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Ann Hitchcock

Museum Issues and Trends

The turn of the century and the millennium inspire reflection on the past and contemplation of the future. This issue of *CRM* looks at current issues in museums as predictors of future trends. The cutting-edge issues of today will impact, if not determine, the mainstream of tomorrow. The focus of this *CRM* is on museum collections and their interpretation and use.

As we collect and preserve systematic collections we ask ourselves, How much is enough and how long is forever? Two authors addressing archeological collections (Thompson and Bustard) are struggling with this question, as archeologists and collections managers have for much of the last half century. Hannibal makes a plea for government agencies to have uniform permits and procedures to make it easier on those museums that partner with them. Some advocate greater selectivity in collecting as well as selective disposal of existing collections. Byrne adds a caution about deaccessioning, while acknowledging its role in refining holdings.

Providing evidence of the omnipresent power of the market to affect the success of museums in preserving heritage, Chure's article, to our knowledge, offers the first compiled record of the extensive theft of vertebrate fossils worldwide. Kouroupas's chronicling of implementation for the 1970 UNESCO Convention on the Means of Prohibiting the Illicit Import, Export and Transfer of Ownership of Cultural Property inspires one to ask if a similar convention is far behind for fossils.

In tackling issues of environmental quality, conservation, and sustainable development, natural resource managers are turning to museums to shore up their baseline data in order to make responsible decisions about managing ecosystems. Williams describes a major inventory and monitoring program in the National Park Service that relies on researching existing voucher specimens in museums (collected from the time when parks were first established to the present) as well as filling gaps with new vouchers. Likewise, with dramatic examples Roosevelt points out that existing archeological collections in museums are rich resources for new discoveries that can revolutionize our understanding of culture history. In both cases museums must maintain high documentation and preservation standards in order to ensure the reliability of the data to future science and researchers.

Science has not only advanced the knowledge of our heritage, but also its physical preservation. Yet, science has been both a blessing and a curse. The arsenic and other chemicals that museums applied to preserve specimens in the 20th century have become the bane of the 21st century's conservators and collections users. Hawks and Makos provide an overview of the inherent and acquired hazards in museum collections and offer insight to our responsibility in mitigating and managing these risks in the future. Similarly, Odegaard discusses legal issues regarding museum documentation of pesticide use, the repatriation of contaminated collections, and special approaches to preservation of indigenous collections, including adopting traditional preservation methods. The examination of these issues must and will result in different approaches to preservation in the future. Conservation methods, which are continually refined by new knowledge, both scientific and cultural, prompt one to ask, What are we unwittingly doing today, for which future curators, conservators, and users will curse us? Hawks, Makos and Odegaard call for changing ethical standards.

Current issues and trends in exhibits and interpretation similarly call for traditionally associated groups to be involved in determining the objects that go on exhibit and how they are interpreted and handled. Stewart and Joseph describe the enriched mutual understanding that has resulted from some of the many collaborative exhibits involving the First Nations on the Northwest Coast of Canada and museums throughout North America. Franco discusses how museums are changing to respond to more diverse populations, changing audiences, multiple perspectives, and new technology. In responding to diverse populations, such bastions of cultural heritage as the National Trust for Historic

Continued on back cover

Raymond H. Thompson

The Crisis in Archeological Collection Management

The roots of the current crisis in archeological collection management go back to the beginning of the 20th century when much energy was directed toward the passage of antiquities legislation to protect sites on federal land. On September 3, 1904, Edgar Lee Hewett submitted to Land Commissioner William A. Richards his celebrated Memorandum Concerning the Historic and Prehistoric Ruins of Arizona, New Mexico, Colorado and Utah, and their Preservation, thereby launching the final campaign that resulted in the passage of the Antiquities Act of 1906. In it Hewett insisted that the collections removed from ruins "by competent authorities" should be "properly cared for" and that "all data that can be secured" should be "made a matter of permanent record."

Although Hewett was a man with expansive and ambitious ideas, never in his wildest dreams could he have imagined how these policies would affect his successors at the end of the 20th century. Through that century citizens and politicians, archeologists and lawmakers, preservationists and administrators labored to create the extensive body of law and regulation that gives this country a highly effective program of archeological preservation. Archeologists, following Hewett's pioneering statement, consider every site to be a unique repository of information about the past that "can contribute something to the advancement of knowledge." They have striven to recover and preserve that knowledge for the benefit of present and future generations. The result of this century of collecting activity is that archeological collection managers today are overwhelmed by a veritable flood of objects and documentation. They face a crisis of major proportions.

In Hewett's day, the amount of material recovered consisted mostly of whole pots and artifacts. Large eastern museums openly and vigorously competed for the privilege of acquiring, curating, and exhibiting archeological collections from federal lands in the Southwest. By mid-century, most museums were willingly accepting and caring for the small collections of archeological material that came from federal land. Often no more than a few cardboard boxes (frequently beer cases) of artifacts were involved. Within the next two decades, however, the flow of collections from projects mandated by federal, state, and local law had reached alarming proportions. In the last two decades of the century, the quantity of archeological material, both objects and associated documentation, has increased exponentially. Some institutions have had to cease providing repository services altogether.

The experience of the Arizona State Museum at the University of Arizona is typical. In 1969-1970 it curated almost 950 standardized archive boxes (about three cubic feet each, almost the same size as those beer cases) of archeological material from federal projects and almost twice as many by 1979-1980. A decade later in 1989-1990, the Museum had 8,624 boxes, more than four times as many as in 1979-1980. The volume doubled again in 1999-2000. The Arizona State Museum has essentially filled up the six floors of library stacks it occupied in 1977, and has no room left for the more than 20,000 additional boxes it has already contracted to accept over the next couple of years. Institutions and agencies throughout the country are experiencing similar growth pains as a result of the pace of archeological activity carried out under national policy directives.

In an effort to meet these challenges, museum specialists have become more professional in the way they care for archeological collections. The promulgation by the National Park Service of Rules for the Curation of Federally Owned and Administered Archeological Collections (36 CFR pt. 79) is an important example of this increased sophistication in collection management. No longer can administrators require that archeological collections be stored in abandoned pole barns or the basement of condemned buildings because "they are only old rocks." We have developed better systems of documentation and have automated our databases,

thereby creating greater access to the information. We can now reach out and serve the public in new and exciting ways, but we are not taking full advantage of these opportunities. As a result we are unable to provide convincing data when the administrators and the politicians, who control the funding, request information on the use, that is the public benefit, of the collections we hold. We face another crisis of credibility unless we can develop and make use of more innovative and effective ways of reaching out to the many curious members of the public who want to enjoy and appreciate the knowledge that we so earnestly save for the "benefit of present and future generations."

