

*Opposite & detail this page,
the Late Period polychrome-
wooden coffin of Djedmut,
in the collection of the
Vatican's Museo
Gregoriano Egizio
(Inv. 25008).*



SCIENTIFIC MUMMY STUDIES AT THE VATICAN

by Lucy Gordan-Rastelli

Photos courtesy the Vatican Museums

The first modern scientific examinations of mummies were conducted in 1901 by professors at the English-language Government School of Medicine in Cairo. Two years later Professor Grafton Elliot Smith, an Australian and proponent of the hyper-diffusionist view of history, and British Egyptologist Howard Carter took the first x-ray of a mummy. They used the only radiography machine in Cairo to examine the well-preserved remains of Thutmose IV, discovered in the Second Royal Mummies Cache, KV35, in 1898. Around the same time, British chemist Alfred Lucas applied analyses to mummies and learned a great deal about the substances used by the ancient Egyptians in embalming. Later, in 1922, Lucas studied the recently discovered mummy of Tutankhamen.

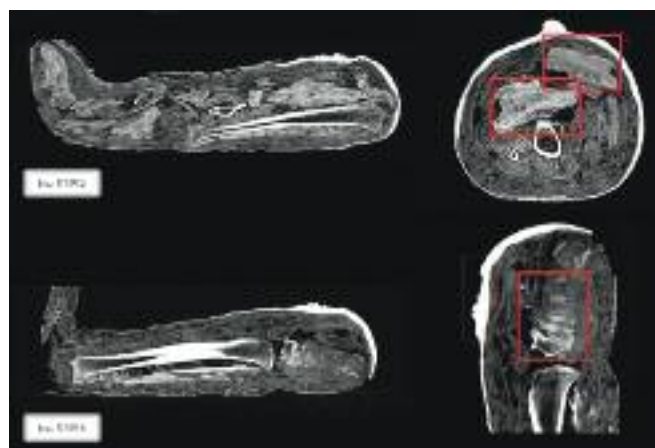
As for pathology, in 1992, at the first World Congress on Mummy Studies, held at Puerto de la Cruz on Tenerife in the Canary Islands, more than 300 scientists shared and integrated nearly 100 years of collected biomedical and bioarcheological data. Most recently CT-scanning has allowed scientists to digitally “unwrap” mummies without risking damage to either their bandaging or bodies.



Two views of
the Vatican's
false mummy,
Inv. 57853



Above, One of the Vatican's two false mummies being CT-scanned.
Below, CT views of false mummies 57852 & 57853.



In 2006, shortly after the publication of my “Ancient Egyptian and Egyptianized Roman Art in Vatican City,” Dr. Alessia Amenta, professor of Egyptology at the University of Rome, was appointed curator of the Vatican Museums’ Near Eastern and Egyptian Department, which includes the Gregorian Egyptian Museum. Less than a year later, she spearheaded the “Vatican Mummy Project.” Its goal was and still is to study, restore and best conserve the Museum’s nine complete mummies (two of the seven adults are on display) and eighteen body parts made up of heads, hands and feet, using the latest scientific interdisciplinary techniques, now an integral part of “artifact” restoration and conservation. Amenta met with me at the beginning of February to discuss her “Mummy Project” and its discoveries.

As summarized in an article by Carol Glatz for *Catholic News Service* (Jan. 18, 2015), the Project’s non-invasive exams — thanks to the generosity of the California Patrons of the Vatican Museums (particularly Juliann and Michael O’Connor) — include: “X-ray fluorescence and electron microscopes to tabulate what chemical elements were contained in all the materials; carbon dating to determine the age of the different materials; infra-red and ultraviolet analyses to reveal colors and images otherwise not visible to the naked eye; gas-chromatography-mass spectrometry to identify the presence of organic compounds; and CT-scans to create 3-D images of the

contents inside.” Most of these exams have been carried out at the Vatican Museums’ own Diagnostic Laboratory for Conservation and Restoration, under the guidance of its director, Ulderico Santamaria, and his assistant, Fabio Morresi. The genetic analyses have been done at Bolzano’s EURAC-Institute for Mummies and the Iceman, directed by Dr. Albert Zink.

