

***Egyptian Mummies at the Redpath Museum:  
Unravelling the History of McGill University's Collection***  
by Barbara Lawson (Curator of World Cultures, Redpath Museum)

**Introduction**

The mummies from the Redpath Museum's World Cultures Collection have attracted considerable attention in recent years due to a CT scanning session at the Montreal Neurological Institute in April 2011. The project produced high-resolution 3D imaging of three human and six bird mummies from Ancient Egypt and looked at how they were mummified, their osteobiographical details (age, sex, stature, etc.), their state of preservation, and a variety of other factors. Although not by any means the first radiographic examination for most of these mummies, the occasion provided an opportunity for a review of their history in Montreal and at McGill over the past hundred or so years. Considering the high level of interest in these ancient visitors in times past and present, the written record of their Montreal sojourn is remarkably sparse.<sup>1</sup> Several new aspects have come to light through further historical research and also from the sophisticated scanning technologies now available. Although a general overview of data resulting from recent and earlier examinations will be presented, the main thrust of the discussion that follows will concern some new insights regarding the historical context of the Redpath mummies in terms of their acquisition and public presentation in the nineteenth and twentieth centuries.

**A Few Words about Mummification in Ancient Egypt**

The notion of preserving humans and animals was well-suited to the arid desert climate of Egypt, where bodies buried in the sand were often found to be naturally preserved with hair and skin intact. The natural drying conditions typical of Egypt's climate preserved bodies by stopping the decaying process caused by bacteria breeding in the water that makes up over seventy percent of body weight, and is responsible for the decomposition of human remains. As funerary rituals became more elaborate circa 3000 BCE, with tombs and wrappings removing bodies from direct contact with the drying sands, methods of preserving the dead by artificial means or embalming were developed. Skillful embalming and elaborate burial practices were to become distinguishing features of Ancient Egyptian civilization, associations that persist to our present day.

Mummification was done for religious reasons, keeping the body intact so it could be reunited with the soul after death; the essential emphasis being on Egyptian beliefs in resurrection and eternal life, rather than any fascination or preoccupation with death. The art of embalming developed gradually over ancient Egypt's long history with both innovations and occasional declines in treatment methods along the way. Although a long

held belief that in earliest times only pharaohs could attain immortality, this remains a subject of continuing debate. By 2800 BCE, however, access to the afterworld became possible for anyone wealthy enough to pay for mummification and the elaborate rituals and objects required for the tomb. The technique reached its peak around 1000 BCE.

Keeping in mind that different methods of mummification were prevalent during different periods of almost three millennia of practice and also that at any given time a variety of methods might be employed, a general overview of the process is offered as follows: The internal organs of the deceased were removed and drying agents were used to mummify the body. The main ingredient used was natron, a naturally occurring salt, which disinfected and desiccated the corpse. It was packed around and inside the body in linen bags, and left for about forty days to draw moisture out of the tissues. From the 19<sup>th</sup> Dynasty onwards (circa 1300 BCE), the cavity of the corpse was then washed and treated with fragrant substances and packed with mud, lichen, sawdust and linen scraps to restore its original contours. Resin, taken from trees, was poured over the body to render it impermeable and thus help preservation.<sup>2</sup>

Ancient Egyptians also mummified animals to provide them with eternal life – everything from bulls and crocodiles to cats, birds and insects. The four basic types of animal mummies were: food preparations for consumption by the deceased; cherished pets; sacred animals that were mummified when they died of natural causes; and selected species raised in the temples that were dedicated to specific deities.<sup>3</sup> Some animal mummies have been found in large quantities in localities where they were associated with specific deities, while others are relatively rare.

### **How the Redpath Museum Acquired its Mummies:**

There are three human mummies and approximately twenty animal mummies (cats, crocodiles, and birds) in the Redpath World Cultures Collection. Two Theban mummies (one female and one male) and several animal mummies were acquired in Egypt in the mid-nineteenth century by James Ferrier, who also obtained two mummified human heads and an assortment of mummified hands and feet. Later in 1895, a Fayum mummy was presented to the Redpath Museum by Sir Thomas Roddick. Further to material donated by these two individuals, about fourteen additional animal mummies (two cats, four falcons, and eight crocodiles), plus two hands, and one foot eventually came to the Redpath Museum via the transfer of material from the defunct Natural History Society of Montreal to McGill University. Although human and animal mummies are by no means rare in the collections of museums established during the Victorian era, their acquisition history is often traceable to travel in Egypt which would have been a special and privileged activity for a Canadian of that time.<sup>4</sup>

### James Ferrier 1859 Visit to Egypt

James Ferrier arrived in Alexandria, Egypt towards the end of December 1858 travelling with his wife Mary, his son Robert, his daughter Margaret and the Reverend Dr. Lachlan Taylor. They embarked on board the *Gazelle*, a “dahabiyah”, during the first week of January 1859 sailing up the Rosetta branch of the Nile and reaching Philae a month later.<sup>5</sup> Although Maabdeh (a burial ground for mummified crocodiles), Karnak, and Luxor were visited briefly on the up river voyage, most sight-seeing was reserved for the return trip down the Nile, as was the practice for tourist travel by boat due to sailing conditions on the river. Ferrier probably acquired his Theban mummies on February 19<sup>th</sup>, from the notorious antiquities trader Mustapha Agha Ayat, who although serving as self-appointed consular agent in Luxor for England, Belgium, and Russia, was also a key figure in the illicit antiquities market.<sup>6</sup> The Egyptian Antiquities Service, only recently established in 1858 under French archaeologist Auguste Mariette (1821 - 1881), was responsible for controlling excavations and exports of discovered artefacts. Written permission was required as a prerequisite for excavation and sites were subjected to impromptu inspection. In theory, newly discovered tombs could only be entered with an inspector present and the contents offered first to the newly established Egyptian Museum, with any unselected items then becoming the property of the excavator. The contents of intact tombs were to remain the property of the Egyptian government. In spite of these attempts at regulation, supervision of excavations was poor and traders in illegal antiquities usually operated with a minimum of interference throughout much of the nineteenth and early twentieth centuries.<sup>7</sup>

Ferrier’s Theban mummies would have almost certainly been supplied by a local dealer and thus difficult to trace:

Excavations there by Auguste Mariette in the late 1850s and early 1860s yielded many coffins, some apparently containing mummies, and some of these pieces found their way into private hands, but once again these discoveries were not well documented.<sup>8</sup>

Since the records of who was selling antiquities at the time are so very limited and further obscured because of the illegal nature of much that transpired, precise identification of the source of Ferrier’s mummies is unlikely.

Egypt was one of the destinations for those making the grand tour of the Holy Land, and was viewed from a biblical perspective as a site of importance for retracing the Israelites’ exodus journey and locating places of scriptural allusion. The publication of Darwin’s *The Origin of the Species by Natural Selection* in 1859 ignited debate about the literal truth of the Bible, and also stimulated travel to the Holy Land by those seeking tangible evidence of the Bible’s accounts. Ferrier and company were clearly among those engaged in such pursuits. On the 29<sup>th</sup> of March 1859 Ferrier left Cairo, crossing the desert by camel to visit Palestine and the Holy Land, accompanied by his daughter Margaret, Lachlan Taylor, and four additional gentlemen, but apparently without his wife and son.<sup>9</sup>

## The Ferrier Collection at the Natural History Society Museum

The Natural History Society of Montreal (NHSM), which included a library and museum, moved into a new building on University and Cathcart streets in February of 1859. This new location was in the most rapidly increasing part of the city. The move was intended to stimulate interest and raise the overall standard of the Society, which had experienced many years of irregular fortune since its formation in 1827. On the 26<sup>th</sup> of September 1859 James Ferrier, Jr. presented a handwritten list of over one hundred Egyptian artefacts collected by his father during his recent journey at the meeting of the NHSM. The proposed donation was gratefully accepted and the Honorable James Ferrier Sr. was appointed a life member of the Society. Included in Ferrier's donation were one female mummy with coffin, one male mummy, two mummified heads, four mummified hands, one mummified foot, two mummified ibises, one mummified hawk, and four small mummified crocodiles. All but the last are indicated as being from Thebes. The actual objects were not exhibited at the Natural History Society until several weeks later when they were presented by George Cornish and Ferrier's son Robert. The public presentation on the evening of October 20<sup>th</sup> included lectures on Egypt in the present day and in ancient times. No text or details of these talks survive although we do know that the proceeds reported would have meant about 107 paid ticket holders were in attendance and that the audience was described as being "large and highly respectable, and much satisfaction was generally expressed."<sup>10</sup>

Ferrier's donation of Egyptian antiquities at this particular moment in the NHSM's history can be seen as part of the effort to increase the Society's status and membership. Egyptian mummies were an acknowledged source of prestige and popularity in the mid-nineteenth century and advertising for the exhibition included mention of two mummies, as well as a presentation on Egyptian agriculture, and a display of objects (fig. 1).<sup>11</sup> Activities involving the examination of mummies were a proven way to attract crowds of paying spectators and would have been envisioned as a good way to create excitement and bolster membership at this critical period of the Society's growth. A general curiosity about what was inside these

**LA MINERVE. 13 OCTOBRE 1859.**

**Societe d'histoire Naturelle**  
DE  
**MONTREAL.**

**EXPOSITION D'AGRICULTURE  
EGYPTIENNE** présentées à la So-  
cieté par **CHON J. FERRIER**, y  
comprises **DEUX MOMIES** et un  
grand nombre d'Objets d'Intérêt Histo-  
rique.

LA SOCIETE D'HISTOIRE NATURELLE de  
MONTREAL se propose d'exhiber la collection  
ei-dessus au Public, avec des adresses, expliquant  
l'objet montré,

**Jeudi, le 20 Octobre,**  
A HUIT heures, P. M.

Billets, 2s. 6d.—On peut s'en procurer chez  
Pickup, B. Dawson & Son, et au bureau du Sous-  
signé.

**JOHN LEEMING,**  
13 oct. Sec.-Corres.

Figure 1: Announcement for exhibition of two mummies and artefacts from Ancient Egypt at the NHSM (all now in the Redpath Museum Collection), in *La Minerve*, 13 octobre 1859.

wrapped bodies prevailed from ancient times by those in search of treasure and later by those more scientifically inclined. Numerous un wrappings had taken place in England and Europe with one of the earliest published accounts dating to the beginning of the eighteenth century; they occurred with even greater frequency after Napoleon's Egyptian campaign at the close of that century. North America's first public mummy unwrapping took place December 1824 in New York City.<sup>12</sup> These examinations were high profile occasions and details were published in newspapers and magazines. In some cases they were social events in private homes, in others, they were medical or scientific investigations, performed before an audience including laymen and professionals.

In the nineteenth century these events often included the removal or "unrolling" of mummy bandages, engaging the audience in the manner described below, suggestive of a feasible scenario for the proceedings at the NHSM.

Most of the unrollings were accompanied by lectures illustrative of one or more topics of Egyptology, and were geared to large audiences of interested and intelligent spectators. In many cases the lecturer tried to draw in the audience by reference to biblical figures and events, and in that way establish the mummy not just as a curiosity, but as an historical, tangible presence from which to link the present to the past.<sup>13</sup>

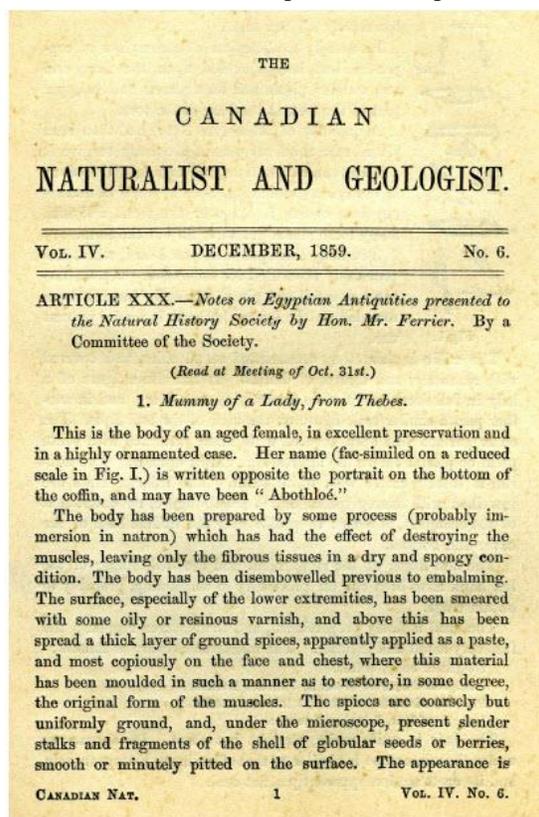


Figure 2 Cover page of article on Egyptian antiquities presented by James Ferrier to NHSM, in *The Canadian Naturalist and Geologist*, v. IV, n. 6, 1859.

Although the exact nature of the NHSM public presentation is unknown, an article published the following month indicates that the head, feet, and possibly more of the female mummy, as well as the head of the male mummy had been uncovered. Whether the unwrapping resulted from events on October 20<sup>th</sup> or later on October 31<sup>st</sup>, when J.W. Dawson read a paper on embalming Egyptian mummies at the meeting of the NHSM is as yet undetermined.<sup>14</sup> Indications that at least some unwrapping of mummy bandages probably occurred on the first evening are: that the former event was for the general public, that admission was charged to both NHSM members and other attendees, and that the audience is described as "large and highly respectable".

At the ordinary meeting of the Society on Monday evening, October 31<sup>st</sup>, J. W. Dawson, read a paper on "Further results of Examination of the Mummies in the Ferrier Collection." At the same meeting he is thanked for his very interesting papers on

embalming Egyptian mummies, followed by a request that the same be published in the next issue of the *Canadian Naturalist and Geologist* (fig. 2). Dawson's published notes provide the first description of the Ferrier mummies and insightful observations about the embalming process; they are the only source of information about the examination (or possibly examinations) carried out during the autumn of 1859 and are interesting to compare with the more technologically sophisticated results of later investigations. Measurements of the mummies included in Dawson's original text have not been reproduced as they have little bearing on recent studies. His report is based on visual examination only as x-rays were not invented until almost four decades later. Although the mummy bandages were unwrapped during the examination, it is not exactly clear to what extent this occurred and it is necessary to make inferences about removal of wrappings based on what is described as being visible. It is interesting to note, however, that Dawson writing later on another topic mentions "Not long ago we *unrolled* [italics added] in Montreal an Egyptian mummy, preserved in the oldest style of embalming" which implies a rather extensive removal of bandages from the female mummy discussed below.<sup>15</sup>

The female mummy is described in the greatest detail. It is possible that the degree of attention given was due to its elaborate coffin and by the higher status it implied. Details regarding the coffin from Dawson's account are not included below as they are beyond the scope of this article.<sup>16</sup>

This is the body of an aged female, in excellent preservation and in a highly ornamented case [RM 2717]. . . .

