New View of King Tut

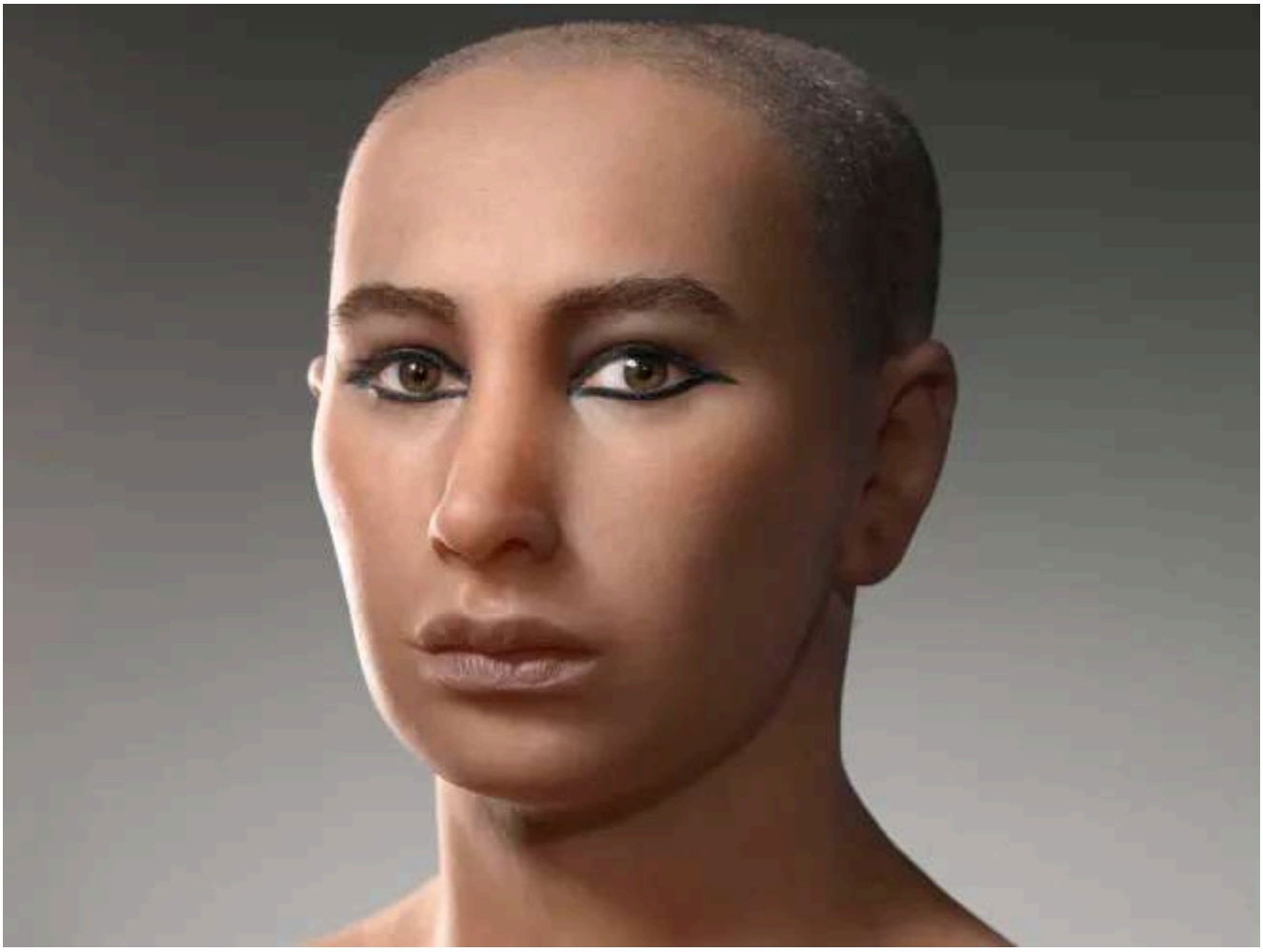
SCIENCE

King Tut's parents were brother-and-sister, he had a clubfoot, he suffered from genetic abnormalities, and he died when he was 19. Still, it was a pretty good life, and a truly spectacular afterlife. (The Independent)

Learn how the world first found out about King Tut.

Teachers: Scroll all the way down for a short list of key resources in our "Teachers' Toolkit."

