"Lies My Teacher Told Me"

Overcoming the Ideal–Real Divide in Archaeological Collections Training

Mark S. Warner ⓘ and Sara Rivers Cofield ⓘ

ABSTRACT

A major problem in collections management is the lack of training about collections in all facets of archaeology. Ignorance about both ethical obligations and practical steps associated with collections is arguably the leading contributor to the ongoing curation crisis. This work summarizes shortcomings in collections training in academia and in cultural resource management, and it proceeds to identify some steps that can be taken to provide training for students and professional archaeologists. The overriding argument is that more training in all aspects of collections is absolutely essential to addressing and beginning to mitigate the overwhelming problems the discipline faces in caring for archaeological collections.

Keywords: collections management, collections training, cultural resource management, education

Un problema importante en la gestión de colecciones es la falta de formación sobre las colecciones en todos los aspectos de la arqueología. Podría decirse que la ignorancia sobre tanto las obligaciones éticas como los pasos prácticos asociados con las colecciones es el factor que más contribuye a la actual crisis de curaduría. Este trabajo resume las deficiencias en la capacitación en la gestión de colecciones en el mundo académico y en la gestión de recursos culturales y luego procede a identificar unos pasos que se puede tomar para proveer capacitación a estudiantes y arqueólogos profesionales. El argumento principal es que una mayor capacitación en todos los aspectos de las colecciones es absolutamente esencial para abordar y empezar a mitigar los abrumadores problemas que el campo tiene que enfrentar en el momento de gestionar las colecciones arqueológicas.

Palabras clave: gestión de colecciones, capacitación en gestión de colecciones, gestión de recursos culturales, capacitación

A consistent concern among those who manage archaeological collections is the way archaeologists are trained and the lack of attention to what happens to artifacts and records after excavation. The problems identified are extensive, ranging from inculcating a dig-first mentality to ignorance of collections costs and methods, to the proliferation of orphaned collections—problems that ripple out to impact all aspects of archaeology. However, recognition of these problems also provides an opportunity to identify solutions to what are seemingly structural problems. Although the problems are extensive, our intention is not simply to bemoan them. Instead, our goal is to think of practical improvements to training practices—in academia, federal agencies, and cultural resource management (CRM)—to help reduce and prevent collections-related problems. Recognizing that many of the problems result from seemingly untenable structural norms in how archaeologists do their work is the only way to identify solutions that have a chance of being implemented successfully.

We are framing this work in three parts: an ideal, collections-focused world of archaeology; the realities of the world we operate in with its associated problems; and some solutions for improving our professional world. We represent both academic faculty engaged in archaeological education (Mark Warner) and collections staff in a repository that cares for the results of archaeological projects (Sara Rivers Cofield). These perspectives essentially bookend the practice of archaeology in the United States, including the view from higher education and familiarity with the collections generated by those students who become practicing archaeologists. Our intent is to continue discussions about solving some of the ongoing collections issues by focusing on the impact of training practices. Some of the identified issues can be addressed relatively easily, but we temper this with an acknowledgment that we need to profoundly rethink professional archaeological education.

We also want to make clear that training is a responsibility of the *entire* profession. The typical assumption is that training is the responsibility of colleges and universities. That certainly is the beginning of most archaeological training, but it should not be the

only point of education. Our professional community also bears responsibility for training the next generation of archaeologists. Additionally, all practitioners have a personal obligation to adopt a reflective and evolving practice for the duration of their career. No archaeologist in the digital age can afford to stop learning once leaving their student status behind them. The fundamentals of how we generate, preserve, and share archaeological data are so much in flux that standing still is not a viable option.

The starting point for any discussion of training archaeologists is a need to incorporate sensitivity to collections issues in a more thorough manner, beginning at the undergraduate level and continuing through graduate training. We note that a field methods course or field school is typically required for most (if not all) archaeologists, but no corresponding requirement exists for managing collections. Classes that teach lab methods or artifact analysis do not provide understanding of the long-term management of collections. At the risk of oversimplifying, a core problem in educating young professionals is that there are mandated requirements for students for learning how to extract artifacts from the ground but little is done to train them in what to do with the materials after washing, bagging, tagging, and cataloging. Simply put, how will they learn what happens to excavated artifacts after the report/ thesis/dissertation is complete?

We do not argue against thorough training in fieldwork or lab methods, because everyone needs these fundamentals. We also concede that most programs mention the need to curate artifacts and records in perpetuity. How often this is reinforced before, during, and after field school is another question. Are students taught to know who owns the property on which they are digging? Do they know who owns the artifacts they are excavating? Do they know where the collection will end up when their excavation, washing, labeling, and cataloging work is complete, even when project permits or regulations do not mandate repository selection? Have repository curation standards been issued as required reading so that students are invested in making sure the collections they generate will be usable in the future?

