

Interim Report on the IMPACT Mummy Database

Report Prepared for the Digging Into Data Challenge
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Overview

The IMPACT Mummy database project seeks move beyond the typical “case study approach” of the study of ancient Egyptian Mummies to facilitate population based studies by gathering radiological data sets (plane film and CT scans) of individual mummies. The primary difficulty with accessing this data is that it lies scattered in museums and other institutions spread across the world. The objective of this project is to bring the data together to create a “virtual museum collection” of mummies, allowing the large scale, comparative analysis of mummification techniques and patterns of health and disease among these representatives of one of the most important early civilizations. It is only by working collaboratively, by bringing together museum curators, radiologists, Egyptologists, archaeologists and physicians that we can move mummy studies into the new era of scholarship permitted by the digital world.

The **heart** of the database is the data itself. The **mind** of the database is a workstation-server combination that runs a PACS (Picture Archive and Communications System). A PACS is a specialized software package that is traditionally used to allow physicians to manage radiological studies in the hospital setting. However, in this context we are using the PACS to allow us to manage radiological studies of mummies in the research setting. We are partnering with ClearCanvas (www.clearcanvas.ca/), deploying their implementation of PACS that has a web portal, allowing users from all over the world to gain access to the studies. A PACS will traditionally be fire walled from outside users, restricting access in the interest of protecting patient privacy, but in this instance we seek to facilitate access to legitimate, scholarly projects.

To this date we have assembled 96 human mummy datasets and 25 animal mummy datasets from 23 individual institutions. This is now the largest single repository of mummy studies in the world. In addition, we have promises of another 108 human and 157 animal mummy studies. The workstation and server + PACS have taken longer than expected to get up and running due to firewall and other technical issues. However, just this past week we were able to get the first datasets up onto the server and will start beta testing of remote access within the next weeks.

The delay in establishing the online database has delayed the activities of our American counterparts, as they rely on access to the data. Two projects are ready to go once they have access to the data. The first is a broad study of atherosclerosis in mummies including Thompson and associate team members, building on the research of Allam et al. 2009. Computed tomographic assessment of atherosclerosis in ancient Egyptian mummies, JAMA 302: 2091-2094. The second is a “diagnosis by consensus” project, led by Conlogue and Beckett, that seeks to optimize collaborative diagnostic protocols for the study of human remains. Beyond the immediate project team, we have had many inquiries from students and scholars all over the world, and will begin facilitating access for these individuals within the near future.

The following pages will present:

- the project web site
- the listing of the project steering committee
- the media coverage garnered by the database project and the project facilitated by access to datasets
- publications and presentations of the database project and the project facilitated by access to datasets
- a list of participant institutions that have signed Contributor License Agreements and have submitted datasets

Project Web Site

<http://www.impactdb.uwo.ca/IMPACTdb/Index.html>

IMPACT Steering Committee

Andrew Nelson - University of Western Ontario
Jerome Cybulski - Canadian Museum of Civilization
Ron Beckett – Quinnipiac University
Gerald Conlogue - Quinnipiac University
Caleb Finch - University of Southern California
Randall Thompson – St. Lukes Health System
Samuel Wann - University of Wisconsin Madison

Project Media Coverage

IMPACT Mummy Database

ClearCanvas Press Release – Burrell M. ClearCanvas partners with the University of Western Ontario to create “mummy PACS”. 25 June 2012.

Quinnipiac Chronicle – Harun M. Quinnipiac wrapped in mummy project. 8 February 2012.

Hartford Courant – Associated Press. Quinnipiac researchers help with mummy inventory. 5 February 2012.

Hamden Patch – Ramunni K. Professors collaborating on mummy database. 3 February 2012.

Western Gazette – Tahirali J. Researchers hit mummy-lode. 11 January 2012.

CBC – Chen W. Ontario Morning podcast. 5 January 2012.

Kansas City Business Journal, January 5, 2012, "[Saint Luke's researchers will study Egyptian mummies](#)"

Saint Luke's Health System, January 4, 2012, "[Saint Luke's receives funding to further research into ancient Egyptian mummies](#)"

London Free Press – Pedro K. UWO researcher hits mummy of all grants. 3 January 2012.

Western News – Western Communications. Finding needles in a digital haystack. 3 January 2012.

Digging Into Data Challenge 2011 – SSHRC/NEH. IMPACT Radiological Mummy Database Project. 3 January 2012.

IMPACT Research Projects (since Jan 2012)

Epoc Magazine – Schlott K. Ägypter füllten ibismumien mit vogelfutter [Egyptian ibis mummies filled with birdseed]. Issue 2012(1):10.

Current World Archaeology – Hilts C. Peckish mummies. Issue 52:9.

