The Arch of Titus Digital Restoration Project

A PROJECT OF THE YESHIVA UNIVERSITY
CENTER FOR ISRAEL STUDIES

Said Rabbi Shimon: When I Went to Rome, there I saw the Menorah… (2nd Century CE, *Sifre Zuta, Be'haalotkha*).

Constructed soon after the death of Emperor Titus Flavius Vespasianus in 81 CE, the Arch of Titus commemorates the Roman triumph awarded to Emperor Vespasian and to Titus, his son and heir, for their victory in the Jewish War (66-74 CE). This well-preserved, iconic contains important bas reliefs of the triumphal procession through Rome.

Historically, the most important element of the reliefs' iconography is the sacred vessels from the Jerusalem Temple, especially the seven-branched menorah and the table of the showbread.

The menorah on the Arch of Titus was chosen as the symbol of the State of Israel in 1949.

Our project brings together an internationally renowned team of scholars to digitally scan the Arch of Titus's bas reliefs, to search for signs of their original polychromy, and to reconstruct the reliefs digitally– including their colored surfaces.

It is hoped that modern viewers will be able to "see" the panels, especially the menorah panel, as they looked nearly 2000 years ago!

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Our Team

Steven Fine, Yeshiva University, Director

Bernard Frischer, PublicVR, Co-Director, Senior Scientist

Peter Schertz, Virginia Museum of Fine Arts, Co-Director

Cinzia Conti, Soprintendenza Speciale per i Beni Archeologici di Roma

Louis Feldman, YU

Paolo Liverani, University of Florence

Alexander Mishory, Open University of Israel

Heinrich Piening, State of Bavaria

Lawrence H. Schiffman, YU

William Stenhouse, YU

Our team is focusing upon three panels. Here we see the vessels of the Jerusalem temple, destroyed by Titus in 70 CE, triumphantly paraded into Rome, and memorialized in the Arch of Titus.

The second shows the Emperor Titus on his chariot, crowned by Nike, the winged god of victory.

The third shows Titus on Eagle’s wings ascends to the heavens from the top of the arch, to become a god.

Flavius Josephus, the Jewish historian, describes Titus's Triumphal Return to Rome (*Jewish War* 7, 148ff).

The spoils in general were borne in promiscuous heaps; but conspicuous above all stood those captured in the temple at Jerusalem.

These consisted of a golden table, many talents in weight, and a lampstand, likewise made of gold, but constructed on a different pattern than those which we use in ordinary life. Affixed to a pedestal was a central shaft, from which there extended slender branches, arranged trident-fashion, a wrought lamp being attached to the extremity of each branch, of these there were seven, indicating the honor paid to that number among the Jews.

