



# Assessing the provenance of Poverty Point copper through LA-ICP-MS compositional analysis



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## ABSTRACT

The Poverty Point site is the largest and most complex Archaic period earthwork site in eastern North America and the type site of the Poverty Point culture. Poverty Point holds a prominent position in eastern North American prehistory in part due to the extensive exchange system—the first of such scale—that brought exotic materials to this site from the Appalachians, Ohio Valley, and Upper Mississippi Valley. Among these exotic materials, copper was introduced into the Poverty Point exchange system from sources often posited to reside in the upper Great Lakes region, an idea reinforced by the identification of Upper Mississippi Valley sources for galena found at the site. This study tests such an assumption by using laser ablation inductively-coupled plasma mass spectrometry (LA-ICP-MS) analysis of six copper artifacts from the Poverty Point site and comparing the results to source samples from the Lake Superior region, central and southern Appalachian Mountains, and Canadian Maritimes. Results indicate that these copper artifacts most likely originated in the eastern sources of the Maritimes or Appalachian Mountains, rather than the Lake Superior region as long proposed.

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## 1. Introduction

The Poverty Point site (16WC5), located in northeastern Louisiana, is the largest and most complex Archaic earthwork site in eastern North America and the main site of the Poverty Point culture (Ford and Webb, 1956; Gibson, 2010: 77–96; Webb, 1968; Webb, 1982). Monumental earthen architecture, post circles, and extensive long-distance raw material acquisition suggest that Poverty Point holds a position of some importance in the social developments of eastern North America.

Long distance exchange, on a scale not seen previously, is one of the salient features of the Poverty Point culture. Indeed, as Gibson (Gibson, 2000: 171) states “...exchange was one of the defining aspects of Poverty Point culture and one of the most important drivers of its unique development.” Exotic materials, including Burlington chert, “Northern Gray” chert (a catchall term encompassing Cobden, Wyandotte, Dover, and other cherts of the Ohio and Mississippi valleys), novaculite, quartz crystals, fluorite, steatite, sandstone, galena, and copper, were transported to Poverty Point, an estimated 71 metric tons in all, over nearly 6 centuries after 3700 BP (Gibson, 1994; Gibson, 1999; Gibson, 2007; Smith, 1991; Walthall et al., 1982; Webb, 1982; Yates, 2009). The sources for these materials are found throughout the central and southeastern United States, especially along the Mississippi River and

its primary tributaries as shown in Fig. 1 (Gibson, 1994: 130; Gibson, 1999: 57).

Among these exotic materials, native copper is featured in the form of beads, pendants, awls, thin sheets, nuggets, and at least one copper plummet (Bell, 1956; Webb, 1982). While some of the geological sources of exotic materials found at Poverty Point have been confirmed through the use of elemental composition studies (e.g., Ghosh, 2008; Greenlee et al., 2014; Walthall et al., 1982; Wisseman et al., 2010; Yates, 2009), Poverty Point copper has so far eluded attempts to identify its provenance (Lasley, 1983). It has been widely assumed to originate in the deposits of the upper Great Lakes, an assumption strengthened by research which has determined that some of the galena found at Poverty Point originates from sources in the Upper Mississippi Valley (Ghosh, 2008; Walthall et al., 1982).

While the deposits around Lake Superior are best known, other sources of native copper exist in eastern North America. These native copper deposits are found in Newfoundland, Nova Scotia, and the Appalachians as far south as Georgia and northern Alabama (Rapp et al., 2000). Does Poverty Point copper actually derive from sources in the Great Lakes as assumed, or could it derive in whole or in part from these other sources instead?

Research into the provenance of Poverty Point copper has so far been unable to answer this question. Only one previous study, using particle-induced X-ray emission, examined copper from Poverty Point; it produced inconclusive results (Lasley, 1983). However, in a much wider study that did not include Poverty Point materials, Goad (Goad, 1980)

