

Ancient lives: New insights from radiological studies of mummies

**Report by Dr Arpan K Banerjee,
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The venue of the 2015 annual lecture of the British Society for the History of Radiology was the magnificent Governors Hall at St Thomas' Hospital, London. Rebuilt in 1907 with magnificent high ceilings, chandeliers and wood panelling, the venue is set in the style of a City of London livery hall and was a fitting venue for this year's lecture.

Entitled 'Ancient lives: New insights from radiological studies of mummies,' the lecture was delivered by two experts from the department of ancient Egypt and Sudan at the British Museum, Dr John Taylor and Dr Daniel Antoine, who have recently curated the popular British Museum exhibition on the topic and authored a book accompanying it.

The authors have studied eight of the mummies in the museum collection (there are around 120 in total) using the latest CT scanning techniques. Themes studied included diet and nutrition, state of health, childhood, body adornment, art, tattoos and processes of mummification. They focused on information about the experience of living in ancient societies several thousand years ago gleaned from their studies of the mummies.

In 1908 Margaret Murray from Manchester University, and subsequently others, unwrapped several mummies but this resulted in damage and was not an ideal way to study them. The introduction of plain x-ray techniques to study them occurred throughout the 20th century, especially in studies carried out in Cairo on mummies in the Egyptian Museum. With the introduction of CT scanners it became possible to look inside the mummies in a non-invasive way. Early studies were conducted by Harwood Nash in Canada and Rosalie David and Ian Isherwood's team in Manchester, among others. Today, dual energy CT scanners have been used to unlock the mysteries of the finest of these cases.

The first case was Gebelein man from 3500BC, scanned in the contracted burial position (see front page picture). He was a young man aged 20-35 years, as deduced from the lack of wear in the pubic symphysis. Remains in his digestive tract revealed information about the ancient Egyptian diet. His brain had not been removed in the



**Dr John Taylor and Dr Daniel Antoine
from the British Museum with Dr
Arpan K Banerjee.**

burial process but scans show that it is still well preserved. Canopic jars enclosing the removed organs of a later mummy were scanned and revealed the secret burial practices for high status people of the time. Scanning also revealed tooth abscesses affecting several individuals.

Analysis of a singer at the Temple of Karnak from around 900BC named Tamut revealed adornments and amulets that were buried with the body and 3D prints of these were obtained with a dual energy scanner.

The study of the mummy known as Padiamenet, a middle aged adult and temple doorkeeper (a fairly prestigious job at the time), revealed the presence of calcified plaques in arterial vessels confirming the presence of atherosclerosis in antiquity. He also suffered from poor dental health as has been observed in other mummies.

Studies on the mummy of a child revealed the age to be around eight from analysis of the teeth. Of particular note was the remarkably well preserved hair at the back and sides of the head. The CT scan could not reveal the cause of her death. Meanwhile, a female Nubian mummy was of great interest in that CT analysis revealed new information about religious tattoos.

The evening was a fascinating one and satisfied our enormous thirst for new knowledge of our ancestors and ancient civilisations. BSHR would like to thank the speakers for the superb lecture and memorable, well-attended evening.