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Analysis of Colonial Currency[1] MICHAEL KURKOWSKI, CATHERINE CANGANY, LOUIS JORDAN, KHACHATUR MANUKYAN, ZACHARY SCHULTZ, MICHAEL WIESCHER, University of Notre Dame — This project entailed studying the cellulose in paper, the ink, colorants, and other materials used to produce American colonial currency. The technique primarily used in this project was X-Ray Fluorescence Spectroscopy (XRF). XRF mapping was used to provide both elemental analysis of large-scale objects as well as microscopic examination of individual pigment particles in ink, in addition to the inorganic additives used to prepare paper. The combination of elemental mapping with Fourier Transform Infrared (FTIR) and Raman Spectroscopies permits an efficient analysis of the currency. These spectroscopic methods help identify the molecular composition of the pigments. This combination of atomic and molecular analytical techniques provided an in-depth characterization of the paper currency on the macro, micro, and molecular levels. We have identified several of pigments that were used in the preparation of inks and colorants. Also, different inorganic crystals, such as alumina-silicates, have been detected in different papers. The FTIR spectroscopy allowed us to determine the type of cellulose fiber used in the production of paper currency. Our future research will be directed toward revealing important historical relationships between currencies printed throughout the colonies.

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