The body has been prepared by some process (probably immersion in natron) which has had the effect of destroying the muscles, leaving only the fibrous tissues in a dry and spongy condition. The body has been disemboweled previous to embalming. The surface, especially of the lower extremities, has been smeared with some oily or resinous varnish, and above this has been spread a thick layer of ground spices, apparently applied as a paste, and most copiously on the face and chest, where this material has been moulded in such a manner as to restore, in some degree the original form of the muscles. The spices are coarsely but uniformly ground, and, under the microscope, present slender stalks and fragments of the shell of globular seeds or berries, smooth or minutely pitted on the surface. The appearance is somewhat like that of Cassia buds, though not precisely. . . .

Externally to the spices a square plate of copper-foil has been moulded upon the face; and two smaller pieces had been placed in the upper part of the feet, at the base of the toes.

A quantity of lichen . . . had then been placed over the front part of the body to give it a more rounded contour and to retain the odour of the spices; and it had been swathed in numerous linen cloths, folded over the front, and with many loose pieces put in to fill out the form.<sup>17</sup>

The body lies upon a narrow board, which has previously been used for some other purpose, having a dovetail and pin at one end; but has been rounded on the lower side to fit it for the present use. . . .

The first finger of the right hand and the little finger of the left hand have been cut off previously to embalming, probably to obtain rings. . . .

The head is finely proportioned, and the features regular; the feet very small and delicate . . . .

The hair is quite white, straight but short. Its appearance under the microscope is similar to ordinary European hair, and its cross section apparently a flat oval.<sup>18</sup>

[This mummy] . . . is preserved in a manner very different from the others [see below]. And in what appears to be the oldest style of embalming. No bitumen has been used, and the preparatory process has evidently effected the removal rather than the preservation of the more perishable tissues, a result which corresponds very well with the probable results of an alkaline steep like natron, but does not accord with the usual statements of the effect of the process.<sup>19</sup>

The male mummy is given considerably less attention:

This mummy [RM 2718] has no case, and is wrapped in linen closely applied in many folds, and which has apparently been saturated with some resinous substance. The outer fold and bandages have been painted of a dull red colour. The head only was uncovered. It is in good preservation; it is not covered with spices; but has been in part covered with bitumen as if this had been poured upon it or into its cavities, and had in part run over the surface. The eyes have been extracted, and the lids have been carefully moulded so as to project in the natural form. There is abundance of straight brown hair on the scalp. Under the microscope it is similar to European hair. The head is finely formed, with a high and prominent forehead, and the nose straight and little prominent. The profile reminds one of Greek heads, or of those seen on the monuments of Egyptian priests.<sup>20</sup>

The description above indicates that the head of the male mummy was unwrapped at the time of the 1859 examination. It is also most evident that at some later time, surgery was performed on this mummy as there are two prominent rectangular incisions to its dorsal chest cavity. There is no mention of surgical procedures performed in Dawson's account or in any later descriptions although it should be noted that the Natural History Society of Montreal had a significant number of eminent medical practitioners and professors amongst its members.<sup>21</sup> That discussion of any surgical intervention and exact details regarding the "unrolling" of mummy bandages [see above] appear to be absent from the written record suggests that Dawson and possibly some of his colleagues were uncomfortable with those aspects of the mummy examinations, perhaps conscious of being beyond the depth of their professional expertise.

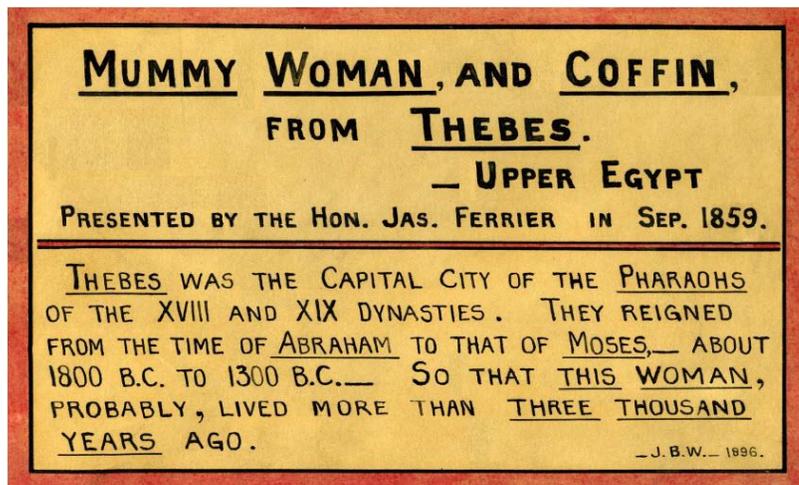
Dawson also reported on the examination of two mummified heads, which like the male mummy above "are prepared in the more usual manner,— with the aid of bitumen, and without the external layer of spices." He also continues with a racial narrative regarding the crania, in keeping with his beliefs in human origins.<sup>22</sup>

The mummy to which this head [RM 2721.01] belonged was probably prepared in the same manner with No. 2 [Theban male mummy mentioned above], but with less attention to the preservation of the expression of the features, the mouth being distorted and the tongue projecting. The skin has been smeared with resin or bitumen,—there are no indications of spices,—and the cavity of the skull is empty. The jaws are projecting and the brow receding, as in the figured of low-caste Egyptians and modern Fellahs [Egyptian peasants]. It is a male head.

This head [RM 2721.02] has been completely coated with bitumen, so that the inner cloths adhere and cannot be removed. The interior cavity seems to be partly filled with some solid substance,

probably bitumen, which has also penetrated and hardened the tissue of the neck. The head is round, and the features and bones coarse.<sup>23</sup>

The historical record lies near dormant for the next sixty-five years on the subject of the Ferrier collection and mummies in the NHSM museum, although some surviving exhibit texts dated 1896 appear to have been prepared for the two mummies on display (fig 3a/b)<sup>24</sup>



3a Exhibit labels for Theban mummy (RM 2717) displayed at the NHSM museum. Photo © Redpath Museum, McGill University

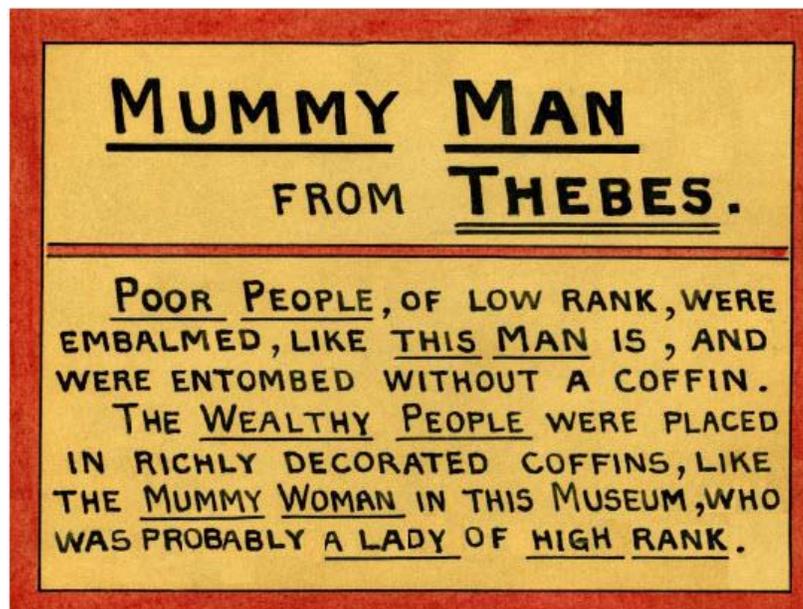


Figure 3b. Exhibit labels c. 1896 for male mummy (RM2718) displayed at the NHSM museum. Photo © Redpath Museum, McGill University

There is also a brief mention of the “Ferrier” collection of Egyptian antiquities on display in the gallery in 1897, without the mummies being specifically noted. One additional testament to their public display in the late nineteenth century is a photograph described as “Exhibition Hall, Natural History Society Museum, Montreal, QC, ca. 1900” (fig. 4).

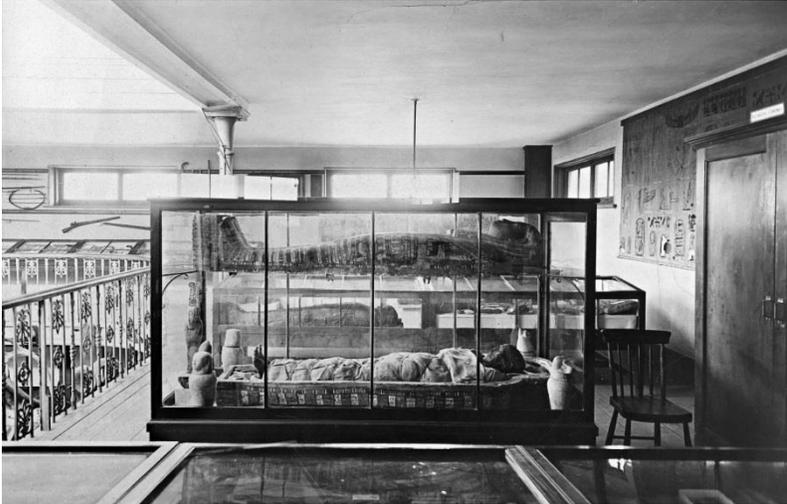


Figure 4. Theban mummies (RM2717 & 2718) displayed at the NHSM museum located at University and Cathcart streets circa 1900.

Photo: MP-0000.113.6 © McCord Museum, McGill University

A close examination of the image which shows material displayed in the Museum’s uppermost gallery reveals the female Theban mummy and coffin with its lid suspended above and canopic jars in each corner of the display case. Through the glass panes of the display, the male mummy is also discernible in the distance. It is likely that nearby cases displayed the mummified animals,

heads, and miscellaneous hands and feet as well as the Egyptian artefacts from Ferrier and other donors.<sup>25</sup>

The lack of attention to the NHSM’s Egyptian holdings during the latter decades of the nineteenth were due to a number of factors including an emphasis on local/regional flora, fauna, and geological specimens and a general economic downturn beginning in the 1870s. The influence of these factors on the diminishing interest in the Egyptian collection, however, was overshadowed by the overall fragmentation of the Society’s support brought about by the move of the Geological Survey of Canada to Ottawa in 1881 and the establishment of J.W. Dawson’s Redpath Museum at McGill University in 1882. In 1906, the Natural History Society’s collections were packed up in anticipation of the construction of a more suitable facility; unfortunately, such a future was not to be realized. A lack of funds, the outbreak of war, and further indebtedness brought about the dissolution of the organization and the transfer of its collections to McGill University in 1925.<sup>26</sup> (A discussion of the Ferrier mummies at McGill will continue in a later section.)

### **Fayum Mummy Donated to Redpath Museum by Sir Thomas Roddick**

In 1895 Sir Thomas Roddick donated a Fayum mummy to the Redpath Museum. By that time, the Redpath Museum had been established close to thirteen years in a building of architectural note and had already hosted the prestigious meetings of the American

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Association for the Advancement of Science and the British Association for the Advancement of Science under the stewardship of Sir William Dawson.<sup>27</sup> Thomas George Roddick (1846 – 1923) had studied in Britain with Joseph Lister and in 1877 introduced Lister’s antiseptic methods to the Montreal General Hospital. He was a professor of surgery and later in 1901 became Dean of Medicine at McGill University. In May of 1895, Roddick writing to Dawson requested that an Egyptian mummy he had placed at the Redpath Museum earlier in the month, be accepted as a donation. He does not provide any details as to how or when he acquired the mummy, but does note that:

It was found in a tomb or pit in the solid rock at Hawara – el – Maktaa [Makta], and about 150 yds from the Pyramid of Amen – em – hat [Amenemhet III] in the province of Fayoum (Upper Egypt) [Fayum (Lower Egypt)]. The age is unknown.<sup>28</sup>

In terms of Roddick’s travel in Egypt, it is known that he served in the Anglo-Egyptian War of 1882 and during 1884 - 85 with the Camel Corps in the Nile Expedition for the relief of General Gordon in Khartoum.<sup>29</sup> The latter was British mission in which a contingent of Canadians was recruited to help the British navigate their small boats up the Nile River. The force was split into two columns, with a bit less than half travelling by camel on a shortcut across the desert to avoid the great bend of the Nile in order to reach the city sooner. The remaining 3,000 soldiers continued up the river. Roddick’s biographer notes: “. . . he went to Egypt [with Sir Robert Reid] and travelled up the Nile. From this trip he brought back a mummy which he presented to McGill.”<sup>30</sup> Whether the trip up the Nile with Reid was a separate journey, or related to Roddick’s military service in Egypt is as yet undetermined.

