

Mummy No. 1770

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Museums have a limited number of mummies. Every time one is unwrapped, the number grows smaller, and so autopsies¹ are not often performed. But sometimes a museum has a mummy that is not important to its collection. This is a mummy it does not want to display and a mummy about which almost nothing is known. As it happened, the Manchester Museum had just such a mummy. Its wrappings were in poor condition and no one knew what period it dated from, where it was found, or who the dead person was. The mummy was known only by its museum number, 1770. This was the mummy the museum made available to a team of scientists who wanted to use modern techniques to study the wrappings and body in detail.

It was also a mummy with a mystery. X-rays taken years earlier had shown the mummy was that of a young person. The lower parts of the legs were missing, and close to the leg bones was a rounded object. The x-rays did not reveal what it was, but its shape suggested a baby's head. Was this the mummy of a mother and child? Had the mother died shortly after giving birth? Was she perhaps an unwed-mother who had been punished with a violent death? Those were questions the scientists wondered about as they began their work.

1. **autopsies** (ô' tãp' sêz) n.: Examinations and dissections of dead bodies to find the causes of death or physical damage from disease.

After new x-rays were taken, the unwrapping began. Insect remains found in the bandages were carefully removed for later study. As pieces of cloth were lifted away, the lower part of the mask came into view. Beneath it were the bare bones of the neck and skull. These were in small pieces, but even so, once the pieces had been cleaned it was possible to see that the left side of the nose had been damaged by the iron hook the embalmers had used to remove the brain. The team was surprised to see red and blue paint on the skull bones. How and why had the bones been exposed?

Gently removing more cloth, the scientists found the mummy's arms were crossed on the chest and the hands had gold fingertip covers. The inner organs had been removed and the space filled with bandages and mud. The organs themselves were missing.

A small, hard object that had appeared in the x-rays proved to be a Guinea worm, a parasite that is taken in with drinking water. Within a human host, the young forms of Guinea worm develop into adults. The adults mate, and the male dies. The female, which may grow three feet long, wanders through the tissues under the skin. She generally comes to rest in the legs or feet of the host. There blisters form. They burst on contact

◆ Build Vocabulary

parasite (par' ə sīt) n.: Organism, often harmful, that gets food or protection from another living thing without giving anything back

with fresh water. The female's eggs are released into the water, and the life cycle starts again. If invaded by bacteria, the blisters may form dangerous sores.

When the Manchester team unwrapped the legs of mummy 1770, they found, as the x-rays had shown, that both legs had been amputated, the left below the knee and the right above the knee. The mummy's right leg had been lengthened with a piece of wood to make it the same length as the left. The wood had been splinted to the leg bone. This meant there could not have been much, if any, flesh on the bone when the splinting was done. The feet were artificial and had gold toenail covers. The right foot was made of reeds and mud, with the ends of the reeds serving as toes. The left foot was simply a mass of reeds and mud.

By now the scientists could see that there was not even a trace of a baby. The rounded shape that had shown in the x-rays was ac-

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What might the "beautiful slippers" reveal about the dead person's place in society?

tually a pair of beautiful slippers that had been placed on the soles of the feet.

In one way mummy 1770 was disappointing—it was very poorly

preserved. No one could even be certain of its sex, although members of the team came to feel that the young person had been a girl and spoke of the mummy as female. Very little skin, muscle, or soft tissue were left, and the bones of the skull and lower trunk were broken. The scientists could not tell when the fractures had occurred. In a living person, tissue called callus forms at the place where a bone is broken. It holds the bone together until the fracture heals. Callus in a recently dead person shows that the fracture occurred during life. But callus thick enough to last thousands of years would take several weeks to form. So if there is no callus in a mummy—and there was none in 1770—there was no way to tell whether the fracture occurred after

death or shortly before. The scientists suspected, however, that the bones were broken after death. The damaged mask and the lack of jewelry and charms spoke of tomb robbers and rough handling.

In other ways, mummy 1770 was both interesting and puzzling. The evidence indicated that the body had been in a state of considerable decay when the embalmers worked on it. The wooden leg was attached to bone. All the internal organs were missing and so was the left kneecap, which suggested that the ligaments holding it in place had rotted away. The red and blue paint on the skull bones was a sign that the hair and scalp had been missing.

Why had the body decayed? Why were the legs amputated? The scientific team could think of various explanations.

One had to do with the Guinea worm. Perhaps infections had cut off the flow of blood to the legs and feet. In an effort to save the girl's life, doctors had amputated her legs, but the patient died. But if that was the case, why hadn't she been promptly embalmed?

Or perhaps the legs had been cut off in an accident, such as the collapse of a building. If the girl had been buried in rubble and not found for some time, that might explain the decay.

Or suppose the girl had drowned in the Nile, where decay would set in quickly. The body might have been attacked by a hippopotamus. Although hippos are plant eaters, they are likely to attack floating objects that appear threatening. One bite from a hippo could easily cut off a pair of legs.