Amenta’s choice of which mummy to examine first and then restore was one of necessity, based on the mummy’s serious state of degradation: poorly embalmed and the linen bandages under the back rotted away, the spine and ribcage collapsed. After two years of testing begun in 2009, the 3-D CT-scan revealed that a “she” mummy, given to Pope Leo XIII in 1894 and identified from the hieroglyphics on “her” three-dimensional painted-cartonnage coverings as “*the daughter of Sematawi named Nymaatre*”— and never before unwrapped — was clearly a man. He was from Egypt’s Fayum region, had lived sometime between 270-210 BC, had died at twenty-five/thirty years old, and suffered from Schmorl hernias. “*We hope to display this restored mummy soon,*” Amenta told me, “*together with a video about “his” restoration. The three still in our storerooms are in poor condition and still need to be restored.*”

The second mummy to be examined, from 2013-2014, does belong to a young female, probably the one once wrapped in Guimet’s priceless shroud, the so-called “Lady of the Vatican.” The bandagings around her face and neck had been ripped or cut open long ago by someone looking for the

jewelry and gold often placed under the bandages or around the face of mummies. Since her woven wrappings were cut clean, the experts were able to make an in-depth stratigraphic study of the pattern of those and her several shrouds and thus her embalming procedure. This is particularly significant because the techniques for wrapping the bandages around mummies changed over the centuries.

It shouldn't be forgotten that a mummy is unlike any other museum treasure, no matter how priceless, because it was once a living person. Thus it has special needs for storage and exhibition. Especially important is climate control, to prevent decay and best preserve the mummified state. Otherwise a lot of irreplaceable information is lost, due the mummy's proteins and DNA degrading. When it comes to research, mummies are a treasure trove of valuable information about daily life, customs, health, art and religious beliefs in ancient

Egypt. For example, discovering that a mummy suffered from an illness still prevalent today allows us to trace its evolution over time.

Dr. Amenta first revealed the test results on the next two mummies or "mummiettes," as she calls them, examined during 2014, in her talk, "Pseudo-Mummies or Fake Mummies? A new interpretation in the light of the most recent scientific analyses" during the conference "Burial and Mortuary Practices in Late Period and Graeco-Roman Egypt," held at Budapest's Museum of Fine Arts, from July 17-19 that same year. Six months later, on January 22, Professor Antonio

Below top, Vatican mummy of Nimaatre (Inv. 2511.6.1) in its original state, bandaging tattered. Below middle, View of the back of the mummy of Nimaatre, showing the deterioration of the spinal & pelvic areas. Below bottom, The restored mummy of Nimaatre, following restoration & rewrapping.



Cartonnage mask of Nimaatre





Left, Basin of the Late Period polychrome-wooden coffin of Djedmut, in the collection of the Vatican's Museo Gregoriano Egizio (Inv. 25008). Opposite & overleaf, Detail views of the funerary vignettes decorating the interior of the same coffin-basin.

Paolucci, director of the Vatican Museums, and Drs. Amenta, Santamaria and Morresi, held during a spell-binding conference entitled “A Case of Mummy-mania: Scientific Investigation [Forensic Science] Solves An Enigma,” at the Vatican Museums before perhaps a less specialized but nonetheless packed audience.

Probably donated in the late Nineteenth Century by a private collector, the provenance of both these some two-foot-long “mummiettes” is so far nowhere to be found in the Museum’s records. Until a year ago, due to their small size and weight, they were believed to be mummies of a child or an animal, possibly a falcon. “They could also have been so-called ‘pseudo-mummies’ — a bundle of wrappings and other materials — sometimes even a few bones,” Amenta explained to me, “that were used in ancient times to substitute a missing or incomplete body of a dead loved-one. The transfiguration and ‘divinization’ of the deceased was essential for the ancient Egyptians. Some kind of physical form had to be designated to be able to send the deceased ‘into another dimension’ after death.” Instead all the scientific data revealed these “mummiettes” to be Nineteenth Century fakes.

