Success Story

British Museum Uses SGI® Visualization Technologies to Peer beneath Outer Casing of Ancient Mummy

SGI Technology Unlocks Secrets of 3,000-Year-Old Egyptian Mummy

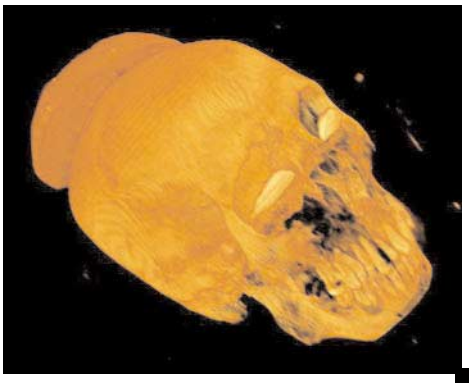
Groundbreaking research by the British Museum in London has resulted in a spectacular virtual image of a 3,000-year-old mummy. Using SGI visualization technology, researchers obtained a unique, and remarkably lifelike, three-dimensional image of Nesperennub, an Egyptian mummy housed at the museum since 1899. The image raises new questions about the history of ancient mummies.

The mummy of Nesperennub lies beneath a cartonnage, or outer casing. This fascinating image was captured without disturbing the outer casing or the mummy. A computer axial tomography (CAT) scan was conducted at the National Hospital for Neurology and Neurosurgery in London. SGI combined the CAT scan data with an SGI® Onyx® 3000 series InfiniteReality3™ supercomputer running OpenGL Volumizer™ graphics software to create a IGB rendering of the mummy. Lighting and shading effects available through Open GL Volumizer enable researchers to enhance the visualization. SGI's work has produced the first whole-body, fully interactive visualization of a mummy at this high level of quality.

The complete skeleton and a number of objects and artifacts placed on the mummy's body are visible. Most intriguingly, researchers have identified a mysterious, cap-like object on Nesperennub's head as a ceramic bowl. This has never been seen before and its presence raises new questions about ancient Egyptian burial practices.

Dr. John Taylor, assistant keeper, Department of Ancient Egypt and Sudan at the British Museum, said, "The initial results have absolutely exceeded our expectations. They have solved some of the unanswered questions about Nesperennub and have opened up exciting new avenues of investigation. The visually stunning quality of the images gives the project enormous potential, not only for research but also as an educational resource. One of the great virtues of this method is that it is totally noninvasive, so we are obtaining exclusive new data while preserving a valuable scientific resource for future research."

David Hughes, Reality Center solutions manager at SGI, added, “I am delighted that SGI has been able to bring some key technologies to this project, including the SGI Onyx 3000 series InfiniteReality3 system and OpenGL Volumizer software, to enable the museum to visualize the complete mummy Nesperennub interactively in a way that has never been possible before. That is not only a valuable research tool, but also a wonderful opportunity to bring Egyptology and technology together for outreach and education purposes in a way that inspires as well as educates."



Researchers chose Nesperennub for this exciting project because the British Museum already knew much about his life 3,000 years ago. Nesperennub was a priest living in Thebes. His date of burial on the West Bank of the Nile is estimated around 800 B.C.

In the next phase of the investigation, researchers hope to identify objects hidden within the wrappings and to estimate Nesperennub’s age and health when he died. A further development could be the production of a facial reconstruction of Nesperennub, providing a vital visual reference to this well-documented mummy.

THE BRITISH MUSEUM

Eventually, 3D images may be made available for public viewing in virtual reality theaters—educational, interactive environments based on the highly successful SGI® Reality Center™ technology. This display would enable the public to explore the mummy as a three-dimensional image. Reality Center visualization systems immerse users in virtual environments so they can explore, understand, and communicate information about data in ways not possible in the physical world. Further details are available at *www.sgi.com/reality-center*.

SGI customers include science centers, planetariums, and museums around the world. These institutions use SGI visualization technology to offer their visitors high-resolution imagery and interactive capabilities in theater and kiosk settings. Content can be quickly updated in response to new discoveries or the latest news, creating a compelling and educational experience.

Futher information on SGI contributions to science-related research, education, and industry can be found at *www.sgi.com/solutions/sciences*.

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