THE IDEAL: PRACTICING WHAT WE TEACH, AND TEACHING WHAT WE PRACTICE

From a training perspective, the optimal situation begins with a profession where all archaeologists are taught that they have an ethical obligation to ensure that the collections they generate are budgeted for, properly cataloged, professionally curated, and retained in perpetuity (or if appropriate, repatriated, sampled, or deaccessioned following an established protocol) for access and reuse. Ideally, the training does not stop there but also details the practical methods necessary to realize the curation ethic as well as an understanding of the relevant laws and regulations governing collections. The necessity of fulfilling that ethic implies that the scenarios that follow would be true in our colleges and universities.

The Faculty Level

Archaeology faculty understand the entire archaeological process and demonstrate professional archaeological curation ethics in

their actions before, during, and after excavation. They know what to do with the collections and records they generate, and they involve students in the process as they implement curation strategies. Faculty treat each project as a long-term commitment, not something with a beginning and end, and they instill this value in their students. Faculty also demonstrate the value of collections by practicing and highlighting collections-based research at every opportunity. This includes faculty both requiring students to do collections-based research and making a commitment to take appropriate steps to curate their own collections while in the academy (Knoll et al. 2016). As a by-product, this approach also helps instill a conservation ethic by demonstrating that new excavations are not necessary to answer every research question, and that, in fact, it is unethical to dig a new, unthreatened site if existing collections can address one's research.

The Program Level

Collections-based research and collections management covering the entire life cycle of the collection are a mandatory part of archaeology curricula (Childs and Benden 2017). This means something more than a lab methods or artifact identification class. The starting point is a philosophical understanding that collections are effectively repositories of data, and that what is excavated in a field school is not a "one and done" thing; one's obligation does not end once the thesis or dissertation is complete. Students learn that ethical archaeology extends to ensuring the care of collections, including artifacts, paper records, and digital associated records. To that end, anthropology programs include topics such as laws governing ownership and repatriation of collections, curation standards and regulations such as 36 CFR 79 (the law that mandates that archaeological collections generated under the Antiquities Act, the National Historic Preservation Act, etc. are to be curated in perpetuity), basic preventive conservation concepts, and digital preservation in their programming, as well practical issues such as budgeting for long-term curation. We suggest that readers who are not familiar with applicable federal and state laws consult their State Historic Preservation Office (SHPO) or the National Park Service's Archaeology website: https://www.nps.gov/subjects/archeology/index.htm.

In the Profession

Professional archaeologists working in cultural resources—either for private firms or for the government—already have a firm grounding in professional curation and collections-based research as outlined above, and they receive additional project-specific training, particularly in material culture, as new collections are created. Having expertise in the relevant time period and region of study, or receiving appropriate training on the job from staff who do have this expertise, is crucial for making forward-thinking decisions that impact all aspects of any project. Well-informed field staff collaborate more effectively with lab personnel, minimizing "keep it for the lab to figure out" practices. All personnel are aware of the long-term impact of their decisions and are able to work with lab staff to determine discard and retention strategies for both artifacts and associated records. Only those artifacts and records with long-term value for archaeological research are retained and/or submitted to repositories. Every participant in the project—from the principal investigator to the archaeological technician—has these standards in mind so that their respective roles in collection creation are thoughtful and engaged. All

archaeologists approach their practice as playing the "long game" and are invested in doing work that will contribute to knowledge and not just a paycheck.

THE REALITY: KICKING THE PROVERBIAL CAN AS STANDARD OPERATING PROCEDURE

The reality of archaeological training on and about collections is woeful. Indeed, it is a large part of why we have the problems we have today. Below, we outline some of the barriers that are preventing archaeologists from receiving sufficient training in collections, many of which are interrelated and systemic. Without acknowledging these obstacles, we have little hope of overcoming them.

Fieldwork First

At the core of our problems, frankly, is a "dig first" ethos. Multiple factors in the profession emphasize excavation requirements but say little or nothing about other requirements. The discipline has largely embraced the popular public notion that being a true "archaeologist" means having an active dig. The romance of digging attracts students to the discipline, and when fieldwork is prioritized in terms of degree requirements and skill sets, students may emerge from programs ill-equipped to do much else. Archaeologists need to push back on the idea that our digs define us with the same fervor we use to resist the popular notion that we all look for dinosaurs. Our documentation, analysis, dissemination, and ongoing stewardship of collections are the defining factors separating "archaeology" from all others who dig. Excavation is one of our methodologies—an essential and important one, to be sure—but in the life cycle of a project, it is a brick in the wall, not the entire structure of what archaeologists are supposed to do.

