks in the gilding exist throughout. Smaller scratches, abrasions and losses to just the gold leaf are also present throughout.

Two different colored surfaces can be seen in areas of loss to the gilding. Primarily, a reddish-brown surface can be seen; this is presumably the ground layer saturated with the darkened adhesive (possibly animal glue). In a few areas, the whitish ground layer can be seen.

A lighter, yellowish-green coating is visible on the exposed wooden surfaces. Examination of this coating under microscope reveals a craquelure pattern in areas where the coating is thick. This may be residual paraffin from Mr. Hoffman's 1918 treatment, and was found to be soluble in non-polar solvents.

There is minor flaking and lifting throughout - particularly along the edges where there are losses in both the gilding and ground layers. The ground layers surrounding the figure-four shaped loss on the back of the head are also lifting slightly, and move with a bit of applied pressure. Small pieces of gilding exist in the storage box for the object. Most are very small, but there is one larger fragment that is a possible candidate for reattachment.

References consulted:

-Nicholson, Paul T., and Ian Shaw. 2000. Ancient Egyptian materials and technology. Cambridge: Cambridge University Press.

-Lucas, A., and J. R. Harris. 1962. Ancient Egyptian materials and industries. London: E. Arnold.

Documentation/Testing:

X-ray Fluorescence Spectroscopy (XRF):
XRF, a nondestructive elemental analytical technique, was carried out to examine the elemental composition of the materials present. Readings were taken with a Bruker-Tracer III-V+ instrument with a rhodium source, beryllium sample window roughly 3mm x 4mm in size, and a Si-Pin detector. Settings are 40 kV 1-5 mA 30sec, unless otherwise noted. Spectral data were acquired and interpreted using S1pXRF and Artax software.

Readings were obtained from three areas on the object. The gilding on the proper right arm was analyzed and revealed traces of iron present in the gold leaf, as well as calcium peaks indicative of either a gesso ($CaCO_3$) or whiting plaster ($CaSO_4$) ground layer. The green area on the figure's face, next to the proper right eye, was analyzed and revealed nothing of note. The ureus was analyzed and was found to be comprised of copper with trace amounts of lead. The lead may have been intentionally added to improve working properties for casting or may naturally exist as an impurity.

A PDF summary of these findings with associated spectra was prepared for upload to TMS.

Multispectral Imaging:
Multispectral imaging uses photography as an analytical tool to examine objects in a

variety of wavelengths of light outside the visible spectrum. Images were taken with a modified Nikon D6100 DSLR (IR/UV filters removed). Visible images were taken with an IDAS-UIBAR filter (375-700nm bandpass) attached to the lens, illuminated with Genaray SpectroLED-14 lights (output: 5600k). Ultraviolet images were taken using UV Systems LW370 TripleBright II lights (output 368nm, 5750k). Ultraviolet fluorescence images use an IDAS-UIBAR filter and a Kodak 2E pale yellow optical wratten filter (410nm longpass). Ultraviolet-reflectance (UVR) images use an X-Nite BP1 (320nm-670nm bandpass) and X-Nite 330 filter (270-375nm bandpass). Infrared (IRR) images were taken using mounted lights in imaging area, with an X-Nite 830 filter (830nm longpass) attached to the lens. Visible-induced luminescence (VIL) images were also taken with X-Nite 830 filter, using American DJ RGB LEDs.

UVR: Ultraviolet Reflectance imaging reveals a differing appearance between the two inlaid eyes. The proper right (PR) eye appears to be entirely grey and matte - there is no visible difference between the pupil and the white of the eye. Conversely, in the proper left eye (PL) it is possible to distinguish between the pupil and the white of the eye. As indicated in the Carolyn Ransom Williams records, the “left eye” (unclear if this means PL or viewer’s left) is believed to be glass, while the other is ivory with applied paste to create the pupil. The glass eye is presumed to be a repair. Further examination and analysis would be necessary to confirm the materials mentioned in the Williams report.

The exposed wood surfaces appear very matte in the UVR image - possibly indicative of the paraffin coating remaining on the surface.

VIL: Visible Induced Luminescence photography reveals traces of Egyptian blue pigment in small areas on the face. Traces of the pigment can be seen outlining the eyes, both eyebrows, and the PR jaw.

IRR: Infrared Reflectance imaging clarifies features in the face as well as surface cracks in the gilding. The surface of the proper right hand appears much lighter than the rest of the exposed wood surfaces, possibly suggesting a fresher loss.

VIS: Visible reflected imaging reveals nothing of note.

UVL: Ultraviolet luminescence reveals nothing of note.

Brief Description: Cleaning and stabilization

Proposed Treatment:

1. Remove yellowish green coating from wooden surfaces as possible, using appropriate solvents.
2. Consolidate flaking gilded and ground layers using an appropriate adhesive.
3. Reattach loose fragment if possible.

Treatment:

1. Coating was removed under a microscope, using cotton swabs dampened with Stoddard’s Solvent.
2. Unstable layers of gilding and ground were consolidated by wicking 1% Aquazol 200 in 1:1 deionized water:ethanol underneath.
3. One larger fragment was reattached to the back of the figure using the above 1% Aquazol solution. After attaching, excess adhesive was wicked into the join until the fragment appeared to be securely attached.

Photo Documentation:

Digital photography of 4 views before treatment taken by Anna Serotta, 2016.

Multispectral imaging of 1 view each of infrared reflected, UV-induced luminescence, UV-reflected, visible-induced infrared luminescence, and visible reflected.

Digital photography of 3 views during treatment.
Digital photography of 6 views after treatment.

Examination & Treatment

Survey Date:

Examiner(s): **Anna Serotta**

Examination & Treatment

Overall Condition: Scanned Archival Record
