

STUDY OF EGYPTOLOGY VIEWED IN RETROSPECT

JOHN CAMERON*

DURING the early years of the century, while the writer was on the staff of the Department of Anatomy at Manchester University, the mummies of two minor princes of the 12th Dynasty of Ancient Egypt, together with their elaborate funerary furnishings, were presented to the University Museum. Permission was granted for the unwrapping of these mummies. This was undertaken by Dr. Margaret Murray, the eminent Egyptologist, who asked the writer to assist her and also prepare the anatomical portion of the subsequent official report. This proved to be an elaborate document, which was published as the *Manchester University Museum Handbook* No. 68. This was his initiation into the study of the truly fascinating subject of Egyptology.

There are many who would view with a feeling of repulsion the idea of disturbing the dead. Indeed, some would regard it as an act of gross irreverence and even sacrilege. It was, however, with feelings other than those of mere curiosity that Dr. Murray and the writer undertook the task of unwrapping these mummies. The results that were obtained from the investigation showed that the operation was amply justified; for they shed much fresh light on the manners, the customs and even the habits of life of these two individuals, who had actually lived thirty-nine centuries ago. They all went to prove that, even after death, our vices could not escape the prying merciless scrutiny of the archaeologist who is engaged in the search for knowledge.

The writer can still clearly remember, after the lapse of so many years, the day we unwrapped the second mummy. It was a warm afternoon in summer, and we had to lock ourselves in a small stuffy workroom in the museum, in order to prevent the entry of unofficial intruders. We stood on either side of a narrow table on which lay the mummy of Khnumu Nekht. It may be noted that he was named after Khnum, the ram-headed god of Ancient Egypt. At this point it is important to record the fact that the royalties of the country named themselves after one or more of the gods of the Ancient Egyptian Pantheon. For example, King Tut-Ankh-Amen obviously named himself after Amen-Ra the great sun-god, whose divin-

*Professor Emeritus of Anatomy, Dalhousie University; resident in England.

ty wielded immense power, and was held in the greatest awe throughout the country. The underlying idea was, of course, that these ancient pharaohs regarded themselves as no less than demigods. In fact Rameses the Second, the alleged Pharaoh of the Oppression, went farther than this concept. In Cairo Museum the writer was shown part of a monument on which that tyrant was portrayed actually worshipping himself as a god! These ancient pharaohs spent their reigns in conquest. Their rule was that of Absolutism, and they organized huge armies for the sake of plundering their neighbours. Their favourite loot was gold, which they ordered to be made into jewellery for personal adornment, or even in some cases into gold coffins for the reception of their mummies. The gold coffin (the innermost of three) of Tut-Ankh-Amen in the Cairo Museum, most beautifully and artistically embossed, is one of the wonders of the world.

The bandages with which Khnumu Nekht was enswathed were made of the purest linen, which had survived the ravages of time in a remarkable manner. They were three to four inches in width, and some of them were of an amazing length. They were applied according to a definite plan. For example, one set passed over the head and feet and along the sides of the body. Another set passed in figure-of-eight fashion over the top of the head and under the feet. The majority, however, ran transversely across the mummy. It was interesting to note the meticulous care with which the individual fingers and toes were bandaged separately.

During the unrolling of the bandages we must have turned Khnumu Nekht over and over on the table many hundreds of times. As the operation advanced, the mummy became more and more limp, and it was increasingly evident that we were dealing not with a rigid corpse, but literally with a bag of bones. The skin over the hands and feet and over portions of the limbs and the skull was intact in places, but otherwise it had, like all the soft tissues of the body, become inspissated into a fine brown powder in the hot dry atmosphere of Egypt. In this the skull and the other bones lay quite loosely, and the individual bones could be lifted up quite cleanly, as if they had been scraped. We were so engrossed in the unwrapping that at first we did not notice the gradual permeation of the atmosphere of the small room with fine mummy dust. Our clothing, faces and hair became coated with this. Indeed, towards the end of the operation Dr. Murray and the writer were look-

ing at one another through a diffuse brown fog. Our minds became filled with odd imaginings regarding the cause of the death of Khnumu Nekht. Had he died of some deadly infective disease, such as bubonic plague for example? Would the well known "Pharaoh's curse" descend upon us? Our mild forebodings fortunately came to naught, and we suffered no subsequent ill-effects. The writer collected all the brown mummy dust carefully, and found that it only partially filled the palms of both hands when held together. This was all that represented the soft tissues of the body. *Dust to dust.* It provided a striking demonstration of the fact that, chemically speaking, the human body is largely composed of H_2O !