For hiring purposes, many entities require a certain amount of field experience, or they only accept field-based graduate projects. Hiring requirements that mandate certain amounts (and types) of field experience and that do not accept collections-based MA or PhD research as acceptable training inevitably skew student training toward field projects (we discuss solutions for this later). Archaeology programs have a long and unfortunate tradition of encouraging students to "have their own" site as a prerequisite for their graduate degrees (Sonderman 2018).

Some of this is attributable to an educational system replicating itself and its associated biases. As Benden commented, "Most faculty deem other courses more important [than collections management], and most do not have the subject matter expertise because they were never formally trained themselves" (2019:41). Indeed, most archaeologists' bookshelves would reflect this. Almost all university archaeologists have some sort of field methods textbook on their shelves, and their libraries likely subscribe to the *Journal of Field Archaeology*. It is easy to find field methods texts going back more than 70 years, yet how many of those archaeologists also have *Curating Archaeological Collections: From the Field to the Repository* (Sullivan and Childs 2003), *Using and Curating Archaeological Collections* (Childs and Warner 2019), or *New Life for Archaeological Collections* (Allen and Ford 2019) on their shelves?

Six Degrees of Separate Requirements

Further exacerbating the issue is a lack of standard curatorial practices that faculty can easily incorporate into existing syllabi. Archaeological repository requirements vary, if they have any at all. The corpus of material required to stay current on key principles such as archival materials, registration methods, conservation, archive management, digital preservation, collections accessibility, and handling of culturally sensitive collections is daunting, but archaeologists are not without resources. The curation and collections committees of the Society for Historical Archaeology (SHA), the American Cultural Resources Association (ACRA), the Society for American Archaeology (SAA), and other professional organizations offer networks of professional knowledge and resources for finding more. For example, SHA's effort to crowd-source a map of repositories resulted in an interactive dashboard that includes links to the standards for those respondents who provided them (Gonzalez 2023).

Adding all of these into anthropology curricula is unrealistic and would be reinventing the wheel given that programs in museum studies and the library sciences are typically better equipped to offer best practices. The challenge, however, is getting students into such related courses. Many smaller schools (such as the University of Idaho) do not have library science or museum studies programs, whereas larger schools tend to keep most trainings "in house." When archaeology students take courses outside of the department, it is often for very targeted training (e.g., isotope analysis, statistics) and not necessarily routinized as part of graduate degree requirements.

Given the limitations of academic programs, we cannot expect everyone to sign up for all of the coursework that might be helpful to ensure that collections are created and maintained properly, including not only archaeology/anthropology but also museum studies, information technology, material culture, material sciences, library sciences, et cetera. Instead of expecting graduates to emerge from school with these skills fully formed, it makes more sense to think about which of these subjects might be learned on the job and which will require staffing drawn from majors outside of archaeology programs.

Training in the Workplace

One archaeological skill better suited to workplace training than to undergraduate or graduate programs is artifact identification. Without capable staff to identify artifacts relatively accurately, the curation crisis is exacerbated by overcautious retention policies. However, no faculty member or program can ensure that graduates will emerge with a comprehensive understanding of material culture across time and regions anywhere in the world. Artifact identification is a skill acquired cumulatively over the course of one's career. Most of the people involved in the generation of a collection through fieldwork and lab processing are entry-level techs who may or may not be adequately trained in identifying the materials they encounter on a particular project. Furthermore, supervisory attention and the material culture knowledge of the supervisors in question varies.

This reality has two important impacts. First, on "no collection" field projects, the technicians are the main source of data for determination of significance unless consultation with material

culture specialists is included as part of the workflow (Archaeological Collections Consortium 2019). When a technician is not familiar with the pertinent material culture on a project, the project is effectively hamstrung by poor data. This can range from technicians not recognizing items as being cultural (for example, a tech trained in historical archaeology not recognizing lithics), to misidentifying objects (for example, identifying rocks as fire cracked rock or milk glass as ceramic), to "underidentifying" objects (for example, "white ceramic")—a problem that is quite common in historical contexts.