The Roddick mummy has been identified as having the appearance of a “typical Hawara (or Fayum) mummy” and expert opinion also affirms that it is “not unprecedented that military expeditions and campaigns were used as an occasion to excavate, document, and acquire antiquities.” Although early excavations at Hawara are most notably associated with Flinders Petrie’s unearthing of a vast necropolis in 1888 and his finds of Roman Period mummy coffin portraits, the acquisition of Roddick’s mummy appears to predate Petrie’s work. There does not appear to be “any evidence for activities in the Fayum before 1887, although Petrie was not the only one who found mummies.”<sup>31</sup>

Another possible source for the Roddick mummy is suggested below:

At er-Rubayat, not too far from Hawara, locals who had been newly settled in the area not too long before 1887 (according to a letter of 25 April 1887 by Dr. Fouquet, another medical doctor) found mummies in large numbers and sold them to various people including, most famously, Theodor Graf. It is not inconceivable . . . that these locals also sold the mummy to Dr. Roddick . . .<sup>32</sup>

The next news of Roddick’s mummy occurs in connection with the meetings of the British Medical Association held in Montreal in 1897. This was the first time the Association met outside of Great Britain and Thomas Roddick presided as the BMA’s

first colonial president. The *Official Guide and Souvenir* booklet for the meetings in describing the arrangement of the Redpath Museum collection notes, “On the first floor is a room over the entrance hall, in which are cases containing archaeological and ethnological objects. . . . A mummy from the Fayoum, presented by Dr. Roddick. . . [is] especially worthy of notice.”<sup>33</sup>

### **Fayum Mummy Examination at the 1897 BMA Meetings in Montreal**

A most intriguing account of the Roddick mummy appears in the *British Medical Journal*'s report on the Association's annual general meeting:

#### CONVERSAZIONE AT MCGILL UNIVERSITY

On Friday evening [at 9 p.m.], September 3<sup>rd</sup>, a very successful conversazione was given in McGill University. . . . The gardens were brilliantly illuminated, thousands of coloured incandescent lights were distributed among the trees, and festoons of Chinese lanterns lined the main avenue and the walks. . . . [Several University dignitaries] received the guests in the Redpath Museum. During the evening Professor Alexander Macalister (Cambridge) gave an address upon an Egyptian mummy recently presented to McGill University by Dr. Roddick. A skiagraph [the initial term for what is now called a radiograph or x-ray] was taken of the mummy, and the bones could be clearly seen with the arms crossed over the body. Professor Macalister removed some of the wrapping, explaining the signification of the Egyptian mode of mummification and of the disposal of the body, and translated some of the inscriptions found. In spite of the very large number who attended the reception there was not, owing to the fineness of the evening which permitted the guests to stroll about the illuminated garden, at any time an inconvenient crowding.<sup>34</sup>

Alexander Macalister (1844 – 1919) was an anatomist of international renown and chair of anatomy at Cambridge University for thirty-six years. He was a prolific writer, most famous for his textbooks on human anatomy and animal morphology. Less well-known to his usual academic readership was his work examining a number of Egyptian mummies including several at the Cambridge Anatomical Museum and an article, oft-cited among mummy specialists, published three years before his examination of the Roddick mummy at the Redpath Museum. Unfortunately, neither text describing this mummy examination by Macalister, nor “skiagraph” and associated details regarding the procedure have been located.<sup>35</sup> This is surprising as not only were mummy events still rather exciting happenings for the day as indicated above by the large number of people in attendance, but Alexander Macalister would have been a figure of significant status especially among the medical professionals attending the BMA meetings and his presence would have no doubt drawn considerable attention. In addition to these two noteworthy aspects of the evening's events, would have been the “skiagraph” or x-ray taken of the mummy.

In 1898, x-rays were very big news indeed and an x-ray of a mummy, although not the first historical instance, would have been notable in international terms. The world's first

x-ray had only been taken three years earlier in November 1895 by Wilhelm Röntgen, who photographed his wife's hand. This discovery, which astounded the world, allowed physicians their first non-invasive look inside the human body, and very quickly became useful for diagnostic and therapeutic purposes. In Canada, and in Montreal specifically, there was great public interest generated by Röntgen's discovery and its application in medical diagnosis; the most successful and best-publicized x-ray demonstrations were those conducted by McGill physicist John Cox and his associates.<sup>36</sup>

In February 1896 Robert C. Kirkpatrick [a surgeon at the Montreal General Hospital] . . . had a patient with a bullet in his lower leg. He wanted to locate the bullet prior to surgery and went . . . to talk with Professor Cox about his x-ray machine. . . . [T]he first x-rays at McGill of Kirkpatrick's patient [were taken] on 7 February 1896. The bullet was found after prolonged exposure to x-rays (nearly forty-five minutes).<sup>37</sup>

Another Montreal engagement with early x-ray technology also dates to 1896, when, . . . ten patients were sent to the chemistry laboratory [on University Street] at McGill University to be radiographed by a new but rather elementary apparatus [Professor Gilbert] Girdwood had developed. He was also one of the first in Canada to use the principles of stereoscopic photography in studying X-ray negatives. . . . [Girdwood] proceeded to do x-ray examinations for the General and Royal Vic. [hospitals]. The Vic records reveal ten patients sent to Girdwood in 1897 and more the following year, but no written reports of the x-rays exist.<sup>38</sup>

Although any of the above individuals might have been involved with taking x-rays of Roddick's mummy which were part of Macalister's presentation and no doubt a highlight of the BMA conversazione at the Redpath Museum, no one has been identified as providing the expertise or radiographic equipment that would have been required to produce the image described. This might be due to oversight as is often the case with high profile events, or might have been an omission of a more intentional nature as apparently not unknown among some of the personalities involved.<sup>39</sup>

### **Radiography and Mummy Examinations in the Late 1890s**

With the development of radiographic technology in 1896, mummies could be examined for the first time in a non-destructive manner. X-rays proved an effective way of locating amulets or ornaments enclosed within a mummy's bandages, without destroying the actual mummy, as had been the case with earlier investigations involving removal of all or part of the wrappings. In 1896, W. König radiographed the first human and animal mummies in Frankfurt and in October of the same year, Dr. Thurston Holland of Liverpool x-rayed a mummified bird from an Egyptian tomb. Flinders Petrie examined a Fifth Dynasty Egyptian mummy from Deshasheh in 1898, producing radiographs that were "remarkably good, considering the rudimentary nature of these first x-ray machines and the slow-exposure glass photographic plates that were used."<sup>40</sup> Even these early x-rays allowed experts to identify fractures and breaks, as well as bone pathology although sometimes understanding the actual significance of what was represented had to wait

decades. Placing the 1897 “skiagraph” of the Roddick mummy within the context of the early history of mummy radiography, it is indeed unfortunate that neither x-rays nor written reports describing this early examination have survived.<sup>41</sup>

In the century that followed, mummy examinations increased in number and sophistication and beginning with the early decades of the twentieth century, radiography was the standard method for revealing amulets and pathology, culminating in major studies in the 1970s of museum and university collections.<sup>42</sup> Developments in imaging technology in the twentieth century and beyond will await later discussion of ensuing radiographic investigations involving mummies in the Redpath Museum collection.

### Mummies Transferred to McGill University’s Ethnological Museum

In 1925, the collections of McGill University were supplemented by material belonging to the defunct Natural History Society of Montreal (NHSM), whose collections had been packed up for over twenty-two years in downtown storerooms.<sup>43</sup> That James Ferrier’s donation of two Theban mummies over sixty-five years earlier had been long forgotten is suggested by an article appearing in the *Brockville Recorder and Times* (fig. 5).<sup>44</sup>

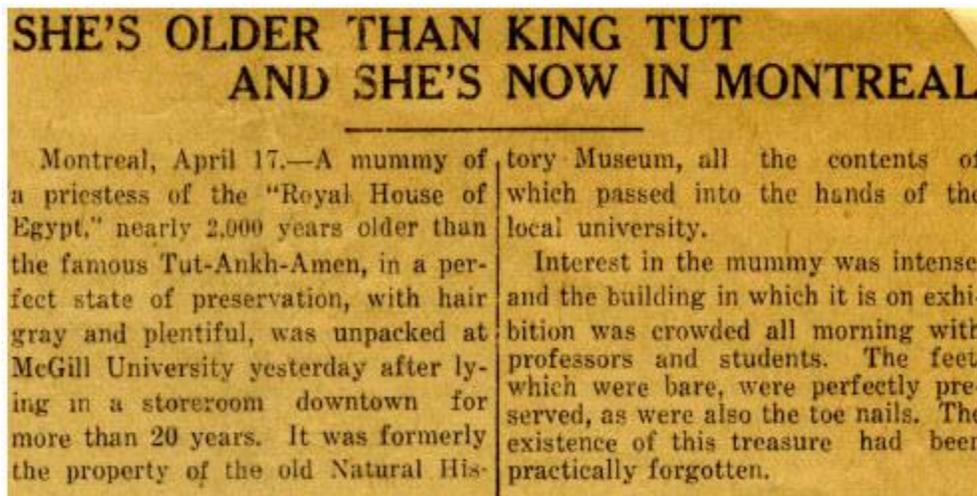


Figure 5. News article in the *Brockville Recorder and Times*, April 1925 describing the unpacking of RM2717 at McGill after over 20 years in storage with the collections of the defunct NHSM.  
© Brockville Recorder / Sun Media

Howard Carter’s discovery of the tomb of Tutankhamun a few years earlier in 1922, causing a major wave of Egyptomania throughout Europe and North America continuing into the 1930s, was no doubt influential in this renewed interest in Egyptian antiquities and mummies in Montreal. The NHSM’s collections were originally divided among the Redpath and McCord museums and the University Library. The addition of

the Society's natural history collections made heavy demands on the Redpath Museum's already overcrowded space and precipitated the removal of ethnological and archaeological holdings to the ground floor of McGill's Strathcona Medical Building, where a separate Ethnological Museum was later established in 1926. Of the material transferred from the Redpath Museum, we do know that there was one Egyptian mummy, which would have been Roddick's donation of three decades previous. Early discussions regarding the distribution of cultural collections indicate an original plan to move social anthropological material from the Redpath Museum and the Natural History Society to the Strathcona Medical building for sorting; at the same time plans were made to transfer the NHSM's Egyptian and classical archaeological material to the University Library. It was further suggested that the Library serve as repository for all Egyptian material from the Redpath Museum; the latter collection including "a rather good mummy" and "mummy hands and feet." A notebook of items transferred to the Library in early 1926, lists the above items, as well as, two mummified hawks, eight mummified crocodiles, mummy "casing" [possibly cartonnage], and mummy linen. Whether the above items were actually unpacked and exhibited in the Library Museum, or only temporarily in residence there awaiting removal to the Strathcona Medical Building is unclear.<sup>45</sup> What is evident, however, is that by October 1928 all three mummies were on display in the newly established Ethnological Museum:

Mummies are shown of three entirely different types, one of a person of royal birth, one a person in very comfortable circumstances, and one of the common or poor class of those days, as indicated by its being dipped in vituminous [sic] pitch and bound in rough linen.<sup>46</sup>

### **Radiographic Examinations in 1928**

An indication of radiographic activities relating to the two Theban mummies donated by Ferrier surfaces on index card files from the Ethnological Museum prepared around the same date.<sup>47</sup> Evidence of recent x-ray examination and "experimentation" on the Fayum mummy is documented in a clipping from an unidentified newspaper (fig. 6).<sup>48</sup>



Figure 6. Clipping from an unidentified newspaper from 1928 referring to an x-ray examination of McGill mummy (RM 2710). (See also, fig. 7)

No written reports of these early x-ray examinations have survived, however, glass lantern slides at the Redpath and McCord museums have recently been located which visually document the radiographic efforts from this period. Some undated descriptions also no doubt refer to the 1928 x-ray findings:<sup>49</sup>

X-RAY EXAMINATION [RM 2717]

Shows the skeleton of an old person, there being no alveolar process demonstrating that the teeth were extracted during life. The pelvis is that of a woman who during life suffered from osteitis deformans, (rheumatism) and arterial sclerosis (hardening of the arteries).

X-RAY EXAMINATION [RM 2718]

Shows an adult who has several healed ribs broken during life. The dark mass on one side is a papyrus roll, always found in Egyptian mummies. Age unknown.

X-RAY FINDINGS . . . [RM 2720]

LEFT: Showing a side view of the head with a particularly black shadow caused by an accumulation of dust from the embalming. The mummy having lain on its back for centuries. Also a good set of teeth with practically no cavities is shown.

CENTRE: Front view of the upper part of the thorax and skull, with arms crossed over the chest. The fingers showing distinctly (fig 7)

RIGHT: Showing a female pelvis with the arms crossed over the chest, Hands and forearms are shown in the center plate [sic].



*Figure 7. Positive image of X-ray circa 1928 of Fayum mummy (RM2720) showing upperpart of thorax and skull, with arms crossed over chest and fingers distinctly visible.*

*Photo: MP-0000.26.5002.1.1 © McCord Museum, Montreal.*

Subsequent texts provide some additional flourishes regarding the supposed status of individual mummies in the McGill collection and the differential embalming treatments accorded:

We are the proud possessors of three very interesting mummies, showing three entirely different kinds of embalming. First, there is a princess embalmed with spice and wrapped in very fine linen, nearly 3000 years old. Second, a woman of moderate circumstances bound in [sic] ordinary linen and preserved in bituminous pitch. Third, a soldier or commoner embalmed by dipping in a strong brine solution, dipping in bituminous pitch and wrapped in rough linen or sacking.

Different as these methods may be, they all preserve the body for something like 3000 years when they are supposed to be judged by their creator as to their deeds of good or evil during life.<sup>50</sup>

In its later years, the Ethnological Museum included world-wide cultural collections transferred from the NHSM and several other McGill units including artefacts previously exhibited at the Redpath Museum; its holdings eventually numbering approximately 5,000 objects. The Museum's exhibits were arranged geographically on the ground floor of McGill's Strathcona Medical Building until the war years when space was required for physiotherapy and the collections went into semi-storage. The Ethnological Museum reopened briefly in 1947 alongside the Arctic Institute of North America, and included amongst its limited displays were three Egyptian mummies illustrating ancient burial customs. Unfortunately, the Museum's reopening was short lived as it was closed permanently early in 1949, when it became administratively amalgamated as the Ethnology Division of the Redpath Museum with its collections dispersed to the Redpath Museum, the McCord Museum, and Divinity Hall.<sup>51</sup>

It is most evident that by the last decade of the Ethnological Museum's relatively brief existence, the mummies had once again receded from public interest:

. . . despite years of valiant effort on the part of Curator Judah, the Mummies, Indians and Eskimos drifted slowly and helplessly into a backwash in University affairs. Eventually, upon Mr. Judah's retirement in 1941, the Ethnological Museum was quietly "beached" to await more propitious times.<sup>52</sup>

### **Mummies in *Ancient World* Exhibit at Divinity Hall**

Divinity Hall was the destination for selected Egyptian and Mediterranean holdings from the Ethnological Museum which were assembled for a long term loan exhibition by the Redpath Museum. The "Ancient World" exhibit was designed as a practical background for the teaching of biblical history and covered a span of archeological time from "the 12,000 B.C. cave deposits of Judea, to the days of Tutankhamen" continuing to the first century of the Christian era. Although distinguished as both a "loan" and "temporary" exhibit, the display seems to have continued at the Divinity Hall location, although perhaps not always in the same configuration, for two decades (fig. 8).