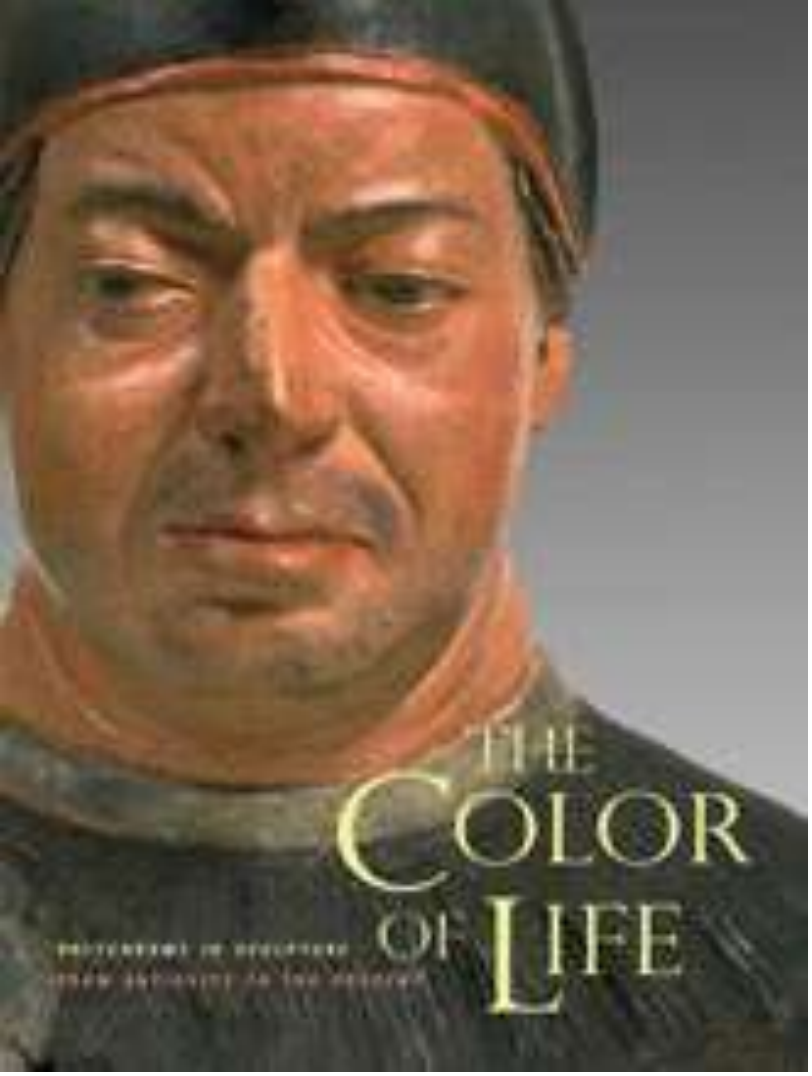
After these, and last of all the spoils, was carried a copy of the Jewish Law. They followed a large party carrying images of victory, all made of ivory and gold. Behind them drove Vespasian, followed by Titus; while Domitian rode beside them, in magnificent apparel and mounted on a steed that was in itself a sight.