The direct impact of inadequate field tech training is the inability to make informed decisions. The indirect impact of this is felt in the lab. Techs who are not familiar with items are often socialized to be cautious about collecting. It is a common practice to say, "If you aren't sure about something, bag it. The lab will figure it out." The result of this is the snowballing of materials that lab staff must address. On the first level, they are confronted with identifying multiple materials that are not artifacts and with documenting discards. At the second level, they end up with an unnecessary volume of materials to curate.

Saving materials to make sure they are washed before identification has a place in best practice, but it assumes that the lab staff will be well trained in material culture and authorized to make sampling and discard decisions. Conversely, lab positions may also be entry-level interns or employees trained in how to wash, label, and bag but not necessarily experienced at identification and developing responsible post-field sampling strategies. Items that should be cautiously sampled in the field end up being collected in quantities that are inappropriate for long-term curation, and the lab often just processes whatever it is sent. Without thoughtful on-the-job training, all of that gets boxed to be a problem for another day.

"Collective" Financial Responsibility

Financial literacy is another training problem that impacts collections. The costs of doing archaeology are rarely discussed in classrooms. This is a part of the discipline that should be expanded on. Even if students are given mock grant assignments and are required to think about budgeting for archaeological projects, as long as education is lacking about the true cost of curation after the grant is finished or the CRM contract is over, many will continue to embrace the "dig first" ethos with a clear conscience. Archaeologists trained in school or on the job to view the repository as the end game need only include processing and repository fees (if any) in the project and feel that they have done due diligence. Not all practitioners even include repository fees in their budgets (Childs et al. 2010), which may allow them to underbid the competition but then creates an orphaned collection (Olsen and Cathcart 2019).

Archaeologists seem stuck in a system whereby they get paid to do fieldwork and give birth to a resource that requires ongoing maintenance and management, then hand it over to an overcrowded, understaffed collection orphanage with a check that does not even begin to cover the cost of caring for that resource. Then they walk away, hoping that someone else is on top of things and that all professional ethics have been fulfilled.

In the milieu of CRM, where funders want to keep costs down and rarely require anything beyond submitting a report and handing the collections over to an acceptable repository, there is little incentive to invest in continuing education in material culture, collections management, or proper archival practices. Instead, there is a disincentive to take such steps; for example, archaeologists rarely ask the receiving repository if they qualify as a digital archive that can ensure the long-term viability of files (see Rivers Cofield et al. 2024). As long as collections generators can check the "delivered to repository" box, they are done, so why question whether the repository has the funding, staff, and expertise to fulfill the promise of the curation ethic that archaeologists are taught to follow? Could better training in the real costs of curation force the discipline and those who fund it to rethink this flawed system and adopt a more equitable distribution of responsibility for the collections?

Other issues include no clear ownership agreement (leading to orphaned collections) and underfunding of collection facilities and staff. None of what we note here is new and has been discussed elsewhere (see Majewski 2019; Olsen and Cathcart 2019; Rivers Cofield 2019; Sonderman 2004). The upshot of this article is that training and continuing education are key to interrupting the current practice of continually kicking the collections can to someone else. Incorporating long-term collections planning into every decision made, and having the training to do so effectively, is needed to minimize the work the field leaves to the lab, the lab to the repository, et cetera.

WORKING TOWARD SOLUTIONS

Up to this point, it is easy to be pessimistic. The issues we note have resulted in the well-documented curation crisis that some perceive as endemic to archaeology. We want to be clear: there are no quick solutions to the challenges. The "five-year plan" so common in management circles is not enough to solve the cumulative impacts of decades of relative neglect of collections. A first step is to acknowledge that structural changes are needed across the profession. Ultimately, the culture of both academia and CRM needs to change. To that end, what we propose are a series of practices that we would like to see the profession work toward implementing. We are under no illusion that this can occur overnight on a wholesale level. Indeed, there are real structural limitations in academia and in CRM that constrain action, but our hope is that we start shifting our collective ethos from the previously noted "dig first" mentality to putting collections management at the forefront of archaeology's thought processes.

In Academia

In archaeology these days, commenting about what is *not* being taught in school is common. The list is voluminous: basic survey skills and other field methods, GPS, section 106, artifact identification, writing, collections management, et cetera. (Altschul and Klein 2022). A point that generally goes unacknowledged is that students only have a limited amount of time both at the undergraduate and graduate level. Archaeologists seem to be (unrealistically) looking for a level of training that is closer to a professional degree training program—a level of academic commitment that is not viable with any social science degree. By way of example, an undergraduate anthropology major at the University of Idaho requires 15 classes (plus four "related fields" classes) to graduate, whereas a civil engineering student needs to have approximately 24

required classes in the department (plus an additional five math classes and two lab classes).