National Geographic News – Owen J. Bird mummie 'fed' after death, stuffed with snails. 7 February 2012.

Discovery News – Viegas J. Even in death, Egyptian birds were fed. 27 January 2012.

Spektrum der Wissenschaft – Schlott K. Ibis im jenseits [Ibis in the afterlife]. 27 January 2012.

Bikya Masr - Ragab H. In death, ancient Egyptians fed their animals. 27 January 2012

PostMedia – Boswell R. Egyptian birds were 'fed' prior to mummification: study. 25 January 2012.

EOS Magazine – Verhaeghe K. Een hapje voor in het hiernamaals [A snack for the afterlife]. 25 January 2012.

Kopalnia Wiedzy – Blonska A. Zapasy na wieczność [Stocks for eternity]. 24 January 2012.

New Scientist – Geddes L. Egyptians give birds a packed lunch for the afterlife. 23 January 2012.

Project Publications/Presentations (since Jan 2012)

Dissertation

Wade, A.D. 2012. Hearts and Minds: Examining the Evolution of the Egyptian Excerebration and Evisceration Traditions through the IMPACT Mummy Database. Doctor of Philosophy in Archaeological Sciences, The School of Graduate and Postgraduate Studies, The University of Western Ontario.

Conference Presentations

IMPACT Database

Nelson, AJ, Wade, AD, Burrell, M, Garvin, G. A novel application of a PAC System: IMPACT, a PACS based collaborative database of radiological studies of mummies. Computer Assisted Radiology and Surgery Conference, Pisa, Italy, June, 2012.

IMPACT Projects

Wade, AD, Lawson, B, Nelson, AJ & Tampieri, D. An abdominal incision plate for a transperineal evisceration: Embalming archaism in the late Roman Period. Canadian Association for Physical Anthropology, Victoria BC, November 2012. (paper)

Nelson, AJ, Butler, JR, Garvin, G, Gelman, NI, Moran, G, Wade, A & Morris, Z. Non-destructive multimodal imaging of the first 8 years of the mummification process – the afterlife of “Yes” the cat. Canadian Association for Physical Anthropology, Victoria BC, November 2012. (paper)

Articles in Refereed Journals

IMPACT Projects

Wade AD, Nelson AJ. Radiology of the evisceration tradition in ancient Egyptian mummies. HOMO – Journal of Comparative Human Biology, In Press.

Wade AD, Conlogue GJ. 2013. Forensic considerations for preprocessing effects on clinical MDCT scans. Journal of Forensic Sciences, In Press – May 2013.

Wade AD, Hurnanen J, Lawson B, Tampieri D, Nelson A. 2012. Early dental intervention in the Redpath Ptolemaic Theban Male. International Journal of Paleopathology, . 10.1016/j.bbr.2011.03.031.

Wade AD, Garvin GJ, Hurnanen J, Williams LJ, Lawson B, Nelson AJ, Tampieri D. 2012. Scenes from the past: Multidetector CT of Egyptian mummies of the Redpath Museum. RSNA RadioGraphics 32(4):1235-1250.

Friedman, SN, Nguyen N, Nelson AJ, Granton PV, MacDonald BD, Hibbert R, Holdsworth DW, & Cunningham IA. 2012. Computed tomography (CT) bone segmentation of an ancient Egyptian mummy: A comparison of automated and semiautomated threshold and dual-energy techniques Journal of Computer Assisted Tomography 36(5):616-622.

Wade AD, Ikram S, Conlogue GJ, Beckett R, Nelson AJ, Colten R, Lawson B, Tampieri D. 2012. Foodstuff placement in mummified ibises and the role of Egyptian viscera embalming. Journal of Archaeological Science 39(5):1642-1647.

Wade AD, Garvin GJ, Nelson AJ. 2011. A synthetic radiological study of brain treatment in ancient Egyptian mummies. HOMO – Journal of Comparative Human Biology 62(4):248-269.

Participant Institutions That Have Signed Contributor License Agreements and Have Contributed Datasets to IMPACT

Archeological Museum in Zagreb
Boston Museum of Fine Arts
Bournemouth University/Museum of Witchcraft
Canadian Museum of Civilization
Canterbury Museum
Chatham-Kent Museum
Civic Museum of Ligurian Archaeology of Genoa
Joseph Moore Museum of Natural History/ Earlham College
J P Getty Museum
Kulturhistorisk Museum Oslo
Museum/ Rijksmuseum van Oudheden
Marischal College Museum/ University of Aberdeen
Museum of World Treasures
Naturhistorisches Museum Wien
Norwich Castle Museum
Otago Museum
Pisa Museum of Pathological Anatomy/University of Pisa
Redpath Museum
Royal Museums of Art and History, Brussels
Southern Baptist Theological Seminary
Speed Art Museum