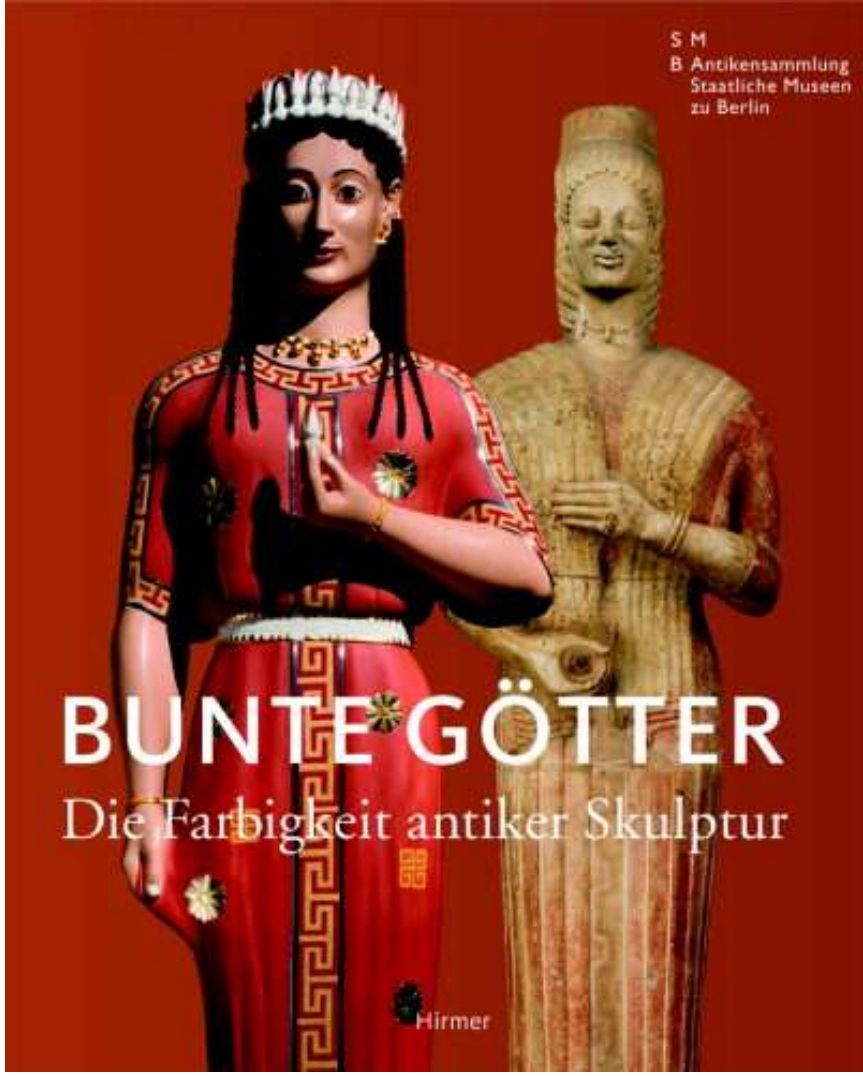
The Study of Roman Polychromy

In recent decades, scholars have discovered that Roman sculpture was colorful, and not white as once thought.

Remains of polychromy have been discovered by ever more sophisticated methods, and models showing the original colors created.

This “Sarcophogus of Alexander the Great,” now in Istanbul, is an early example of polychromy research.





Museum exhibitions across Europe and the United States have explored the original polychromy of ancient sculpture.

The digitalization and colorization of this sculpture of the emperor Caligula at the Virginia Museum of Fine Art brought together our Arch of Titus leadership team for the first time.

The Arch of Titus on the Roman Forum, not far from the ruins of Vespasian's *Temple of Peace,* where the Menorah was publically displayed until the sack of Rome in the 5th century CE. It is likely that, like almost all Roman art in precious metals, the menorah did not survive antiquity.

Getting Started: Prof. Fine with Dr. Cinzia Conti of the Soprintendenza Speciale per i Beni Archeologici di Roma and her staff.

Setting up the scaffolding opposite the image of Titus on his chariot.

Preparators dust the reliefs in preparation for scanning.

Prof. Fine face to face with the Menorah panel, roman soldiers, and the table for bread of the presence in the background.