To continue the comparison, engineering (and other professional-track degrees) also have structured summer internship or summer employment programs for students. In contrast, internships or summer employment programs in archaeology tend to be ad hoc endeavors. One practical solution to support training challenges in archaeology is to begin to establish *permanent* partnerships between university anthropology programs and CRM firms, government agencies, museums, and others that will employ archaeology students during the summers. Internships and summer jobs working in our profession can go a long way to providing the real-world training that is hard to accomplish in a classroom.

Building out structured internship programs is clearly the most complicated task on the academic side, but we also want to offer some additional suggestions that are more modest in scope but that could be tremendously important for bringing about sustained and meaningful change in attitudes toward collections.

Get Deeper into Ethics. The key point here is not just the need to focus on the ethics of fieldwork; it is that taking care of collections is also a fundamental professional ethic. Students should learn as undergrads or graduate students that the generation of a collection is a commitment, and that truly ethical stewardship includes addressing the "how-tos" of collections management. A useful analogy is to compare one's commitment to a collection to marriage. If the collection will be curated within the academic department, set a path for the long term that works internally for the "couple"—archaeologists and the university. If the collection will go to another repository, make sure that everyone uses the repository standard because that is the prenuptial agreement to ensure that the separation and "divorce" (the transfer of the collection) go smoothly.

Require Students to Execute Ethical Collections Maintenance. We suggest that if a graduate student is expected to manage and report on an excavation for their degree, they should also be responsible for initiating the nuts and bolts of taking care of that collection—meaning that repositories are located, budgets are established, deeds of gift are obtained, and agreements are signed for the collections to go to a repository that the student or faculty supervisor has vetted to ensure that they really can handle the ongoing workload of collection and records maintenance. In short, their degree product is not just the artifact analysis or the site report but also includes the execution of a collection maintenance and management plan.

"Collectify" the Curriculum. When feasible, anthropology degrees (both undergraduate and graduate) should require collections work, both lab work and long-term collections management concepts, in addition to field requirements. Again, we recognize that curricular restraints can limit this, but we emphasize that something is better than nothing. Our ideal scenario is the addition of devoted practicum courses as degree requirements that teach collections management, archival methods, preventive conservation, collections-based research, and digital archaeological data (for example, Benden 2019; Gartski 2022). This may not be possible for many programs, but those that can adopt them should.

Salt All Classes with a Little Curation. Even if faculty cannot offer full-semester collections courses or practicums as degree requirements, it should be feasible to incorporate collections training in existing courses as appropriate (e.g., Archaeology 101, archaeological methods, lab methods, artifact analysis, or all of the above!). In university settings where collections are curated, this could be as simple as taking a lecture or two to do a hands-on collection assessment. Are the bags and tags archival or acidic? Are plastic bags sticky, smelly, or brittle? Are the labels still legible? Do any of the artifacts seem to be falling apart? Are the records organized? How many photos are necessary? Do the associated digital photos, field records, and reports still open? Then, if issues are found, add another hands-on class period to intervene: replace bags, redo labels, rename digital files, and try to migrate them if the formats are outdated.

The messier the collections used for such exercises, the better. Making students responsible for rendering a poorly documented or disorganized collection into something useful for research is like providing a vaccination against becoming the creator of a problematic collection. This would also be an effective way to dampen the "dig first" enthusiasm. Students would emerge from programs knowing that the products of their excavations will be seen and judged by others, reminding them to avoid digging if they cannot deliver a curation standard that will hold up to scrutiny.

In settings where there are no collections to work with, plan a trip to a nearby repository, or schedule a guest lecture from a collection manager, conservator, or digital archivist (or all three!). It does not take a whole course to imprint on students a better understanding of the life of a collection after the initial processing is over. Even stand-alone lectures can help. This may be a challenge for some who do not have any background in collections management, but to help with that, Danielle Benden (a former chair of the SAA's Committee on Museums, Collections and Curation) has developed an array of course content offerings ranging from an entire course to smaller modules that can be incorporated into existing courses (see https://www.driftlesspathways.com/).

Work with Like-Minded Allies. Another strategy to consider is partnering with local or university museums or archives and developing internship programs with them. Mere exposure to any sort of active collections training can go a long way toward building both collections awareness and inculcating an ethos that recognizes the importance of managing collections.