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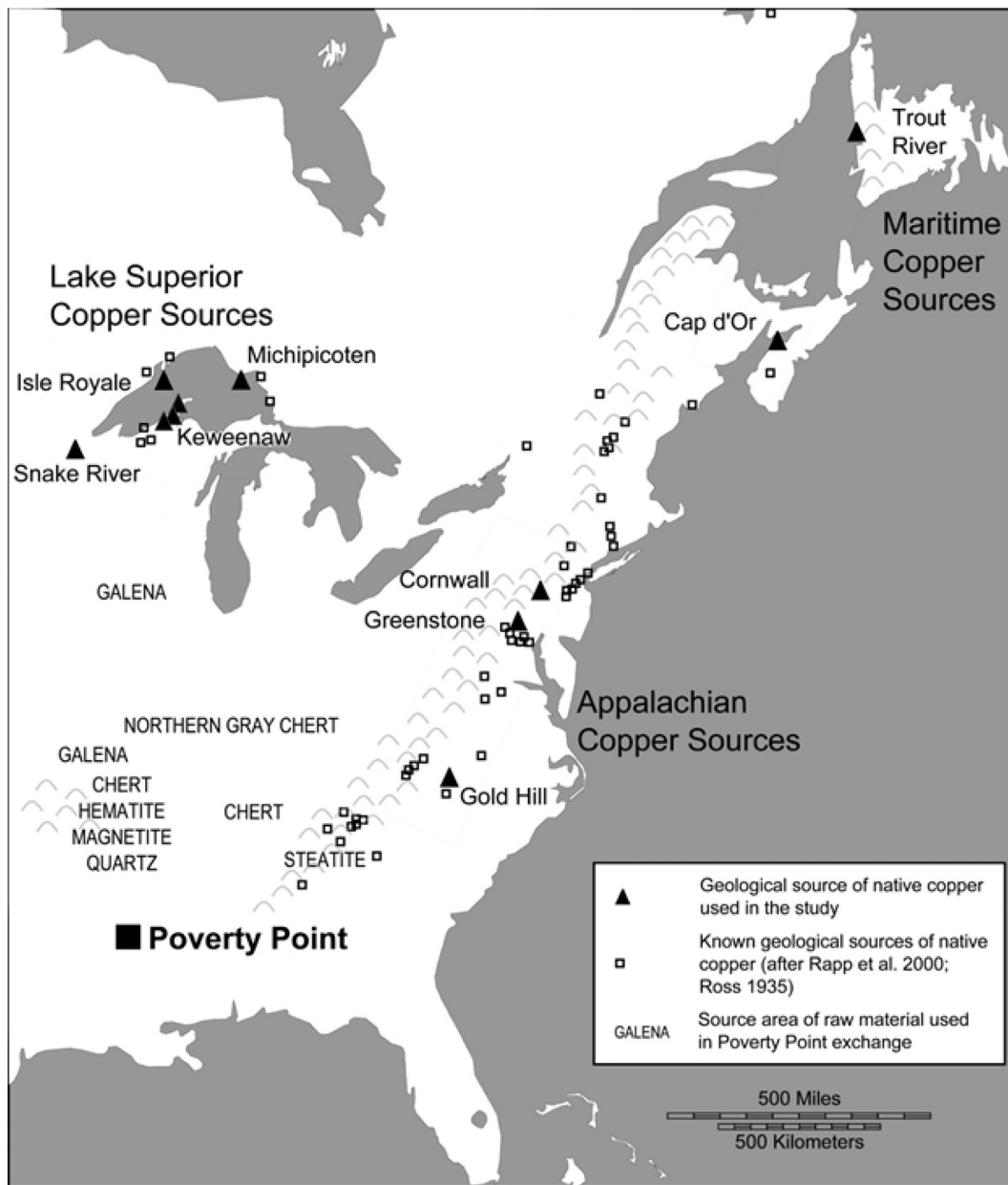


Fig. 1. Location of Poverty Point, raw material source regions, and copper sources discussed in the text.

determined that some of the Archaic-aged copper in the southeast was most consistent with sources in the Appalachians.

Thus two pathways appear as possible routes for the introduction of copper to Poverty Point. One, from the Great Lakes down the Mississippi Valley, partially following the route used to import galena (Walthall

et al., 1982), or another across the southeast from the Appalachians, potentially following the route used to transport steatite vessels (Truncer, 2004; Yates, 2009). In this study, we address the issue of Poverty Point copper provenance by using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) to examine the compositional profiles

**Table 1**  
Poverty Point copper samples.

Provenience/catalog information	Collector	Form	Weight (g)	
GC-1	16WC5-XU3, E20 S15, FS #3366	Haag	Bead	0.84
GC-2	Lasley Sample 1, South Ridge	Gibson	Flat sheet fragment	0.27
GC-3	Lasley Sample 6	Gibson	Flat sheet fragment	0.18
GC-4	16WC5-68/CU/9	Alexander	Nugget	0.25
GC-5	16WC5-68/CU/10	Alexander	Rolled sheet (tube) fragment	0.32
GC-6	16WC5-68/CU/11	Alexander	Rolled sheet (tube) fragment	0.52

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