Prof. Frischer, head of the scientific team, photographing the menorah panel.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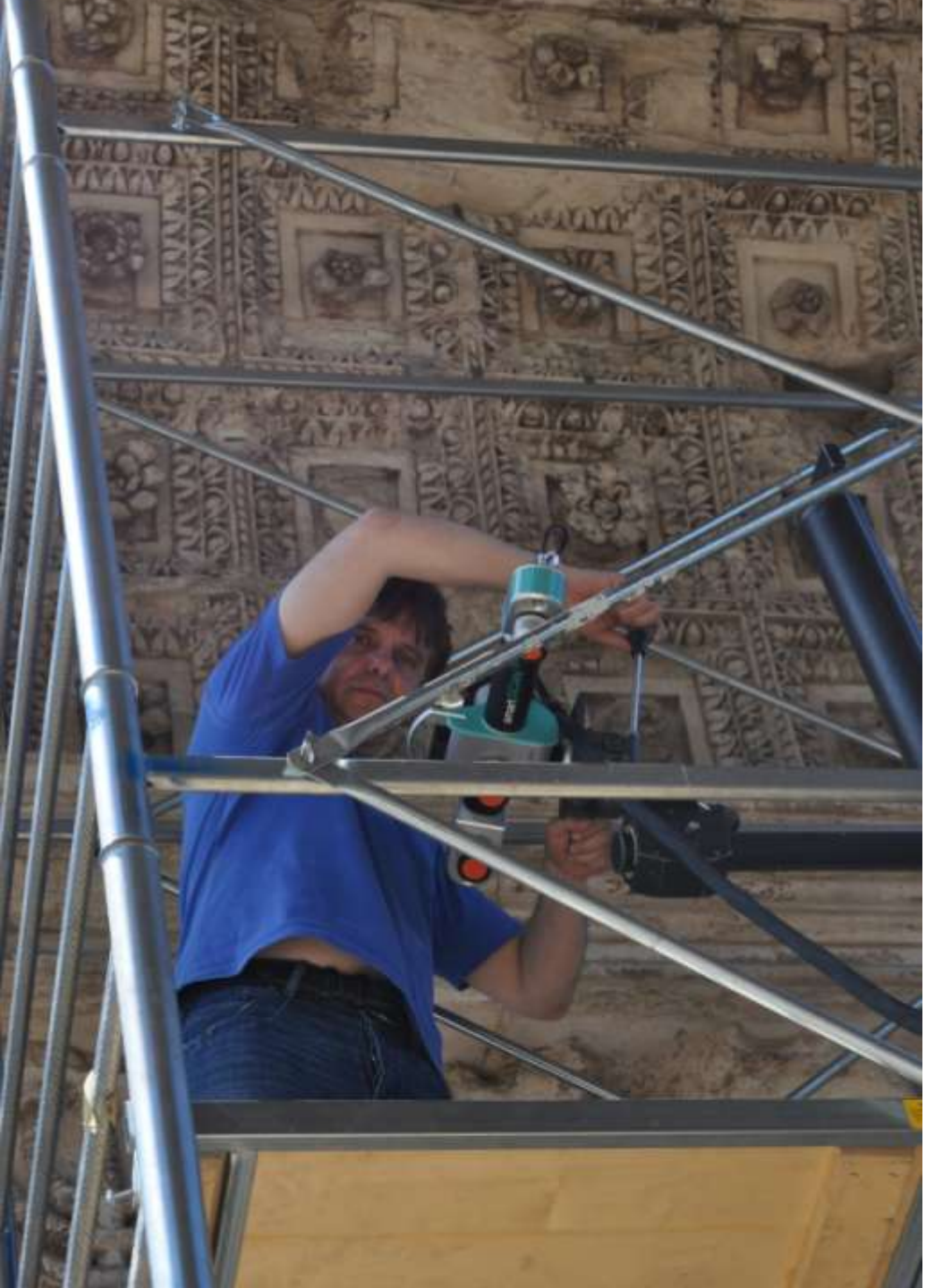
A close encounter with the Menorah base, decorated with mythological figures. Scholars suggest that this base dates to Hasmonean or Herodian times.

Ten elegantly carved Romans, wreaths on their head, triumphantly carry the menorah into Rome.

The feet of the Roman’s carrying the Temple vessels can’t be seen from below, though the straps of their once-painted sandals can be seen with close examination!

The Roman victory arch, which the Arch of Titus commemorates.
Note the winged victory to its right side.

