Past Meets Future: Combining GIS, 3D Technologies, and Legacy Data to Reanalyze Ceramics at Copan, Honduras

Stephanie Sterling  
*University of Nebraska-Lincoln, stephanie.sterling@huskers.unl.edu*

Heather Richards-Rissetto  
*University of Nebraska-Lincoln, richards-rissetto@unl.edu*

René Viel

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INTRODUCTION
The archaeological site of Copán—today a UNESCO World Heritage Site in Honduras—was a primary center for cultural and economic exchange in the Maya world from the 5th to 9th centuries. Recently the city's cosmopolitan and multi-ethnic composition is being brought to light, which is dramatically altering our interpretations of the ancient city and the nature of its “collapse” in the early ninth century.

OBJECTIVES
- Identify diagnostic potsherd types to help confirm site function and status at Copán.
- Refine chronological dates across the city.
- Experiment with incorporating progressive technologies into the research process.

METHODS
Access Legacy Data
Analyze, compare, and digitize archival data from CRIA to identify a subset of diagnostic ceramic types from outside the main ceremonial complex. Primary sources integral to our research were from the following scholars:

Dr. Cassandra Bill
Dr. William L. Fash, Jr.
Sheree Lane
Dr. René Viel

Ceramic Analysis
- Locate sherds and vessels in CRIA warehouse
- Examine condition
- Compare sherds from the Ceramoteca to samples from the CRIA warehouse to select diagnostic types that best distinguish the difference between early and late Coner
- Identify damaged ceramic storage bags and containers with intention to replace for better preservation/catalog location in warehouse

Documentation and Photogrammetry
- Take still photos of 30 sherds and six whole vessels
- Create 3D models of the sample using photogrammetry
- Test use of Augmented Reality applications

CONCLUSION
This pilot study established a solid foundation for future ceramic analysis and research at Copan. By combing legacy data, 3D technologies and geographic information systems, we attempted to create a thorough compilation of information that will be useful to scholars in the future. This more inclusive data will be integral to creating a more accurate timeline of Copán and its collapse. By utilizing 3-D laser scanning and photogrammetry technology in the field, we can also take a closer look into the components of the individual sherds and bring back that information in place of transporting physical pieces.

QUESTIONS
- Was there a shift in political power in Copán between the reigns of the 13th and 16th rulers?
- If so, what was the nature of the accompanying ideological and sociopolitical changes?
- To what extent did these changes play a role in the collapse of the dynasty in AD 820?

FUTURE RESEARCH
- Optically stimulated luminescence (OSL) Dating
- Conduct photogrammetry on more sherds and reshot original sherds and vessels that were only documented on one side
- Organization and analysis of Terminal Coner diagnostic sherds
- Examine more SubOp bags from bodega
- Identify lot cards from Sheree Lane
- Input both legacy and current data into ArcGIS
- Finish 3D models

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