Radiocarbon dating confirmed that their bandages or wrappings were indeed ancient, dating to ca. 2000 BC, but are coated with a resin that is only found in Europe. In addition, radiocarbon dating on a bone protruding from the bandages of one of the “mummiettes” confirmed that it dated to the Middle Ages. That these two “mummiettes” were crafted in England or Wales, and probably by the same forger, can be confirmed by the presence of zinc and tin under the painted layer of the face as a sort of *meccatura*, not to mention a metal laminate used to create false ageing. For tin was a British (more accurately Welsh, inasmuch as tin cans were invented in Wales) monopoly until the end of the Nineteenth Century.

“It is not a scandal to discover fake mummies in a museum collection,” continued Amenta, who has done extensive original research on fake ancient Egyptian mummies. Her findings are as yet unpublished, so she is reluctant to discuss them.

Much to my amazement I found not a single volume devoted to the history of mummy forgery, not one biography of a well-known mummy forger and no pertinent bibliography. Needless to say, modern science has facilitated the discovery of fake mummies by using non-invasive techniques thus leaving them intact, which would not have been possible until recently.

“Fake mummies are a well-defined category,” continued Amenta. “Forgeries are part of art history. The industry of churning out fake mummies was widespread, even in the age of the pharaohs, which makes them a fascinating offshoot field of study. I know of some forty other fake ‘mummiettes’, usually trapezoidal, in Europe’s Egyptian collections or natural history museums. To cite a few, in Italy there are two in Florence, one in Milan, four in Turin and one in Venice. There are also two in Lithuania, four in Vienna, three in Berlin, one each in Amsterdam and in Geneva, and only one in the United States, in the





Natural History Museum in Washington D.C. They were all donations from private collections. Many ended up in natural history, rather than art, museums, because they were believed to be animal mummies. The greatest number is not surprisingly in the United Kingdom, in Bristol, Bolton, Liverpool, Swansea University's Egypt Centre and the British Museum."

The first episodes of mummymania date to Roman Imperial times. Already then the demand for mummies to take home, primarily as military booty, was greater than the supply. Later, during the Middle Ages and Renaissance, based on a mistranslation from the Arabic term *bitumen*, mummies were thought to possess healing properties. As a result, they were in high demand and it became a common practice to grind them into a powder for apothecary potions for various ailments. When authentic mummies were not available, mendacious merchants substituted them with sun-desiccated corpses of criminals and slaves. "The market was so huge," said Amenta, "that two pounds of mummy dust during the Renaissance cost the equivalent of \$17,000 today."

In the Sixteenth and Seventeenth centuries, artists used a brownish pigment known as Mummy Brown, based on *mumia*, which was originally obtained by grinding human and animal mummies to powder. According to its entry in Wikipedia, although it was a favorite color of the Pre-Raphaelites, "Mummy Brown fell from popularity during the 19th century when its composition became more generally known to artists. The Pre-Raphaelite artist Edward Burne-Jones was reported to have ceremonially buried his tube of Mummy Brown in his garden when he discovered its true origins."

In spite of Mummy Brown's demise, creating fakes reached a high point in the 1800s, when mummymania — not a scientific term, but a craze — began in Europe after Napoleon's expedition to Egypt in 1798 and Champollion's deciphering of the Rosetta Stone in 1822. "It would hardly be respectable upon one's return from Egypt," a monk had written in 1833, "to present oneself without a mummy in one hand and a crocodile in the other." In fact elite Europeans, particularly British adventurers on the Grand Tour, brought mummies home as souvenirs and then invited their friends to "unwrappings," a very popular "afternoon tea spectacle," which, of course, could have a devastatingly disappointing ending if there was no mummy in the bandages. However, just like the bandages of the Vatican's "mummiettes," part of a mummy could be authentic and sold off to forgers, even if the rest was fake. Most upsetting of all was that these unwrapping sessions destroyed hundred of authentic mummies, because their exposure to air after numerous centuries caused them to quickly disintegrate.