Three views of the Boy King:



Pharaoh Tutankhamun, represented by this forensic reconstruction based on his skeleton and mummy, reigned from about 1332-1323 BCE, a period in Egyptian history known as the New Kingdom. **Learn more about King Tut here.**
Photograph courtesy Atelier Daynes and National Geographic

Tutankhamun's dazzling funeral mask was probably made for a female relative. The solid gold mask is inlaid with blue glass, painted ceramic, quartz, lapis lazuli, and obsidian.
Photograph by Kenneth Garrett, National Geographic

HAPPY HALLOWEEN! While the gold funeral mask is one of the prize possessions at the Egyptian Museum of Antiquities, King Tut himself remains safe in his tomb, KV62. ("KV" stands for "Kings' Valley/Valley of the Kings," an area where pharaohs and other nobles were buried.) Photograph by Kenneth Garrett, National Geographic

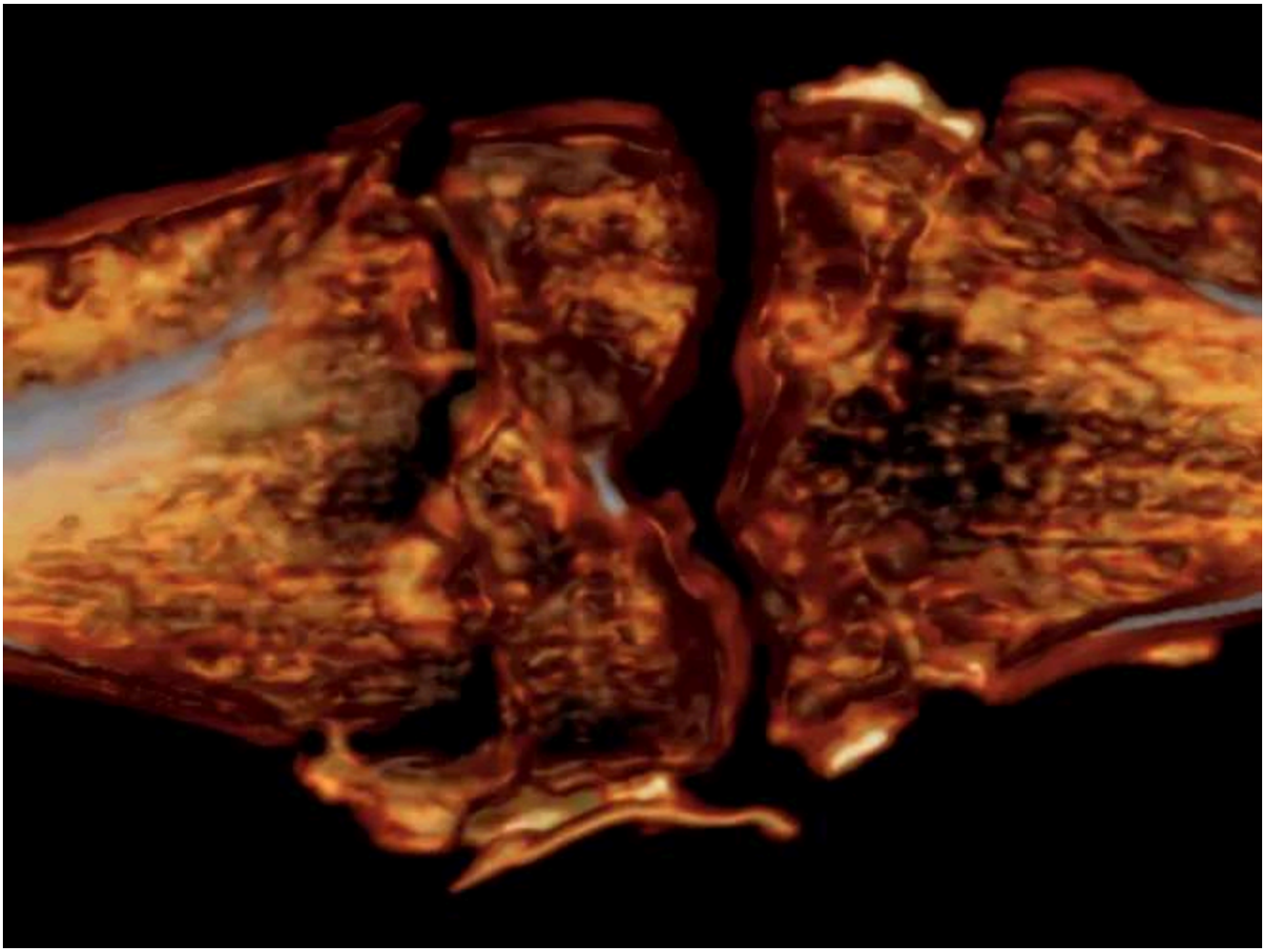
Discussion Ideas

- Researchers recently conducted a "virtual autopsy" of Pharaoh Tutankamun. Aren't Egyptian authorities worried about damaging the incredibly fragile mummy of the "Boy King"?
    - Yes, which is why the procedure was ***virtual***—researchers never actually cut into the mummy's body. The virtual autopsy was a series of high-tech computerized tomography (CT) scans. **According to the Mayo Clinic**, a CT scan "combines (1) a series of X-ray views taken from many different angles and (2) computer processing to create (3) cross-sectional

images of the bones and soft tissues inside your body." **Here's a nice graphic on how CT scans work.**

