

Alan Lee – Summary Report to the AIPS for the Short Term Research Grant for Summer 2019

Title of Project: Early Iron Production in Northwestern South Asia: Technology and Power in the Early Historic Period, 800 BCE to 400 CE

My research specifically studies ancient iron artifacts from Bhamala Stupa (~100 – 500 AD) and Badalpur Stupa (~300 BC - 200 AD) located in the region once known as Gandhara in order to reconstruct blacksmithing techniques from Gandhara. I am the first researcher to attempt reconstructing blacksmithing traditions in Gandhara using a variety of archaeological and material science techniques. The significance of this research is that iron technology in Gandhara may have significantly affected the lives of the people in the region and become an internationally valued trade commodity. Likewise, iron technology in Gandhara has been understudied in the archaeological literature.

Iron technology was one of the most impactful technologies on ancient societies as noted by prominent ancient writers like Pliny the Elder. Furthermore, iron technology changes from a symbolic good to the utilitarian metal of choice in Gandhara during an important historical timeframe. Gandhara was in an environmental corridor along major trade routes between South Asia and Central Asia, during the Early Historic Period (~ 600 BC – 700 AD). During this time, many different societies with unique cultures contested for control over the region. These groups may have introduced different iron technologies and traditions to the region. Furthermore, the mixing of different blacksmithing traditions in Gandhara may have led to a reputation of quality for its iron which is reflected in historical documents such as Quintus Curtius Rufus's biography on Alexander the Great, Pliny the Elder's Natural Histories, and Clement of Alexandria's writings. Thus, we need to do further research into the development of blacksmithing, the shift to the utilitarian usage of iron that impacted the people living in ancient Gandhara, and the mixing of multiple technologies that may have led to an international reputation. To do that, I focused on two sites to act as case studies, Bhamala and Badalpur.

I chose to focus on the recent excavations from Bhamala Stupa and Badalpur because both sites are Buddhist stupas in Gandhara with similar features and nearby monasteries that tended to the larger monumental complexes. They are also from different time periods (300 BC – 200 AD) and (100-500 AD) respectively, so that will give me more information to see if iron technology varied temporally in Gandhara. Likewise, I studied construction materials, approximately 300 artifacts in total. I chose construction materials for their ubiquity which allowed me to collect a body of information that could reveal blacksmithing traditions through similarities in size and shape across artifact types. Lastly, after thorough dimensional and photographic documentation, I with permission of the Director of Archaeology in KPK, Dr. Abdul Samad, took small samples for metallographic analysis. These metallographic analyses are the only way to find out how Gandharan blacksmiths forged their objects. The metallographic techniques that I am using for these samples have never been applied on materials from Gandhara, and I look forward to using these results as the body of my dissertation. I would like to give my sincere thanks to AIPS for making this research possible by providing the funding to go to Islamabad and the accommodations while there. It was a life-changing experience and I hope to work with AIPS in the future.