

Conservation

THE BIG CLEAN:
British team to
conserve Ethiopia's
oldest wall paintings

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VENICE

Scanner to make fast work of Giorgio Cini photo collection

■ The Institute of Art History at Venice's Fondazione Giorgio Cini is digitising its million-strong collection of photographs of art from the Veneto with the help of the world's fastest circular scanner. The Replica 360 Recto Verso, designed by the Madrid-based firm Factum Arte, can scan a double-sided document in four seconds. The system matches the images and adds them to the existing catalogue, complete with basic metadata tags. The Ecole Polytechnique de Lausanne is using the data to build an iconographic search engine. The scanning process is due to finish in 2018. *L.P. and H.M.*

ROME

More gloom for tomb as further delay dogs Augustus project

■ The restoration of the Mausoleum of Augustus in Rome, which has been closed to the public for 80 years, has hit another setback. The project began in 2006, with the goal of finishing in time for the 2,000th anniversary of the Roman emperor's death in 2014. In October 2015, it was announced that work would finally start this January, with the tomb due to reopen in March 2017. However, around a quarter of the companies bidding for the contract made "anomalous" offers of more than 42% below the advertised cost of €2.5m. The resulting investigation could take months. *T.L. and H.M.*

ROME

Colosseum set to re-emerge in its original white splendour

■ The first phase of the €25m restoration of Rome's Colosseum, launched in October 2013 and funded by Diego Della Valle, the chief executive of the luxury shoemaker Tod's, is complete. The scaffolding is due to come down on 25 March (as we go to press) to reveal the original brightness of the 2,000-year-old amphitheatre's travertine stone façade. Tod's is funding additional work that will pave the way for the Italian culture ministry's plan to reinstate the floor of the arena, turning it back into an entertainment venue. The competition for this project is due to launch in 2017. *F.C.G. and H.M.*



Cleaning the façade is part of the €25m plan

Twist of fate leads to new finds in Tutankhamun's tomb

Firm behind the high-resolution images that led to the discovery was "moved on" from another important pharaonic burial site

ARCHAEOLOGY

Luxor. The archaeological community was thrown into a state of wild excitement in March, when Egyptian officials announced the results of new investigations into the tomb of Tutankhamun that could lead to "the discovery of the century".

Radar scans of the tomb show two hidden rooms behind the chamber's north and west walls. The former Egyptian antiquities minister Mamdouh Eldamaty, who was replaced by the general supervisor of Cairo's Egyptian Museum, Khaled al-Anani, a week after the announcement, also revealed that the scans, taken in late November by Hirokatsu Watanabe – a specialist from Japan – suggest that these secret rooms contain what appear to be organic and metallic materials, which implies that they may be grave goods. As we went to press, further scans were due to be performed to ascertain the thickness of the

The team was only diverted to the tomb because of excavations at Seti I's mausoleum

walls, so that the nature of the rooms' function can be determined. The results are due to be presented on 1 April.

The investigation into Tutankhamun's tomb was prompted by a theory put forward in July 2015 by the British archaeologist Nicholas Reeves, from the University of Arizona's Egyptian Expedition. He argues that the hidden room behind the west wall is a storage area, and that the other room is the burial chamber of Nefertiti, the chief consort of the 18th-dynasty pharaoh Akhenaten – Tutankhamun's father. Reeves asserts that the tomb was originally designed for Nefertiti and was repurposed for Tutankhamun upon his sudden death in 1323BC. The crux of the argument is based on his observation of "ghosts" of doorways, which are visible in high-resolution images taken by Factum Arte, the company behind the replica of Tutankhamun's tomb at the entrance to the Valley of the Kings. The images were posted online and were accessible to anyone.

The discovery was only possible because Reeves had access to three-dimensional, forensically accurate data recorded in high resolution that



Tourists look at the tomb of King Tutankhamun in the Valley of the Kings in Luxor, Egypt. Officials says there is a 90% chance that hidden chambers will be found within the tomb, based on the preliminary results of a new exploration of the 3,300-year-old mausoleum

enabled him to study the surface of the walls, as well as their general shape, says Adam Lowe, the founder and director of Factum Arte. "His discovery would not have been made had these images been recorded using medium-to-long-range scanning equipment that many people refer to as high-resolution," Lowe says, stressing that it is not the same as three-dimensional modelling from photographs. "We can discover new data from these scans because they were high-resolution at levels of accuracy down to one-tenth of a millimetre."

Second choice

The irony is that Factum Arte only gathered data from Tutankhamun's burial chamber because the pharaonic tomb in which the firm originally planned to work, one belonging to Seti I (the father of Ramesses the Great), was being excavated at the time. "We worked on Seti I's tomb in 2001 and came back in 2009,



A team will finally begin to fully document the tomb of Seti I this month

but we were moved on because [the antiquities minister at the time, Zahi] Hawass was excavating in the tunnel of Seti I," Lowe says. "Seti I's tomb is the one that everyone believes contains hidden rooms that have yet to be discovered because none of the pharaoh's major funerary objects has surfaced."

This month, Lowe and his team will finally return to finish their work on Seti I's tomb, which Lowe describes as the "largest and most important in the Valley of the Kings", as its decoration and architecture are considered to represent the height of New Kingdom tomb art.

The project to fully document the site is part of a larger plan called the Theban Necropolis Preservation Initiative, a collaboration with Egypt's Supreme Council of Antiquities, to train Egyptians in three-dimensional scanning techniques.

Factum Arte will be working with the University of Basel on Seti I's richly decorated tomb. It was considered to

be one of the best-preserved tombs when it discovered by Giovanni Battista Belzoni in 1817. The Italian created the first facsimile of the tomb, which also unfortunately damaged some of the wall paintings. Further damage was caused by the removal of architectural elements, including a pair of door jambs, which are now in the collections of the Louvre in Paris and Florence's Museo Archeologico.

"We'd like to increase our understanding of [the known elements] in the tomb, but we also hope to reveal other aspects that have perhaps remained hidden," Lowe says. He adds that it is worth remembering that the discovery of Tutankhamun's tomb was one of the best documented of any Egyptian tomb, and yet nearly a century later, and only with the help of advanced technology, are we closer to learning the truth about the tomb.

Emily Sharpe

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