Despite the progress that has been made, we have not addressed adequately our biggest problem, the exponential growth of the archeological collections. The standard response to this problem, of course, has been another request for more funding, more staff, more space. Because most of the archeological collections result from various kinds of federal undertakings, we tend to look to the federal government for these resources. We ask for direct grants, discuss the need for state-based federal repositories, and even consider the transfer of collections to other federal agencies or Indian tribes. At the same time, we refuse even to think about reducing the quantity of material that we save, despite the fact that it is the most rational way of dealing with the flood. Instead, we exacerbate the problem by continuing to save the evidence of the past blindly and indiscriminately. Although there are powerful legal mandates for archeological work, our political system responds to all mandates by a continual process of resource allocation that requires setting priorities and making choices. Now that we have both the legal mandates and a foothold in the budgetary process, we must begin to set the priorities and make the choices that will discriminate between what must be saved and what should be discarded.

Although archeologists have finally begun to recognize that some sites are more important than others and to adjust their research accordingly, national policy continues to insist that all of the material recovered from such sites must be saved. If we can recognize that there is a scale of significance for archeological sites, we should be able to see that there is a comparable scale of relative importance for the objects recovered. Because we are in the business of saving the evidence of the past, it is difficult for us to accept this idea and even more difficult to implement it. But it is our special responsibility to do so, because we alone control the knowledge and the criteria of judgment that are required. If we are unable to make the choices that will help reduce the flow of collections into our curatorial facilities, others within the legal and political system who are less qualified will do so. We must act, because we are unable to keep forever under controlled curatorial conditions all of the archeological collections we now hold, to say nothing of the huge surge of material to come from ongoing and future federal undertakings.

While the burden created by this crisis falls primarily on the shoulders of the collection managers, the responsibility for coping with it must be shared by the archeologists. Traditionally, archeologists have been content to deposit the materials they recover (sometimes without adequate documentation) with museum caretakers and then forget about them. Although archeologists insist that such collections be saved for future research, few of them ever return to restudy the material. Some investigators even claim that these older collections lack research value because the original collectors did not ask the right questions in their research design.

Archeologists and curators must now work together to develop the criteria for making the decisions necessary for selecting adequately documented representative samples that merit long-term care. Tough decisions will have to be made and there will be some mistakes along the way. But in the process it will be possible to forge a national policy that will help discriminate what should be saved from what should not. Significant progress has already been made. Although federal policy assigns equal significance to all archeological sites, archeologists routinely make decisions that identify some sites as more important than others, even though they may not admit in their reports that they have done so. Ten years ago, the National Park Service published a proposed Rule for Deaccessioning Bulk Archeological Material in Federal Collections. Last year the Department of Defense issued Draft Guidelines for the Field Collection of Archeological Materials and Standard Operating Procedures for Curating Department of Defense Archeological Collections.

These efforts address directly the two collection management problems that lie at the core of the present crisis. We need two coordinated sets of policy and procedure in order to meet this

crisis: one to guide the deaccessioning of undocumented and redundant portions of the federal collections already under our control, and another for selecting documented representative samples from the mass of material to come. New resources will undoubtedly be needed to accomplish these two related goals. If we move expeditiously, we will be in a position to justify requests for such resources because we will have in place a rational and implementable method for prioritizing their expenditure.

The archeological community has gained great credibility within the preservation world by insisting, as did Hewett in 1904-1905, that we do not need to save physically all of the sites, but rather the critical information about the past that they contain. Now is the time to build on that credibility and demonstrate that we can discriminate between critical and non-critical information. Archeologists, museum curators, Indian tribes, and agency officials must join forces to work on this next phase of the nation's constantly evolving historic preservation policy. We must find ways of selecting from the great mass of archeological material that part of the evidence of the past that we should save for those present and future generations.

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Ann Hanniball

Non-Federal Museums Managing Federal Collections

The Utah Museum of Natural History

[This] vast and austere landscape embraces a spectacular array of scientific and historic resources.... Even today, this unspoiled natural area remains a frontier; a quality that greatly enhances [its] value for scientific study. [Here there is] a long and dignified human history; it is a place where one can see how nature shapes human endeavors in the American West; where distance and aridity have been pitted against our dreams and courage. [This place] presents exemplary opportunities for geologists, paleontologists, archaeologists, historians and biologists.[1]

Thus begins the Proclamation establishing Utah's new Grand Staircase Escalante National Monument which, the Proclamation attests, was created principally for its value for scientific study. In truth, the Proclamation's language might apply to the majority of Utah's vast public lands. This is a region of North America that is a major center of diversity for all fields of natural history and, consequently, has witnessed a century of scientific research.

The Utah Museum of Natural History (UMNH, the Museum) is Utah's state museum of natural history. By legislative mandate it is located at the University of Utah in Salt Lake City, Utah's capital city. The Museum is charged with collecting and displaying for educational and cultural purposes, "tangible objects reflecting the past, present and continuing development of our [Utah's] natural history." We also are directed to provide traveling exhibits and outreach programs about archeology and paleontology to people throughout the state, and to oversee and assist in the proper care of archeological and paleontological collections recovered from state lands and housed in facilities in Utah.[2] With its partner institution, the Hansen Planetarium, the UMNH hosted 258,874 on-site visitors and delivered exhibits and educational programs to another 93,624 people throughout Utah in 1999.

The important regional collections housed at the Museum are of high scientific value. They are central to the Museum's mission, and its mandate as the state museum of natural history. And, overwhelmingly, because of the high federal ownership of Utah lands, the Museum's collections are federal collections.

Dogoszhi black-on-white vessel recovered from the Dead Juniper site (42Sa3205) during archeological mitigation prior to highway construction. Photo by Laurel Casjens, Utah Museum of Natural History.

If you are doing field research in the natural sciences in Utah, chances are high that you are doing it on federally managed public land. Utah ranks second among all states in percentage of federal lands. More than 75% of the Museum's million-plus objects and specimens were recovered from federal lands. Ninety percent of some biological collections, such as the vertebrate fossils and botanical holdings, are federally associated. We are a repository for collections from lands managed by the Bureau of Land Management (BLM), Bureau of Reclamation, U.S. Forest Service (USFS), National Park Service (NPS), Fish and Wildlife Service, Department of Defense (DoD), Bureau of Indian Affairs, and from various National Recreation Areas and National Monuments. Of the remaining 25% of the collections, some significant portions were collected on state lands under federally mandated permitting procedures.