Undoubtedly the best-known "mummy-unwrapper" of all times was Thomas Joseph Pettigrew (1791-1865), a surgeon and antiquarian, who became an expert on ancient Egyptian mummies. In 1834, the same year he published *History of Egyptian Mummies*, he performed his first public mummy unwrapping in London's Royal College of Surgeons. For the

Right, The basin of the Late Period polychrome-wood coffin of Djed-horuefankh, in the collection of the Vatican's Gregorian Egyptian Museum (Inv. 25012.2.2). Like that of Nimaatre, the interior is painted with elaborate funerary vignettes.



Right, One side of the basin of Djed-horihuefankh, with polychrome funerary texts & vignettes.



Left, Side of the basin of the Late Period polychrome-wood coffin of Ikhy, in the collection of the Vatican's Gregorian Egyptian Museum (Inv. 25035.3.3.) It is also decorated with funerary texts & vignettes.

next twenty years, he unwrapped and performed autopsies on mummy after mummy, always to packed houses at private parties — even the Archbishop of Canterbury was once turned away from a sell-out performance.

In addition to the Vatican Mummy Project, the Vatican Museums' Egyptian Department — together with the Louvre, the Center of Research and Restoration of the Museums of France, the Dutch National Museum of Antiquities in Leiden and the Egyptian Museum in Turin — is carrying out the Vatican Coffin Project. The Vatican hosted the “First Vatican Coffin Conference,” from June 19-22, 2013. It was the first conference on Egyptology hosted by the Vatican. This was an initiative to study the construction and painting techniques of coffins during Egypt's so-called Third Intermediate Period (990-970 BC). “It was the first time internationally renowned scholars,” Amenta told me, “compared their research on the period's coffins, which reflect the clerical culture of the increasingly powerful Theban high priests.... No indepth, comprehensive studies have been done on the period's wood construction and painting techniques, and no ancient Egyptian texts have been found explaining the process.” The Gregorian Egyptian Museum houses twenty-three such coffins. A “Second Vatican Coffin Conference” is scheduled to take place in 2016.

At the end of the June 2013 conference, Dr. Amenta announced a new collaboration, dating from July 2014, between the Vatican Museums and the Egyptian Museum in Turin. The team of the Vatican Coffin Project restored Turin's elaborately-painted anthropoid coffin of Butehamen, a royal scribe during the Twenty-first Dynasty (Third Intermediate Period). Work was completed in time to put the coffin back on display in a new room dedicated exclusively to coffins, when Turin's Museum inaugurated its new-state-of-the-art rooms and displays on April 1 of 2014.

A curiosity: In addition to the mummiette in Washington D.C.'s Natural History Museum, mentioned by Amenta

as the only forged one in the USA, research on the internet led me to discover two other forged “American” Egyptian mummies. One is the Hackensack Forgery; the other the Mississippi State Capitol Forgery. According to Wikipedia, “In 1928, *The Washington Post* reported an event in Hackensack, New Jersey, when an ‘Egyptian Princess’ was found to be a forgery. A local minister who said he had acquired it in Europe had given it to the Bergen County Historical Society in 1902. It gained great notoriety on display in the Johnson Public Library until the curator, Mr. Frances Westervelt, found it to be a rag-stuffed fake. The “mummy” was removed and incinerated.”

As for Mississippi's forgery, Wikipedia reports: “In the 1920s, the Mississippi Department of Archives and History purchased a large collection of Native American artifacts from the nephew of Colonel Brevoort Butler after Butler's death. Included in these artifacts was one item clearly not of Native origin, an Egyptian Mummy. For decades this item was on display in the State Capitol Building, becoming a much-loved attraction and source of local pride.

In 1969, Gentry Yeatman, a medical student with an interest in archaeology, asked the museum for human remains to study for evidence of disease. Permission was granted to remove the mummy and for it to be sent to the University of Mississippi Medical Center for an autopsy. Radiological examinations showed a few animal bones and several square nails holding together a wooden frame.

Upon closer examination it was found to be primarily composed of papier-mâché. German newsprint was found as well as an 1898 issue of the *Milwaukee Journal*. The fake mummy has now become more famous than ever and transformed into a prized possession linked deeply to the folk history of Mississippi.”

About the Author Lucy Gordan-Rastelli is an independent journalist based in Rome. She is also a special correspondent for this journal, and has contributed numerous articles on the Egyptian collections of European and other museums (and additional topics, as well).