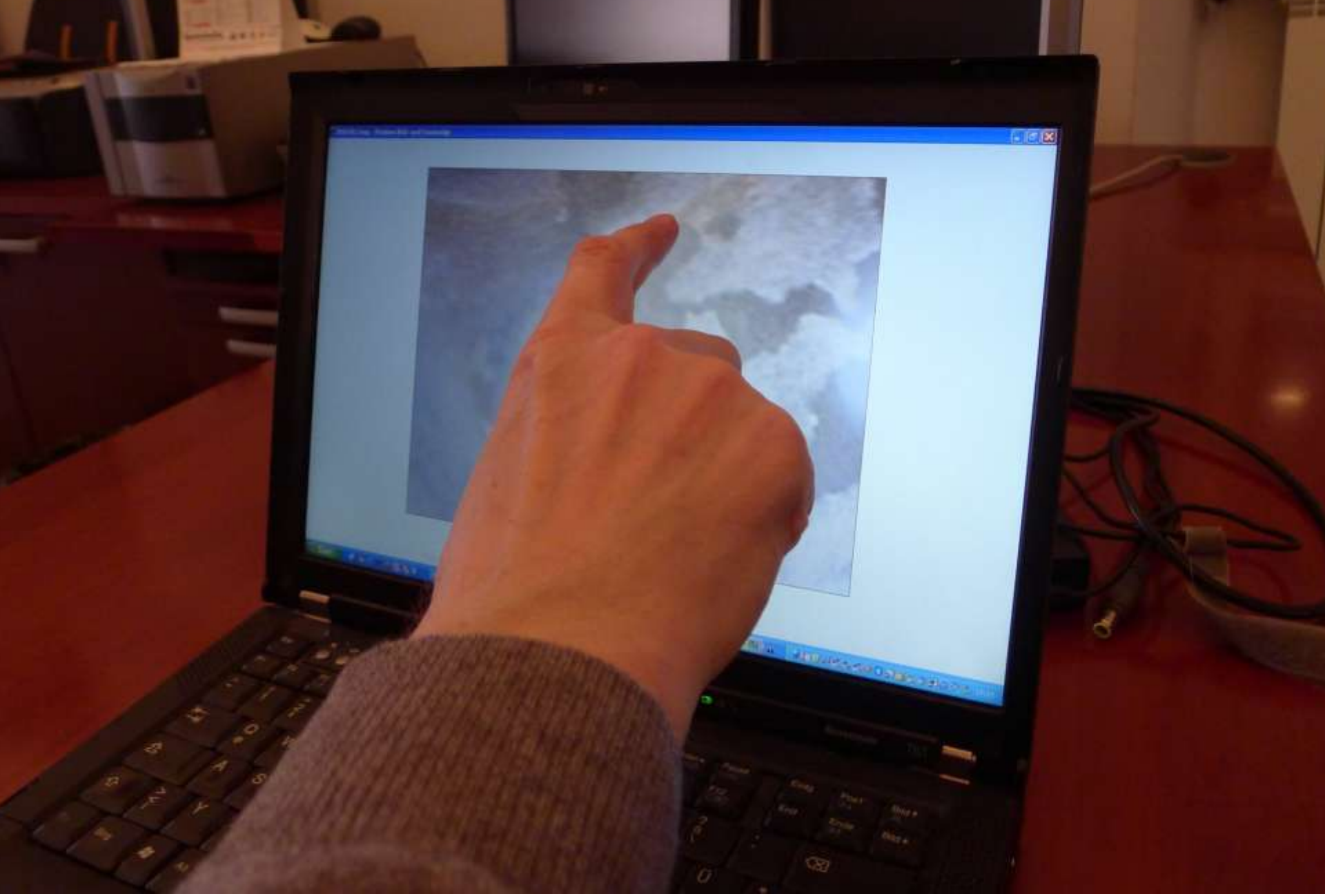


A team from Unocad srl - Tecnology & Innovation, an Italian firm, scanned the panels by day and night to create the highest quality 3-D images of the reliefs.

Dr. Heinrich Piening, a conservator for the State of Bavaria, has developed innovative methods for detecting evidence of polychromy on artifacts from classical antiquity.

Piening describes his method:

“UV-VIS Spectronomy (ultra-violet, visual) is a scientific technique that produces a white light across the specimen at opposing angles of 0º and 45º, for a period of 50 milliseconds, whereupon some of the white light is absorbed and some is reflected. The reflected light is detected and split by a spectrometer. This in turn produces a unique wavelength for the dye pigment lurking below the veneer surface. The wavelength can later (back at the laboratory), be run against a computer library of known dye pigments, until a matching wavelength is obtained. In layman’s language matching wavelengths against library copies can be likened to finger printing or DNA.“



Color, or just a blotch? Piening's testing will reveal the answer.

We await the results of Piening's research, and plan to suggest digital reconstructions of the Arch of Titus panels and their polychromy in the coming months.

For further information, and for updates, visit: **http://yu.edu/cis/activities/arch-of-titus**

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