

RADIOANALYTICAL MULTI-ELEMENTAL ANALYSIS: NEW METHODOLOGY AND ARCHAEOLOGICAL APPLICATIONS

Magen E. Coleman

J. David Robertson, Dissertation Advisor

Abstract

Several projects are covered in this dissertation: the application of instrumental neutron activation analysis (INAA) and rigorous statistical analyses to the sourcing of Egyptian limestone and Kenyan obsidian, and the development of a method to determine titanium, barium, and arsenic concentrations in obsidian using epithermal neutron activation. Archaeology provides a link to the history of man and, through the application of rigorous analytical techniques, insight into the procurement, distribution, and exchange of resources can be achieved. The use of chemical and radiochemical signatures to distinguish artifacts in an accurate and precise manner brings the histories locked in these pieces closer to becoming clear.