

LET'S GO
dig-GING

Crypt Secrets

by Bob Brier

THESE BONES
BELONGED TO
GIOVANNI DE' MEDICI.
HE DIED AT AGE 19. TO
FIND OUT HOW AND
WHY, READ ON!





Hmmm—let's see what Cosimo's bones can tell us!

For three centuries, the Medici family dominated the city of Florence. Immensely wealthy, they were also scholars, politicians, and art connoisseurs. Two even became popes. The Medicis supported Leonardo, Michelangelo, and Raphael, the best artists of the Renaissance, as well as the astronomer Galileo. When a Medici died, he or she was buried in the Chapel of San Lorenzo in the family's beloved city of Florence.

In 2004, I was asked to help

exhume the bodies of the Medici to see what their skeletons could tell us about how they lived and died—a kind of *CSI Florence*. We decided to concentrate first on one small branch of the family: Cosimo, his wife Eleanora, and two of their children. They were all buried beneath the marble floor of the chapel. We were not sure what we would find, because, in 1966, the Arno River had flooded, and water came rushing into the Chapel. If the water soaked and damaged the bones, we might not be able to tell anything from them.

A Look at Cosimo

We began by lifting the marble floor above the burials of Cosimo and Eleanora. Immediately, we could see a thick layer of mud deposited by the Arno, but were relieved to find that the bones had been buried in sealed metal coffins that had protected them from the floodwaters. We first examined Cosimo. We knew he had been a sportsman and a rider and that he had lifted weights regularly. Strenuous physical activity increases the size of the muscles, but it also thickens and strengthens the bones to which

the muscles are attached.

Cosimo's skeleton confirmed what written records had told us about him. He had indeed been athletic: His upper leg bones showed thickening where he had gripped a horse with his thighs. We could even tell that he was right-handed, as his right shoulder and arm bones were considerably more developed than those on the left. But his wife's bones were even more interesting.

And Now a Look at Eleanora

Cosimo had married Eleanora when she was 16 years old, and

WOW! THAT'S AMAZING—WHAT YOU CAN LEARN FROM STUDYING SKELETAL REMAINS!



It was in this metal coffin box that the bones (SEE PAGE 42) of Giovanni were found. The dark spot toward the top is the plaque. Its inscription revealed who was within.



she died 24 years later. She gave birth 11 times in 14 years—when she was 18, 19, 20, 21, 23, 24, 25, 26, 27, 31, and 32! In other words, she was pregnant for most of her adult life. Every birth causes trauma to the mother's pelvis and leaves its mark. Eleanora was a small woman, so it was even more difficult than usual for her to have children. Consequently, the front of her pelvic bones is extremely rough, unlike those of women who have never given birth. The back of the pelvis, which is usually angular, was unusually flat as a result of all those children coming down the birth canal.

Was It Murder?

Our examinations of Cosimo and Eleanora confirmed much of what the historical records told us

about them, but the real mystery involved two of their sons, Giovanni and Garzia, who died only days apart in 1562. A family legend says that Giovanni, aged 19, and Garzia, aged 16, quarreled during a hunting trip and that Garzia stabbed and killed his brother. When their father learned of the murder of his favorite son, he ran Garzia through with his sword. Would the remains of the boys show signs of this physical violence?

We removed the slab from the chapel floor that covered Giovanni's tomb. On the box containing his skeleton was a plaque (see above), which read: *Oss Iohannis Cardinalis Cosimo I Filli* ("The bones of Cardinal Giovanni, son of Cosimo I"). The skeleton was in good condition, so we could determine his

approximate age at the time of his death. When you are young, the ends of your long bones are cartilage. As you age, the ends of the bones ossify—turn to bone—and fully fuse with the rest of the bone. The tips of Giovanni's bones were not yet completely ossified. This was just what you would expect to find in a 19-year-old. Teeth are also good indicators of the age of adolescents, and Giovanni's molars were what one would expect for someone at his stage of development. We had the right person, but was he murdered?

The Skeletons Say...

Often the truth is less sensational than the legend, and that seems to be the case with Giovanni. There were no signs of violence on

his skeleton—no cut marks on the ribs or vertebrae, no broken bones. But we still had his brother Garzia's remains to examine. He supposedly died by his father's sword, so perhaps we would find evidence of murder on his skeleton.

Historical records also indicated that Garzia had been chronically ill as a child. We took his bones to Careggi Hospital of the University of Florence to x-ray them to see if we could find evidence of his ailments. We did. When you have a serious illness as a child, your long bones stop growing because all your nutrients are used to fight the illness. The x-rays showed "growth arrest lines." These horizontal white lines on the x-rays showed where growth stopped and later

commenced again. Garzia's marks showed a serious illness around the age of two and then four more before he was 10. The bones matched the historical record, but not the legend of his being murdered by his angry father. There were no signs of violence.

The Real Culprit

Our team's historian, Donatella Lippi of the University of Florence, found a letter in the archives from the family physician warning Cosimo not to take the boys on a hunting trip to the Maremma, an area southwest of Florence that was infested with malaria. Cosimo did not listen, and there is a letter in the archives from him to another son saying "...on the 15th Giovanni suffered from a high fever but became worse and died." The letter could be a cover-up to murder, but a few years after our examination of the skeletons, the pathologists on our team found evidence in the boys' bones of the parasite that causes malaria. Cosimo's sons were probably two of the wealthiest teenagers on the planet, but all their money could not save them from a fatal bite from an infected mosquito.

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Bob Brier is an expert on Egyptian mummies and has studied ancient bodies from around the world.



Slowly does it—Dr. Gino Fornaciari, the Medici Project's Director (second from right), guides the team in reassembling, with plastic gloves to keep each piece as clean as possible, the bones of Cosimo.