

Ramses V

Earliest known victim?

by Donald R. Hopkins



(Photo WHO)



Finally, there he was: Live Horus, Mighty Bull, Repulser of Millions, Golden Horus, Sovereign, Protector of Egypt, King of Upper and Lower Egypt, Lord of the Two Lands, Son of Re, Ramses V, Pharaoh. After

a long flight from Atlanta, Georgia, USA, and a restless night, I had reached the culmination of a three-year-long quest. Permission had finally been granted for me to collect and examine specimens from the mummy of the Pharaoh Ramses V for scientific evidence that would prove he had died of smallpox. Standing in the Mummy Room of the Cairo Museum, I was almost too excited to take photographs.

Soon after it was discovered in 1898, the mummy of Ramses V, who died in 1157 BC, was recognized as bearing evidence of a rash which resembled smallpox. According to Dr C. W. Dixon, this Pharaoh died of "an acute illness at the age of forty". But it was the rash on Ramses' embalmed and shrouded corpse that made it probable that he had died of smallpox.

Previous electron-microscopic studies of non-royal Egyptian mummies by Dr Peter K. Lewin, of the Hospital for Sick Children in Toronto, Canada, and others had revealed sub-cellular structures in some rehydrated tissues with extraordinary clarity. Now there was a new project, to see if there were poxviruses that could still be recognized in the skin of the ancient Pharaoh. Besides Dr Lewin and myself, it was undertaken by Dr Erskine Palmer and Dr James Nakano of the Center for Disease Control's Special Viral Diagnostic Branch and Viral Exanthems Branch, Professor Mourad A. Sherif of Cairo's Ain Shams Faculty of Medicine, and others.

By special permission of President Anwar el-Sadat,

Professor Sherif and I were allowed to examine Ramses V's mummy on 8 November 1979. Since this is one of the best preserved royal mummies in the Cairo Museum, museum authorities were understandably reluctant to permit us to actually cut a piece of skin containing one or more of the apparent blisters or pustules. Instead, we collected tiny pieces of skin on the shroud.

On examining the front of the mummy from the waist up, we saw a rash of yellowish blisters or pustules, each of between one to five mm in diameter. The rash is most striking over the lower face, neck, and shoulders, and is also visible on the arms, but there is no rash on the chest and upper part of the abdomen. Earlier photographs, published by G. Elliot Smith, show that the rash is also prominent on the lower part of the abdomen and scrotum. We could not see the palms and soles. Despite the limited areas accessible for inspection, the rash is quite striking and is remarkably similar to smallpox.

Electron-microscopic studies of the pieces of skin we obtained did not reveal evidence of poxvirus. Intact layers of skin and cells were clearly visible in some sections. Thus, the specimens examined appear to be of normal intervening skin rather than of directly affected skin. Ordinarily, the virus is concentrated in the pustules, blisters or scabs of smallpox victims. Other immunologic and virologic studies also did not yield the hoped-for clear evidence of variola virus.

But our failure to see poxvirus in these specimens obviously does not mean that Ramses V did not die of smallpox. And after seeing at first hand the rash on this remarkable mummy, I am almost as convinced that he did indeed have smallpox as if I had actually seen a 3000-year-old poxvirus. ■



THE STAMP OF SUCCESS



DECLINE AND FALL OF THE SMALLPOX EMPIRE



1519 AD: The ships of Hernan Cortes landed in Mexico, carrying something more deadly than 500 Conquistadores and 23 cannons: the smallpox virus. More than three million people died when a series of epidemics erupted, finally toppling the centuries-old Aztec Empire.

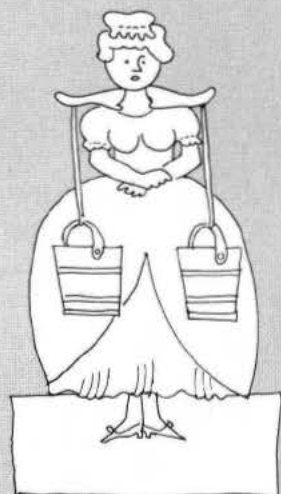
1694: Queen Mary II of England fell a victim to smallpox and died at the age of 32.

1721: Deliberate inoculation (variolation) with smallpox virus had been practised in Africa, China and India for centuries, before being introduced to Europe and North America by Lady Mary Wortley Montagu. The wife of the British ambassador in Turkey, she had observed variolation in Constantinople. The Reverend Cotton Mather learned of the practice from his African slaves and introduced it in Boston.

1774: King Louis XV of France died of smallpox, aged 64. Benjamin Jesty, an English farmer, inoculated his wife and two sons with cowpox to protect them against a smallpox outbreak.

1796: An English country doctor, Edward Jenner, took material from a cowpox sore on the hand of a milkmaid and inoculated it into the arm of an eight-year-old boy on 14 May 1796. Two months later he tried to inoculate the boy with smallpox—and the infection did not take. He announced his findings in 1798; by 1801 more than 100,000 persons had been vaccinated in England and Jenner's pamphlet on the subject had been translated into five languages.

1801: Jenner predicted that "the annihilation of the smallpox—the most dreadful scourge of the human species—must be the final result of this practice".





1803: Efforts were made to promote vaccination throughout the world. One of the most spectacular efforts was made by Charles IV of Spain who in 1803 dispatched vaccine to his dominions around the globe by means of children vaccinated arm-to-arm in succession during the voyages.

1807: Five Red Indian Chiefs wrote a letter of thanks to Dr Jenner. It said: "Brother: Our Father has delivered to us the book you sent to instruct us how to use the discovery which the Great Spirit made to you, whereby the smallpox, that fatal enemy of our tribe, may be driven from the earth. ... We send with this a belt and string of wampum (beads used for money) in token of our acceptance of your precious gift."

1870: During the Franco-Prussian war in Europe a smallpox epidemic broke out. The French army lost 23,400 soldiers to the disease. But the German army had been vaccinated, and only 278 died.

1948: At its first meeting in July 1948, the World Health Assembly (WHA) paid special attention to the problem of smallpox in its deliberations.

1958: The Eleventh WHA, following a motion by the Soviet delegation, decided to step up efforts to eradicate smallpox. The Soviet resolution pointed out that the funds devoted to vaccination against smallpox throughout the world exceeded those necessary for the eradication of the disease.

1967: WHO launched an intensified smallpox eradication programme. A unit set up at WHO's Geneva headquarters began work with WHO Regional Office teams and with national smallpox programmes.

1971: In South America between 1950 and 1967, endemic smallpox was eradicated in all countries except Brazil. In Brazil a huge programme of mass vaccination and case searching, which included the vast Amazon basin, culminated in victory over smallpox in 1971.

1975: In Asia, the campaign strategy had evolved from the concept of mass vaccination to an even more successful approach based on improved case investigation and searches and containment of outbreaks. The last case on the vast Indian subcontinent was Rahima Banu, a three-year-old girl in Bangladesh.

1977: From Asia the focus of the campaign shifted to the Horn of Africa, the last foothold of the disease in Africa and in the world. The last endemic case in Africa, and worldwide, was located in Somalia on 26 October 1977. The patient, 23-year-old hospital cook Ali Maow Maalin, made a complete recovery.

1979: In December, the Global Commission for Certification of Smallpox Eradication—an independent body which consisted of scientists from 19 nations—confirmed that smallpox eradication had been achieved throughout the world.

1980 The Thirty-third World Health Assembly meeting in Geneva officially declares that smallpox has been completely eradicated from the planet. ■



