# A Model for the Examination of Archaeological Recordkeeping Practices in North American Archaeology

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**Abstract:** This paper, which reports the ongoing research of the author's dissertation, is a historical examination of the influences that have played a role in shaping archaeological recordkeeping over the past 100 years. Utilizing data gathered from archival sources and interviews, the goal of this project is to provide analysis of the primary influences that shape the recordkeeping practices of archaeologists in the U.S. This project explores how changes in technology and policy have impacted the form of archeological records, and provide an analysis of such change over time. While there is much discussion in the literature on how technology and policy have impacted the practice of archaeology, little mention has been made of the need to preserve or examine the state of field records and related materials, or to understand how technology and policy have changed the way archaeologists and future users of such records will be able to understand their context and nature. This project provides research in an area of great need to both the archival and archaeological professions. The findings for the first phase of data collection and expressed in brief and the context for future research is described.

## Introduction

This study is a historical examination of the influences that have played a role in shaping archaeological recordkeeping over the past 100 years. Utilizing data gathered from archival sources and interviews, this project will provide analysis of two of the primary influences that have shaped the recordkeeping practices of archaeologists in the U.S. over an extended period of time: technology and policy. Evidence exists revealing that both of these forces have been significant in shaping archaeological recordkeeping at various points in time over the last 100 years. It is through a better understanding of these phenomena that this study intends to address theoretical and pragmatic issues for archaeologists, as well as records professionals in the cultural heritage domain.

Throughout the entire continuum of modern anthropological archaeology[1] in the United States, recordkeeping practices have seen significant changes. This study hypothesizes that such practices have been influenced by a number of variables, and as will be demonstrated in this study, evolving technology and public policy changes prove to have had significant impact on the nature of archaeological records. And while much of archaeological fieldwork techniques endure through time (e.g. rulers and tape measures used in conjunction with graph paper to create feature maps, the Marshalltown trowel and the sharpened shovel for excavation), more modern technologies have come into play over the past several decades that have either supplemented or replaced many older technologies. Electronic measurement devices like the total station have replaced the alidade (See Figure 1); 3D laser scanning in the field is becoming a supplement to photography; and remote sensing has become a supplement to excavation (and in some cases has replaced excavation as practitioners have utilized it to select test areas in the field). This study examines changes in technologies utilized by archaeologists as a primary mandate for change in archaeological recordkeeping.

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[1] The term *modern anthropological archaeology* is used here to discern between archaeological practitioners in the U.S. who study Old World archaeology, which may have theoretical foundations in history or art history, ancient Near East studies, or classical civilizations, and practitioners trained in anthropology departments (the majority of North American practitioners).

**Figure 1. Old vs. new ways to collect archaeological data — an alidade and a total station.[2]**

Another primary impetus for change in archaeological records occurred in the 1970s, proliferating in the 1980s through today, with the creation of cultural resource management archaeology. This industry evolved out of the federal mandate that recognized historic and prehistoric archaeological resources as valuable to society, and therefore were worthy of certain protections under the law. Land developers, private corporations, public utility companies, transportation departments, and similar entities were required to examine land for cultural resources before development could take place. The concept of cultural resource management and the archaeological businesses and programs that were developed because of it were based on Section 106 of the Historic Preservation Act, which was signed into law in the Fall of 1966.[3] This legislation outlines the general process for determining whether or not a cultural resource or potential cultural resource is eligible or likely to be eligible for inclusion in the Register of National Historic Landmarks. By the very nature of such legislation, a significant portion of archaeology would be done as a public work, and this would go on to have a major and lasting impact on the nature of archaeological reporting, and consequently, archaeological recordkeeping.

A concise history of recordkeeping in archaeology has not yet been constructed. This is not uncommon in field research, whether in archaeology or in the hard sciences. Nonetheless, such a study will prove invaluable to archivists and archaeologists alike. In discussing the intentional and unintentional attrition of data in the sciences, Geof Bowker makes a strong argument for the study of recordkeeping practices:

> In the standard model, one collects data, publishes a paper or papers, and then gradually loses the original data set. A current locally generated database, for example, might stay one one's hard drive for a while and then make it to a zip disk; the when zip technology is superseded, it will probably for all intents and purposes be unreadable until one changes jobs or retires and throws away the disk. There are a thousand variations of this story being repeated worldwide—more generally along the trajectory of notebooks to shelves to boxes to dumpsters.[4]

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[2] Images credit: The Pennsylvania State University, College of Earth and Mineral Sciences - Material Licensed under Creative Commons 3.0.