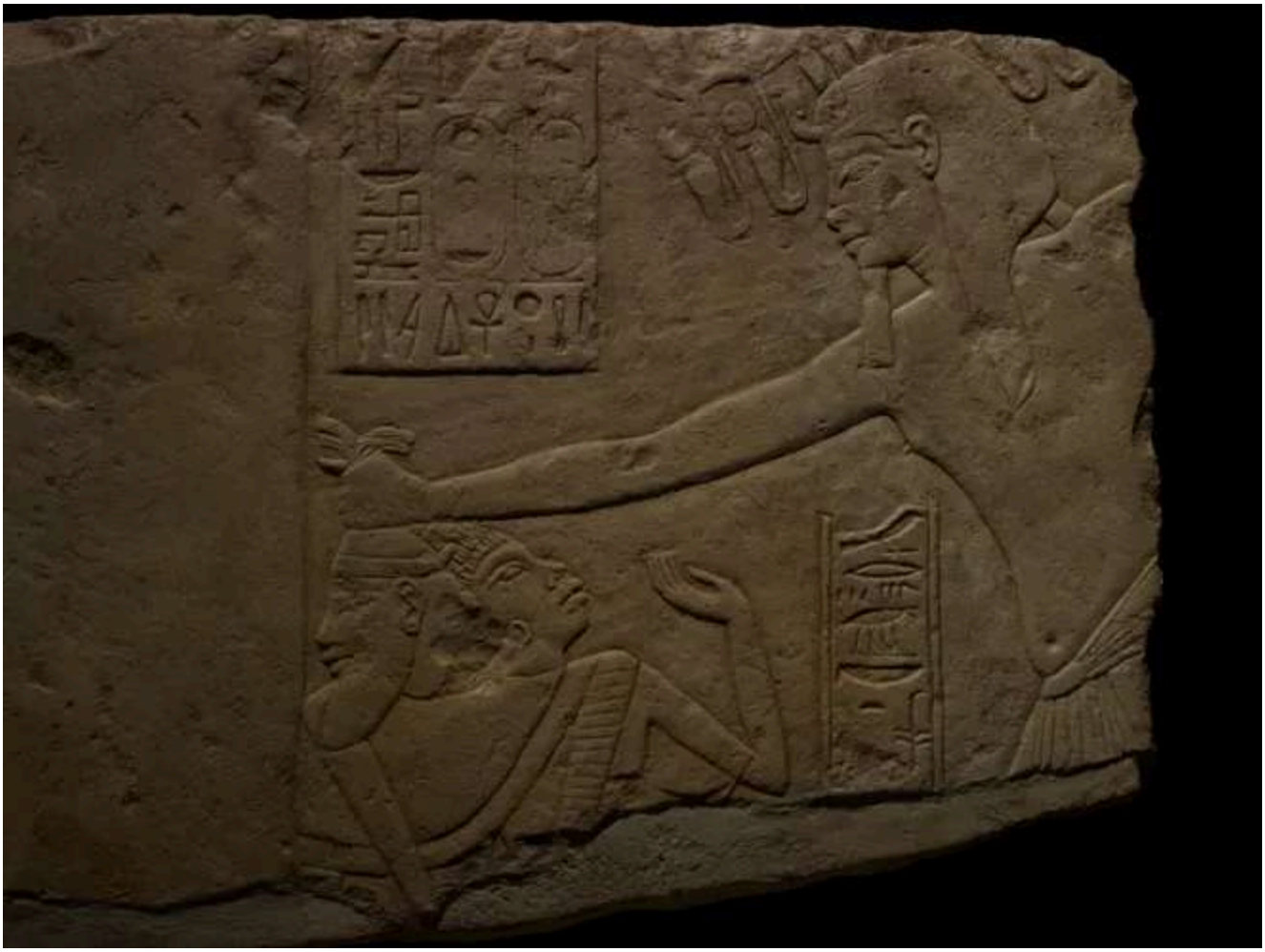
This CT scan reveals the deformed foot, broken knee, buck teeth, and elongated skull of King Tut.
Photograph courtesy the Supreme Council of Antiquities, Egypt, and National Geographic