Figure 8. Mummy and coffin (RM2717) on display in Divinity Hall circa 1950 (with Alice Johannsen and colleague looking on).

Photo: David Bier PA 039709 © McGill Archives.

A pamphlet prepared for the exhibit, places two mummies in the same case and a coffin cover in the adjacent one, all dated “18<sup>th</sup> Dynasty circa 1580 - 1340 B.C.” with the following explanatory texts:

Case 4 MUMMY OF A WOMAN

The Egyptians went to great trouble to preserve the body against the ravages of time, since they believed that a spirit without a body was perpetually lost. This unwrapped mummy, evidently of an elderly woman, illustrates a moderately costly burial technique.

By contrast, the mummy of a young girl in Case 4a shows the linen binding strips and gold face-mask still in place.<sup>53</sup>

A surviving exhibit text for the Fayum mummy is also illuminating, as it not only contrasts the state of its linen wrapping with the Theban mummy displayed alongside, but is also refers to an x-ray examination, probably the one referred to in the 1928 newspaper clipping mentioned above:

[Case 4a] Mummy of A Woman

Hawara – El – Maktaa [sic] from Fayoum, Upper Egypt [Fayum Lower Egypt]

X-ray examination shows that this is the mummy of a young girl,, the cause of whose death is unknown. The teeth are in excellent condition with practically no cavities, and the bone formations are normal.

The linen bindings and the gold mask are practically undisturbed, in contrast to the unwrapped mummy in case 4.<sup>54</sup>

Also accompanying the mummy exhibit at some time during this period was the following poem:

TO THE MUMMY OF AN OLD WOMAN

Divinity Hall Museum, McGill University

Your pardon, Mother of An Ancient Race,  
That from your last long sleep men haled you forth,  
Intruding on the privacy of death,  
Breaking the silence of your sealed tomb  
With probing tools and eager questing hands.  
They could not bring you back to life, only  
Your wasted frame, bearing the marks of pain,  
Wrapped in the swaddling cerements of death,  
And showing nothing of all the beauty  
Which once you had, when young, and strong, and glad,  
You bent to fill your pitcher at the Nile,  
Or bound the golden sheaves the reapers left.  
How sorrowful the hearts of those you loved,  
If in the shadowy land of fateful Ptah  
They e'er should learn that from your peaceful rest  
You were harried forth to be a show for men.  
Think not too hardly of the new day's folk,  
For some there are who mutely feel the pathos  
Of your withered face and those tortured feet  
Which once were strong to run the messages  
Of love, and bear the burden of the home  
Where with a mother's selfless toil and hope  
You won a mother's crown, your children's love.  
If chance were given us, this would we do,  
Lift you with reverent hands and put you back,  
Within your casket whose bright design  
Three thousand years have not availed to dim,  
Speed you by air across the sundering seas,  
Lay you to rest and sleep among your own,  
Where you could hear the murmur of the Nile

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And be at home in Egypt's ancient soil. [Anonymous]<sup>55</sup>

This poem brings to mind a short story written by Edgar Allan Poe more than a century earlier, which was a satire and criticism of the popularity of mummies and the “scientific” unwrappings and examinations of them in his day. By the mid-twentieth century scientific mummy examinations had become for the most part responsible and certainly technologically more sophisticated with the use of radiographic technology. However, this apologetic text accompanying the mummies displayed in Divinity Hall expresses a certain discomfort with their public display and also with the various examinations that had been their wont over past decades.<sup>56</sup>

### **Mummies at *Man and His World* and their Return to Redpath Museum**

The Egyptian and Mediterranean holdings displayed and stored in Divinity Hall were all removed from that location in 1969 when renovations were planned for the building. They were moved along with other non-Canadian ethnological collections that were stored at the time in the McCord and Redpath museums to the second floor of the University-owned Pillow House garage on Mountain Street.<sup>57</sup> The fate of these two McGill museums was dramatically altered, however, when financial woes caused the University to recommend their closure in October 1970. In terms of the Redpath Museum, which was responsible for the Egyptian, Mediterranean, and all non-Canadian ethnological collections in addition to its natural history holdings, this meant that the Museum was closed to all but the University community and researchers by appointment until 1987. At the time of the announcement of the Redpath's closure to the public, there was a suggestion in the Montreal press, that the University make its surplus collections available to *Man and His World*, a remnant of *Expo 67*. Although the appropriateness of this prospect was debated at first, it seems that by June of 1976, one or two of the Redpath Museum's three Egyptian mummies were loaned to the Ville de Montréal for the three month period between June and September through 1981, when *Man and His World* finally closed.<sup>58</sup>

The following texts were provided by the Redpath Museum to accompany the two mummies displayed circa 1978:

#### Mummy of a young woman

This mummy is of a young girl, the cause of whose death is unknown. Her name is Hawara-El-Maktaa [sic] and she is from the Fayoum in Upper Egypt [sic Lower Egypt]. Her teeth are in excellent condition, virtually cavity-free, and her bone structure is normal. This well-preserved specimen is probably of the Ptolemaic period, from the IV to the III century B.C. (2000 years approximately after pyramids ceased to be constructed).

#### Mummy of an old woman

This mummy is of That a Nufer Amun, an old woman who was of good standing in the community. During her life, her teeth were extracted and she suffered from rheumatism and hardening of the arteries. Since her death, she has not rested undisturbed. The mask which

formerly covered her face has been stolen and several fingers have been cut off, perhaps to obtain rings.

The style of the sarcophagus dates it to a period between the XXII and the XXIII dynasties, from approximately 945 to 718 B. C.<sup>59</sup>

It is likely that transport of the mummies and their exhibition at *Man and His World* raised concern for museum staff regarding their overall condition and preservation. In April 1979, the Theban female mummy and coffin were examined by conservators from the Canadian Conservation Institute in Ottawa. The latter was examined in detail, and minor stabilization treatments performed (fig. 9). Although the mummy remained within the coffin during treatment, it apparently did not receive direct attention.<sup>60</sup>

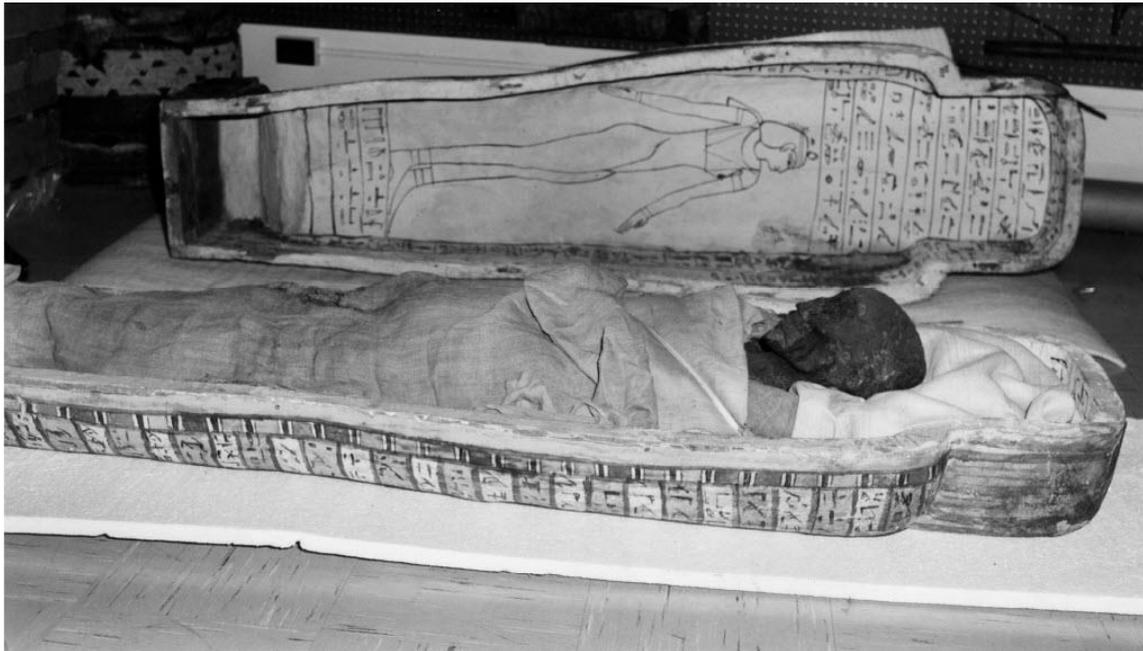


Figure 9. Coffin with mummy (RM2717) examined at the Canadian Conservation Institute (Ottawa) circa 1979. Photo: © CCI

The Theban male mummy was displayed in 1980 and again in 1981. The text below is dated 1981:

Mummy of a man from Thebes; probably that of a poor man as indicated by the method and quality of preservation; a person of his standing would not have had the cartonnage coverings or coffin, and would most likely have been buried 'as is' in the hot sand. It is in fact largely due to the aridity of the Egyptian climate that this man has been relatively well-preserved.<sup>61</sup>

### **Radiographic Examinations 1979-1981 at the Royal Victoria Hospital**

By the 1970s several major studies of mummies in museum and university collections had been undertaken with an interest in identifying diseases rather than merely locating

amulets; the Manchester Museums was one of the most active institutions in this regard.<sup>62</sup> Mummies were linked with specific periods of Egyptian history by examining the positioning of the arms, the wrapping style, the treatment of the organs, and body ornamentation.<sup>63</sup> Among the most notable achievements of this period was the project sponsored by the University of Michigan and the University of Alexandria, examining the Cairo Museum's royal mummies.<sup>64</sup> New understandings about life and death in the ancient world were achieved based on the condition and age of bodies at the time of death, with special attention paid to their teeth, as well as illnesses or traumas experienced during life. This period also saw the use of CT or computerized tomography scanning technology to provide a complete record of the mummy under study by simultaneously taking a series of x-ray cross-sections from different angles. This technology was first used in 1977 to look at the internal structure of mummified brain tissue in an Egyptian mummy from the collection of the Royal Ontario Museum.<sup>65</sup> With the increased emphasis on mummy examinations worldwide and the developments in imaging technology including that used in nearby Toronto on the ROM mummy, it is not surprising that the Redpath Museum sought assistance from McGill's teaching hospital to learn more about its mummies.

The female Theban mummy (RM 2717) described as being "3,000" years old was brought to the Royal Victoria Hospital on December 14, 1979. The mummy was lying in a simple cardboard box, covered by a linen cloth and radiographed from head to foot. The head and feet were exposed, having been unwrapped when the mummy was examined in 1859.

According to our radiologist, Dr. Simon Braun, reporting on the films, the mummy is the remains of an elderly female, determined by the ovoid shape of the pelvis and the triangular shape of the calcified cartilage, projecting off the anterior end of the ribs. The appearance of the spine, hips and knees indicate degenerative arthritis on the basis of age . . . The bony mineralization after 3,000 years is remarkably well maintained. The wrinkled appearance around the bone is due to the linen wrappings and the desiccated skin over the bones.<sup>66</sup>

The comments below regarding brain and organ removal for this mummy appear in an article written a few years after the 1979 x-ray examination described above. The mention of moss used for packing the body cavity probably derives from Dawson's 1859 article. Other comments regarding mummification are likely speculation by the author as there is no expert source identified.<sup>67</sup>

The quality and style of embalment is also an indicator of her wealth and status; the brain was removed through her nasal cavity (this is understood because the bones of the nose are broken); the heart was left in-situ, as it was the Egyptian belief that the heart (and not the brain) was the seat of intelligence. The viscera were removed and, probably, the body cavity filled with a packing material like moss, which was also placed over the front part of the body to give it a more rounded contour. . . .The blackened appearance of the skin is probably due to the application of bitumen, which was originally used to adhere the linen strips to the body.

The Fayum mummy was also apparently on display in the Redpath Museum in 1979, and underwent x-ray examination at the Royal Victoria Hospital in January 1981. This

investigation confirmed a female sex for the mummy based on the ovoid shape of the pelvis and the deceased was determined to be in good health. The age of the individual at death was estimated to be between twenty-one and forty years old, unlike the 1928 assessment, which assumed the mummy to be that of a young girl.<sup>68</sup> The radiographs also indicated the presence of modern straight pins and staples throughout the linen, providing evidence that the mummy had been unwrapped in recent times and any amulets or jewelry possibly encountered removed. This unwrapping might have occurred in 1897 during the mummy examination at the BMA *conversazione* held at the Redpath Museum and/or at the examination referred to in the 1928 newspaper clipping.

The x-rays were sent to Dr. Bierbrier, Assistant Keeper of the Department of Egyptian Antiquities at the British Museum, who offered these comments in response to a query regarding the possible presence of a papyrus roll between the lower thighs:

My colleague and I have examined the x-rays of your mummy and we are both of the opinion that the object between the thighs is not a papyrus. It is probably a bundle of linen or less likely a package of viscera. No papyrus would be rolled in such a circular manner or appear so thick. Moreover the lack of ornaments on the mummy lessens any possibility of a papyrus enclosed under the bandages. From the photographs it would appear that the mummy should be dated to the late Ptolemaic or Roman period. The decoration would suit either a man or woman so I leave it to your anatomists to decide the correct sex.<sup>69</sup>

This mummy displays the intricate style of wrapping and cartonnage body coverings typical of the Ptolemaic Period, when more care was given to the external appearance than the actual embalming. The crossing of the arms upon the breast with right arm folded over left is also indicative of a Ptolemaic date.<sup>70</sup> The cartonnage mask with gold leaf decorated face attests to the wealthy status of its owner. It follows a fairly traditional design with the deceased depicted wearing a long wig with horizontally oriented sections interspersed with stylized festal fillets and strings of beads as well as seated figures of various deities. At an earlier period, they would have been specific representations of particular funerary deities, but by Ptolemaic times, they were simply generalized gods of a protective nature.<sup>71</sup> The two prominent figures on either side represent the sister goddesses Isis and Nephthys. The pectoral cartonnage depicts the jackal-headed god Anubis presiding over the mummification ritual of the deceased, with the four vases containing the viscera in view underneath the platform.