Make Sure Your Degree Is Not "Collections Free." Finally, we call additional attention to university degree requirements. At the undergraduate level, one strategy (when available) is to encourage anthropology/archaeology majors to minor or double-major in fields that will help them build stewardship skills, such as the library and information sciences and museum studies. At the graduate level, it is important to continue to encourage collections-driven research for MA and PhD projects. This is pushing up against much of what archaeology has historically done (see the mention of endless field methods), but encouraging collections-focused graduate degree projects generally saves money (through not paying for fieldwork), the data is quicker to access (permits are not necessarily needed), and it demonstrates in a practical way why we keep collections and their continuing importance (Lupu 2020, 2021; Schiappacasse 2019).

In Cultural Resource Management

As in academia, it is important to acknowledge some of the real-world constraints that impact the long-term management of collections generated by CRM. Before discussing potential training solutions in CRM, we draw attention to a background issue that hinders CRM—specifically, the need for greater clarity on the regulatory requirements for collections. In many instances, guidance on appropriate collections requirement is vague, varied, and sometimes contradictory. This is an endemic problem that is not going to be readily solved, but it does need to be acknowledged. The same goes for the impact on collections with low-bid contracting. Such bidding processes regularly give short-shrift to care of collections—if not ignore collection care completely (Majewski 2010, 2019). These issues that impact collections might be alleviated by gradual culture shifts if academic training (as outlined above) results in regulators, funders, and CRM staff who are "curation woke," so to speak.

So what can be done? A first step is planning for specialized material culture training throughout a project, beginning with the Scope of Work (SOW). Field staff who go into a project trained in the material culture specific to that project will make more informed decisions about what to collect in the field (and probably even what to excavate), and what might be culled before curation. Some firms are quite good at doing what we suggest. We are aware of firms that share research designs, develop methods and sampling plans specific to each project, and build field manuals that are sensitive to the criteria laid out by local repositories. Such preparation of field staff is commendable, yet it does not seem to be the norm. An oversimplified example of the problem we hope to prevent is a field technician who only is familiar with lithics but who is working on a historical context. Such a field tech will undoubtedly recognize the historical material culture, but will that individual know how to sample it responsibly? There is a risk of both incorrect identification and discard (bad data), or lack of discard for fear of getting the identification wrong (unnecessary retention).

A closely related issue is *how* to train staff in material culture identification. Our experience has been that each firm has some degree of reference materials and documents available, but that those materials frequently cannot cover everything. In addition, they are typically housed in the main office and not brought into the field for on-site use.

A specific goal should be to have project-specific training prior to fieldwork. The challenge is how to go about facilitating such training. The following are some options that fit varied circumstances:

(1) Compile a summary page of links to vetted websites that provide specific identification guidance. A few examples of such sites would be the Society for Historical Archaeology's (SHA) historic bottle identification guide (Lindsey 2021), Jefferson Patterson Park and Museum's Diagnostic Artifacts in Maryland (Maryland Archaeological Conservation Lab 2012), and the Historical Japanese Ceramic Comparative Collection (University of Idaho Library 2022). Scholarly identification tools are an excellent resource, with the caveat that they do have their limits. Online guides focus only on select artifact types, they tend to be regional in nature, and they lack the irreplaceable tactile experience of hands-on exposure to materials. Additionally, effective searches of such websites require a basic understanding of the artifact in question. For example, one has to have some clue that an artifact is a toy for the toy section of Diagnostic Artifacts in Maryland to be helpful.

(2) Have colleges and universities return the favor of the previously discussed internships by providing occasional workshops on specific classes of material culture or leading webinars.

(3) Encourage building reference collections of common materials. If the appropriate materials are not already in house, reach out to repositories for long-term loans (Murphy 2021).

(4) Digitize a streamlined version of those reference collections for field crews to have with them while in the field. We do urge caution with this approach, however, because there are limitations of what can be identified through images.

The key to expanding training may be to frame it as ongoing professional development. Opportunities for continued professional growth can be beneficial to both building a more skilled staff and retaining staff.

Training for the Funders

So far, this article has focused on training for archaeologists, but none of the systemic challenges impacting collections are solvable without extending equal attention to the education of those who fund archaeology. As long as CRM clients and granting institutions are unaware of the ongoing costs of curation and the impacts of insufficient material culture training on the products generated, they will have no incentive to change their requirements. A CRM firm building in more funding for curation and training is likely to get underbid unless the funder knows that these are valuable and considers them a necessary cost of doing business. For example, federal agencies are required by 36 CFR 79 to maintain associated records in perpetuity, including digital records. This may require submission of digital records to a digital repository that is qualified to handle long-term migration and management, which physical collection repositories are not equipped to handle (see Rivers Cofield et al. 2024). How will funders know to add this requirement unless the archaeologists they work with make them aware that most of the repositories they have been using do not meet this requirement? All archaeologists have a responsibility to understand the costs associated with ongoing professional curation and to educate funders accordingly.