[3] Thomas King, *Cultural Resource Laws and Practice: an Introductory Guide*, vol. 1, Heritage Resources Management Series (Walnut Creek, CA: AltaMira Press, 1998), 15.

[4] Geoffrey C. Bowker, *Memory Practices in the Sciences* (Cambridge: MIT Press, 2008), 121.

One of the issues facing the preservation of the archaeological record as a whole is, like Bowker describes in the sciences: it is often the published papers that the archaeological profession often holds up as the *data*.[5] Meanwhile, raw notes, comments, and measurements remain proprietary. In the sciences, a fundamental corrective is often missing—that corrective being the ability to recreate experiments because the publications typically don't provide enough information in order to repeat experiments in a truly accurate manner.[6] In archaeology, experiments cannot be repeated because of the destructive nature of fieldwork. Conducting and reporting such a history will be a vital element for the future researchers and information professionals who are interested in moving archaeological records into the D-space. As data sets become larger and even more difficult to manage the process of records selection and appraisal will become a more prominent factor. These decisions—what to keep and what to destroy— will, as archivist Eric Ketelaar puts it, "shape the context and thereby the meaning of records and archives."[7] Archaeologists would be familiar with the anxiety that comes with the simultaneous process of destruction and interpretation, as their fieldwork shares similar attributes to the practice of archival selection and appraisal. The decisions of *what, where, and when* in archaeological excavation can shape the interpretation of the past as the analysis of data recovered from the ground. This macro-view of fieldwork is one that the field of archives deals with to this very day. It also represents one of the more intellectually challenging tasks (and thereby hopefully one of the more rewarding tasks) in understanding information that has been selected by whatever means it becomes institutionalized.

**Research Questions**

The two research questions that are at the focus of the study are: *How have changes in technology and policy during the 20th and 21st centuries influenced the nature of archaeological recordkeeping in the United States? And what does a study of the impact of technology and policy on archaeological recordkeeping suggest for the future of archaeological research in the modern Information Age?* The primary goals of this research can best be accomplished by utilizing techniques drawn from historical method and case study methodologies, and has been utilized in LIS dissertations by numerous researchers. Jeanette Bastian notes that historical case study has the advantage of allowing researchers "to detail and analyze a historical case while describing and examining it as an ongoing phenomenon."[8] Chronology building is one of the major undertakings of this research project, as the author seeks to understand the sequence of events that led archaeologists to adapt their recordkeeping behaviors. Historical method will be employed to uncover the sequences of events in studying the phenomena of changes in archaeological recordkeeping practices.

**Methodology**

This dissertation examines how archaeological records in the U.S. have changed over time while focusing on the impact of technology and policy as agents of change for the nature of archaeological records. It will explore how technology and policy have impacted the form of archeological records and provide an analysis of such change over time. Primary data used for analysis will include the papers of John L. Cotter, whose extensive and legendary career over the bulk of the 20th Century provides a unique view into the records of an archeological professional who witnessed field techniques and technology as early as the 1930s through the late 1990s. Few North American archaeologists have had both as lengthy of a career, as well as significant of an impact on modern archaeology, as Cotter. Additionally, Cotter's collection of papers, housed at the University of Pennsylvania Museum of Archaeology and

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[5]   Geoffrey C. Bowker, *Memory Practices in the Sciences*, 122.
[6]   Geoffrey C. Bowker, *Memory Practices in the Sciences*, 122
[7]   Eric Ketelaar, "Archivistics Research Saving the Profession," *American Archivist* 63, no. 2 (Fall/Winter 2000): 331.
[8]   Jeannette Allis Bastian, "Defining custody: The impact of archival custody on the relationship between communities and their historical records in the information age. A case study of the United States Virgin Islands" (United States – Pennsylvania: University of Pittsburgh, 1999), 66.

Anthropology, are extensive enough to provide a unique window into the changes witnessed in archaeology through the eyes of an expert in the field. Selecting a single archaeological luminary provides a unique but detailed window into how archaeological research has changed. This notion is well illustrated in the following quote from another noted archaeologist, Brian Fagan:

> I was lucky to become an archaeologist when I did, at a time when you could still go out into the world and fill large blanks on the archaeological world map. My early career unfolded in simpler days; radiocarbon dates were a novelty, and digging abandoned medieval villages in England was still somewhat unusual. I learned early on in Africa not only about multidisciplinary science but about unconventional history … What I experienced far south of the Sahara was happening all over world in the 1960s. Archaeology broke out of its conventional boundaries and encompassed all of humanity and all of human history for the first time. At the same time, it became a high-technology science.[9]