In September of the same year, the two mummified heads from the Redpath collection were examined by Dr. Shields and Dr. Taylor from the McGill Faculty of Dentistry and radiology supervisor M. Alibranti at the Royal Victoria Hospital with these findings:

. . . [Dr. Taylor] dated head A at approximately sixty-five years old at the time of his death, according to today's standards of diet. His teeth were loose from advanced periodontal disease. There was very little decay at the gum line, a condition which is very common in today's elderly. Because of sufficient wear, there are two possible abscesses [sic] which would have led to exposure of the nerve.

Head B was considerably younger at the time of his death, approximately forty years old, again, according to today's standards. There was almost no gum disease. He had lost one 6 year molar.

One abcess [sic] was observed and one 6 year molar badly decayed at the cusp. The third molars (Wisdom teeth) are missing....

Because of the minor development of the jaw muscles, it can be concluded that these Egyptians had a soft diet and because of the worn teeth, they had a gritty diet.<sup>72</sup>

### **Mummy Exhibits at the Redpath Museum 1980s and 1990s**

During the period 1970 to 1987, the Redpath Museum focused almost exclusively on teaching and research activities with exhibits that were intended for the McGill community. Researchers, non-McGill visitors, and groups were required to make appointments. Displays tended to have lengthy texts and towards the latter part of this period they were bilingual. All cultural exhibits were limited to the ground floor and these included the Theban and Fayum female mummies, the former displayed with its recent x-rays and also the verse cited earlier that had accompanied it in Divinity Hall.

In 1994, the Redpath Museum was approached by the McCord with a request to borrow a mummy for an upcoming exhibit commemorating the one hundred year anniversary of the discovery of x-rays. Since the two female mummies were firmly ensconced in prominent exhibits in the Redpath's lobby at the time and both had undergone radiographic examinations in fairly recent history, the Theban male mummy (RM 2718), then in storage, was suggested as an alternate possibility. As almost seventy years had passed since that mummy had been x-rayed, plans were made to have the mummy re-examined using some of the newest radiological equipment then available in Montreal. Prior to the "day out" at the hospital, the Redpath mummy spent a period of time with the McCord textile conservator, who removed surface dust, consolidated loose wrappings, and designed supports to prepare the mummy for transport and for later display at the McCord Museum.

### **Radiographic Exam of Theban Male Mummy in 1995 at Hôpital Saint-Luc**

The radiological investigation of the Theban male mummy was performed on the 21<sup>st</sup> of January 1995 under the supervision of Dr. Étienne Cardinal, a musculoskeletal radiologist at the Hôpital Saint-Luc, making use of conventional radiological techniques and also of the latest generation of high-speed spiral CT scanners recently acquired by the hospital. Patrick Horne, Supervisor of Pathology at Ontario's York County Hospital served as palaeopathology consultant and was responsible for analyzing the results of the examination, having participated in numerous mummy investigations in Canada and abroad. Horne named the mummy "RED II" in keeping with established naming protocol used for mummy examinations.

Observations compiled from earlier museum texts and the 1928 x-rays indicated that this individual was an adult male with several healed ribs broken during life and with arms



4. Artefacts in the Bandages: None were seen.
5. Type of Mummification: The brain was removed through the left nostril; no resin was added to the cranium. The orbits are intact. A left transabdominal incision was noted; no organ packages were observed. The heart was believed to be left *in situ*.
6. Facial Reconstruction: CT scan data was used for a facial reconstruction.
7. Visualization of Organs from CT Scans: No organs were present.
8. Period to Which the Mummy Belonged: Given the sparse amount of information available, assigning the mummy to a specific period is extremely difficult, but a New Kingdom date (1570 -1293 BCE) was suggested based on brain removal and organ removal. Since the organ packs may have been removed in recent times or possibly simply disposed of rather than being removed and placed in Canopic jars, this dating remains highly speculative and awaits confirmation by future radiocarbon analysis of the linen bandages.<sup>74</sup>

Although the amount of new information gleaned from the radiological examination at the Hôpital Saint-Luc was relatively modest, with the exception of the possible dental intervention mentioned above, the press coverage was extraordinary. The day following the examination saw prominent spreads in all major Montreal newspapers. Including these, approximately fifteen press pieces appeared before the opening date of the McCord exhibit in May 1995. This attention was due to the subject matter, but also to having the full force of the McCord Museum's publicity department behind the project. Once the exhibit opened about fifty additional written pieces appeared, as well as numerous radio and television reports.<sup>75</sup>

### ***The Inside Story* at McCord and Museum of Science and Technology**

*L'invisible se révèle / The Inside Story* was an exhibit prepared by the McCord Museum to commemorate the centenary of the discovery of x-rays by German doctor, Wilhelm Conrad Röntgen. The exhibit examined the history of x-rays using early scientific equipment, photographs, and archival documents. One of the exhibit highlights was "Red II" accompanied by the x-rays and CT scans recently taken at the Hôpital Saint-Luc and a summary of the examination results presented by means of an interactive computer



Figure 11. *The inside story: 100 Years of X-Rays*, exhibition at the McCord Museum featuring RM 2718, May-November 1995. Photo: 1500-P.14.1995.02 © McCord Museum, Montreal

display (fig. 11). *The Inside Story* was shown at the McCord Museum from May to November 1995 and then continued on at the National Museum of Science and Technology in Ottawa between June 1996 and April 1997

### **Art Installation at Redpath Museum Features Female Theban Mummy**

Quite out of character for the Redpath Museum (and also for the mummies in McGill's collection) was an *in situ* art installation in 1996 entitled *Time Machine (The Personal Observatory)* featuring the Theban mummy and its x-rays. The Redpath was approached by video artists Madelon Hooykaas and Elsa Stansfield whose intention was to investigate the museological gaze in an institution "foreign" to contemporary art.

. . . The main motivation underlying *Time Machine* is to produce a critical and sensory reading of this collection, focusing on the modalities of observation of its contents. The two artists have thus selected one object in the Redpath in order to re-stage it. The object in question is the Egyptian mummy on the first floor, a piece acquired in 1859. They have also selected a technology, radiography, which was recently used by the Redpath to further the identification and classification of the mummy.

As they focus on the visual technology used for the observation of the mummy, Hooykaas and Stansfield are raising the question of museological visibility. How does the Redpath construct our viewing of the object? How do we observe a mummified ancestor, particularly when its visibility has been marked by the modern technology of the X-ray? How is the visibility of the mummy also a matter of *invisibility*?

. . . Radiography is therefore a technology which intermingles and confuses scientific knowledge and aesthetic perception, specialized knowledge and popular fantasy, the private and the public, the interiority of the body and its exhibition, life and death. It produces knowledge, yet as a result, it seems to impoverish this knowledge as it colonizes the inside of the body, empties it of remaining mysteries, classifies it as normal or abnormal.

*Time Machine* partakes in this series of paradoxes. But the installation does not so much produce an antimony as it incites to a dialogue within this antimony, between the object of collection and the contemporary spectator. The X-ray is displayed, multiplied, put into motion by the video image, mediated by a magnifying glass, leading to a complexified observation of the mummy. The mummy is thus progressively seen not simply as an object of memory but as living memory, coming to life and meaning through the present time of observation. It is precisely as a *present time* observatory favouring the mobility of memory that *Time Machine* renews the visibility and perception of one of the most famous objects of the Redpath collection.<sup>76</sup>(fig. 12)



Figure 12. *Time machine* by Elsa Stansfield & Madelon Hooykaas, *in situ* video installation on ground floor, Redpath Museum, 1996  
Photo: © Stansfield/Hooykaas

### **Interactive Computer Exhibit Developed for Redpath Mummies**

During the winter of 1997, the Theban and the Fayum mummies displayed near the main entrance of the Redpath Museum were transported with care and installed on the third floor. This was the first stage in transforming the entire uppermost gallery into an exhibit area devoted exclusively to material culture, culminating in the establishment of an Ethnology (now World Cultures) gallery in December 2004. This was the first time in the Redpath's one hundred and twenty-two year history that a specially designated exhibit area was allotted to cultural collections. Following its return from the Canadian Museum of Science and Technology, the Theban male mummy known as "Red II" along with x-rays, scans, and interactive display was installed on the third floor along with the other mummies. The last time all three mummies had been displayed together was about fifty-five years before when the Ethnological Museum was housed in McGill's Strathcona Medical Building.

With the new Ethnology gallery now a permanent fixture in the Redpath Museum and the mummies continuing to be among the favoured exhibits of the visiting public, curatorial dissatisfaction with the limitations of the inherited "interactive" exhibit was on the rise. Red II, the life-size composite radiograph, and the images from the CT scan, were all of extraordinary interest. The computer exhibit itself was rather lackluster, basically limited

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to a handful of screens showing exhibit texts in both languages, which hardly warranted any technological assistance at all. In 2005, the idea of creating a more high-tech and exciting interactive display was brought to Professor Jörg Kienzle of McGill's School of Computer Science, who soon had a M.Sc. student working on the project to design an interactive multimedia computer application with curator Barbara Lawson, who provided the textual information and visuals. The new interactive exhibit provided background details on the Redpath mummies, information on the practice of mummification, a general chronology of Egyptian history, an interactive map of important sites in Ancient Egypt, descriptions of daily life, an overview of the major deities, and allowed the visitor to access a series of CT cross-sections of RED II.<sup>77</sup> This popular exhibit is now undergoing some major revisions given the new information brought forward by recent CT scanning and radiocarbon dating of the mummies.

### **CT scanning at the Montreal Neurological Institute in April 2011**

The Redpath Museum was first approached in 2008 by Andrew Nelson, a bioarchaeologist in the Department of Anthropology (University of Western Ontario), with a research interest in the non-destructive analysis of Egyptian mummies using conventional x-rays and CT scanning techniques. Nelson was interested in establishing a digital database of Egyptian mummy radiographs and wanted to know if the Redpath would agree to contribute data to the project along with several other well-established institutions. Soon to be known as IMPACT (Internet Mummy Picture Archive and Communication Technology), this international, collaborative tool was established to undertake large-scale radiological studies of patterns in ancient health and disease and in mummification practices around the world.<sup>78</sup> By 2010, Andrew Nelson and Andrew Wade, collecting data for IMPACT, proposed that all three Redpath human mummies undergo scanning using the latest technology available at one of the local hospitals in keeping with the project's requirement for well-imaged, well-described, and detailed case studies.

The examinations, which took place at the Montreal Neurological Institute (MNI) in April 2011, produced high-resolution 3D radiological images of the three human mummies and also six bird mummies from the Redpath World Cultures Collection (fig. 13). Its aims were to determine how they were mummified, their osteobiographical details (age, sex, social status, etc.), their state of preservation, their dental and overall health, the dental filling of the male Theban mummy, the package or scroll in the female Fayum mummy, and the unidentified contents in one of the ibis mummy bundles. This was the first CT scanning for the two female mummies and although the male mummy had been previously scanned, there obviously were enormous technical advances since that examination of more than fifteen year ago. New basic information or that differing from previous findings has been extracted from the full reports and is presented below.<sup>79</sup> In the year or so following the MNI examinations, results from radiocarbon dating overturned long-held assumptions based on documentation in the Redpath Museum files

which had assigned both Theban mummies to the New Kingdom period (1550-1070 BCE); these revised dates are also included in the following summaries.



Figure 13. CT scanning of Redpath mummy (RM 2720) at the Montreal Neurological Institute in April 2011.  
Photo: Nicolas Morin, © MNI

Theban Mummy (RM 2717): The mummy is of a tall, relatively high status female aged between 30 and 50 years old, whose height in life was approximately 160.9 cm (5 feet 3 inches). The teeth are in poor condition. The brain is intact and the eyes remain in their orbits. The mummy has been eviscerated, apparently through an opening produced in the perineal region, which is closed with a plug made of resin and linen. The heart and lungs have been removed from the thoracic cavity and the stomach, intestines, liver, and urinary bladder are absent from the abdominal cavity. Although the skin of the abdomen is intact, the mummy has a cartonnage plaque positioned on the left side where one would expect to find a transabdominal incision.<sup>80</sup> The scans refute the previously reported missing left little finger, as it is now shown to be tucked behind the ring finger. Although the upper part of the right index finger is missing, this occurred prior to embalming. The mummy is tightly wrapped with resultant compression of the thoracic cavity. The intact wrappings on the torso, arms, and legs are secured in place by cloth bands with a serpentine weave, placed in a crisscross pattern over the outermost wrappings. Linen with woven fringes was found among the wrappings, and a dense tassel or beaded fringe was noted in the wrappings between the calves. The arms are extended along the sides with hand placed palms down towards the front of the thighs. Neither arms nor legs were individually wrapped. A modern pin is apparent where the wrappings end above the left shoulder. The bandages had been removed from the head and feet and only traces of the copper foil in these areas remain; the spices on the face described by Dawson in 1859 are no longer present. The radiocarbon analysis of the linen sample taken in October 2011 dates this mummy to the Late Roman Period (230 - 380 CE).<sup>81</sup>

Theban Mummy (RM 2718): The mummy is of a short, possibly elite, young adult male in his early twenties, whose height in life was approximately 162.6 cm (5 feet 4 inches). The dental condition is mixed, but generally poor. There is what appears to be an ancient treatment in a left molar cavity to protect the exposed nerves. The brain has been removed through the left ethmoid and the eyes remain intact in their orbits (fig. 14).



Figure 14. researchers examine a detailed 3D CT image of RM 2718 at the Montreal Neurological Institute. L to R: B. Lawson (Redpath Museum); Impact researchers A. Wade and A. Nelson (Department of Anthropology, University of Western Ontario), and D. Tampieri (Head, Department of Diagnostic and Interventional Neuroradiology, MNI).

The mummy has been eviscerated through a vertical incision in the left abdomen which is not sutured, covered, or plugged. The heart is intact. The stomach, intestines, liver, and possibly the urinary bladder are absent from the abdominal cavity. There is an apparent presence of an anal tampon. The mummy is wrapped in three successive levels of linen bandages, with a layer of resin or plaster between them, from the shoulders to the mid-calf. The arms are extended along the sides with hand placed palms down towards the front of the thighs. Neither arms nor legs were individually wrapped, nor were the arms separated from the body by bundled linen. The radiocarbon analysis of the linen sample taken in July 2012 dates this mummy to the Ptolemaic Period (332 - 30 BCE).

