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Evidence of Eurasian metal alloys on the Alaskan coast in prehistory

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ABSTRACT

Six metal and composite metal artifacts were excavated from a late prehistoric archaeological context at Cape Espenberg on the northern coast of the Seward Peninsula in Alaska. X-ray fluorescence identified two of these artifacts as smelted industrial alloys with large proportions of tin and lead. The presence of smelted alloys in a prehistoric Inuit context in northwest Alaska is demonstrated here for the first time and indicates the movement of Eurasian metal across the Bering Strait into North America before sustained contact with Europeans.

1. Introduction

When Russian and English explorers and American merchantmen reached the Bering Strait in the late 18th and early 19th centuries, metal-often in the form of weapons-was moving eastward across the strait in exchange for walrus hides and ivory, caribou hides, and seal oil (Beaglehole, 1967; Bockstoce, 2009; Burch, 2005; Golder, 1925; Mason, 1998). But the use of metal in Arctic North America predates the arrival of Europeans (e.g., Franklin et al., 1981; McCartney, 1988; McGhee, 1984), and has been noted by scholars since the early days of Arctic research (e.g., Collins, 1932, 1937; Larsen and Rainey, 1948; Mathiassen, 1927). McGhee (1984:15) suggested Thule was an "iron age" culture due to its intensive reliance on metal. McCartney (1988:58) referred to the dependence on metals by Thule and other Arctic cultures, in the absence of smelting, as "epi-metallurgy." The recent recovery and analysis of metal artifacts from a Late Prehistoric Inuit context on the Seward Peninsula has yielded important new information on metal use in the North American Arctic before European contact.

2. Cape Espenberg

Cape Espenberg comprises a 4000-year sequence of dune-capped beach ridges on the northern shore of the Seward Peninsula projecting into southern Kotzebue Sound at latitude 66° 33′ North (Fig. 1). Several archaeological sites have been recorded for this location with younger ridges containing a record of prehistoric Inuit occupation that includes the initial period of settlement in northwest Alaska by ancestral Thule people, roughly 1400 years ago (Darwent et al., 2013; Harritt, 1994; Mason et al., 1997). During 2009–2011, six houses were excavated collectively dating to between ca. 600 and 1500 CE. Their inhabitants pursued an economy based on the hunting of marine mammals (primarily seal) and terrestrial mammals (primarily caribou), supplemented with fish and fowl. Excavation of the houses yielded thousands of wood, bone, ivory, antler, lithic, and ceramic artifacts and four of the houses (Fig. 2) produced a total of six metal or composite metal artifacts (Fig. 3). The metal objects included: (1) a bone fishing lure with iron inset eyes (Fig. 4); (2) a piece of bone fishing tackle with a copper hook; (3) an eyed copper needle; (4) a small fragment of sheet copper; (5) a copper alloy cylindrical bead; and (6) a fragment of a small copper alloy buckle (Hoffecker and Mason, 2011).

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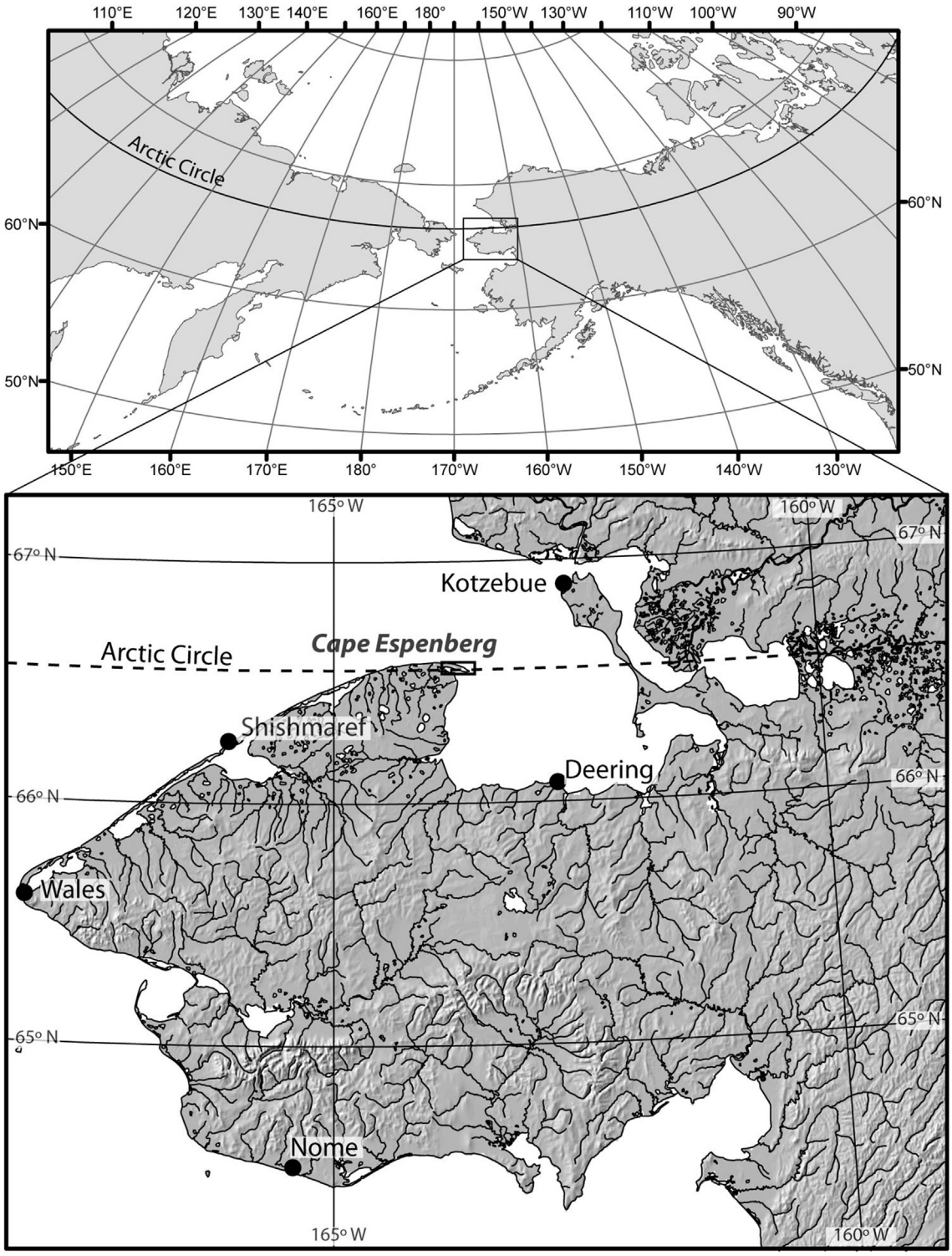

Fig. 1. Bering Strait region and Cape Espenberg on the north coast of the Seward Peninsula.

3. Contexts and ages of the metal artifacts

The copper fishhook and eyed needle were both recovered from house ruins comprising the several dozen such features at site KTZ-00087. Feature 68A has a single chamber entered through a long tunnel. Five radiocarbon ages place its principal occupation in the 15th to 17th centuries AD (Hoffecker and Mason, 2010, 2011). Its artifact assemblage, which includes the copper needle, labrets, slat armor and harpoon heads, indicate an affiliation with the intermediate Kotzebue phase of the Arctic Woodland culture (Giddings, 1952). KTZ-00088 consists of a cluster of 35 house ruins. Feature 33 was a small house with a lengthy entryway. Three radiocarbon ages situate its likely occupation in the 17th century AD (Hoffecker and Mason, 2011), just prior to the appearance of European trade goods.

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