Challenges of Archiving Complex Archaeological Datasets for Reuse: An Example from the American Southwest

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As datasets are "born digital" in both field and lab settings, archaeologists need to learn more about, and implement, plans for how their information will be 1) stored and cataloged in databases for analysis, 2) archived and preserved, and 3) reused by future generations. Creating data management plans at the onset of a project, which account for these issues, allows datasets to adhere to the FAIR Principles (Findable, Accessible, Interoperable, and Reusable) in science. Abiding by these principles allows complex archaeological datasets to be properly archived and ultimately shared with a broader audience, especially when that information is deposited in a trusted repository. In this talk, I discuss these principles and provide an example of a complex dataset that meets these guidelines; the Mimbres Pottery Images Database. This dataset – archived in the repository tDAR (the Digital Archaeological Record) – contains images and data from over 9,000 Mimbres vessels from the American Southwest. A newly created tool in tDAR permits users to query the database and view a subset of the pottery images with associated metadata. The records returned in a given query is partially based on security clearance granted by the Project Investigator. Different levels of accessibility protect private collections and culturally sensitive information, while at the same time enables sharing the resource with a broader audience; thus, embodying the FAIR Principles.

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REFERENCES

Bollacker, K. D. (2010). Computing Science: Avoiding a Digital Dark Age. *American Scientist, 98*(2), 106–110. https://www.jstor.org/stable/27859471

Hegmon, M., & Nicholson, C. M. (2020). The Mimbres Pottery Images Digital Database and the New Search Function. *The SAA Archaeological Record, 20*(5), 10–15. https://onlinedigeditions.com/publication/?i=680611&article_id=3811420&view=articleBrowser&ver=html5

Kintigh, K. (2018, October). America's archaeology data keeps disappearing – even though the law says the government is supposed to preserve it. *The Conversation*. https://theconversation.com/americas-archaeology-data-keeps-disappearing-even-though-the-law-says-the-government-is-supposed-to-preserve-it-104674

Landi, A., Thompson, M., Giannuzzi, V., Bonifazi, F., Labastida, I., Luiz, & Roos, M. (2020). The "A" of FAIR – As Open as Possible, as Closed as Necessary. *Data Intelligence, 2*(1–2), 47–55. https://doi.org/10.1162/dint_a_00027

Miyakawa, T. (2020). No raw data, no science: another possible source of the reproducibility crisis. BioMed Central. *Molecular Brain, 13*, 24. https://molecularbrain.biomedcentral.com/articles/10.1186/s13041-020-0552-2

Mons, B. (2020). Invest 5% of research funds in ensuring data are reusable. *Nature, 578*(7796), 491–491. https://doi.org/10.1038/d41586-020-00505-7

Roosevelt, C. H., Cobb, P., Moss, E., Olson, B. R., & Ünlüsoy, S. (2015). Excavation is Destruction Digitization: Advances in Archaeological Practice. *Journal of Field Archaeology, 40*(3), 325–346. https://doi.org/10.1179/2042458215Y.0000000004

Thomas, D. H. (1989). *Archaeology* (2nd ed.). Fort Worth: Holt, Rinehart, and Winston.

Thomson, K. (2014). *Handling the "Curation Crisis": Database Management for Archaeological Collections*. South Orange: Seton Hall.

Wernick, A. (2018, January). Scientists warn we may be creating a "digital dark age." *The World*. https://www.pri.org/stories/2018-01-01/scientists-warn-we-may-be-creating-digital-dark-age

Wilkinson, M. D., Dumontier, M., Aalbersberg, Ij. J., Appleton, G., Axton, M., Baak, A., et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data, 3*(1), 160018. https://doi.org/10.1038/sdata.2016.18

Witze, A. (2019, May). Disappearing Digital Data. *American Archaeology Magazine*. https://www.archaeologicalconservancy.org/spring-2019-preview-disappearing-digital-data/