What did the policy of embalming and mummifying of the human body, as adopted by the Ancient Egyptians, teach us? In the first place, it showed that this highly cultured race, which had made the Nile valley one of the cradles of civilization, held a profound and highly reverent belief in the existence of a world hereafter. The high grade of culture during the 12th Dynasty, flourishing two thousand years before the advent of Christianity, contrasted strangely with the conditions existing in Britain at that time. When these two princes were alive in Egypt, the prehistoric inhabitants of Britain were, by painful contrast, living in the crudest savagery and under the most primitive conditions, housed in caves or in the rudest of huts. Indeed, civilization did not reach them until nearly two thousand years afterwards. Stonehenge had not yet been built. Britain was just about ready to emerge from the Stone Age and enter the Age of Bronze.

Secondly, the Ancient Egyptians had a firm belief in reincarnation. They were convinced of the existence of the soul, and were afraid that, after death, this might become reincarnated in the body of a lower animal. They, therefore, argued that, so long as the body survived, the soul would remain in or near the mummy, and thus the dreaded reincarnation could not take place. They believed that the soul possessed a dual nature. The *Ka* was the spiritual double of the deceased. The *Ba*-bird had the body of a falcon with a human head, which represented that of the deceased. It was credited with the supernatural gift of being able to visit its mummy at regular intervals and thus reanimate it. In short, the body of the deceased was being kept in this way in a condition of suspended animation.

How about sustenance for the deceased during his existence

in the Afterworld? This, of course, could only be effected by symbolism. For this purpose small statuettes of servants carrying on their heads wine jars and baskets of food were placed beside the mummy. The presence of these models of servants in the tomb was supposed to create by symbolism their spirit-equivalents in the spirit world. Most interesting of all were the small statuettes of servants called *Ushabtis*, a word which means "respondents." That is to say, they were required to "respond" whenever the soul of the deceased called upon them to perform various menial duties. One or more statuettes of the departed were also put into the tomb as a rule, so as to confirm or intensify, as it were, the creation of his own spirit-equivalent in the Afterworld. The craftsman who had carved the statuettes for these two brothers had been an observant person. He had evidently noticed that one was more long-headed than the other (a fact confirmed by the anatomical report) and had made their statuettes in accordance with this observation.

The Ancient Egyptian could not imagine a Paradise without a more beautiful Nile, more abundant cornfields and a more luxurious standard of life generally. He would want to sail on this celestial Nile, as he had been accustomed to do in Egypt. To satisfy this desire, small models of ships, usually called the boats of Ra the sun-god, were placed in the tomb. In the 12th Dynasty tomb at present being discussed, two small ships were found, one in case the soul expressed a desire to go downstream, and the other for the alternative wish to proceed upstream. Thus every desire, every whim of the deceased was carefully considered, and attended to. The boat for the downstream voyage was manned by tiny oarsmen actively engaged with their oars. On the rudder the sacred eyes of the god Horus were painted, for the purpose of warding off evil spirits during the voyage. The boat for proceeding upstream was fitted with a mast and yardarms but no sail, which had probably perished from age. This rig was designed for the purpose of taking advantage of the prevailing north wind which blows up the Nile valley. No oarsmen were provided. The usual Horus eyes were painted on the rudder. In the bow stood a tiny figure holding a long rod, evidently for the purpose of taking soundings. Every risk was anticipated, and all due precautions taken.