Unfortunately, some of the advice we have offered will be a tough sell to funders as long as regulations do not require it. For example, if project-specific material culture training is not included as a requirement by regulatory agencies, funders are unlikely to buy in no matter how beneficial it would be to both scholarship and the alleviation of the curation crisis. This is where government affairs and advocacy can play a role.

Organizational Support

Left unsaid so far is what can professional organizations such as the Society for American Archaeology (SAA), the Society for Historical Archaeology (SHA), the American Cultural Resources Association (ACRA), and the Register of Professional Archaeologists (RPA) contribute. One suggestion is for our major professional organizations to lead discussions that identify discipline-wide

ideals for collection management. All too often, collections decisions are situational and based on minimal guidance from our respective organizations. Such leadership could also be extended by supporting training. One specific example would be professional organizations taking the lead in compiling and vetting websites to identify material culture as well as in organizing training webinars, workshops, and certifications for material culture identification. Additionally, government affairs committees for these respective organizations may act as advocates for incorporating collections issues into new regulations or revisions to existing legislation. On an individual level, people can engage their state archaeological organization. The level of activity of these organizations varies considerably from state to state, but many of the state archaeological societies are active and effective in bringing about change at the state level.

This is also a place where academia can be useful. Each year organizations such as the National Science Foundation and the National Endowment for the Humanities give out millions of dollars in grants to fund research. All of these grants are reviewed by peer reviewers, many of whom are faculty members in universities. One place to begin consciousness raising about this issue is to call out and possibly even not recommend funding for proposals that do not include specific language about the curation of materials generated through the proposed grant.

FINAL THOUGHTS

We noted at the opening of this article that archaeology's problems with collections are extensive and are not going to be solved in the near future—short of the National Science Foundation making this issue one of their funding priorities (nudge, nudge). The goal of our article is to identify practical steps that can be taken to mitigate the collections-related problems that we face. Indeed, there are places where concrete steps have been taken. We note, for instance, the work Danielle Benden has done in Wisconsin in building collections-centered coursework into the department (Benden 2019) as well as providing resources for other educators to build into their courses. In a similar vein, ACRA has recently created a partnership program with universities and established a clearinghouse for student internships. These are a couple of examples that we can point to (and we are sure there are many others out there), but we need more.

We also want to make clear that no single group is responsible for bringing about change. We need the entire profession to take responsibility for integrating collections and their management more firmly in the future of archaeology in the United States and worldwide. The management and long-term decision making required to care for our collections will need to be addressed at the regional and state level. As we move forward, let us strive to provide practical training for students in ethical collections management with the goal of generating an ethos that collections are long-term commitments and that responsibility does not end with the end of the field season. Also, let us collectively recognize that the profession should not expect all the training to happen in school. Training comes from both experience and the classroom. Let us work to provide hands-on opportunities for students through structured internship programs with our professional archaeological community, along with continuing education for "professionals" who missed out when they were students.

Data Availability Statement

No original data are presented in this article.

Competing Interests

The authors declare none.

REFERENCES CITED

Allen, Rebecca, and Ben Ford (editors). 2019. *New Life for Archaeological Collections*. University of Nebraska Press, Lincoln.

Altschul, Jeffrey H., and Terry H. Klein. 2022. Forecast for the US CRM Industry and Job Market, 2022–2031. *Advances in Archaeological Practice* 10(4): 355–370.

Archaeological Collections Consortium. 2019. Best Practices for No-Collection Projects and In-Field Analysis in the United States. *SAA Archaeological Record* 19(1):10–14.

Benden, Danielle. 2019. Integrating Curation Training in Academic Programs and Beyond. In *Using and Curating Archaeological Collections*, edited by S. Terry Childs and Mark S. Warner, pp. 39–51. Society for American Archaeology, Washington, DC.

Childs, S. Terry, and Danielle M. Benden. 2017. A Checklist for Sustainable Management of Archaeological Collections. *Advances in Archaeological Practice* 5(1):12–25.

Childs, S. Terry, Karolyn Kinsey, and Seth Kagan. 2010. Repository Fees for Archaeological Collections. *Heritage Management* 3(2):189–212.

Childs, S. Terry, and Mark S. Warner (editors). 2019. *Using and Curating Archaeological Collections*. Society for American Archaeology, Washington, DC.

Gartski, Kevin. 2022. Teaching for Data Reuse and Working toward Digital Literacy in Archaeology. *Advances in Archaeological Practice* 10(2):177–186.

