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Unraveling the mummy of all mysteries

By [Katy Human](#)
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Colorado researchers have exposed the face of an Egyptian mummy that lay under wraps for more than 3,000 years - without disturbing a piece of ancient linen.

Using sophisticated medical scans, forensic data and a touch of artistic license, experts at Medical Modeling in Golden crafted a stunning three-dimensional bust of the "rich woman mummy," a longtime resident of the Denver Museum of Nature & Science.



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The 3,000-year-old face of the "rich woman mummy" takes shape, thanks to researchers using medical scans, forensic data and some artistic license.

The woman has amulets in her body, stones in her eyes, and terribly wrinkled skin despite her careful preparation at death, the scans show.

"It was very exciting - you're looking at going from looking at shriveled-up skin to looking at a real person," said Travis Vermilye, the medical illustrator with Medical Modeling who did much of the computerized reconstruction.

The company's plaster models - left bald, as she may have been when living - are now on display at the Denver museum.

Marianne Reynolds, the museum's director of exhibits, said it's delightful to finally "bring to life" the ancient mummy, about which very little is known. Medical Modeling did the work for free, said Steve Humphries, business development director, but the research helped the company "push our capabilities," he said.

Normally, Humphries and his colleagues work closely with surgeons preparing for complicated procedures, he said. They built models of the Egyptian twins, conjoined at the head, who were surgically separated in Dallas in 2003, for example.

For the mummy reconstruction, Vermilye and Humphries started rebuilding her bone structure, using CT (computed tomography) scans captured several years ago. The experts programmed a computer to select the bone out of about 300 "slices" of her head, and pieced it together into three dimensions.

Once they had her skull, they went about the much more difficult task of distinguishing her skin from mummy wrapping.

Vermilye digitally sculpted the woman's face as it might have appeared 3,000 years ago by referring to forensic-science charts listing the typical thickness of facial muscle and fat - a certain depth for cheeks, another for chins.

Vermilye said he and his colleagues played around with the mummy model's hair, adding Cleopatra-like tresses, then trying on a Nefertiti hat.

"We decided to leave her bald because we didn't know, because some women would have shaved their heads ... and we thought it would be better to let it be up to the visitor of the museum to imagine."

The museum also owns a "poor woman mummy," whose preparation for the afterlife was far less careful. Reynolds said she'd love to see a model of the poor mummy's face, although no plans for such research are in the works.

"That would be so interesting if the shape of her face was different. You know, she may have come from another country," she said.

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