SHINING A LIGHT ON THE PAST

UNDERSTANDING EVOLUTION WITH SCOTTY THE T. REX

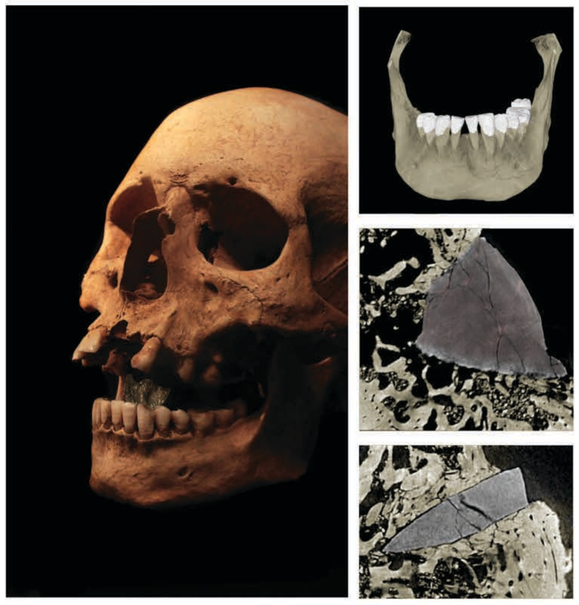
Scotty, the world's largest T. rex, has captured the public's attention since it was discovered in Saskatchewan in 1991. Now, researchers from the University of Regina and the Royal Saskatchewan Museum have been taking a closer look at the dinosaur's remains using the CLS and may have uncovered unprecedented details in dinosaur fossils. The study is in its early stages, but the team has found what seems to be a network of blood vessels in the 67 million-year-old fossil. If confirmed, the discovery will be a world-first.

https://www.facebook.com/CanLightSource/videos/713018706402871/

RECONSTRUCTING THE PAST

A unique skull from the Bronze Age was found in Siberia (Russia) with a stone projectile tip embedded in its lower jaw where it was missing two teeth. University of Saskatchewan researchers used the CLS to discover that the missing teeth were due to a rare genetic trait in which teeth never formed. The projectile tip was a broken piece of arrowhead, potentially removed from the man's face during a struggle or before his burial. This is one of only three specimens from this region and time period that reveal evidence of violence. The study of ancient human remains enables the reconstruction of past lives and contributes to our understanding of human adaptation and behaviour.

DOI: 10.1016/j.jpp.2014.04.004



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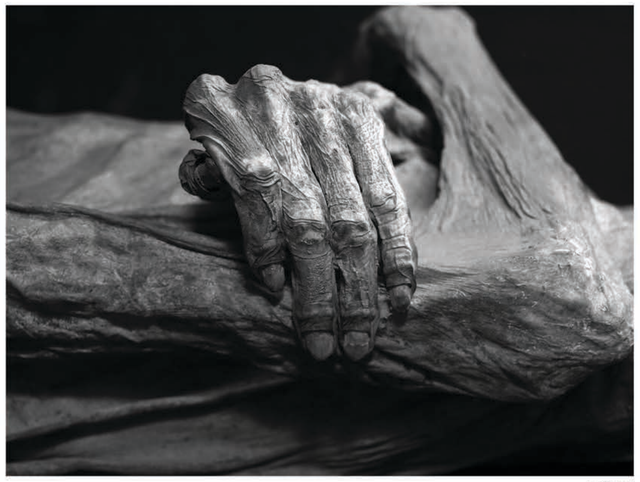


