

Ancient Egypt and a pioneer of palaeopathology

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Image: One of the Nubian specimens (187A) preserved in the Natural History Museum. It is thought the enlargement to the humeral head is a giant cell tumor. Credit: Natural History Museum 2011. All rights reserved.

At the start of the last century, a team of archaeologists began a race against the clock to rescue thousands of human bodies from ancient graves in modern Egypt's Lower Nubia region. They would have been lost forever when the Lower Aswan Dam was raised in 1907, causing the Nile to back up and flood the entire valley. Sir Grafton Elliot Smith's study of the excavated bones pioneered the discipline of palaeopathology and the methods of modern epidemiology. Trust-funded researchers at the University of Manchester and the Natural History Museum are now tracking down the bones he collected and carrying on his work.

"You can draw so many conclusions about what ancient life was like from bones," says Professor Rosalie David at the University of Manchester. "You can see the disease patterns, what people ate, whether there's evidence of starvation. And you can get a picture of crime and

punishment - you can see if people were hanged, for example. And physical trauma to the bones can be indicative of war or fighting."

Along with Professor Norman MacLeod at the Natural History Museum in London, Professor David is leading a multi-disciplinary research team studying ancient bones rescued from Lower Nubia during the Archaeological Survey of Nubia at the start of the last century.

They aim to develop and complete the work of noted anatomist Sir Grafton Elliot Smith, the anthropological advisor on the Survey. His study of the excavated human bones was the earliest large-scale demographic study of health and disease in an archaeological population and pioneered the then-new discipline of palaeopathology.

The race

The story began over a hundred years ago when the Lower Aswan Dam in southern Egypt was raised in 1907. The dam was built by the British in 1902, during their 70-year occupation of Egypt, to protect the people living north of the dam in the city of Aswan from the annual flooding of the Nile. But the reservoir created wasn't big enough to hold the water of the Nile during extreme flooding, so it had to be raised.

But raising the dam would mean that the river waters would flood the entire valley - and the entire the region of Lower Nubia - behind it. Lower Nubia, stretching south along the Nile from Aswan to the Sudanese border, contained graves and the remnants of buildings from ancient civilisations likely to span thousands of years.

At the time, little was known about how old the evidence might be or how far back in time it could trace the earliest people who had lived there, how they had lived and what kind of cultures they had created. Once the dam was raised, these records of human history were in danger

of being lost forever.

The Archaeological Survey of Nubia, financed by the Egyptian government, was a race against the clock to rescue as much archaeological material from Lower Nubia as possible, before it was lost under the waters of Lake Nasser.

Distinguished American archaeologist Dr. George Reisner, who led the project, took a meticulous approach, unrivalled in the archaeology of his time: his team searched the land systematically for signs of graves and carefully recorded information about each specimen they unearthed.

They excavated some 20 000 graves and rescued a vast collection of human and animal remains, along with ancient artefacts such as pottery, mirrors, incense burners, ornaments and weapons such as knives and spears.

The excavated material was evidence of the earliest culture Reisner had found in Lower Nubia, stretching back over 5000 years and prompting him to designate those ancient people the "A-Group" - the name by which they are still known by [archaeologists](#) today.

Grafton Elliot Smith

It was Reisner who invited Australian-born Dr. Grafton Elliot Smith to join the Archaeological Survey of Nubia as anthropological adviser, gaining an innovative and pioneering teammate.

"Elliot Smith was a very interesting man, and very much of his time," says Professor David. "He was a great thinker outside the box. He was Professor of Anatomy in Cairo, Manchester and London. In Manchester as an anatomist, he was regarded as the intellectual hub of the medical school and credited with innovative teaching methods.

"He held controversial beliefs about the diffusionist theory - that everything in the world culturally developed from two centres, ancient China and Egypt. Those beliefs were controversial then, and today they are regarded as quite eccentric.

"And he carried out ground-breaking research on the brain. His first research project was to catalogue the human brain collection of the British Museum. Some of these were ancient Egyptian brains - and that was what sparked his interest in Egyptology."

In 1900, Elliot Smith went to Egypt to hold the first Chair of Anatomy at the Cairo School of Medicine. There, he carried out ground-breaking autopsies of the royal mummies in Cairo and performed the first ever x-ray on a mummy.

On joining the Archaeological Survey of Nubia, he continued to break new ground by studying the excavated human bones for patterns of health and disease - at a time when archaeologists were focusing heavily on the discovery of beautiful artefacts. That work pioneered both the academic discipline of palaeopathology and the methods of modern epidemiology.

Elliot Smith and colleagues made detailed notes on the 6000 to 7000 bodies excavated from Nubia and published their findings in the regular bulletin on the survey, eponymously titled 'The Archaeological Survey of Nubia'.

His work was interrupted when he left to take up the Professorship of Anatomy at the University of Manchester in 1909 and remained uncompleted, although he arranged for some of the collections to be brought to the UK. "We think he brought the material that we have here in Manchester back with him, to form a kind of teaching collection," says Professor David.

The remaining material from the Nubia site was widely dispersed to various places in Britain, Europe, North America and Australia: "We still don't know the location of a significant proportion of the artefacts and human remains found during the Survey."

Modern research

The researchers at Manchester and the Natural History Museum are now carrying out archival research to find out what happened to the material from the excavation and where it is now. "The archives give us clues as to where the material has gone, how and why it went to particular countries and institutions, what the dispersal patterns were," says Professor David. "We also want to know about any tests that have been done with them, and find what information we can about material or remains that haven't survived."

The next step will be to study all the material they can locate using advanced palaeopathological methods, including photography and image manipulation, radiology, and modern morphometric and statistical analysis. The team will also study the original notes Elliot Smith and colleagues made during the Survey.

They want first to verify Elliot Smith's original diagnosis and evaluate his methodology, to assess his contribution to the development of palaeopathology as a discipline, and then to develop and complete his epidemiological work on disease patterns and trauma in the bones.

An important part of the project will be to allocate remains to their correct archaeological context. "We hope eventually to be able to log the remains back into their reality, to the graves they came from, to complete the whole picture," says Professor David.

All the findings will be stored in a publicly accessible database based at

Manchester University, reuniting the dispersed archaeological remains in a single virtual reality. "We're hoping to include an online grave-mapping exercise of one of the cemeteries," says Professor David. "So you can look at specific examples, see the grave, and then the body and the information you can get out of the bones." The database will be available via a link from the KNH Center for Biomedical Egyptology website, and the first version of it will go live at the end of this month.

The team also aims to present its findings in an exhibition in Manchester at the end of 2011. "We want to show how a collection of skeletal material like that of Nubia can be used to explore the lifestyle of a particular group of ancient people. The exhibition will look at the people as people, and put flesh on the bones."

Other outputs will include a range of publications both for specialists and for the general public, and a two-day workshop at the Natural History Museum for Egyptologists, palaeopathologists and other academics interested in ancient Egypt planned for August 2012.

Professor David hopes the project will be a springboard for further research into life and death in ancient Egypt: "It's such a large resource, people could go on for several decades finding new information." Interested members of the public will be able to [follow the project online](#) as new findings come to light.

She also hopes that the project will restore Elliot Smith to his rightful place as the pioneer of palaeopathology and modern epidemiology. "Until now really all the interest in him has been in terms of what he did on the royal mummies in [Egypt](#). His important work on the [Archaeological Survey](#) of Nubia has slipped from focus, and it should be really, certainly after the anatomy, the main part of his career profile," says Professor David. "People have never really looked at him as the pioneer of palaeopathology, which of course he is."

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