At this stage it is essential to mention the methods that were employed for preserving the body, for it is important to

note that it had to be carefully embalmed as well as wrapped in bandages. In these two 12th Dynastic burials the viscera had been removed and embalmed separately, as will be detailed presently. The body had then been immersed in a strong saline bath, the chemical most frequently used being probably natron, a native carbonate of soda that is fairly plentiful in Egypt. It lay in this for at least a month, and when it was thoroughly "pickled," the bandaging began. The wrapping of the mummy was a solemn and prolonged religious ritual. A no less solemn ceremony was performed, when the mummy was placed in its tomb. In these two instances the mummy had first of all been placed in a gaily decorated wooden case, mummy-form in shape. Its head-end possessed a finely designed representation of a human head, no doubt meant to be an exact replica of that of the deceased. The modelling of the face displayed supreme artistry. This mummy case was placed in its sarcophagus, not on its back as one would have expected, but on its left side. Horus eyes were painted on one side of the sarcophagus at the place where the face of the deceased would look outwards. Thus every conceivable stratagem was employed to drive off evil spirits. The sarcophagi of these two brothers were built of wood, smoothly smeared over with plaster of Paris (gesso work). On this medium, characteristic designs were painted in various gay colours, as well as many rows of hieroglyphic script, extolling the numerous virtues of the departed, and wishing them a very happy sojourn in the After-world. Three false doors were painted on both sides of the sarcophagi, clearly to encourage the passage of the soul to and from its mummy. A false door was also painted on each of the four sides of the Canopic chest (to be mentioned presently), so that the soul could maintain connexion with its displaced internal organs! These two sarcophagi were very humble affairs compared to those massive masterpieces of the 18th, 19th and 20th Dynasties weighing tons; one outstanding example being the exquisite alabaster sarcophagus of Seti the First (19th Dynasty), now in the Sloane Museum, London.

As already mentioned, the viscera were embalmed separately, and placed in special jars. These were called Canopic jars, named after the ancient town of Canopus in the Nile delta, where they were manufactured. Each jar was fitted with a plug shaped like a human head. In the 12th Dynasty burial that has been so far under discussion, Canopic jars were provided for only one brother (Nekht Ankh), and were

four in number. In one was placed the heart and lungs, in the second the stomach and large intestines, in the third the small intestines, and in the fourth the liver and gall bladder. The four plugs closing these jars represented the four sons of the god Horus, who like their father were delegated by the Ancient Egyptian Pantheon to safeguard the interests of the departed. The four jars were then placed in a finely decorated square box—the Canopic chest—on each side of which were painted the sacred eyes of Horus for the usual purpose of driving away evil spirits. To witness the supreme achievement in the design and production of the Canopic chest, one has only to see the gorgeously decorated one for Tut-Ankh-Amen in the Cairo Museum.

Before leaving the subject of embalming, we should mention that the soaking of the body in natron solution was not the universal practice. For example, Tut-Ankh-Amen's mummy was placed in its gold coffin, and melted bitumen was then poured over it. It may be of interest to note that the word *mummy* is derived from the Arabic word for bitumen.

The writer will refer very briefly to the anatomical report. One of the most interesting facts that he discovered was that the skeleton of Nekht Ankh was that of a eunuch and displayed the usual eunuchoid features. For example, the long bones of the limbs—thigh bone, shin bone, the bones of the upper arm and forearm—were of the female type; that is to say, they were very much more slender and more delicately moulded than those of his virile brother whose bones, by contrast, showed the pronounced markings for muscular attachment, which one associates much more with the male than with the female skeleton. The Ancient Egyptian was generally of short stature, compared to that of the modern European. The height of these two brothers was estimated to be five feet two and a half inches. Both brothers had indulged freely in the habit of squatting. This had produced its effects most strongly in the case of the shinbone. Its upper end had been forced backwards to some extent. In technical language it had undergone retroversion. Its articular surfaces, as those of the lower end of the thigh bone, showed the characteristic modifications that are associated with this posture. Similarly, the lower end of the shin bone had been kept, (for prolonged periods during squatting) pressed hard forwards against the astragalus bone of the foot. As a result, both bones showed the usual characteristic markings.