**Fayum Mummy (RM 2720):** This is the mummy of a late adolescent / young adult female of average height and elite status between the age of 18 and 24 years old, whose height in life was approximately 156.8 cm (5 feet 2 inches). The teeth are in excellent condition and show little wear. The brain has been removed through the right ethmoid and resin fills a narrow vertical section along the posterior cranial cavity. The eyes remain intact in their orbits. The mummy has been eviscerated through an incision in the perineal area which has a single large linen and resin plug. The heart is absent. The lungs are intact in the thoracic cavity. The liver, stomach, intestines, and bladder have been removed and the skin of the abdomen has collapsed against the spine due to the absence of the organs or internal packing. The oval object between the thighs is neither an organ packet nor a papyrus scroll but a torus of linen separating each leg at the area between the thighs and knees. The mummy is wrapped in three successive levels of linen bandage with a layer of resin or plaster between the layers. A crisscross pattern of thicker bandages secures the outermost layer of linen wrappings. The arms are folded right over left across the chest with the left hand resting palm down on the right shoulder and right hand resting palm down on the left upper arm; both arms and legs are individually wrapped. The bandages across the face have been severed and the face is exposed. The removal of bandages, along with numerous modern pins at the neck and along the right side, indicates that the mummy has been unwrapped in modern times and subsequently rewrapped. This is not immediately apparent as the head and chest are covered by a gilded cartonnage mask and separate cartonnage pectoral panel. The coiffure, with long plaits across the mid-scalp drawn back and fashioned in a chignon at the crown, dates to approximately 96 -161 CE, a style typically worn by Roman provincial women, gives this mummy a likely mid-Roman Period date (figs. 15a & 15b).



Figure 15a. Lateral 3D CT image of RM 2720; the arrow indicates the plaits of hair.  
Photo: Reconstruction courtesy of Andrew Wade.  
CT image: © MNI.



Figure 15b. A similar coiffure to that on the Redpath mummy is on this coin profile of Faustina I (c. 100-140 CE), the wife of emperor Antoninus Pius.

## Facial Reconstructions of Three Ancient Egyptians

A project creating 3-dimensional facial reconstructions approximating how the Redpath Museum's three human mummies would have appeared in life was begun in 2012 and completed in 2013. The reconstructions were based on the high-resolution 3D radiological images that had been generated at the Montreal Neurological Institute in 2011. Cranial and mandibular skeletal CT scan data were processed by Andrew Wade and Andrew Nelson, physical anthropologists at the University of Western Ontario, to virtually remove all tissue and fabric and reveal the skulls of the mummies. The stripped-down CT scan data was sent to a 3D printer,<sup>82</sup> each skull taking approximately 10 hours to print. The printed skulls were then hardened using an epoxy resin and mounted on stands, serving as models for the work of forensic artist, Victoria Lywood (fig. 16).

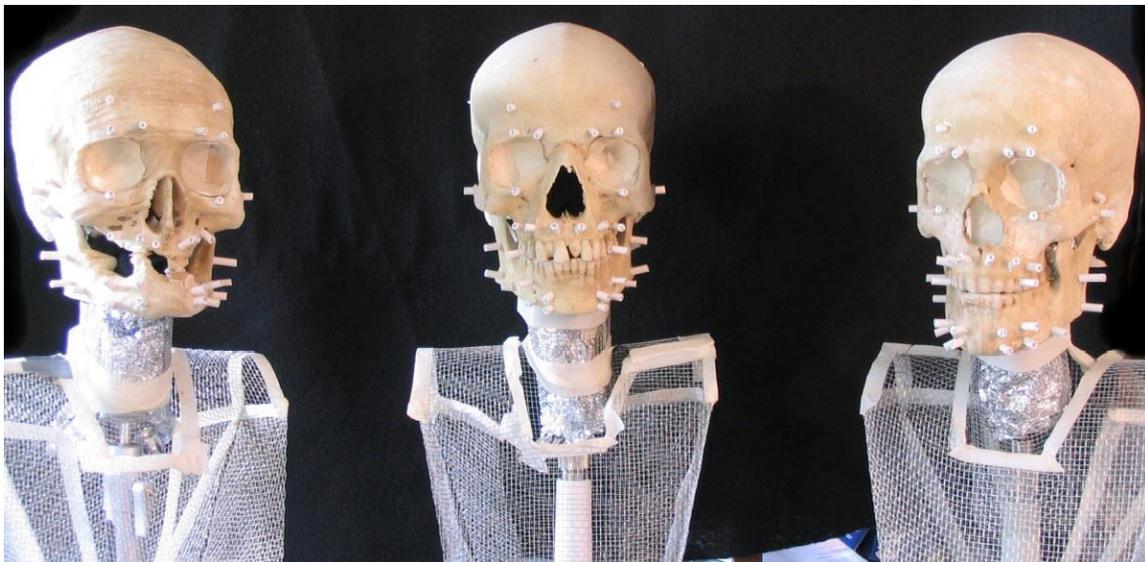


Figure 16. Mounted 3D printed skulls for mummies RM 2717, RM 2718, RM 2720 with tissue depth markers in place. Photo: © Mark Ewanchyna

Tissue depth markers, based on measurements of modern Egyptians, were attached to the models and non-hardening clay was applied according to the depths indicated to flesh out the faces. Prosthetic eyes were inserted and the surface of the model skulls were painted to reflect skin tones appropriate to the Mediterranean, North African, and Sub-Saharan mixture of Egyptian populations. The forensic artist also painted features and made appropriate wigs based on coiffures detected through the mummy wrappings by the physical anthropologists and confirmed by historical sources. The facial reconstructions were unveiled in January 2013 amid intensive media interest and are now on permanent

display in the Redpath's World Cultures gallery (fig. 17) .



*Figure 17. Facial reconstruction of Redpath mummies RM 2717, RM 2718, RM 2720 by forensic artist Victoria Lywood. Photo: © Victoria Lywood*

### **Concluding Remarks**

The radiological investigations at the Montreal Neurological Institute in 2011 stimulated much interest about the Redpath Museum's Egyptian mummies in terms of their origins and placement in a variety of Montreal and McGill venues. Over a century and a half of examinations and presentations, ranging from the inventive to the scientific, also belong to this intriguing history. Some information about this collection has been lost until now; other facts have been subject to various levels of misinterpretation, which in itself is of interest in attempting to better understand the past. Surprising are several important elements still unfound including reports of the x-rays from 1928 and 1981, and most especially the skiagraph from 1897 or other details associated with that particular event.

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It is hoped that the historical account presented here might serve to bring forth additional information and perhaps even radiographic evidence from the earliest examinations. Certainly this long view of the Redpath collection encourages reflection on the fascination that mummies hold. The religious, cultural, historical, political, anthropological, poetic, and technologically sophisticated interpretations that have emerged thus far regarding McGill's mummies, also invite speculation on those investigations that might lie ahead.

### **Acknowledgements**

The author gratefully acknowledges Salima Ikram (American University in Cairo), John Taylor (Department of Ancient Egypt and Sudan, The British Museum), Andrew Nelson and Andrew Wade (IMPACT Project, Department of Anthropology, University of Western Ontario), and Mark Trumppour (Royal Ontario Museum) for the many helpful suggestions offered during the preparation of this article.

### **Endnotes**

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<sup>1</sup>A "CT" or computerized tomography scanner is a special kind of X-ray machine that simultaneously sends several beams from different angles.

Several publications have already been generated from this research, with several additional works in progress; a facial reconstruction project is planned for autumn 2012.

Of the three human mummies, all have had radiographic examinations, but only one has previously undergone CT scanning. The ibis mummy (RM 2727.01) was the only one of the six bird mummies to have had a previous radiographic examination, which probably took place in 1981.

The only attempt at describing this collection is Kathleen Zahn, "The McGill University Egyptian Mummy Collection", *Collected Papers of the Society for Near Eastern Studies*, v. 2, April 1984, 25 - 29. In addition to advances in radiographic technology and in the field of mummy studies which revise much that is described therein, recent historical research on the Redpath mummies also adds much new information and offers a more precise and detailed view of past events.

<sup>2</sup> For a detailed discussion regarding the evolution of mummification techniques, see Salima Ikram and Aidan Dodson, *The Mummy in Ancient Egypt*. London, Thames and Hudson, 1998, 103 - 136.

<sup>3</sup> Salima Ikram, *Divine Creatures: Animal Mummies in Ancient Egypt*, Cairo, American University in Cairo Press, 2005.

<sup>4</sup> Most of the NHSM animal mummies etc. not donated by Ferrier were associated with Dr. Charles Gibb. Since no specific details regarding his acquisition of mummified remains have been found, he has not been included in this discussion; see Barbara Lawson, *Collected Curios*. Montreal, McGill University Libraries, 1994, 21 - 40, for a history of the Redpath Museum's Ethnology [now World Cultures] Collections and the nineteenth century travellers who donated artefacts from their activities abroad.

<sup>5</sup> James Ferrier (1800 - 1888) was a Montreal businessman, railway promoter, and politician. He was Mayor of Montreal, both a Governor and Chancellor of McGill University, as well as President of the

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Royal Institution for the Advancement of Learning. He was religious with an active interest in church matters, serving as a Sunday-school superintendent, and was engaged in several philanthropic endeavours. Ferrier also played a leading role in the Natural History Society of Montreal (NHSM), in whose museum his collection was deposited in September 1859, and later transferred to McGill University in 1925.

Dr. Lachlan Taylor, a Methodist minister based in Upper Canada, taught at Victoria College in the early 1850s. He travelled to Egypt with James Ferrier and family and donated Egyptian material to Victoria College between 1872 and 1873, which eventually became part of the collections of the Royal Ontario Museum in Toronto. The author is grateful to Mark Trumpour for locating the diaries of Lachlan Taylor in the United Church of Canada Archives, which have been extremely useful in providing details regarding Ferrier's trip to Egypt.

The "dahabiyah" is a shallow-bottomed passenger boat with two or more sails that has been used for Nile travel for thousands of years; it remained the standard means of tourist travel until the 1870s.

<sup>6</sup> Travel dates are noted in Lachlan Taylor, *Diaries 1859 - 1862*, United Church of Canada Archives, Toronto, accession no. 86.189c: Box 1/5 and Box 2/6. Taylor's diary entry for February 19<sup>th</sup> 1859 notes "In the afternoon went to see the Mummies [at Thebes] which we afterwards purchased. In the evening went to Luxor and called on Mustapha Agha the Consul." As Ferrier and Taylor were travelling companions, it is assumed that both men went together to see the mummies in the afternoon, and that Ferrier is included in the "we" who afterwards purchased them. Although Taylor's diary does not indicate where or from whom the mummies were actually acquired, it has been suggested that mention of a visit to Mustapha Agha in the sentence following the one noting their purchase makes him a likely source for their acquisition (Mark Trumpour, "The Diaries of the Rev. Dr. Lachlan Taylor", emailed 8 pages typescript 17 August 2010, 7). Fennings Taylor alludes to the shady nature of the mummy transaction in "The Honorable James Ferrier", *Portraits of British Americans*. Montreal, William Notman, 1865, 170 – 171.

<sup>7</sup> Ikram and Dodson, 76 - 78.

<sup>8</sup> Email: 28 October 2011 from Dr. John Taylor, Assistant Keeper, Department of Ancient Egypt and Sudan, The British Museum, London.

<sup>9</sup> Francis Frith and Richard Lunn, *Francis Frith's Egypt and the Holy land: The Pioneering Photographic Expeditions to the Middle East*. Salisbury, Frith, 2005, 8 – 11.

Margaret Watson Ferrier (1832 - 1909) was the youngest daughter; she married John Torrance in 1860. James Ferrier, *Notes of a Tour from Cairo in Egypt through the Desert, Palestine & Syria*. Montreal, Becket, 1873, 3 - 4.

<sup>10</sup> James Ferrier, Jr. (1825 - 1902) visited the Middle East with his father and brother George in 1846. He was not, however, part of the group that visited Egypt in 1859, when the artefacts donated to the NHSM were collected.

This five-page handwritten list is tucked in the back of the: "Natural History Society of Montreal Register Book of Donations", McGill Libraries Rare Books and Special Collections Division, QH1 N276 BW MSS.

George Cornish (1828 - 1895) was a Congregational minister, educator, librarian, and long-time affiliate of McGill College.

Robert Ferrier (1838 - 1870), the youngest son, accompanied his parents and sister Margaret to Egypt in 1859. He was ordained at St. James Church (Montreal) in 1865. He contracted a serious illness on the Egyptian trip from which he never fully recovered.

*Annual Report of the Natural History Society of Montreal for the Year 1859*. Montreal, John Lovell, 1859, 31.

Tickets to the illustrated lecture were to be sold for "2/6 each alike to members and others", "Minutes of the Proceedings of the Natural History Society of Montreal from its formation in May 1827" McGill  
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Libraries Rare Books and Special Collections Division, QH1 N273 BW MSS, 41. “2/6 is most likely 2 shillings and 6 pence - or roughly \$0.60 . . . in Montreal in 1857, the average daily wage for a common labourer was 5 s (\$1.22) – so the museum lecture would cost him exactly half a day’s pay”, email: 14 June 2012 from Raewyn Passmore, Assistant Curator, National Currency Collection, Bank of Canada, Ottawa.

“Minutes”, c. 47. Given the amount of the proceeds cited as \$64.50, there would have been about 107 paid ticket holders in attendance. The takings of \$64.50 in 1859 are roughly equivalent to about \$1600 CAD today, ± 10% (Passmore, 2012). The amount generated from this event is indeed significant, when compared to the Society’s yearly incomes between 1863 and 1881 (see Hervé Gagnon, “The Natural History Society of Montreal’s Museum and the Socio-Economic Significance of Museums in 19<sup>th</sup> Century Canada”, *Scientia Canadensis*, v. 18, n. 2 (47) 1994, 118.

<sup>11</sup> *La Minerve*, 13 Octobre 1859, v. XXXII, n. 15, 3. (The same advertisement appears on October 15<sup>th</sup>, 18<sup>th</sup>, and 20<sup>th</sup>).

<sup>12</sup> S. J. Wolfe, *Mummies in Nineteenth Century America*. Jefferson (North Carolina), McFarland, 2009, 171. Bob Brier, *Egyptian Mummies*, chapter 5 “Holy Unrollers: The Mummy Unwrappers.” New York, William Morrow, 1994, 149 - 173. Wolfe, 132 - 135.