- What have these CT scans revealed about King Tut's life and death?
  - Not much that wasn't already known, actually. (**Read this 2010 NG News article** for more background on the Boy King's life and death.) The virtual autopsy *did* allow researchers to create the most advanced simulation of what Tutankhamun may have looked like—**click here for a sneak peek**—and provided evidence to question the leading theory on how he died (in a chariot crash).
  - *Life:* King Tut was probably ill for most of his life. The autopsy reveals he probably had a clubfoot or **Kohler disease**, which prevented him from participating in vigorous activity (such as chariot-riding). He also suffered from genetic illnesses and malaria.
  - *Death:* King Tut did not have the kind of multiple traumatic injuries that would be associated with a fall from a chariot, the leading theory on how he died. **According to the *Independent***, only one of the breaks in his body (a devastating blow to his knee) occurred immediately before his death. Most damage to Tut's skeleton occurred *after* his death, probably in the process of mummification and burial.



This CT scan of King Tut's knee shows the brutal injury that likely led to his death.
Photograph courtesy the Supreme Council of Antiquities, Egypt, and National Geographic

- What conditions do archaeologists think led to King Tut's death?
  - The researchers associated with the BBC special think King Tut's long history of illness made him vulnerable to disease (such as malaria) and injury (such as the blow to his knee).
  - King Tut's parents were brother and sister, as were many royal couples in ancient Egypt. This situation, known as **consanguinity (or inbreeding)** creates a greater risk for inherited genetic disorders. Consanguinity probably led to illnesses that made Tut physically weaker than other boys his age.



King Tut probably didn't smite his enemies as vigorously as this beautiful ancient piece of propaganda indicates.
Photograph by Kenneth Garrett, National Geographic

- Some of the scientists who performed Tut's "virtual autopsy" are forensic archaeologists.

Forensic archaeologists excavate and study remains and artifacts in areas containing graves.

Besides the *body* of King Tut, what artifacts did forensic archaeologists on the "virtual autopsy" team study?

- They analyzed the loot from King Tut's famous tomb, of course. In particular, they studied the 130 walking canes buried with the Boy King. Many archaeologists thought these canes were symbols of the pharaoh's power, but the new "virtual autopsy" research indicates he actually needed them for walking.

(No, this is not King Tut's stogie.) This bamboo cane, one of more than 100 discovered in the tomb of Tutankhamun, was made by King Tut himself. The way it is worn at the tip indicates it

was actually used.
Photograph by Kenneth Garrett, National Geographic

- Besides Egyptian mummies, what else might forensic archaeologists investigate? Read **the *Independent* article** and our encyclopedia's short section on forensic archaeology (**just search for the word "forensic" on this page)** for some help.
    - *icemen:* The expert quoted in the Independent article is head of the Institute for Mummies and Icemen. Icemen are "accidental mummies" preserved for hundreds or even thousands of years by isolated, icy conditions. Forensic archaeologists have discovered that Otzi, Europe's most famous iceman, had tattoos along his legs and back—and that those tattoos may have been related to acupuncture. **Read more about Otzi here**.
    - *bog bodies*: These "accidental mummies" are remarkably preserved by the unique chemistry of peat bogs. Forensic archaeologists have discovered that most bog bodies are victims of ritual sacrifice or murder. **Watch our video on bog bodies here.**
    - *skeletal remains*: Forensic archaeologists analyze the bones and teeth of skeletons discovered in ancient cemeteries or burial sites. They have discovered that the ancient Maya, for example, enjoyed a diet that included squash, beans, and chili peppers. **Watch forensic archaeologists uncover "Clues to Ancient Mayan Prosperity" here.**
    - *victims of genocide*: Many forensic archaeologists study the remains of victims of genocide. **Our encyclopedic entry gives an example: After the fall of the Khmer Rouge** in Cambodia in the 1970s, forensic archaeologists studied the remains of bodies in the so-called Killing Fields, discovering how and when they died. Forensic archaeologists helped establish that the Khmer Rouge used starvation and overwork, as well as direct killing, to silence opponents of the regime.

TEACHERS' TOOLKIT

The Independent: **King Tutankhamun did not die in chariot crash, virtual autopsy reveals**

NG This Day in Geographic History: **King Tut's Tomb Discovered**

NG glossary list:
virtual
CT scanner
forensic archaeologist