
**Sourcing artifact native copper using electron
probe microanalysis: preliminary results**

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The Metepenagiag Mi'kmaq Nation is a First Nation community located on the banks of the Miramichi River in northern New Brunswick. In the late 1970s, this community, in partnership with a team of provincial archaeologists, participated in the salvage excavation of the Augustine Mound, a small Early Woodland cemetery that was located within their lands. Aside from providing invaluable insight into religious and burial practices of Early Woodland period Native Americans, the site produced an exceptional assemblage of artifacts, including large numbers of unsmelted copper beads, rings, and tools, and textiles. They are particularly rare in archeological contexts due to the acidity of the soil in this region of the Maritimes.

The copper beads are the most common metal artifacts from the site and a team of researchers from the University of New Brunswick undertook a project to determine their geochemical composition. The overall goal of the project was to establish potential sources for the beads and thus, prospective prehistoric exchange networks. Trace element geochemistry was a powerful means of achieving this goal and one not regularly pursued in archaeology. Hesitancy to use geochemical analytical techniques existed because most methods would destroy the artifacts in question. A non-destructive technique with low detection limits was required, so in a preliminary study, electron probe microanalysis (EPMA) was used to test a bead from the site. After designing a sampling program, 13 sites on the bead were analyzed. Detection limits in the low parts per million were achieved for the key elements. This was important for comparison with compositions determined by other researcher on known prehistoric mine sites in eastern Canada and the United States using more powerful techniques, such as instrumental neutron activation. As a preliminary study, the technique used and the results it produced provided a solid base for the discussion of its implications in future copper sourcing projects.