<sup>13</sup> *Ibid*, 171.

<sup>14</sup> John W. Dawson, “Notes on Egyptian Antiquities presented to the Natural History Society by the Hon. Mr. Ferrier”, by a Committee of the Society (Read at Meeting of Oct. 31<sup>st</sup>), *The Canadian Naturalist and Geologist*, v. iv, n. 6, December 1859, 402 - 404. Note that Zahn’s article (see endnote 1) incorrectly attributes the above publication to James Ferrier.

See also “Minutes of the Proceedings of the Natural History Society of Montreal from its formation in May 1827”, McGill Libraries Rare Books and Special Collections Division, QH1 N273 BW MSS, 47 - 48.

<sup>15</sup> Dawson is described as being Chairman of the “Committee appointed for the purpose of *arranging* of the [public] Exhibition of the Ferrier Collection of Egyptian Antiquities” (“Minutes”, 41, 47) and also Chairman of the “Committee appointed for the purpose of *examining* the Egyptian Antiquities” (“Minutes”, 49) [italics added]. Whether these are two distinct committees with specific mandates, or a matter of imprecision on the part of the Recording Secretary is unclear. Specific details regarding how the mummies were actually examined and by whom, remain unanswered. Also unknown is to what degree they were unwrapped and if an actual autopsy of the male mummy which is now most evident, was performed around that time. In consideration of these significant lacunae in our understanding of the events of the day, the difference between a committee appointed to *arrange* the public exhibition and one appointed to *examine* Egyptian antiquities is significant.

Edgar Andrew Collard, “What goes up will come down”, *The Gazette*, 17 November 1991, refers to a mummy being unrolled at the Natural History Society in an article paying tribute to Sir William Dawson. As the article is quite vague as to details, and no additional information beyond that appearing in Dawson’s own report is offered, it is assumed that the December 1859 article cited above is the inspiration for Collard’s discussion.

Dawson, 402 - 404.

J. W. Dawson, “Notes on the Flora of the White Mountains in its Geographical and Geological relations”, *The Canadian Naturalist and Geologist*, v. iv, n. 2, April 1862, 88.

<sup>16</sup> This polychrome wooden anthropoid coffin belonged to Tjaoneferamen. A translation of the coffin text was prepared by C. Legh Powell, of unknown affiliation, and revised by Dr. Ludlow S. Bull, Assistant Curator of Egyptian Art at the Metropolitan Museum of Art in New York circa 1931. The translated text indicates that the owner is “That – ‘o – Nufer – Amūn”, sedjem ash priest, cult servant of the divine votaress of Amun, a position almost invariably held by a man. It also notes that the determinative signs following the name of the owner are in every case male., “Report on Egyptian Coffin”, 5 page carbon copy of typewritten manuscript, prepared by C. Leah Powell with revisions from Dr. Bull added in pencil, circa 1931, Redpath Museum, World Cultures office files, “Egypt – Mummies – Mummy Coffin Translation Acc. 2717”). The above remarks and the red colour of the face indicate that the coffin was made for a man, rather than its current female inhabitant; it is not known how mummy and coffin became associated.

Although the sex of the mummy within the coffin was determined by the time of Dawson’s examination in 1859 (see note 14), Bull seems to be unaware of any earlier x-rays or examinations as indicated in the following remarks to Powell “When you begin to talk about the mummy I notice that you refer to her as a lady. If the mummy has not yet been unwrapped how can the sex be known? It is quite possible that you might find a book of “That Which is in the Underworld” between the thighs. References to the dead in such a document might give the filiation but it is very unlikely that there would be any reference to the reign in which she lived. I should recommend unwrapping the mummy. It would be a good idea to take an x-ray first.” Copy of a typed letter from Dr. Ludlow Bull to Mr. Powell, 6 April 1931, Redpath Museum, World Cultures office files, “Egyptian Collection – correspondence to 1999”.

Ferrier’s travelling companion, Lachlan Taylor (see endnote 5), donated an almost identical coffin to the Royal Ontario Museum. The ROM coffin belonged to An-tjau and is dated to Dynasty XXV - XXVI, with an approximate date of 600 BCE.

<sup>17</sup> A discussion of this lichen follows Dawson’s contribution in a “Note” extracted from a letter from Professor Tuckerman, 404. In 2008, Michaela Schnull contacted the Redpath Museum inquiring about the source of a lichen specimen, *Pseudevernia furfuracea*, in the collection of Harvard University’s Farlow Herbarium. Information accompanying the sample indicated that it was originally found within the chest area wrappings of an unknown mummy in Montreal circa 1860. The lichen sample was acquired and identified at the time by Edward Tuckerman, a professor at Amherst College. The identity of the mummy was confirmed as RM 2717 by Redpath curator Barbara Lawson. An exhibition at the Harvard Herbaria about plants used in ancient Egypt and a publication resulted from the study of this sample: Michaela Schnull and Brown, Daphne, “*Pseudevernia furfuracea*”, *Opuscula Philolichenum*, 6, 2009, 45 - 50.

<sup>18</sup> Dawson, 402.

Dawson describes the heads of the Theban male and female mummies as being “fine formed, and of the European type” (404) in keeping with concerns about the racial type of ancient Egyptians which were prevalent in late nineteenth and early twentieth century mummy investigations. Although cranial measurements together with those of long-bones have provided various ideas as to the origins of ancient Egyptians, there is still no distinct racial type; Ancient Egyptians seem to have been a mixture of several physical types (Ikram and Dodson, 95).

<sup>19</sup> Dawson, 404.

<sup>20</sup> From the eighteenth to early twentieth century, researchers used the terms bitumen, pitch, and resin indiscriminately, usually favouring the former as in Dawson’s text. Since then, the dark material used on mummies has been chemically identified as resin coming from trees, rather than bitumen originating from petroleum, although some mummies dating between the first century BCE and the 2<sup>nd</sup> century CE have been shown to have traces of bitumen (Ikram and Dodson, 116 - 117).

Dawson, 403; see endnote 18.

<sup>21</sup> Frost, 32; Gagnon, 108.

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<sup>22</sup> B. G. Trigger, "Sir John William Dawson: A Faithful Anthropologist", *Anthropologica*. n.s. v. 8, n. 2, 1966, 351 – 359.

<sup>23</sup> Dawson, 404. He describes RM 2721.01 as a "characteristic elongated African head" and RM 2721.02 as "short, and with prominent cheek-bones, tending to a Scythian or American conformation. These differences however are within the limits of those that occur in our own and other modern civilized races" (see endnote 18).

Dawson, 403.

<sup>24</sup> Printed black ink with red border on card, Redpath Museum, World Cultures office files, "Egypt – THEBES (Mummy of a Woman)" and "Egypt – THEBES (Mummy of a Man)".

"J.B.W. 1896" appears at the bottom right corner of the female mummy text. Although who the initials refer to is unknown, they possibly are those of John Frederick Whiteaves, as the middle letter has been retouched from an "F" to a "B" and Whiteaves was curator of the NHSM 1864 -1876 and responsible for labeling the specimens on exhibit. It is possible that the label was refreshed from one of an earlier date or that he continued to offer this type of assistance following his official tenure. Although difficult to view clearly, labels of this style appear in photos of the NHSM circa 1900.

This is the first textual reference to this mummy living "more than 3,000 years ago" which would date it to the New Kingdom; how this date was arrived at is unknown. It is interesting to note, however, that the "New Kingdom" attribution persisted until radiocarbon dating in October 2011 and July 2012 indicated a date in the latter half of the Roman Period (30 BCE - 395 CE) for RM 2717 and 360 - 350 BCE for RM 2718.

<sup>25</sup> British Medical Association, *Official Guide and Souvenir: British Medical Association Sixty-Fifth Annual Meeting, Montreal, 1897*, Montreal, Desbarats, 1897, offers a brief description of the NHSM, noting "In the gallery . . . [is] the "Ferrier" collection of Egyptian antiquities", 39.

Gelatin silver process, paper mounted on cardboard, photographer unknown, McCord Museum of Canadian History, Notman Photographic Archives, MP - 0000.113.6.

Canopic jars were used to preserve the mummy's internal organs, which were essential for well-being in the afterworld. Their lids are carved to represent the four sons of Horus, each responsible for the preservation of a specific organ (stomach, intestines, liver, and lungs). The four jars donated by Ferrier (RM 2546 a-d) are made of limestone and date to the Ptolemaic Period (332 - 30 BCE); their solid bases indicate a representational rather than functional role, as the mummifications of that period typically left the viscera in the body rather than removing them to be stored separately.

<sup>26</sup> See Lawson, 23- 31; Gagnon, 114 - 115, 124 – 128; Frost, 41.

<sup>27</sup> See Lawson, 27 - 31. The architecture of the Redpath Museum building is noted in James Fergusson, *History of the Modern Styles of Architecture*, London, John Murray, 1891, 170 - 171.

<sup>28</sup> Letter dated May 23, [18]95, M.S. Catalogue and Notes Peter Redpath Museum [inserted within cover], McGill University Archives, R.G. 41, c. 5.

<sup>29</sup> "The Birthday Honours", *The British Medical Association*, June 27, 1914, 1422.

<sup>30</sup> H. E. MacDermot, *Sir Thomas Roddick*, Toronto, Macmillan, 1938, 146.

<sup>31</sup> Email: 1 September 2011 from Professor Barbara E. Borg, archaeologist and Fayum specialist and Head, Department of Classics and Ancient History, University of Exeter. This opinion is also held by British Museum mummy specialist John Taylor, ". . . there is no record of mummies being found at Hawara before Petrie's excavations there in 1888, so if Roddick obtained one from that site 1882 - 1885 it may have been a chance find, perhaps made by a local digger" (email: 28 October 2011).

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<sup>32</sup> Theodor Graf (1840 - 1903) was one of the most important Egyptian antiquities dealers of the late nineteenth - early twentieth centuries specializing in material from the late Roman, Byzantine, and early Islamic periods; Borg, email: 1 September 2011.

<sup>33</sup> British Medical Association, *Official Guide and Souvenir*, 58.

<sup>34</sup> There are no inscriptions on this mummy; perhaps Macalister “translated” the iconography of the cartonnage (plaster-soaked linen) mask and pectoral covering the mummy.  
 “Sixty-Fifth Annual Meeting of the British Medical Association, Held in Montreal, August – September, 1897”, *The British Medical Journal*, September 25, 1897, v. 2, n. 1917, 817.

<sup>35</sup> Alexander Macalister, “Notes on Egyptian Mummies”, *The Journal of the Anthropological Institute of Great Britain and Ireland*, v. 23, 1894, 101 - 121.

The author has carried on a rather extensive search for this material throughout McGill, the University of Cambridge, the British Medical Association and other relevant archives. Apparently, attempts to trace Macalister’s mummy related notes were last made by a researcher in the 1960s and actually seen circa 1967 in the Anatomy School, University of Cambridge, but within the following year gone missing and not yet located. (Email: 30 November 2011, Margaret Wilson, Librarian, Department of Physiology, Development and Neuroscience, University of Cambridge; email: 28 October 2011 from John Taylor).

<sup>36</sup> Peter Robertson, “The All-Penetrating “X”, *Archivaria*, n. 10, 1980, 258 - 260; “X Rays at McGill”, *Old McGill*, 1898, 81 - 82.

<sup>37</sup> Joseph Hanaway, Richard Cruess, and James Darragh, *McGill Medicine, Volume II, 1885 - 1936*, Montreal, McGill – Queen’s University Press, 2006, 168.

Cox and Kirkpatrick thought theirs was the first clinical use of x-ray in Canada and their article “The New Photography with a Report of a case in which a bullet was photographed in a leg”, *Montreal Medical Journal*, v. 24, 1896, 661 was held to be the first on the topic published in Canada, until prior works were found by Charles Roland (“Priority of Clinical X-Ray Reports: A Classic Dethroned”, *Canadian Journal of Surgery*, v. 5, 1962, 247 - 251).

<sup>38</sup> Denis Goulet, “Girdwood, Gilbert Prout”, *Dictionary of Canadian Biography 1911 - 1920*, v. xiv, 409 - 410. Hanaway *et. al.*, 169.

<sup>39</sup> See Robertson, 258 - 260, regarding Cox and his less than generous nature in crediting Nevil Norton Evans, a lecturer in Chemistry at McGill who had been involved with Cox’s early x-ray demonstrations and possibly even a participant in the mummy radiography described here.

The *Old McGill* article cited above describes x-ray research and equipment in use at McGill c. 1898, but there is no mention of any radiography of a mummy.

<sup>40</sup> Rethy Chhem and Don Brothwell, *Paleoradiology; Imaging Mummies and Fossils*, Berlin Heidelberg, Springer, 2008, 64.

<sup>41</sup> An article, “X Rays at McGill” appearing in an *Old McGill* of 1898, pp. 81-82, describes x-ray research and equipment in use at McGill, but there is no mention of any radiographic examination having been performed on a mummy.

<sup>42</sup> Ikram and Dodson, 95 - 101.

<sup>43</sup> “Valuable Museum of Natural History Society is Transferred to McGill”, *Montreal Star*, 26 November 1925, [no page number].

<sup>44</sup> Clipping from the *Brockville Recorder and Times* attached to undated correspondence to an unknown copyright 2016 Barbara Lawson of Brockville, Ontario who had an interest in mummies and whose

husband was president of the Canadian Medical Association in 1902, Redpath Museum, World Cultures office files, "Egyptian Collection – correspondence to 1999". A Google search of the headline produced the same article with a different title in the *Calgary Daily Herald*, 17 April 1925.

It is also interesting to note the date "nearly 2,000 years older than the famous Tut –Ankh – Amen", although totally erroneous, that has been attributed to this mummy. Tutankhamun reigned as King of Egypt 1336 - 1327 BCE; the newspaper clipping therefore is suggesting the date of the Redpath mummy to be circa 3340 BCE!

<sup>45</sup> The only artefacts that remained in the Redpath Museum were the prehistoric stone tools which apparently were included with the permanent paleontological exhibits. For more details regarding the Ethnological Museum, see Lawson, 37 - 38.

"Ethnological Collection (transferred from the Redpath Museum to Strathcona Museum in the Medical Building)", 3 pages typescript, April 27<sup>th</sup>, 1925, Redpath Museum, World Cultures office files, "Redpath Museum – History – Ethnological Museum." This document lists objects by exhibit case and notes Table Case XII as having "One Egyptian Mummy" [p. 2].