The dentitions of both brothers were complete and per-

fect, and the teeth showed no signs of caries. These gave us very clear proof regarding the nature of the dietary. This had been very largely cereal in nature, and had been ground by millstones. Grain ground in this way, it should be noted, would inevitably contain some millstone grit, due to the gradual wear and tear of both the upper and lower stones. All the teeth of both brothers, particularly the molars, were badly worn by this grit. Very little of the enamel was left. The dentine was thus exposed, and yet it showed no sign of decay. The upper dentition of Khnumu Nekht exhibited a condition that the writer has never seen since, and is probably rare. The two left incisors had fused together to form a rather formidable looking tusk. Between this and the canine tooth, and slightly internal to both lay a well developed accessory incisor tooth. Another fact that may appeal to dental surgeons was that the "incisor bite" was definitely edge-to-edge, as usually found in mankind of ancient times. This was in marked contrast to the overlapping bite of the upper incisor teeth as found in the higher races of modern mankind. These ancient peoples *had* to chew their food. They thus exercised their teeth properly, and this preserved the healthy condition of their dentitions. We moderns, on the other hand, are discouraged from masticating our food very much. That role unfortunately has been taken over in large measure by the cooking-pot. The result is that our teeth become more or less functionless, its inevitable result being untimely decay.

The experiences that have just been related so attuned the mind of the writer to the glamour and the mysticism of Ancient Egypt, that he was stimulated to pursue still further the study of Egyptology. By good fortune he was soon afterwards appointed Head of the Department of Anatomy at Middlesex Hospital Medical School in London. This was a stone's throw from University College, where the Department of Egyptology was at that time presided over by that renowned Egyptologist the late Sir Flinders Petrie, to whom Dr. Margaret Murray was Senior Assistant. The writer had the free entry to that Department and was enabled to attend Dr. Murray's class on Hieroglyphs, the mysterious picture signs by means of which the Ancient Egyptians expressed their ideas. He was unable to pursue his investigations far into the intricacies of that complicated script, owing to his duties as a teacher of human anatomy. The knowledge he did manage to acquire

came in very handy some years later during his tenure of the Chair of Anatomy at Dalhousie.

My summer visits to the late Dr. Wingate Todd, my former colleague at Manchester and afterwards Professor of Anatomy at Cleveland, Ohio, were always most enjoyable. On my visit to him in 1926, he told me that the Director of the local museum wished me to translate one of the characters of a hieroglyph script that he was unable to decipher. I put on as bold a face as I dared and was taken to see the inscription. It was on a sarcophagus, and my hopes rose when I observed that it was a typical 12th Dynasty burial. My hopes rose still higher when, as the Director pointed to the obscure symbol, I was able to exclaim: "Why I have that character painted on the wall of the living room in my home at Halifax!" It was a simple *straight* line placed vertically in front of the symbol for "voice." The translation was "true of voice." It meant that the individual in the sarcophagus had been a truthful, upright, *straight* person. We were so engrossed in the translation, that we did not at first notice that a gentleman had come up from behind to listen, evidently with interest, to our dissertation. It was the great Howard Carter, the discoverer of the tomb of Tut-Ankh-Amen. He said, when appealed to for a verdict, that he was unable to challenge the accuracy of my translation, as he had not given much study to hieroglyphs. He was at the time on a lecturing tour in the United States giving an account of his sensational discovery. He told us he was eager to see the limb bones of a youth of about seventeen and a half to eighteen years of age. He went on to explain that the mummy of the young king was so imbedded in bitumen (as already mentioned in this article) that they had decided to dig the mummy intact plus its bitumenous covering out of the gold coffin, and then use X-rays to determine his age from the condition of his limb bones. It is known that the age of an individual up to early manhood can be determined with a certain amount of accuracy by noting the degree of union of the articular ends of the bones with the shafts. Accordingly Mr. Carter came to the Anatomy Department next day by appointment in order to study Professor Todd's marvellous collection of limb bones at all ages. He was satisfied that, by comparing these bones with the X-rays of Tut-Ankh-Amen's limb bones, the approximate age of the king was about that stated above. I was able to remind Howard Carter of this episode, when we met some years later in London.