A second set of data consists of archaeological records from archaeological research conducted at Colonial Williamsburg and surrounding areas. These archival records include the Theodore R. Reinhart Papers located at the College of William and Mary and records related to archaeological research at Williamsburg. The gathering of data from these sources serves two vital roles in this research project. First, they provide comparative data in regards to the Cotter Papers, allowing for comparison of data sources to strengthen the case study, in that while they do not cover the exact periods of time as the Cotter Papers, they will help in the examination of critical time frames in the chronology developed during the course of research. The Reinhart papers span from 1967–2009, and substantively include similar types of documentation as found in the Cotter collection.[10] As both of these collections consists of the archives of individual researchers, the study will also examine the College of William and Mary Center for Archaeological Research Records (covering 1977 to present)[11] to provide contextual materials for comparison. The Center, which was established in 1988, was founded to provide archaeological services within a cultural resources management framework. These papers include reports and indexes of reports pertaining to archaeological research conducted by the Center.[12]

In addition to the examination of textual materials, this study will utilize semi-structured interviews of several archaeologists. The interviews will be conducted to supplement the textual records and provide greater depth in understanding of the impact of changes in recordkeeping mandates and their impact. Interviews will include individual archaeological researchers that have demonstrated long careers in conducting research in the United States. Proposed individuals include practicing archaeologists in moth academic departments in two Universities, as well as two individuals outside academe— one employed in the museum field, and one employed in the for-profit private sector. These interviews will serve to supplement the archival research, bringing the chronology of archaeological recordkeeping to the present, as well as providing greater detail and context to the study.

This research is examining records and archaeology from the perspective of an archivist. It has often been both said and implied, that due to the destructive nature of archaeological fieldwork, the records and artifacts are all that remain of the past. While there is strong evidence that the archaeological professions

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[9] Brian Fagan, *Time Detectives: How Archaeologist Use Technology to Recapture the Past* (New York: Simon and Schuster, 1996), 14–15.

[10] "Theodore R. Reinhart Papers" (Special Collections Research Center, Earl Gregg Swem Library, College of William and Mary, n.d.).

[11] "William and Mary Center for Archaeological Research Records" (Special Collections Research Center, Earl Gregg Swem Library, College of William and Mary, n.d.).

[12] "William and Mary Center for Archaeological Research Records" (Special Collections Research Center, Earl Gregg Swem Library, College of William and Mary, n.d.).

have stressed the need for the publication of findings in order to help preserve the archaeological record, and there is much discussion in the literature on how technology and policy have impacted the practice of archaeology, little mention has been made of the need to preserve or examine the state of field records and related materials, or to understand how technology and policy have changed the way archaeologists and future users of such records will be able to understand the context and nature of such records changes. This is a growing concern for those outside the archaeological community. Discussions grappling with the issue of grey literature are emerging.[13] The national archaeological database, for example, is an effort by the National Parks Service to call attention to the growing problem of unpublished findings.[14]

Case studies, according to Bruce Berg, "open the door to the processes created and used by individuals involved in the phenomenon, event, group, or organization under study."[15] Furthermore, Berg notes that case studies provide deeper understanding of "phenomenon, events, people, or organizations."[16] This research project will draw from case study methodology because of the approach's ability to lend itself to the discovery of large amounts of detail related to the phenomenon being studied. Furthermore, Creswell has noted that case study methodology is most appropriate when the purpose of the research is to discover, and to explore factors and processes.[17] The primary advantage in utilizing case study methodology for this dissertation is how such methodology allows for in-depth study of phenomena in question. The nature of this study is exploratory, and an in-depth look describing the phenomena of recordkeeping mandates over time in archaeological recordkeeping will best provide further case study results for future researchers.

Specifically, the data will be analyzed through the several criteria, including:

- Within the context of the documentation, how did the views of the archaeologists associated with the records change over time regarding to data collection while conducting fieldwork?
- What are the implications of policy and evolving technology as seen explicitly and implicitly in the data?
- How does the form of the records (e.g. field notes, photo logs, databases) themselves change throughout time?
- And are such changes in the structure or content of the records reflected in the associated literature?
- Are there any unexpected phenomena revealed while conducting an examination of the materials?

These questions, utilized in the frame of the dissertation's primary research question, will guide the analysis of the documents. A key to this analysis will be for the research to remain focused on the nature of the records and how they reflect changes in recordkeeping practices due to the mandates outlined in the introduction, and not to focus on the nature of archaeological discovery or the development of archaeological theory (outside of theory impacted by recordkeeping practices).