The collections document a legacy of scientific investigation in Utah. For example, University of Utah archeologist and founding director of the Utah Museum of Natural History, Jesse Jennings, worked out his influential model of the enduring way of life known as the Desert Archaic here and, in one of the earliest uses of radiocarbon dating (at Danger Cave), first established the deep antiquity of humans in the Great Basin. In pioneering work, University of Utah biologist Jim Brown applied the model of island biogeography to the montane habitat islands in Utah's west desert, contributing significantly to the study of the origin and maintenance of biological diversity. As a result of the University of Utah Cooperative Dinosaur Project at Cleveland Lloyd Quarry, composite skeletons from this extraordinary Jurassic dinosaur site are studied and exhibited at nearly 40 institutions around the globe. Julian Steward, Edgar Lee Hewett, Edward Cope, O.C. Marsh, and many others have carried out seminal work on public lands in Utah.

Much of the history of federally mandated protection of cultural and natural resources also can be traced, in microcosm, in this state. The first antiquities permit issued under the authority of the Antiquities Act of 1906 was for work in Utah.[3] Several major River Basin Archeological Salvage Programs were carried out here.[4] The 1974 Moss Bennett bill, sponsored by and bearing the names of Utah's two senators, provided protection and mitigation funding for historical and archeological data threatened by dam construction or alterations of terrain and codified model practices for public archeology.[5] President William J. Clinton followed presidential precedent when he invoked provisions of the Antiquities Act of 1906 to create the Grand Staircase Escalante National Monument.

The dominant federal presence in Utah has important implications, for the Museum and the state. One is the state and private investment in federal collections. Federal laws and regulations govern the recovery and subsequent care of objects and data and set properly high standards for collections storage conditions, treatment, management, and access. The Museum, an AAM (American Association of Museums) accredited institution, uses primarily state and private funds to meet those standards and to support expenses for collections curation, care, and management. Between 1995 and 1999, the Museum expended $1,825,000 non-federal dollars, not including building renovations, administrative overhead, support staff, or operations and maintenance costs, on direct care of federal collections. This is an investment in collections to which the Museum does not hold title. Federal support for the collections has come in the form of grant awards for specific collections-related projects rather than ongoing care. There have been no federal investments in the infrastructure (storage facilities, research laboratories, etc.) that provides the critical foundation for good collections care.

Another issue is the shared management of collections. While there is general agreement between the Museum and federal land management agencies that the Museum does not "own" these public collections, all also recognize that the Museum and University have been centrally involved in their recovery, study, care, and inter-

pretation. In other words, the Museum, its donors, the University, and the state are heavily invested in the planning, infrastructure, trained personnel, and ongoing resources required to adequately care for and interpret publicly owned objects, but the federal agencies also are responsible for their care, management, and interpretation. Further, the degree of oversight exercised by various federal agencies toward the collections has been variable over time, as well as among and within agencies. In practice, if not in code and regulation, there is significant ambiguity in this arrangement.

The Museum strives to meet the legal and managerial needs of various federal agencies within the context of the whole of the institution, its mission, and its budget. These demands can be contradictory. Implementation of the Native American Graves Protection and Repatriation Act (NAGPRA) presents a case in point. Over the past year, federal land management agencies have made various decisions about archeological materials in museums that came from lands they manage, actions that are governed by provisions of NAGPRA. In Utah, this process is decentralized and is being implemented at the level of USFS Forest, the BLM District, and DoD Military Reservation. More than two dozen federal archeologists are attempting to implement NAGPRA in Utah, but many lack the time to rigorously attempt to determine cultural affiliation. Without meaning to, they are setting conflicting precedents. Utah tribes and museums thus find themselves consulting with a large number of individuals with diverse and sometimes contradictory views of NAGPRA and how it should be implemented.[6]

Utah Friends of Paleontology volunteer at work in the Utah Museum of Natural History's Discovery Hall paleontological laboratory. He is preparing Jurassic period material from the Morrison Formation recovered from federal land in Emery County, Utah, and talking with visitors. Photo by Laurel Casjens, Utah Museum of Natural History.

The provisions of 36 CFR pt. 79, *Curation of Federally Owned and Administered Archeological Collections,* also are susceptible to varying interpretations. The terms of a recent federal grant to inventory archeological collections at the Museum included the stipulation that materials from one agency's lands be segregated and stored and managed separately from other museum collections. Museum staff deemed this request to be problematic. The Museum's Long Range Conservation and Curation Plan does not anticipate segregating holdings by land management agency. The storage organization plan is museum-wide in scope and is based on considerations about security, the environmental needs of the objects, research access, logic of adjacencies, and other architectural, environmental, mission, use, and budgetary concerns. The ultimate controlling factor driving storage arrangement is the preservation of the collections. The Museum's computerized database links the objects to field, accession, catalog, and conservation records, including information about land status and ownership at the time of recovery and storage location within the Museum. Researchers and managers can "reassemble" some particular groups of objects and records using the database. (The agreement was later amended to remove the segregated storage clause.)

Investigators encounter a variety of procedures for collecting and managing resources from federal lands in the state; there are no uniform permitting practices. Consider for example the variable procedures for obtaining permits to collect botanical specimens. The USFS requires a written request for a plant-collecting permit. These are general collection permits that are good for a particular district. The NPS has standardized permitting processes, which consist of four steps: 1) a research proposal, outlining where and what is to be collected; 2) annual reports for the duration of the research project; 3) a final report upon completion of the research project; and 4) periodic inventory reports regarding the precise location and condition of any NPS collections. However, not all parks within Utah actually use this process. BLM permit requirements vary from district to district. There also are differing requirements regarding the deposit of duplicate specimens in other herbaria. In practice, these variations add complexity and cost to botanical research and specimen management.

