Backroom Treasures: CT Scanning of Two Ibis Mummies from the Peabody Museum Collection

Andrew D. Wade
The University of Western Ontario, awade4@uwo.ca

Salima Ikram
American University in Cairo

Gerald Conlogue
Quinnipiac University

Ronald Beckett
Quinnipiac University

Andrew J. Nelson
The University of Western Ontario, anelson@uwo.ca

See next page for additional authors

Follow this and additional works at: https://ir.lib.uwo.ca/anthropres

Part of the Archaeological Anthropology Commons

Citation of this paper:
https://ir.lib.uwo.ca/anthropres/2
Authors
Andrew D. Wade, Salima Ikram, Gerald Conlogue, Ronald Beckett, Andrew J. Nelson, and Roger Colten

This presentation is available at Scholarship@Western: https://ir.lib.uwo.ca/anthropres/2
Backroom Treasures: CT Scanning of Two Ibis Mummies from the Peabody Museum Collection

Andrew D. Wade1, Salima Ikram2, Gerald Conlogue3, Ronald Beckett1, Andrew J. Nelson1, Roger Colten4

1 University of Western Ontario, 2 American University in Cairo, 3 Bioanthropology Research Institute, Quinnipiac University, 4 Peabody Museum of Natural History

Backroom Treasures

Museum collections of Egyptian funerary and animal mummies have great potential for research and museums often curate larger collections than those on exhibit. Scheduling access for medical imaging projects is often complicated for mummies on display because of the important environmental controls under which they are kept. Consequently, collections in storage are often more numerous and more readily available, in terms of time and physical access, than those on exhibit. Two such mummies from the Peabody Museum’s collection, both identified as mummies of the Sacred ibis, were radiographically examined and demonstrated

Species Identification

The body size and long, curved beak indicate that the birds belong to Family Threskiornithidae (ibises and spoonbills). Current and historical geographic ranges of ibises present the five possible species:

- *Threskiornis aethiopicus* (Sacred Ibis)
- *Plegadis falcinellus* (Wattled Ibis)
- *Geronticus eremita* (Hadada Ibis)
- *Threskiornis spinicollis* (Ferruginous Ibis)
- *Bostrychia hagedashii* (Black Ibis)

and the ratios of zygomatic length to orbit height (2.06, 2.08) more closely resemble the Sacred Ibis (2.07). The scans were also compared to ibis cranial X-rays, *Threskiornis aethiopicus* (Fig.3) provided five possible species:

- Similar mummification styles
- Similar manners of death (spinal fracture)
- Variations in position
- Replacement of the gizzard and its contents

Application of computed tomography (CT) to the study of mummified remains allows for detailed three-dimensional evaluations, without the difficulties of superposition that characterize plain film radiography. Three-dimensional visualization, multiplane reformats (MPR), maximum intensity projections (MIP), and curve-linear reconstructions of these mummies were especially valuable for close examination of the complex curves of the spine and the contents of the gizzard. These manipulations are no less important in the study of animal mummies than they are in those of humans.

Their Deaths

The spinal cord in ibis #1 is severed at the level of the 14th and 15th cervical vertebrae, which are rotated perpendicularly to the spinal column and parallel to one another (Video 1). The spinal cord in ibis #2 is severed at the level of the 11th and 12th cervical vertebrae, which demonstrate a large gap. No fusion of the spinal column continues beyond this gap (Video 2).

CT examination of these two backroom ibis mummies. While the study indicated a soft spongy substance (dry, loose, porous tissue) typical of a naturally dried mummy, there are several key differences from the typical mummy. First, both birds were intact when discovered in their relatively short ibis. Body length and wing span of the CT scans (Fig.3) provided total length of 51.7cm and wingspan of 117.1cm, and 123.5cm, indicating they were most likely #1 at 140-150cm. Their Deaths as well as the thick, muscled gizzard (Fig.6) [7]. The packet likely represents material that may be the thick, muscled gizzard and/or a re-integrated linen wrapping.

Embalmers Features

The wings and legs of both birds are folded close against the body, with the edges of the wings extended slightly. The birds are wrapped in a few layers of re-implanted linen, surrounded by layers of plain linen. In both birds, the entire body cavity had been eviscerated, with the organs, including the heart, placed in a packet with heterogeneous material. Objects range from high density, amorphous masses and seeds, hollow, medium density masses (seeds).

Significance

CT examination of these two backroom ibises has yielded information about the variety of equipment used to construct ibis mummies. While the study indicated a soft spongy substance (dry, loose, containing a great number of scarabaeid beetles). It is possible that this material could be related to the typical mummy. The job of this study has not been to unravel the secrets of the ibis mummy, but to understand the process by which it was created, and to determine the potential for research and museums often curate larger collections than those on exhibit. Scheduling access for medical imaging projects is often complicated for mummies on display because of the important environmental controls under which they are kept. Consequently, collections in storage are often more numerous and more readily available, in terms of time and physical access, than those on exhibit. Two such mummies from the Peabody Museum’s collection, both identified as mummies of the Sacred ibis, were radiographically examined and demonstrated

Ibis #1

Photo and 3D reconstruction of ibis #1, showing orientation and gizzard packet.

Ibis #2

Photo and 3D reconstruction of ibis #2, showing orientation and gizzard packet.

The Ibises

Two ibises (Fig.1, Fig.2) from the site of Abydos, and now currently on display in the museum, were obtained from the Peabody Museum of Natural History. The Sacred ibis, now extinct in Egypt, was commonly mummified for votive purposes [12]. Thousands have been excavated at Abydos (2) and more than a million were excavated at Saqqara (3).

The CT Scans

The ibises were CT scanned at the beginning of November 2010, using the Toshiba Aquilion 4D CT scanner at Queen’s University in Diagnostic Imaging and Bioinformatics Research Institute. The ibises were scanned in environmentally-controlled boxes, and could only be observed by examining their position in the box from scane.

The Ibis

Two ibises in a remarkably perfect state. Philosophical Transactions of the Royal Society of London 95:264-271.

[8]


[5]


[3]

[1]

Literature Cited


Please contact awade4@uwo.ca for further information.