Up to date the writer's studies in Egyptology had been conducted entirely in museums. This was quite an unsatisfactory state of matters. In order to broaden his knowledge of the subject, it was essential that investigations should be extended to Egypt itself. This he was enabled to do in company with his wife in 1935 and 1937. As our train approached Cairo, we looked out of the windows with great eagerness for the first glimpse of the pyramids. There they were, each the tomb of a single king, the greatest group of monuments of antiquity, one of the seven wonders of the ancient world, still standing solemn and dignified, though badly scarred by the destroying hand of man and the passing of nearly five thousand years. The three pyramids at Gizeh were built during the 4th Dynasty, the largest and best known having been erected by Cheops as a tomb for himself. It was originally 481 feet in height. There is still much controversy regarding the method adopted in their construction. The most favoured theory is that the immense blocks of masonry were dragged up greased ramps by hundreds of slaves under the lash of their oppressors.

The next pyramid is known as that of Kephren, and is the second in size. To the east of it is the famous sphinx, cut out of the solid rock. It was fairly free from blown sand on both occasions when we saw it, and we were thus privileged to witness its immense size. The body is that of a lion. The head is meant to represent that of Kephren himself. There was thus none of the so-called mystery about the sphinx. It was simply meant to represent a symbolic combination of the physical power of the lion and the mental power of man. The face had become badly damaged. This was due in some measure to the fact that during his brief sojourn in Egypt Napoleon gave orders for it to be utilized as target practice for his musketry. This was a grand example of one dictator engaged in battering the face of another—a most commendable proposition!

There are many objects of antiquarian interest in Cairo, too numerous to mention, but one must not omit several visits to the Museum of Antiquities. It is indeed one of the wonders of the world—marvellous statuary, still more marvellous jewellery and, to cap all, the priceless treasures from the tomb of Tut-Ankh-Amen, which beggar description.

By far the most interesting excursion from Cairo is that to Memphis and Sakkara. Memphis was one of the most ancient cities in the world and was the metropolis of Ancient Egypt during many dynasties. It is now buried under the debris of

centuries. The only remnants of its ancient glory are the two colossal statues of Rameses the Second, overthrown by order of Cambyses the Persian King in 525 B.C., and the beautiful alabaster sphinx, the head of which is meant to be a representation of that of Rameses the Second.

Sakkara is the vast cemetery of Memphis. Near it is the famous step pyramid, towering 197 feet above the desert. It is the tomb of Zoser, a king of the 3rd Dynasty, and is therefore older than the pyramids at Gizeh; in fact, it is claimed to be the most ancient edifice in the world. The most famous tomb at Sakkara is the Serapeum, so-called because it was the burial place of the sacred apis-bulls, each of which was worshipped during life as a god—the god of reproduction. After death each was carefully embalmed and placed in an immense granite sarcophagus. The Serapeum is a very long underground corridor cut out of the rock. From it there branch off twenty-four vaulted chambers, each containing a sarcophagus for an apis-bull. It is one of the most impressive sights in the world. There are many other famous tombs at Sakkara, but one must not miss a visit to that of Ti, who was a royal court official of the 5th Dynasty. The walls are covered with hieroglyphs and coloured decorations, still remarkably fresh after nearly five thousand years. They depict every phase of life in Ancient Egypt—husbandry, hunting, carpentry, shipbuilding, smelting of metal, and even glass-blowers at work, surely one of the earliest proofs of a knowledge of glass manufacture.

After the 5th and 6th Dynasties we come to a succession of weak rulers and gradually increasing instability, almost amounting to chaos. Therefore very little is known of the succeeding dynasties until we reach the 12th, consisting of seven kings, who brought back order out of confusion. They were great patrons of culture, and re-established the influence and prestige of Egypt throughout the ancient world. Unfortunately this stable period did not survive long, and the country was soon overwhelmed by the invasion of the so-called shepherd-kings, who probably came from Syria. These were expelled during the 17th Dynasty, which was followed by the greatest dynasty of all, namely the 18th. This contained Thothmes the Third, who conquered the then known world, and Amenhotep the Third, the great temple builder. His son was Akhnaton the heretic pharaoh, who was father-in-law of Tut-Ankh-Amen. We must not omit that picturesque personality Queen Hatshepsut. She is known as the Queen Elizabeth of Ancient

Egypt. She wore a false beard and undertook at least one great campaign. She is commemorated by her magnificent obelisks, one of which, the tallest in the world, still stands in the Temple of Karnak.