Finally, despite many exemplary instances to the contrary, the results of much federally man-

dated scientific research are often effectively invisible to the public. Information and interpretations often lie buried in the "gray literature" of unpublished reports. Publication of research in journals or books makes data available to the scientific community, but still often fails to reach the general public. As a recent issue of *CRM*[7] attests, the scope and size of collections recovered from federally managed lands in the United States are truly staggering and in some instances cannot even be guessed. Staff and budget directed toward those resources are relatively small, meaning that even with the heroic efforts of dedicated federal staff, much that is intended by the various statutory schemes for the protection, preservation, and public availability of archeological, paleontological, and biological museum resources remain unrealized. However, UMNH and other non-federal museums have played, and can continue to play, a crucial role in bringing the results of publicly mandated research to the public. The Museum's ongoing exhibit and educational programs interpret all aspects of the federal collections housed here. In addition, we have been part of a number of highly successful cooperative interpretive projects.

Here are a few recent examples. The Utah Interagency Task Force on Cultural Resources, representing the Utah divisions of the BLM, USFS, NPS, and State of Utah, and the Museum, sponsored development and delivery of the educational program Intrigue of the Past: Investigating Archeology, a component of BLM's Project Archeology.[8] This is one of several innovative public education programs that have come from this partnership of state and federal agencies and non-federal museums.

The Great Salt Lake Story is an award winning curriculum development project that uses Utah's Great Salt Lake as a unifying theme to teach a science and social science core curriculum to grades 3 through 12. It includes an interdisciplinary activity guide, with museum, field and classroom-based activities, that has been reprinted several times. It was developed by the Museum and an Advisory Committee with representatives from the University of Utah Department of Geography and Educational Studies, the Utah Geological Survey, the State Division of Wildlife Resources and State History, the U.S. Army Corps of Engineers, and Bureau of Land Management and was fully funded by private and corporate donors and foundations.[9]

The UMNH, other non-federal museums, and several federal land management agencies are currently working on pilot programs in the areas of traveling and on-site exhibits, curriculum development, and outreach education projects. Such effective, ongoing partnerships between federal agencies, the Museum, and other non-federal repositories will ensure wise, non-duplicative uses of public resources that will meet the needs of the scientific community, the American public, and the residents of the region from which collections are recovered. In Utah, for the State Museum of Natural History, such partnerships are essential because the mission, mandate, purpose, and programs of the Museum are inextricably bound with federal land management agencies.

Notes

1 William J. Clinton, Establishment of the Grand Staircase Escalante National Monument by the President of the United States of America: A Proclamation (1996).

2 Utah Code 53B-17-603(2), (4) (a); 9-8-305(1)(c) and 63-73-12(1) (6).

3 Francis P. McManamon and Kathleen D. Browning, "Department of the Interior's Archeology Program," *CRM* 22:4 (1999): 19.

4 Among them is the Upper Colorado River Basin Archaeological Survey Project.
See Jesse D. Jennings, "River Basin Surveys: Origins, Operations, and Results, 1945-1969," *American Antiquity* 50(2).

5 U.S. Code, tit. 16, sec. 469.

6 Three state agencies, the UMNH, the Utah Division of Indian Affairs, and the Utah Division of State History have submitted a grant proposal for a statewide NAGPRA Coordinator to the National Park Service. Representatives of the eight Utah tribes, which are the Northwestern Band of the Shoshone Tribe, Goshute Indian Tribe, Skull Valley Band of Goshute Indians, Navajo Nation, Paiute Indian Tribe of Utah, San Juan Southern Paiute Tribe, Ute Indian Tribe and White Mesa Ute Council; the Bureau of Land Management, the Bureau of Reclamation; National Park Service; the U.S. Forest Service; the Anthropology Museum at Utah State University; the Prehistoric Museum at the College of Eastern Utah; the Museum of Peoples and Cultures at Brigham Young University; and the Utah Division of State Parks and Recreation have written letters of commitment and support for the project.

7 Particularly Stephanie M. Damadio, "Linking the Past to the Future—Museum Collections and the Bureau of Land Management," *CRM* 22:4 (1999): (33) and Ed Friedman and Brit Allan Storey, "CRM at the Bureau of Reclamation," *CRM* 22:4, (46).

8 Shelley J. Smith, Jeanne M. Moe, Kelly A. Letts, Danielle M. Paterson, *Intrigue of the Past: A Teacher's Activity Guide for Fourth Through Seventh Grade*, (U.S. Government Printing Office, 1993).

9 Sandra Zicus, *The Great Salt Lake Story* (Salt Lake City: Utah Museum of Natural History, 1997).

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Wendy Bustard

Archeological Curation in the 21st Century

Or, Making Sure the Roof Doesn't Blow Off

Over the past few years it has become apparent that a crisis in American archeology exists.[1] Those words were written in 1980 in response to a symposium, "The Curation of Archaeological Collections," at the 44th Annual Meeting of the Society for American Archaeology (SAA) in Vancouver, British Columbia, April 1979. Exactly 20 years later, Verna L. Cowin organized a symposium entitled "The Crisis in Curation: Problems and Solutions" at the 64th annual meeting of the SAA in Philadelphia, April 2000. The speakers in this symposium touched on a series of curation problems: large backlogs of uncataloged collections; extensive collections from recent cultural resources management (CRM) projects; inadequate staff; increasing curation fees; substandard and overflowing storage facilities; and the lack of awareness in the archeological community of just how bad things are. The fall 1999 thematic volume of *Museum Anthropology* on the management of federal archeological collections included articles on curation accountability, funding, accessibility, partnerships, and deaccession policies. It seems that once again a number of people are thinking about the state of archeological curation and, unfortunately, finding many of the same problems cited in 1980. I recently did an informal poll of curators with archeological collections to learn what their top concerns were. Generally, recurring themes regarding archeological collections fall into five categories: accountability, accessibility, conservation/preservation, deaccession policies, and storage.

Accountability

In 1990, regulations entitled *Curation of Federally Owned and Administered Archeological Collections* (36 CFR pt. 79) were published, partly as a result of a 1980s General Accounting Office audit of the status of federal archeological collections. The 1987 GAO report found that agency accountability was poor, largely due to the lack of records and guidelines.[2] Three years later, 36 CFR pt. 79 was finalized. Unfortunately, a decade after its publication, federal agency accountability shows only sporadic improvement.[3] Today, some agencies still do not have formal policies on curation, making accountability difficult to achieve. Other agencies, including the Departments of Defense and Interior, have made significant progress in terms of accountability.

Accountability asks two questions: what do you have and where is it? Problems with answering the first question generally center on the backlog: the number of uncataloged objects and archives. Until material is cataloged, we don't really have a handle on what we have, and the numbers can be overwhelming. Ten years ago, Chaco Culture National Historical Park calculated its archeological and archival backlog to be around 1.5 million items. Today, about 54% of the backlog has been cataloged. Unfortunately, the backlog continues to grow as new collections are accessioned each year.