Gonzalez, Kerry S. 2023. Repository Dashboard, Archaeological Repository Map. Electronic document, https://sha-gis.maps.arcgis.com/apps/dashboards/6186a3f99a004a00bcedb582320e27e2, accessed July 24, 2023.

Knoll, Michelle, Jenna Domeischel, Heather Thakar, Janaki Krishna, and Bruce Huckell. 2016. Archaeologists Anonymous: The Twelve-Step Program to Getting Those Old Collections Curated. *SAA Archaeological Record* 16(3):25–32.

Lindsey, Bill. 2021. Historic Glass Bottle Identification and Information Website. Electronic document, https://sha.org/bottle/, accessed April 24, 2023.

Lupu, Jennifer A. 2020. Working with the Halcyon Collection, Part 1. *Society for Historical Archaeology Blog*, August 4. https://sha.org/blog/2020/08/halcyoncollection_part1/, accessed March 30, 2023.

Lupu, Jennifer A. 2021. Working with the Halcyon Collection 2: Applying for Major Dissertation Grants with a Collections' Project. *Society for Historical Archaeology Blog*, April 9. https://sha.org/blog/2021/04/working-with-the-halcyon-collection-2-applying-for-major-dissertation-grants-with-a-collections-project/, accessed March 30, 2023.

Majewski, Teresita. 2010. Not Just the End Game Anymore: A Perspective from the Western United States on Proactive Budgeting for Project Curation Needs in a Changing Archaeological World. *Heritage Management* 3:167–188.

Majewski, Teresita. 2019. Best Practices for Collections Management Planning, In *Using and Curating Archaeological Collections*, edited by S. Terry Childs and Mark S. Warner, pp. 67–77. Society for American Archaeology, Washington, DC.

Maryland Archaeological Conservation Lab. 2012. Diagnostic Artifacts in Maryland. Electronic document, https://apps.jefpat.maryland.gov/diagnostic/, accessed April 24, 2023.

Murphy, Tracy L. 2021. From Grandma's Attic to Amnesty Programs: Adventures in Accessioning Archaeological Collections. *Collections: A Journal for Museum and Archives Professionals* 17(1):68–75.

Olson, Heather L., and Danielle R. Cathcart. 2019. Orphans on the Shelf (and in the Attic). In *Using and Curating Archaeological Collections*, edited by S. Terry Childs and Mark S. Warner, pp. 103–114. Society for American Archaeology, Washington, DC.

Rivers Cofield, Sara. 2019. On Whose Grounds? The Importance of Determining Ownership before There Is a Collection. In *Using and Curating Archaeological Collections*, edited by S. Terry Childs and Mark S. Warner, pp. 91–102. Society for American Archaeology, Washington, DC.

Rivers Cofield, Sara, S. Terry Childs, and Teresita Majewski. 2024. A Survey of How Archaeological Repositories Are Managing Digital Associated Records and Data: A Byte of the Reality Sandwich. *Advances in Archaeological Practice* 12(1), in press.

Schiappacasse, Paola. 2019. Excavating Repositories: Academic Research Projects Using Archaeological Collections. *Advances in Archaeological Practice* 7(3):247–257.

Sonderman, Robert C. 2004. Before You Start That Project, Do You Know What to Do with the Collection? In *Our Collective Responsibility: The Ethics and Practice of Archaeological Stewardship*, edited by S. Terry Childs, pp. 107–120. Society for American Archaeology, Washington, DC.

Sonderman, Elanor. 2018. Re-Analysis of Conejo Shelter: A Legacy Archaeological Collection from the Amistad Reservoir Area, Texas. PhD dissertation, Department of Anthropology, Texas A&M University, Austin. Electronic document, https://hdl.handle.net/1969.1/173864, accessed March 30, 2023.

Sullivan, Lynne P., and S. Terry Childs. 2003. *Curating Archaeological Collections: From the Field to the Repository*. Archaeologist's Toolkit Vol. 6. AltaMira Press, Lanham, Maryland.

University of Idaho Library. 2022. Historical Japanese Ceramic Comparative Collection. Electronic document, https://www.lib.uidaho.edu/digital/hjccc/, accessed April 24, 2023.

AUTHOR INFORMATION

Mark S. Warner ■ Department of Culture, Society, and Justice, University of Idaho, Moscow, ID, USA (mwarner@uidaho.edu, corresponding author)

Sara Rivers Cofield ■ Curator of Federal Collections, Maryland Archaeological Conservation Laboratory, Jefferson Patterson Park and Museum, Saint Leonard, MD, USA