ABSTRACT: Recent ethnographic studies by Proyecto Arqueológico Porco-Potosí of traditional silver smelting in the southern Andes have revealed the continuing use of huayrachinas, peculiar small wind-blown furnaces. This technology was believed to have become extinct at the turn of the 20th century. Historical literature cites the huayrachinas as being an indigenous technology local to the Bolivian Andes. This paper is an overview of the historical and ethnographic records of huayrachina use throughout the last 500 years. It also contains initial results of analyses from a current smelting site. The paper focuses on the history and technological efficiency of the huayrachina.

Introduction

The Proyecto Arqueológico Porco-Potosí was established by Dr Mary Van Buren to help illuminate the history of silver production and aid further understanding of the history and technology of the Porco-Potosí region of the Southern Bolivian Andes (Fig 1; Van Buren and Mills 2005). Project personnel have recorded the current use of huayrachinas, wind powered furnaces, a practice which was last described in 1893 (Peele 1893, 9) and since assumed to be extinct. Huayrachinas are thought to have stemmed from pre-colonial, native Andean roots; however, no conclusive evidence for this is known at present, and the issue is one of the foci of our current research. The huayrachina is a perforated natural draught furnace that uses wind to aid smelting. It has a cylindrical shaft, normally less than a metre tall, that is pierced with series of holes allowing ventilation from the wind. It can be used to smelt lead and/or silver ores. According to historical sources huayrachinas are always found in high and windy areas (Van Buren and Mills 2005). The word huayrachina comes from Quechua; huayra meaning wind and chi the causative and na transforms the word into a noun. It is often translated as being 'the place where the wind blows through'.

The word huayrachina also means the winnowing of grain. Colonial literature cites different spellings and names of wind blown furnaces: guayra, guiara, huayra. In this paper the term huayrachina is used throughout with the exception of citations from historical sources. Proyecto Arqueológico Porco-Potosí’s investigation has established that huayrachina usage has continued in the region and the examination of current practices should aid in the understanding of pre-Hispanic metallurgy. This paper outlines a brief history of the use of huayrachinas in the Bolivian Andes and describes the current production of silver as a basis upon which to understand and interpret archaeological smelting remains.

The history of the Porco-Potosí region

In the early 16th century the Spanish conquered large parts of NW South America and made them into the vice-royalty of Peru. The conquistadores were confronted by the Incas, whose empire covered an area from modern day Ecuador to parts of northern Chile and Argentina. The Inca Empire was highly centralized, with a supreme ruler governing from Cuzco in what is now modern-day Peru. However, while provinces were controlled by Inca officials, conquered populations were generally