Trouble answering the second question usually arises when we deal with older collections or federal agency collections. Often, older collections were divided, traded, or even sold off. For instance, archeological collections from Chaco Canyon, excavated in the late-19th and early-20th centuries, are now located in museums around the world. Old collections, dispersed among different institutions, sometimes with poor or no documentation, nonetheless can be useful for exhibits and type or comparative collections. As Joan Schneider of the University of California's Center for Archaeology and Paleontology observes, even with just general provenience information, these old collections can also be useful for research, if we know what and where they are.[4] Sometimes, unfortunately, collections have simply been lost. Old field

school collections are a good example—occasionally languishing, forgotten, in an attic or basement. Other collections, moved from storage room to storage room get lost along the way. Today, computerized accession and catalog records provide us with tools to track storage location moves and, with cooperation among institutions, to intellectually re-unite dispersed collections to facilitate research.[5]

At the federal level, responsibility to protect and preserve archeological resources on federal land dates back to the 1906 Antiquities Act. Agencies and bureaus whose primary mission does not include managing cultural resources (such as the U.S. Army Corps of Engineers or U.S. Fish and Wildlife Service) typically place most of their cultural collections in local or regional repositories. Since 1906, some of these agencies and bureaus have lost track of their collections. Federal compliance with the deadlines imposed by the 1990 Native American Graves Protection and Repatriation Act (NAGPRA) has had the beneficial effect of forcing agencies to locate and inventory their collections, and to make formal arrangements with non-federal repositories. The publication of 36 CFR pt. 79 in the same year as NAGPRA reinforced federal accountability for archeological collections. The Department of Defense, through its U.S. Army Corps of Engineers Mandatory Center of Expertise for the Curation and Management of Archaeological Collections, has been particularly aggressive and effective in locating its collections, assessing conditions at repositories, and making recommendations for long-term curation.[6]

The problem of locating collections is not limited to past practices. The rise of CRM projects over the last three decades has resulted in large, well-documented collections. However, we don't always know where these collections are. Although a repository agreement is required before a State Historic Preservation Officer will grant a permit, there is no way to monitor if the collection, after excavation and sometimes years of analysis, actually ends up in the specified repository.[7] According to Verna Cowin of the Carnegie Museum, CRM firms often cite a lack of staff to pack collections to repository standards and the high cost of curation fees as reasons for their failure to comply with state and federal regulations concerning archeological collections.[8]

Accountability is the responsibility of the agency or institution. Archeologists and curators must ensure that agencies and institutions acknowledge their responsibility to manage collections to professional and regulatory standards. We must also encourage the public to hold us accountable for our cultural heritage.

Accessibility

Accessibility generally refers to whether or not researchers, managers, and the general public can use archeological collections. This in turn relates to the question of accountability—if we don't know what we have and/or where it is, we cannot make collections available for use. This is not a trivial problem. According to 36 CFR pt. 79, federal collections must be made available for "scientific, educational and religious uses." The general public pays for federal collections through taxes and, therefore, is entitled to use them appropriately. The Smithsonian Institution's creation of a Museum Support Center was in response to the need to appropriately care for collections and make them accessible. From 1983 to 1996, the National Museum of Natural History moved its archeological and ethnographic collections to the new facility. During the move, inventories were completed, a new database system was installed, artifact storage locations were barcoded by catalog number, and

The Maxwell Museum of Anthropology's storage warehouse for bulk archeological collections. Photo courtesy Chaco Culture National Historical Park, National Park Service.

storage was upgraded.[9] Researchers can now query electronic databases and easily locate artifacts for study. The Smithsonian Institution's curation center is an excellent model, but most of us do not have the good fortune to work in such well-designed facilities.

From a curator's perspective, the lack of accessibility relates directly to space and staff. Staff is necessary to catalog the artifacts. Even when you know what you have and where it is, without staff to retrieve requested items, collections are still not fully accessible for research. Overcrowded, unsafe storage conditions also physically hamper a curator's ability to pull items for researchers. Researchers face other accessibility challenges. For instance, collections dispersed in multiple repositories across the country (or world) make research physically difficult and often expensive. Sometimes just finding out what collections exist is a problem. The result is a lack of research use of important but little-known collections. Joan Schneider cites the example of the Elizabeth and William Campbell collection at Joshua Tree National Park, an important historical collection about which few outside the local academic community know. The University of New Mexico's Chaco field school collections from the 1930s and 1940s are uncataloged and information about these important small site assemblages is unavailable to researchers. Other field school collections no doubt suffer the same fate — forgotten on shelves in university storage rooms. As Schneider asks, "What is the purpose of curating collections if no use is made of them?" The American public, who pays for much of this work, would like an answer to that question as well. One way to increase accessibility would be to create a single, indexed, searchable web site with links to all archeological collections in the United States.

Conservation/Preservation

Conservation is another concern. As Karin Roberts of the National Park Service Midwest Archeological Center points out, storage facilities for archeological collections must be appropriate for a wide variety of materials, from stone to metal to textiles to celluloid.[10] Often, storage conditions are geared toward generic, stable materials and fragile specimens may suffer over the long term. Roberts also observes that while archeological collections should be accorded the same protection as other museum collections, this is not always the case. In my experience, bulk archeological collections in particular are often housed in substandard conditions.

Increasingly, attention is focusing on archival collections. Without documentation, archeological collections are generally not useful for research. When documentation exists, it can be considerable. The Chaco Museum Collection has seen an exponential growth in the amount of field notes, personal papers, photographs, and maps donated as researchers finish projects and/or retire. Preserving these records that are on non-archival paper is expensive and time-consuming. Another archival issue concerns electronic media. Managing data on computer tape, diskette, CD-ROM, and zip disk is a challenge. The media change so quickly that long-term preservation studies are non-existent and would be largely irrelevant. For now, we must keep old hardware so that we can read data on old media. The temptation is to get rid of obsolete technology as quickly as possible, but we must be careful not to throw out equipment before salvaging associated data files. The Chaco Museum Collection is currently engaged in an electronic database rescue project: we are converting 1970s-1980s data on old mainframe data tapes to CD-ROM format before the tapes disintegrate and the data are lost. This will not be a long-term solution, however, as technology changes faster than we can keep up with it. Migrating data files to new media every five years or so is a worthy goal, but one that may not be realistic, given other curatorial concerns and crises. National curatorial standards for electronic data migration, verification, and preservation would be useful.

