

# Researchers acquit the tins in mysterious failed Franklin expedition

April 9 2013

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(Phys.org) —New research from Western University challenges long-held beliefs regarding the demise of Sir John Franklin's ill-fated Northwest Passage expedition that departed from England in 1845.

A landmark study from 1981, led by Owen Beattie (a since-retired anthropology professor emeritus at the University of Alberta), concluded that while the British crew most likely died of pneumonia and tuberculosis, lead poisoning – a result of poorly soldered tin cans – was also a contributing factor.

More than 30 years later, technology and scientific advancements have provided a new team of researchers, led by Western chemistry professor Ron Martin, evidence that faulty solder seals in tinned meat cans were not the principal source of lead found in the remains of the Franklin crew members.

The findings, revealed in the paper titled "Pb distribution in bones from the Franklin expedition: synchrotron [X-ray fluorescence](#) and [laser ablation/mass spectroscopy](#)," were recently published in *Applied Physics A: Materials Science and Processing*.

"We'll probably never know what happened to the crew of the Franklin so it will remain one of the great mysteries of Canadian history but our resources fail to support the hypothesis that the lead in the bones came from the tins and I certainly believe that it didn't," says Martin, the paper's lead writer and principal investigator. "The time, from departure

to death, just wasn't long enough for lead from the tins to become so dominant throughout all the bones."

Martin and his Western colleagues Andrew Nelson, Steven Naftel and Sheila Macfie collaborated with Keith Jones from Brookhaven National Laboratory in New York to examine bone samples using a Synchrotron (a [particle accelerator](#) using for taking x-rays), as well as scientists at the University of Windsor, utilizing laser sampling technology.

The x-rays confirmed a high level of lead in the bones but the voyage was too brief for the crew to absorb the lead from the cans and the distribution throughout the skeleton is not consistent with short-term exposure.

Martin and his team conclude the [lead](#) poisoning, which could result in neurological disease, commenced prior to the Franklin expedition's departure and was likely a common problem for many 19th century people.

Provided by University of Western Ontario

Citation: Researchers acquit the tins in mysterious failed Franklin expedition (2013, April 9) retrieved 5 May 2024 from <https://phys.org/news/2013-04-acquit-tins-mysterious-franklin.html>

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