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Santa Elena Research Trip to the Warren Lasch Conservation Center

By Heathley A. Johnson

One of the more enigmatic classes of artifacts from Santa Elena (occupied 1566-1587) are *plata corriente*, of which the collection is the largest known from any North American terrestrial archaeological site. These artifacts are poorly documented in the archaeological literature, with most of the available information regarding them being found in numismatic sources. I have been researching these artifacts for the past several years and have sought to have specialized analysis conducted, in order to provide more information for a better understanding of the *plata corriente*. In August 2021, I received a grant from the Archaeological Research Trust (ART) to have this specialized analysis conducted on the collection.

Plata corriente (circulating silver) are small disks, or fragments thereof, of silver alloy (Figure 1). The Spanish Crown did not supply its colonists with coinage, and even after royal mints were established in the early 16th century in the New World, they were unable to produce enough coinage to meet regional demand. Thus, people used these disks and fragments as a provisional medium of exchange in

the New World during the 16th and 17th centuries. *Plata corriente* were produced at foundries located near silver mines, of which there were many in western Mexico. The Spanish Crown did not approve of the use of *plata corriente*, as it was difficult to assure that the royal tax had been collected from the mined silver, and the fineness of the silver was not established or guaranteed. Nevertheless, lacking another solution, the use of these pieces of silver was temporarily allowed. Eventually, though, their use was banned, and people were instructed to exchange their *plata corriente* at one of the royal mints for official minted coinage.

One of the research questions I had about the *plata corriente* concerned the actual composition of the fragments. The Spanish Crown was worried that people were using debased silver when making *plata corriente*, so determining the percentage composition of silver and other metals in the alloy would indicate whether or not these fears were justified. As this was not something that could be accomplished at the Santa Elena Lab, I contacted the Warren Lasch Conservation

Center (WLCC) of Clemson University to conduct this analysis (Figure 2). While the WLCC is generally known as the place where the *H.L. Hunley* is being conserved, they offer a wider range of services than just conservation. The analytical method used on the *plata corriente* was x-ray fluorescence (XRF). This non-destructive technique can determine the elemental composition of a sample, as well as the weight percent of the elements present.

Walking into the spacious lab area at the WLCC was akin to visiting a scientific wonderland, full of high-tech tools and brightly lit workspaces. Certainly, it was very different from many of the dusty and dim archaeology labs that I have seen. I had the pleasure of working with Lisa Kasprzok, Conservation Scientist at WLCC, who did the analysis of the Santa Elena artifacts (Figure 3). Stéphanie Cretté, Director of the WLCC, was also kind enough to give me a tour of their facilities.

The entire collection of 21 *plata corriente* was analyzed, as well as a silver 1 *real* coin minted at the Mexico City mint (only two minted silver coins have been found at Santa Elena). The results of the XRF



Figure 1: Two plata corriente (A and B) and a 1 real minted coin (C) from Santa Elena. (Photos by Heathley Johnson)



Figure 2: The Warren Lasch Conservation Center of Clemson University building in North Charleston, South Carolina. (Photo by Heathley Johnson)

analysis showed that there was significant variation in the metallic composition of the *plata corriente*. The minted coin from Mexico City contained 94% silver (the other major elements present were silicon, copper, and lead), which was taken as a baseline for the amount of silver (or fineness) that currency should contain to meet royal standards. The silver content in the *plata corriente* varied between 46 and 97%, with an average of 77%. Some

of this variation is likely a result of how different metals corrode, resulting in surface inhomogeneity of the alloy. As XRF measures near surface composition, readings of an inhomogeneous sample will produce different results than if the uncorroded, homogeneous inner core was sampled. While this does introduce limitations on the conclusions that can be drawn about the percent composition of the *plata corriente* based on this analysis,

the variation is large enough to indicate that they were being debased, thus justifying the fears of the Spanish Crown.

Plata corriente are one of those artifact classes that should have a wide appeal to varied audiences. With this final analysis step completed, it will now be possible to finish the research on the Santa Elena collection and produce a manuscript about it, adding to the limited literature of these artifacts.



Figure 3: Lisa Kasprzak, Conservation Scientist at WLCC, conducting XRF analysis on the *plata corriente*. (Photo by Heathley Johnson)