Deaccession Policies

Archeological collecting in the United States dates back to the beginning of the republic. Americans of European ancestry shared the continental interest in curiosities from other cultures. The founding of the Smithsonian Institution in 1846 provided both the impetus, via funding, and a national home for the collection of antiquities on a large scale. By the late 1800s, institutions vied with each other to acquire antiquities for display in museums. The Antiquities Act of 1906 required that collections recovered under the Act be deposited in a public museum or national repository.[11] Over the last 150 years, a staggering number of artifacts have been collected and housed in the Smithsonian Institution, private museums, universities, federal agency repositories, state and local historical

museums, and in some cases, garages and basements. Today, we face the problem of managing these collections and, sometimes, deciding what we will curate "in perpetuity" and what we will not.

Culling collections for cost, management, and research considerations is a touchy subject. However, several curators who responded to my informal poll brought up this problem, and S. Terry Childs of the National Park Service Archeology and Ethnography Program has argued for the need to incorporate deaccession policies into collection management plans.[12] In times of decreasing funds for museum support, increasing curation costs, and lack of space, curators are looking more closely at what is piled in the storage rooms. What we could (or should) discard, who should make those decisions, and how we justify our decisions are difficult questions, and should not be made in haste to solve short-term storage problems.

For private museums, deaccessioning is usually a policy issue, and these institutions can work with their boards of directors to develop such policies. However, at the state and federal level legislative authority is required to dispose of publicly-owned property. Within the federal government, some federal agencies and bureaus have the authority to deaccession inappropriate collections, and some do not. For example, the Department of Defense, the Department of State, and the Smithsonian Institution have deaccessioning authority, but in the Department of the Interior only the National Park Service and the Department of the Interior Museum have this legislative authority. The NPS deaccessioning authority was granted in 1955 and broadened in 1996, and the NPS museum program has had formal guidelines in place for deaccessioning since 1967. However, other bureaus in the Department of the Interior do not have general legislative authority to deaccession, with the exception of NAGPRA. This authority is needed. As Nancy Coulam of the Bureau of Reclamation notes, deaccessioning objects with limited or no value would be fiscally responsible and in the public interest.[13] The American Association of Museums (AAM), the American Anthropological Association (AAA), and the SAA could and should work with state and federal agencies to obtain the legislative authority needed to deaccession inappropriate archeological collections through such mechanisms as transfer, exchange, or donation.

Storage

"The roof blew off the car wash last week." Not words that normally strike fear in a curator's heart, unless of course you have archeological collections stored in the car wash. This actually happened to a university anthropology museum this past March. This museum had outgrown its storage space long ago and was desperate for additional storage space. Several years ago, the university's board of regents came up with a temporary solution—use an abandoned two-bay car wash for overflow storage. Since it was to be temporary, the university did not renovate the building. To stop the roof from leaking, it constructed a metal roof above the original roof. This is what blew off in a wind and rainstorm. Luckily, this story has a happy ending: a generous private donor has given the university money to construct an archeological research and curation center.

While most of us do not have to worry about roofs blowing off, there are few state-of-the art facilities such as the Smithsonian Institution's Museum Support Center in Suitland, Maryland, and the National Park Service's new Museum Resource Center in Landover, Maryland. I suspect most of us labor in small, overcrowded, ill-lit storage facilities never designed to hold museum collections. The Chaco Museum Collection is currently housed in six locations: three in the park and three on the campus of the University of New Mexico in partnership with the Maxwell Museum of Anthropology. One of our shared facilities is the Maxwell Museum Warehouse, a 16-foot-high warehouse stacked floor to ceiling with archeological collections from the Southwest. The Chaco Archive is housed in the 1930s book stacks section of the University of New Mexico's main library. I imagine a great many repositories across the country are similar: retrofitted spaces with limited or no environmental controls, security, or fire protection. Most of all, repositories are full — packed to the rafters and beyond, every inch of floor space taken up by piles of boxes. Even the Smithsonian Institution's Museum Support Center is now facing a scarcity of storage space.[14] Archeological collections and their accompanying archival collections grow steadily—sometimes slowly, sometimes at an alarming rate. Real estate is expensive, especially real estate that must be built to strict federal standards for curation and have room to expand. Not surprisingly, universities, private museums, and federal agencies are not overly

anxious to undertake expensive construction projects to build the kinds of facilities required.

Not only do many (most?) repositories fail to meet the standards of 36 CFR pt. 79 for the curation of federal archeological collections, many present severe safety and health concerns. Before the Museum Support Center was built, the National Museum of Natural History's anthropological collections were physically and figuratively stored in the "nation's attic," as the Smithsonian Institution is affectionately nicknamed. In this case, the conceptual charm of an overflowing attic was counterbalanced by the reality of asbestos contamination. Two of the Chaco Museum Collection storage areas in the park are infested with hantavirus-carrying mice. The 16-foot-high storage shelves in the Maxwell Museum Warehouse are a potential OSHA nightmare. The list could go on.

Where Do We Go from Here?

It seems to me that the pressing issues concerning archeological collections can be characterized from two different standpoints: policy and implementation. The policy aspects of accountability and accessibility can and should be dealt with by the museum profession. The implementation aspects of accountability, accessibility, conservation/preservation, and storage require funding. Securing legislative authority for state and federal agencies and bureaus to deaccession inappropriate collections may require the political assistance of non-governmental entities such as the AAM, AAA, and SAA.

Discussing the papers presented at the "Crisis in Curation" symposium, Francis P. McManamon, Departmental Consulting Archeologist for the Department of the Interior, observed that the infrastructure of curation is crucial: facilities and staff. It is this infrastructure that implements curation. Without an adequate and solid infrastructure, there will be no meaningful solutions to the problems facing us. Unfortunately, the curation infrastructure is expensive. Facilities that meet the standards of 36 CFR pt. 79 are costly to build and operate. Professional staff with the necessary expertise does not come cheap. Asking Congress, boards of directors, boards of regents, state legislatures, and city governments for more money for curation is not easy. We must compete with social programs that directly impact the public welfare. How? We need to do a better job educating the public about the importance of caring for the objects of our past and preserving them for future generations. Professional initiatives and public education are the tools to which we have immediate access. We must use them wisely to find solutions.