Tomas Castelazo

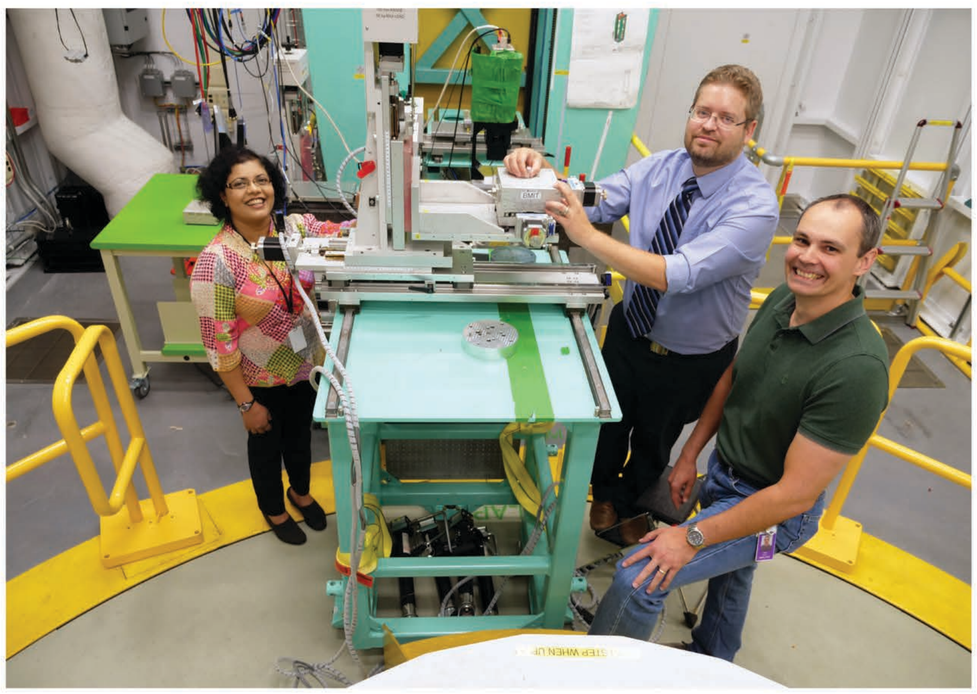
FROZEN IN TIME

Kwäday Dän Ts'inchi, or "Long Ago Person Found" is the name given to the individual first discovered melting out of a glacier in northwestern British Columbia in 1999. The remains of Kwäday Dän Ts'inchi date back to AD 1670 and have been analysed at the CLS. A 2D map of protein and collagen from the remains was created and used to identify the distribution of chemicals in the individual's mummified tissues. This allows researchers to learn more about how decomposition takes place in frozen bodies.

DOI: 10.1017/S1431927613000615

THE FATE OF THE FRANKLIN

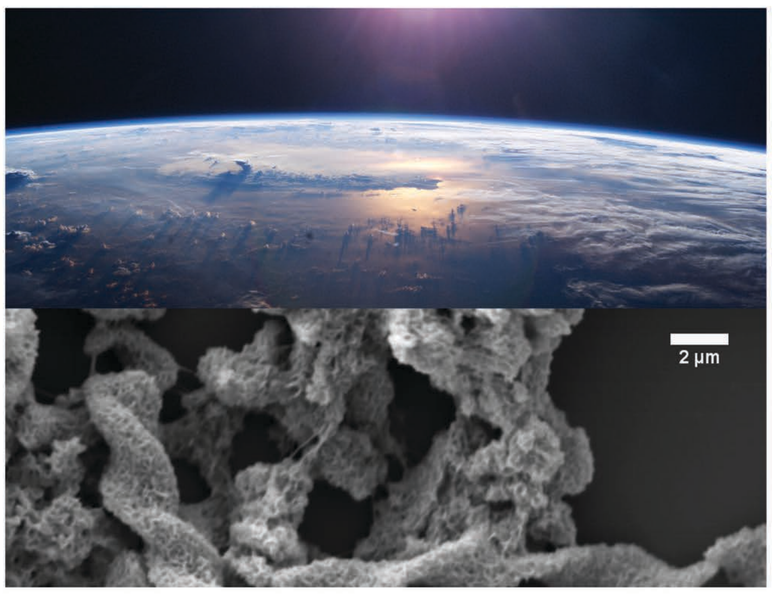
Synchrotron studies of bone and teeth led a multi-institution team of scientists to conclude that lead poisoning did not play a pivotal role in the deaths of crew members of the ill-fated Franklin Expedition of 1845. Data collected by the team doesn't support the theory that compromised physical and/or neurological health resulting from lead poisoning prompted the stranded sailors' fatal march southward in April 1848. That theory arose from previous analyses of bone, hair and soft tissue samples from the frozen bodies of the sailors, which had found high levels of lead in those tissues. The team's data showed that bones gathered at the Arctic sites of Beechey and King William islands contained similar extensive distributions of lead, implying exposure long before the expedition. DOI: 10.1371/journal.pone.0202983



RECREATING MICROFOSSILS

Over two billion years ago, Earth's oceans were iron-rich, and oxygen was just beginning to make a major appearance in the air. Researchers from Tübingen University in Germany are trying to mimic rock formation from this period to better understand the microbial life that once thrived in these iron-rich environments. After exposing microbes to high pressure and temperatures, the team used the CLS to examine the structures of "fossilized" microbes, like those often found in mines.

DOI: 10.1038/ncomms7277



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