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. Researchers from the University of Regina and the Royal Saskatchean Museum used the CLS to study the dinosaur's bones. They discovered structures similar to blood vessels within the bone. These structures are much like human bone in their function, but have some differences in their shape that the researchers plan to explore.

URI: https://hdl.handle.net/10294/15919

Tomas Castelazo, Detail of the Guanajuato mummies, Mexico

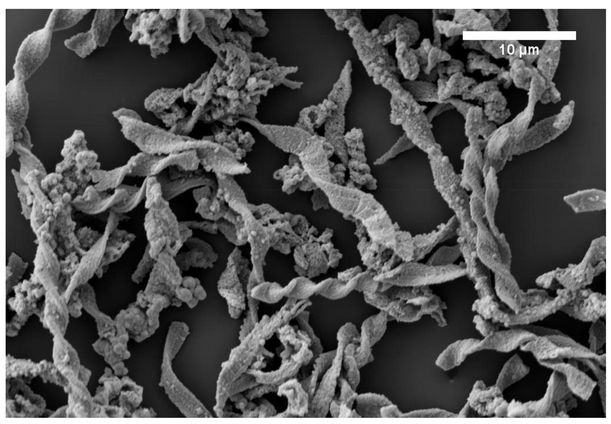
FROZEN IN TIME

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 dating back to 1670 CE were analyzed 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

RECREATING MICROFOSSILS

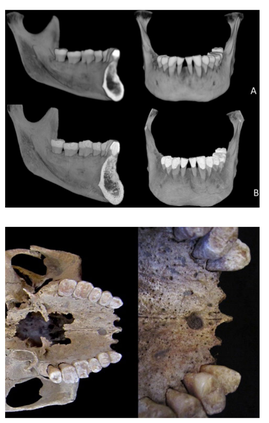
Over two billion years ago, Earth's oceans were rich in iron, and oxygen was just starting to make a major appearance in the air. Researchers from Tübingen University in Germany wanted to mimic rock formation from this period to better understand the microbial life that once thrived in these iron rich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



DOI: 10.1038/ncomms7277

RECONSTRUCTING THE PAST

A unique skull from the Bronze Age wasfound 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. 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 the past and contibutes to our understanding of human adaptation and behaviour.



DOI: 10.1016/j.jjpp.2014.04.004

THE FATE OF THE FRANKLIN

Synchrotron studies of bone and teeth led a multi-institution team on 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 didn't support the theory that compromised physical 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, suggesting exposure long before the expedition.

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Left to right: Sanjukta Choudhury (USask), David Cooper (USask), Brian Bewer (CLS)

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DISCOVERY AT THE SPEED OF LIGHT