Musket Balls, Lewis & Clark, and the Fur Trade: Isotopic, Elemental, and Historical Analysis

Douglas C. Wilson
Portland State University, doug@pdx.edu

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by Doug Wilson, NPS Archaeologist

The chemical analysis of lead objects has been used in archaeology and forensics to tie a particular ore or manufacturer to a particular artifact. In 2005, the Park Service partnered with Portland State University to explore the Chinook “Middle Village” site/Lewis and Clark’s Station Camp at the mouth of the Columbia River. Isotopic and elemental analyses of artifacts from the site, combined with analyses of similar artifacts from the Cathlapotle and Meier sites in the Portland Basin, expand on Jamie Lockmann’s work, which explored artifacts from Fort Vancouver, a Hudson’s Bay Company site; and Fort Clatsop, and Travelers’ Rest, Lewis and Clark Corps of Discovery sites.

Historical records suggest that lead recycling of musket balls and shot from multiple, chemically distinctive sources was probably minimal in the 19th century, and unlikely to confuse the contrasts between distinctive lead mining regions and distribution routes for lead artifacts. This suggests that isotopic and chemical techniques can be used to identify sources of lead in the Pacific Northwest during the fur trade period.

Likely sources of lead musket balls and shot in the Pacific Northwest are from England, perhaps Spain, and the Wisconsin and southeast Missouri areas of the United States. The results of this analysis suggest that the bulk of lead at Chinookan sites is from English sources. The elemental analysis provides clues that early fur trade sources of lead might be different from later Hudson’s Bay Company sources of lead, and point to innovations in lead smelting and manufacturing technology. Contrary to popular accounts, the identification of a unique lead signature related to the Lewis and Clark expedition is still uncertain.

Regardless, isotopic analysis appears useful for inferring the source of lead artifacts and the technological development of lead products during the Industrial Revolution. Results of the study will be presented at the 62nd Annual Northwest Anthropology Conference, April 9, 2009 at Newport, Oregon.