Archeologists also must become more involved in curation. The SAA has a newly-formed Committee on Curation; a good, if curiously late, start. However, in a cursory examination of the Society for American Archaeology's recently published *Teaching Archaeology*, I found only one reference to the need for professional, effective curation and collections management.[15] There is a strong emphasis on the preservation ethic in this volume, but it focuses on site preservation. Curation does not seem to be part of either undergraduate or graduate archeological curricula. It is as though archeologists collect things and then the objects disappear into another realm of responsibility. In 1980, Alexander Lindsay and Glenna Williams-Dean wrote:

> It is our opinion that many of the curatorial problems are created and can be solved or ameliorated by archaeologists themselves. The apparent lack of a positive ethic for the preservation, care, and use of collections in the training of archaeologists is one cause of the problem.[16]

I can personally attest to the fact that some graduate schools today still do not train archeologists in the care and use of collections. Ironically, as Ann Hitchcock of the National Park Service has noted, many museum studies programs developed within anthropology programs, such as those at the University of Arizona, the University of Colorado, the University of Denver, and the University of Washington.[17]

If archeologists do not become involved in curation policies and implementation, decisions will be made by boards of directors, federal and state managers, and administrators in the private sector. I suspect that most archeologists will not be comfortable with the decisions these individuals make. It is up to us. If we want to make sure the roof doesn't blow off, we must all work on solutions to the archeological curation crisis.

Notes

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2 36 CFR pt. 79, *Federal Register* Vol. 55, No. 177 (September 12, 1990): 37625.

3 Bobbie Ferguson and Myra Giesen, "Accountability in the Management of Federally Associated

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4 Joan Schneider, personal communication, March 2000.
5 Donald McVicker, "All the King's Horses and All the King's Men: Putting Old Collections Together Again," paper presented at the 65th Annual Meeting of the Society for American Archaeology, April 2000, Philadelphia, Pennsylvania.
6 Kenneth L. Shingleton, Jr., Laura Kozuch, and Michael K. Trimble, "The Department of Defense National Archaeological Curation Assessment Project," paper presented at the 65th Annual Meeting of the Society for American Archaeology, April 2000, Philadelphia, Pennsylvania.
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9 James J. Krakker, David J. Rosenthal, and Deborah Hull-Walski, "Managing a Scholarly Resource: Archaeological Collections at the National Museum of Natural History," *Museum Anthropology* 23:1 (1999): 9-18.
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.11 36 CFR pt. 79, *Federal Register* Vol 55, No. 177 (September 12, 1990): 37626.
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15 Susan J. Bender, editor, "A Proposal to Guide Curricular Reform for the Twenty-First Century," in *Teaching Archaeology*, edited by Susan J. Bender and George S. Smith (2000), pages 31-48, Society for American Archaeology, Washington, DC.
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Kathleen T. Byrne

Deaccessioning Museum Collections

Deaccessioning museum collections is the process of permanently removing them from a museum's ownership and custody. When a museum deaccessions an object, the museum no longer has physical custody of the object, and it relinquishes all claims to ownership.

Deaccessioning museum collections runs counter to the main purposes of museums, which are to acquire and preserve collections for the benefit of future generations through exhibition, interpretation, and research. We think of museums as collecting objects, not disposing of them.

However, there are several valid reasons for deaccessioning collections. The obvious ones include loss, theft, or destruction from involuntary means, such as flood or fire. There are also cases when an object has lost all value due to extensive damage, or when a specimen is deliberately destroyed during scientific analysis. Native American materials that meet the criteria of the Native American Graves Protection and Repatriation Act (NAGPRA) may be deaccessioned as part of a repatriation agreement.

Many museums also contain collections that don't fit within the museum's current scope of collections statement. Most museums now use some form of a scope of collections statement that defines the types of materials the museum will collect, based on the mission and purpose of the museum. In earlier years, museums were much less systematic in what was collected, resulting in collections that aren't relevant to the museum.

Of course in a perfect world, there would be no need for museums to deaccession collections. All the objects would fit within the museum's scope of collections, and nothing would get damaged or stolen.

In the real world, deaccessioning is a necessary practice. However, in the last 25 years, the public has given increased scrutiny to deaccession actions, and the museum profession has become more knowledgeable about legal and ethical responsibilities. Some controversial and highly-publicized deaccession actions have made museums very aware that deaccessions can cause poor public relations and even lawsuits. Deaccession policies and procedures have become much more rigorous as a result. Deaccession actions must meet the highest professional, legal, and ethical standards for accountability.

For the National Park Service (NPS), deaccessioning museum collections is an especially sensitive subject. The American public rightly considers the NPS museum collections to be their national treasures from their land and historic sites. Even the perception that the NPS is "getting rid of" museum collections could result in disastrous publicity.

Yet appropriate deaccessions are a necessary part of good collections management. It is an inefficient use of park staff and funding to care for collections that do not fit the park's scope of collections or that are damaged beyond repair. Material that is not relevant to one park or museum may be a welcome addition to another.

The NPS recognizes several types of deaccessions: destructive analysis, involuntary destruction, loss, NAGPRA compliance, outside scope of collection, return to rightful owner, theft, and voluntary destruction/abandonment. Collections that fall outside a park's scope of collection can be deaccessioned by transfer, exchange, conveyance (donation), or voluntary destruction. Note that the sale of collections is not an option.

The NPS may donate collections only to institutions that are dedicated to the preservation and interpretation of natural or cultural heritage and qualified to manage the objects. In addition, private institutions must be exempt from federal taxation.

Although deaccessioning museum collections is an accepted museum practice, it should be a relatively rare occurrence. The NPS uses an annual collection management report completed by each park to document the number of items that are deaccessioned servicewide each year

The majority of park deaccessions are transfers to other parks or federal agencies. Very few items are deaccessioned outside the federal government. For example, in fiscal year 1999 (October 1, 1998-September 30, 1999), NPS deaccessioned 749 items outside the federal government. Five items were exchanged, 135 items were donated to qualifying institutions, and 609 were repatriated under NAGPRA. This is a small number for collections totaling over 80 million items.

The procedures for deaccessioning NPS museum collections are in Chapter 6 of the *Museum Handbook*, Part II, Museum Records. These procedures meet professional museum standards and the requirements of the 1996 amendment to the Museum Properties Act of 1955, the legal authority for deaccessioning NPS collections that are outside a park's scope of collection statement. NPS staff are required to follow these rigorous procedures.