A crocodile was another possibility, because it would certainly attack a floating body. The problem with this idea was that crocodiles do not usually bite through bones. They are much more likely to grasp an arm or a leg in their huge jaws and shake it until it tears loose. On the other hand, a crocodile attack might explain why the embalmers went to so much trouble over a body that was hauled out of the

Nile—why they made a face and chest mask, lengthened a leg, made artificial feet, applied gold covers to the fingers and toes. The ancient Egyptians, believing that crocodiles were earthly forms of gods, considered anyone who became food for them to be sacred.

As things turned out, there was another explanation for the state of the body and it took everyone by surprise. When the carbon-14 dating² was completed, it showed

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Did the mummified person live during the Old, Middle, or New kingdom?

that the mummy was far older than its wrappings. The wrap-

pings dated to a time when the Romans ruled Egypt, around A.D. 260. The mummy's bones dated to around 1000 B.C. This meant that 1770 was a mummy that had been wrapped twice. It had been preserved and wrapped after the girl died, then rewrapped more than a thousand years later. Now some pieces of the puzzle began to fall into place.

There was no need to explain why the corpse had decayed, because it hadn't. Rather, it was the mummy that had been damaged by water and then had decayed. The soft tissues of the body were probably missing because they had stuck to the original wrappings.

The way the second embalmers had prepared the body made clear that they did not know whether they were dealing with a male or a female. This meant they did not know the mummy's identity. But the trouble they took shows that they thought they were dealing with someone of importance. The tomb from which the mummy came must have led them to that conclusion. At times in ancient Egypt



▲ **Critical Viewing** Why do you think scientists wanted to know what 1770 looked like? [Speculate]

royal mummies were moved to new tombs. If they had been damaged, they were repaired at the time of the move. Quite possibly 1770 was a person of royal or noble birth whose mummy was damaged when a tomb was flooded.

X-rays had shown that the mummy's wisdom teeth had not yet grown in, and so the girl must have been less than 20 years old. The dentist on the team now examined the roots of the second molars. Their stage of development told him that 1770 had been 13 to 14 years old. He was surprised to see that the teeth showed no sign of being worn down by sand.³ He also found that two teeth in the upper jaw were oddly placed. A space between them near the gum formed a trap for food particles. Usually such a trap leads to infection, which damages the bone of the jaw. But this had not happened to 1770. The lack of wear and damage suggested that her diet was soft, perhaps mostly liquid. Or she may have swallowed food without trying to chew it much. Most likely she had not been very healthy.

2. **carbon-14 dating:** Method for figuring out approximate age by measuring the radioactive carbon-14 that is left in a fossil or other once-living thing.

3. **teeth showed no sign . . . sand:** Food eaten by Egyptians usually contained some sand that blew in by accident. The sand ground down their teeth.

She must also have breathed mainly through her mouth. The badly formed bones in the inner part of her nose would have made it almost impossible to breathe any other way. If a person always breathes through the mouth, the gums around the upper front teeth become irritated and the bone behind them pitted. Pits in the bones of 1770's mouth showed that she had indeed breathed through her mouth.

By this time the Manchester team had learned a great deal about 1770. She was a young person who had lived a short life with considerable suffering. She had had to breathe through her mouth, had sore gums, ate only liquid or soft food, and had been infected by Guinea worms, which cause fever and an itching rash as well as blisters. Finally, by means still not clear, she had lost her legs around the time she died.

One final step remained to be taken—to find out what 1770 had looked like. The skull had broken into about 30 pieces, some of them very small and fragile. The pieces lay in a jumbled heap and were mixed with mud and bandages. Once the pieces of bone had been cleaned, one member of the team made casts of them in plastic. When the plastic pieces were fitted together, much of the left side of the skull was still missing. A plaster cast was made to fill out the basic shape of the head. Now small pegs were placed in the plastic skull and cut to precise lengths. Each showed how thick the soft tissues of the face would be on a 13-year-old person. The face was then built up with modeling clay. First it took on a general human appearance. Then it took on an appearance of its own, shaped by the underlying bones. This model was used to cast the head in wax, so that changes could be made if more was learned about 1770. The wax head was painted, given glass eyes, a wig, and eyelashes. And there at last was 1770—an attractive teenager, perhaps of royal or noble birth, who had laughed, cried, and lived 3,000 years ago.

◆ Build Vocabulary

fragile (frāj' əl) *adj.*: Easily broken

Guide for Responding

◆ LITERATURE AND YOUR LIFE

Reader's Response What is the most surprising thing about mummy 1770? Explain.

Thematic Focus In what ways do the scientists help this mummy to "speak"?

☑ Check Your Comprehension

1. Why was this mummy a "mystery"?
2. Name three ideas that scientists first suggested to explain the state of the body.

◆ Critical Thinking

INTERPRET

1. Describe three methods used by scientists who studied the mummy. **[Classify]**
2. Explain how the results from the carbon-14 dating caused scientists to rethink their ideas. **[Analyze Cause and Effect]**
3. Summarize what scientists learned about the mummy. **[Summarize]**

EVALUATE

4. Scientists put a great deal of effort into studying this mummy. Is that effort worthwhile? Why or why not? **[Make a Judgment]**

Meet the Author

Patricia Lauber (1924–)

Patricia Lauber loves mysteries and puzzles. Her more than eighty books of fiction and nonfiction deal with such subjects as the ice age, volcanoes, the Loch Ness monster, and runaway fleas!