**Current Findings**

To date, phase one of the research project has been completed. The 26 boxes that make up the Cotter collection have been analyzed utilizing the criteria described above. The documentation includes examples of Cotter's field notebooks, correspondence in which he described recordkeeping, and

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[13] For more on this issue, see: Matt Ford, "Archaeology: Hidden Treasure: Nature News," *Nature* 464, no. 7 April 2010 (April 7, 2010): 826–827.

[14] "NPS AEP: National Archeological Database", n.d., http://www.nps.gov/history/aad/TOOLS/Nadb.htm.

[15] Bruce L. Berg, *Qualitative Research Methods for the Social Sciences* (Boston: Allyn and Bacon, 2009), 319.

[16] Bruce Berg, *Qualitative Research Methods*, 296.

[17] John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Thousand Oaks: Sage Publications, 2009), 106.

numerous examples of teaching documents, examples of student field notebooks, as well as professional correspondence. The documents span 60 years. Correspondence refers to several major projects that occurred during Cotter's career, as well as several smaller projects that were often used to train his students at the University of Pennsylvania. His recordkeeping practices remained rather homogenous through the decades, as the majority of his fieldwork occurred prior to major developments in technology that would change spatial measurement in profound ways for field archaeologists.

The Cotter collection provides excellent examples of what can be described as *classic archaeological recordkeeping*. His methods were highly pragmatic, and were designed for speed of personal access, convenience, and transportability (See Figure 2). Cotter favored carrying around a master field book or journal, in which he kept—in a largely chronological manner—excavation notes, notable events, sketches, and lists of artifacts along with spatial measurements.
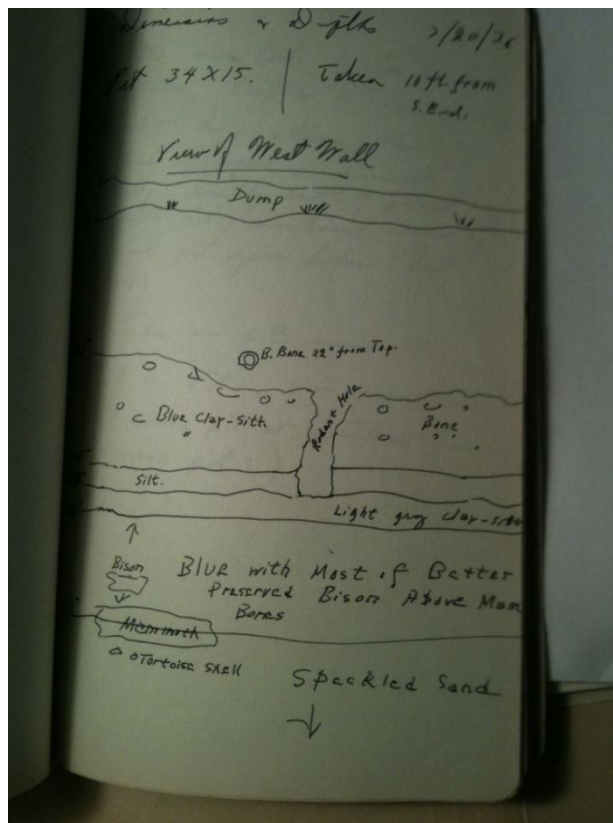


**Figure 2. A typical field sketch from Cotter's 1936 field journal, Blackwater Draw, NM.**[18]

While not explicitly listed within the field books, some of Cotter's teaching materials include insights into his views on recordkeeping. Of particular note have been his grading comments in his students' field books from summer excavation projects. A content analysis is currently being conducted on these written critiques to seek deeper insight into what Cotter expected of the format and organization of these records.

**Conclusion**

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[18] "John L. Cotter Papers" University of Pennsylvania Museum Archives, University of Pennsylvania, n.d. Photo by the Author.

The primary purpose of this report has been to outline a thorough and comprehensive methodology that can be employed by archivists and researchers to better understand the recordkeeping practices of field researchers. The ultimate goal of this research will be to provide a narrative chronology describing the changes in archaeological recordkeeping practices for 20th and 21st century North American archaeology, describing in detail the external mandates that lead to evolutionary changes in the practices for recording archaeological research, as well as provide a contextual background for current information professionals and archaeologists dealing with current issues due to technological changes in data collection and long-term storage. Additionally, it is the hope of the author to that the forthcoming dissertation will be of interest to information professionals interested in examining the interplay between technology, research, and memory.

## Resources

Bastian, J. "Defining custody: The impact of archival custody on the relationship between communities and their historical records in the information age. A case study of the United States Virgin Islands" (United States – Pennsylvania: University of Pittsburgh, 1999).

Berg, B. *Qualitative Research Methods for the Social Sciences* (Boston: Allyn and Bacon, 2009).

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