In order to witness the splendour of the 18th, 19th and 20th Dynasties, one must visit Luxor, which is partly built on the site of Thebes, the ancient capital of Egypt. There one is within driving distance of the vast Temple of Karnak, built during these dynasties. A description of it would require the writing of several articles; for it is so stupendous, so awe inspiring. We crossed to the west bank of the Nile, to visit that gloomy rocky valley—The Valley of the Kings—in which the pharaohs of these dynasties were buried. In each tomb we were conducted by our guide through a succession of finely decorated chambers chiselled in the rock, in which the pharaoh had ordered all his furniture and other personal belongings to be placed; for he was determined that no one else should use them. At the far end was the elaborate place of burial; but every chamber was empty, for tomb robbers many centuries ago had done their work thoroughly. Even the mummies of some of these pharaohs were found to have been torn limb from limb in the search for jewellery and other treasure. In this ruthless way Time was enabled to pass judgment on these egoist-dictators. The tomb of Tut-Ankh-Amen fortunately escaped destruction, and in it we now see one of his gorgeous gold coffins, in which his mummy lies.

Yet these pharaohs thought themselves safe and inviolate in their rock-tombs, the entrances to which were ordered to be carefully concealed, according to plan. This is the reason why they gave orders for their mortuary temples to be built some distance away on the west bank of the Nile, facing Thebes. These were for the purpose of making votive offerings for the souls of the departed. The well known Colossi of Memnon are all that remain of the mortuary temple of Amenhotep the Third. Each is a monolith 60 feet high, representing the king seated on his throne. The finest mortuary temple is that of Rameses the Third, the first king of the 20th Dynasty. He was a most bloodthirsty conqueror. It would have been too much trouble to him to have to count the bodies of his prisoners. Therefore he gave orders for their hands to be cut off. On one sculptured wall of the temple he is shown busily engaged counting a heap of these gruesome relics.

There has been some controversy regarding the identity of the Pharaoh of the Oppression and of the Pharaoh of the

Exodus. Most authorities regard Rameses the Second (19th Dynasty) as the pharaoh who oppressed the Israelites, and his son, Merenptah as the Pharaoh of the Exodus. Both of these tyrants were well qualified for that position. There is, however, by no means unanimity in the matter, more particularly in view of the writings of Professor J. Garstang.

With the end of the 20th Dynasty, stable government gradually ceased to exist. King Shishak of the 22nd Dynasty tried to check the decay by reviving the martial spirit. He is the only pharaoh to be mentioned by name in the Bible (Kings I, 14 and Chronicles II, 12), where it is recorded that he sacked Jerusalem, and carried off the treasures of Solomon's temple. Even this temporary success could not ward off the inevitable collapse. Invaders from Ethiopia, Libya and Persia attempted to found succeeding dynasties, which never became permanent, and the dynastic history of Egypt ended with the 30th Dynasty. The country was now in a state of anarchy and lay open to the invasion of Alexander the Great in 332 B.C. He put Ptolemy, one of his generals, on the throne of Egypt, thus founding the Ptolemaic Dynasty, which survived until 30 B.C., when it ended with the death of Cleopatra, the last of the Ptolemies. Ptolemy and his successors adopted a conciliatory attitude towards the Egyptian people and pleased the priesthood by accepting the gods of the Egyptian Pantheon. Some of the most beautiful temples in Egypt were built during the Ptolemaic Dynasty. Moreover, some of the finest monuments in the country were erected during that period, thus proving that the Ptolemies, in spite of their many shortcomings, were great patrons of art.

The inscriptions on the famous Rosetta Stone, one of the most precious possessions of the British Museum, represent a decree issued by the priesthood of Egypt to commemorate the coronation of Ptolemy the Fifth. This decree is shown in three scripts on the stone—hieroglyph, demotic and Greek—from above downwards. The interpretation of the inscriptions would presumably be identical in all three. Experts relying on this supposition were thus enabled to translate the mysterious hieroglyph script after patient laborious work lasting for years. The stone was discovered purely by accident in 1799, lying in the mud at the Rosetta mouth of the Nile, hence its name. It proved to be the master-key that opened a veritable treasure house of knowledge of the Past. By its means the temples, the monuments and the tombs of Ancient Egypt were enabled to tell their entrancing story. Without it, the science of Egyptology, as we know it to-day, would never have been born.