There was no "Ethnological Museum" at this time. For a discussion regarding the distribution of McGill collections, see "McGill University - May, 1925 Memorandum on Museums", 13 pages typescript, McGill University Archives, RG 41, c 12.

"Notes Re Museum Arrangement - June 18<sup>th</sup>, 1925", 4 pages typescript, McGill University Archives, RG 41, c 12. "Removed to Library", inventory written in a McGill University examination booklet, World Cultures office files, "Ethnological Museum", Redpath Museum. The first entry dated Jan 26, 1926, is "Mummy of a Lady Upper [sic Lower] Egypt Donor T. G. Roddick M D., and is followed by several pages of Egyptian and classical antiquities, including [p. 6] "Mummy Foot Egypt", "Mummy Hand Egypt", "2 Mummy Hawks Egypt", "8 Mummified Crocodiles Egypt", and several pages later [p. 12] "Mummy Casing Egyptian", "Mummy Linen presented by Dr. Doddick" [sic Roddick].

As Roddick's original donation of May 1895 in the Redpath's register mentions only the mummy, it is possible that the linen described here was removed from Roddick's mummy during the examination at the BMA conversazione in September 1897 mentioned earlier.

<sup>46</sup> E. L. Judah, "Visual Education", Read before the Protestant Teachers Association of Quebec, Thursday evening, October 11, 1928, 5 pages typescript, McGill University Archives, RG 41, c. 14,1315B, ref. 134.

<sup>47</sup> Acc. Card Index [Ethnological Museum], Redpath Museum, World Cultures office files. Although the index cards are undated, the author dates them to the 1930s based when on when similar card index files were prepared for the Ethnological Museum collections. The texts were clearly derived from labels prepared for the mummy displays at the NHSM museum in 1896; see figs. 3a & b with the additional typewritten text: "Note X-Ray".

<sup>48</sup> Undated clipping from an unidentified newspaper, attached to correspondence dated August 9th, 1929 to the Curator, McGill University Museum from Roy L. Moodie of Santa Monica, California, seeking employment writing a report on mummy x-rays, Redpath Museum, World Cultures office files, "Egyptian Collection – correspondence to 1999". A Google search of the title produced several examples of the same article with different headlines in the following newspapers: *Hartford Courant*, 3 September 1928, *Milwaukee Journal*, 8 Sept. 1928, *The Telegraph Herald and Times Journal* [Dubuque, Iowa] 21 September 1928, *St. Petersburg Times*, 1 Nov. 1928.

<sup>49</sup> Several index cards refer to x-rays of mummies in the "McGill Museum". Redpath Museum, World Cultures office files "Lantern Slide Catalog [sic]. This description and the fact that the card index was prepared in the mid-1930s suggest that the lantern slides are reproductions of the 1928 mummy x-rays. (The lantern slide catalogue was prepared 1935 - 1937, University Museums Committee, typescript, McGill University Archives, RG 41, c. 12, file 15.) Most of the lantern slides were transferred to the McCord in the Copyright 2016 Barbara Lawson

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mid-1960s. Following the lead offered by the lantern index cards, the author was able to identify images of the 1928 mummy x-rays that had been divided between the Redpath and McCord museums, which had been separated from their association with the Redpath mummies for forty or more years. Descriptions of the x-rays included with exhibit texts from the Divinity Hall exhibit (undated, but between 1950 and 1970) and texts prepared for the Man and his World exhibit circa 1978 apparently are based on these early x-ray descriptions since the next known radiography didn't occur until 1979 for the two female mummies and 1995 for the male mummy. The only specific reference to actual x-ray images are the accession index cards dating to the 1930s, mentioned above in note 46.

Undated typescript text, Redpath Museum, World Cultures office files, "Egypt – Thebes (Mummy of a Woman)"; "Egypt – Thebes (Mummy of a Man)"; "Egypt – Hawara-el-Makta (Mummy of a Woman)."

<sup>50</sup> E. L. Judah [Curator of Museums], "Museums of McGill University", photocopy of 3 pages typescript [1st page missing], dated 1930, Redpath Museum, World Cultures office files, "Redpath Museum – History". It is most interesting to have this text which was probably used for a public lecture as it provides some insight into typical narratives used at the time to describe museum exhibits and mummies, without the formality of a polished edited text prepared for publication.

<sup>51</sup> "Ethnological Museum", typescript mimeographed handout, folded quarto, 1947, Redpath Museum, World Cultures office files, "Redpath Museum History – Ethnological Museum".

<sup>52</sup> Alice Johannsen Turnham, "Keeping Up With the Times", *The McGill News*, v. XXXI, n. 3, Spring 1950: 44.

<sup>53</sup> "The Ancient World", typescript mimeographed handout, folded quarto, undated, probably 1950s, Redpath Museum, World Cultures office files, "Redpath Museum History – Divinity Hall Museum".

<sup>54</sup> Typescript exhibit text on paper, Redpath Museum, World Cultures office files, "Redpath Museum History – Divinity Hall Museum".

<sup>55</sup> Typescript poem mounted on card, Redpath Museum, World Cultures office files, "Redpath Museum History – Divinity Hall Museum".

<sup>56</sup> Edgar Allan Poe, "Some Words With a Mummy", *The American Review: a Whig Journal of Politics, Literature, Art and Science*, v. 1, n. 4, April 1845, 363.

<sup>57</sup> The non-Canadian ethnological material stored in Pillow House was returned to the Redpath Museum in February 1978.

<sup>58</sup> Following closure of the extremely popular 1967 International and Universal Exposition known as *Expo 67*, the site and most of its pavilions carried on as *Man and His World* during the summer months between 1968 and 1981.

It seems that at least by 1978, the Ville de Montréal was actually charged for the loan of the mummies and accompanying objects which varied in selection from year to year. The Redpath also required that certain environmental standards be met by the display, that descriptive texts be consistent with information supplied by the Museum, and that insurance costs for all loaned material be covered by the Ville. Although material was loaned every year during this period, there were no mummies loaned in 1979. It should be noted that the mummies and accompanying objects which included on occasion a selection of mummified animals, a mummified hand, "Jivaro shrunken heads", and an African "witch doctor's rattle" were exhibited in the "Strange, Strange World" pavilion. By 1980, however, only Egyptian objects and one mummy (RM 2718) were loaned and displayed in the "Egyptian Pavilion". Redpath Museum, World Cultures office files, "Man and His World – Loans".  
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<sup>59</sup> Redpath Museum, World Cultures office files, “Man and His World – Loans”.

<sup>60</sup> Redpath Museum, World Cultures office files, “CCI – Treatments of Artefacts 1979 - 1988”.

<sup>61</sup> Redpath Museum, World Cultures office files, “Man and His World – Loans”.

<sup>62</sup> Rosalie David (ed.) *Mysteries of the Mummies: The Story of the Manchester University Investigation*. London, Cassell Ltd., 1978, 85 – 187.

<sup>63</sup> P. H.K. Gray, “Notes Concerning the Position of the Arms and Hands of Mummies with a View to Possible dating of the Specimen”, *Journal of Egyptian Archaeology*, v. 58, 1972, 200 - 204.

<sup>64</sup> J.E Harris and E.F. Wente (eds.) *An X-Ray Atlas of the Royal Mummies*. Chicago, University Press, 1980.

<sup>65</sup> Peter Lewin and Derek Harwood-Nash, “X-ray Computed Axial Tomography of an Ancient Egyptian Brain”, *International Research Communications System, Medical Sciences*, v. 5, 1977, 78.

<sup>66</sup> Yvonne Gervais “3,000 Year-old Mummy visits X-RAY DEPT.”, one page typescript text, draft for R.V.H. Newsletter, undated [circa December 1979]. Redpath Museum, World Cultures office files, “Egypt – Thebes (Mummy of a Woman)”.

An expanded version of Dr. Braun’s comments and a photo of a composite x-ray from the R.V.H. accompanied the exhibit of this mummy at the Redpath Museum for more than three decades.

<sup>67</sup> Zahn, 25.

<sup>68</sup> The exact date of the x-ray examination at the RVH has been determined from a carbon copy of a typed letter to Dr. Bernard Skinner, Radiology Department, Royal Victoria Hospital from Kathleen Zahn [Redpath Museum] dated January 29, 1981

which refers to the “x-raying of the mummy and various remains yesterday”, Redpath Museum, World Cultures office files, “Egypt – Scientific Investigation into Egyptian mummies collection”. No further information or report describing this examination has been found, except for the x-rays themselves. The information described here is as reported in Zahn 1984 cited above, p. 26.

It is likely that two mummified cats, two mummified ibises, six mummified hands, and two mummified feet were also x-rayed at the Royal Victoria Hospital during the January 1981 session. (RM 2728.1 - .2), (RM 2727.1 - .2), (RM 2719.1 - .4, 2723, 3164), and (RM 2719.5, 2722) are likely to be the “various remains” quoted above. These x-rays are in the Redpath Museum collection although there are no further details regarding the actual examinations.

<sup>69</sup> Another account of Dr. Bierbrier’s comments indicate that he thought it unlikely that the linen contained any viscera and that the embalmers may have put the bandages there for aesthetic reasons or to keep the legs straight while the body was being wrapped. The above is extracted from a term paper “The Use of Modern Techniques in the Recovery of Information from Human Mummified Remains”, circa 1981 by McGill student Lucille Gohier, who made a study of the mummified heads in the Redpath collection and also took the x-rays of the Ptolemaic mummy to him in person. Redpath Museum, World Cultures office files, “Egypt – Mummified Heads and Parts”; Letter to K. Zahn from M.L. Bierbrier, dated 24 March 1981, Redpath Museum, World Cultures office files, “Egypt – Hawara-el-Makta (Mummy of a Woman)”.

<sup>70</sup> Cartonnage is linen or papyrus treated with plaster and glue, molded, and then painted for use as funeral masks and decorative mummy coverings; Gray, 200.

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<sup>71</sup> Extracted from a letter to the Redpath Museum from Dr. Nicholas Millet, Egyptologist at the Royal Ontario Museum, probably circa 1981 but not located in Redpath Museum files, cited in Zahn, 26.

<sup>72</sup> (RM 2721.1 - .2); extracted from a report by student Lucille Gohier cited above, p. 26.

<sup>73</sup> Zahn, 27.

<sup>74</sup> Patrick D. Horne and Étienne Cardinal, “Report on the Diagnostic Imaging of the Mummy RED-II with a Summary Report of the Radiological Findings”, 15 pages typescript, 13 March 1995; E. Cardinal, *et al.* “Spiral CT Evaluation of an Egyptian Mummy”, 5 pages typescript draft [1996]; Odin Langsjoen, “The Dental Condition of Egyptian Mummy Red II based on Non-Destructive Radiographic and C.A.T. Diagnostic Imaging Technics”, 12 pages typescript, undated [1995]. Redpath Museum, World Cultures office files, “Egypt – Thebes (Mummy of a Man) – Radiological Investigation Hôpital Saint-Luc 1995”.

<sup>75</sup> Alan Hustak, “High-tech scanning unit unveils secrets of 3,500-year-old mummy”, *The Gazette*, 22 January 1995, A -3; Gilles Paquin, Red II, 3000 ans d’âge, est traitée à St-Luc”, *La Presse*, 22 janvier 1995, A - 3; Gilles Pilon “Au Musée Redpath: Momie aux rayons-x”, *Journal de Montréal*, 22 janvier 1995, 7; Josée Panet-Raymond, “Momie un jour, momie toujours: 2500 Ans après sa mort, des scientifiques scrutent l’intérieur d’un Égyptien”, *Le Devoir*, 25 janvier 1995, B - 1.

<sup>76</sup> Nicole Gingras and Christine Ross. *Time Machine (The Personal Observatory) Madelon Hooykaas and Elsa Stansfield*. Montreal, Department of Art History, McGill University, 1996, 5; *In situ* installation project at the Redpath Museum, 8 November – 15 December 1996, Curator: Christine Ross (Associate Professor, Department of Art History McGill University).  
See also, Sylvain Campeau, Compte rendu, “Une opération scientifique”, *érudit*, n. 38, 1997, 42 - 43.

<sup>77</sup> Zheng Pan, “The Design of an Interactive Multimedia Application for the Redpath Museum Mummy Exhibit”, thesis submitted for a M.Sc. degree in the School of Computer Science, McGill University 2007.

<sup>78</sup> Andrew Nelson and Andrew Wade. “Impact: Development of a Radiological Mummy Database”, *The Anatomical Record*, v. 298, 2015, 941 – 948.

<sup>79</sup> For further details regarding these investigations see: Andrew Wade *et al.*, “Preliminary Report on the CT findings of the human and bird mummies from the Redpath Museum”, Redpath Museum Internal Report, 2011, 77 pages; Andrew Wade *et al.*, “Scenes from the Past: Multidetector CT of Egyptian Mummies of the Redpath Museum”, *RadioGraphics*, v. 32, n. 4, 2012, 1235 - 1250; Andrew Wade *et al.*, “Early dental intervention in the Redpath Ptolemaic Theban Male”, *International Journal of Paleopathology*, v. 2, 2012, 217 – 222.

Two ibis mummies and four falcon mummies were also examined at the MNI in April 2011. For details of these examinations, the reader is referred to the unpublished Preliminary Report by Wade *et al.* 2011 (see note 76). Of particular interest is a hatchling ibis, wrapped to give the appearance of an adult bird mummy. Regarding the analysis of one of the ibis mummies, see Andrew Wade *et al.*, “Foodstuff Placement in Ibis Mummies and the Role of Viscera in Embalming”, *Journal of Archaeological Science*, v. 39, 2012, 1642 - 1647.

<sup>80</sup> Andrew Wade *et al.*, “Hybrid Ritual: Abdominal Incision Plate Use in a Case of Transperineal Evisceration”, *Yearbook of Mummy Studies*, v. 2, March 2014, 103 – 108.

<sup>81</sup> This is in keeping with the assessment by John Taylor of the British Museum, that the fragments of a copper face mask were likely indicative of a Roman period date for this mummy (personal communication November 2011).  
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<sup>82</sup> 3D printing was carried out by Mark Ewanchyna at the Engineering Technology Department of John Abbot College.