NPS deaccessioning procedures vary depending on the type of deaccession. For example, the procedures for deaccessioning a theft are different from the procedures for deaccessioning something that is out of the park's scope of collection. However, the need for good documentation is common to all types of deaccessions. It is essential to create a complete paper trail for all steps in the deaccession process. The documentation may be needed to defend the deaccession.

Deaccessioning should not be an easy or quick process. In general, museums follow a series of steps for deaccessions that include a sound justification, committee review by subject specialists, monetary appraisals, approval by the director or governing board, and public advertisement of the proposed deaccession.

The Pacific Northwest *by William Henry Traher, acrylic on canvas, 1966. One of four paintings commissioned by Jefferson National Expansion Memorial for exhibit in the visitor center lobby and deaccessioned by transfer to the Department of the Interior Museum in 1999. On exhibit at the Department of the Interior. Photo courtesy Jefferson National Expansion Memorial, National Park Service.*

Strict deaccession procedures are precautions against controversy. They protect museum personnel or their relatives from allegations of unethical conduct, partiality, or conflict of interest. They also maintain the public's trust.

Deaccessions can turn into a public relations nightmare unless there is a full public disclosure of the museum's actions. What can go wrong? Donors can become irate if their family heirlooms are removed from a collection. A community may have strong feelings that the deaccessioned objects should remain in the community. Staff may face charges of receiving personal benefits from the deaccession action. The museum may be accused of dealing in collections or making deaccession decisions based on personal taste or current fashion.

NPS Deaccessioning Procedures

The NPS deaccessioning procedures were written to provide safeguards against these problems and to achieve objectivity in the deaccession process. The procedures for deaccessioning museum collections that are outside a park's scope of collections include several steps.*

Review by a Collections Advisory Committee. The committee reviews a proposed deaccession and makes written recommendations to the superintendent, who has the authority to approve or disapprove a deaccession. The superintendent chooses the members of the committee based on the material to be deaccessioned. The committee must include at least two members. One member must be a curator at the GS-11 (full performance) level or higher. The curator may not supervise the other members of the committee. Parks that don't have a curator at the appropriate level, must appoint a curator from another park or support office.

There are several reasons for the committee. It allows for a systematic review of the material by impartial subject matter experts. It also protects the superintendent and park staff from possible accusations of partiality or vested interest. If the superintendent goes against the committee's recommendations, he or she must attach an explanation to the deaccession form.

Advertisement to Other Parks. Before deaccessioning objects out of the NPS, parks must advertise the availability of the objects to other parks in the system. This is to make sure that the NPS is not deaccessioning objects from one site that are needed by another site. After publishing the advertisement, there is a 30-day waiting period for other parks to respond.

Order of Preference. Parks must follow an order of preference that is based on maintaining federal government interest, keeping collections in the public trust, and protecting NPS interest. The first order of preference is transfer to another NPS site, the last is voluntary destruction. The superintendent must provide a written justification for going out of the order of preference.

Monetary Appraisal for Exchanges. The NPS requires formal appraisals for all exchanges outside the federal government. One formal, written appraisal is required for objects below $20,000, and two formal, written appraisals are required for objects over $20,000. Both the objects to be deaccessioned and the objects to be acquired must be appraised.

Appraisals are an accepted museum practice to make sure an exchange is credible and equitable. The appraiser must state in writing that he or she has no vested interest in the outcome of the appraisal.

Public Advertisement for Exchange and Conveyance (Donation). Parks must publish a notice of intent to deaccession objects to a stated recipient before exchanging objects outside the federal government or conveying (donating) objects. The notice must appear for 45 days on the NPS Museum Management web site at <http://www.cr.nps.gov/csd/>. This site is advertised monthly in *Aviso*, the newsletter for the American Association of Museums and *Dispatch*, the newsletter for the American Association for State and Local History. Parks may also use this site to search for potential recipients.

The NPS deaccessioning procedures are like those in many other museums. They increase the professionalization of NPS museums, and allow parks to deaccession collections with confidence that their actions are fully accountable. More importantly, they allow the collections to be treated, as stated in the amendment to the Museum Properties Act of 1955, "in a careful and deliberate manner that protects the public interest." The American public expects no less.

Note

* By NPS policy, archeological and natural history collections and associated records acquired as a result of systematic investigations within a park's boundary cannot be outside a park's scope of collection.

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Dan Chure

New Threats to Old Bones

The Theft of Fossil Vertebrates from Museum Collections

The Three Principles of the First Law of Collections Management may be formulated as follows:
If it exists, people will collect it.
If people collect it, they will exhibit it.
If people exhibit it, someone will try to steal it.

There is no better proof of these principles than the recent theft at the Frederick's of Hollywood Bra Museum in California. During the Los Angeles riots following the Rodney King incident, the museum was broken into and one of the items stolen from the exhibits was a bustier worn by Madonna on one of her concert tours. It was never recovered.

Traditionally, interest in fossils has been rather limited—as research material for scientists and as natural curios to the public. Although some important fossil vertebrates have been destroyed during wars, fossils have generally not been treated as war booty and have thus been spared the disastrous systematic, large-scale plundering suffered by cultural items in Europe.[1,2,3] Over the last several decades, however, the commercial market for fossils has exploded, and over the last 10 years, there has been a sharp increase in the theft of fossils from museum collections and exhibits. Fossils in collections now face the same threats as artwork, archeological artifacts, and other valuable items. The First Law of Collections Management has finally caught up with paleontology.

At Dinosaur National Monument some 1,500 dinosaur bones are preserved in place within the visitor center, yet even here thieves have stolen bones right off the quarry face. Courtesy Dinosaur National Monument, National Park Service.

It is certainly no secret that the commercial trade in fossil vertebrate remains is extensive, international in scope, and lucrative, with single specimens realizing millions of dollars at auction. The trade and the price of specimens have been growing steadily for decades. The issues are complex; some specimens are collected under contract from private land, a perfectly legal activity, while other specimens are taken without permission or permit from private and public lands, including units of the National Park Service. In some cases specimens have been stolen or vandalized in active research quarries. Steeply rising prices further fuel the trade. Donors to The Field Museum of Natural History paid $8 million at auction for the *T. rex* known as Sue, and the North Carolina State Museum of Natural Science paid $3 million for a skeleton of *Acrocanthosaurus atokensis.*[4] The immense success of "Jurassic Park" and "The Lost World" serve to further drive the market. One only needs to visit the Tucson or Denver Gem and Mineral Show to see first hand the dizzying array of spectacular fossils regularly available for purchase.

As a result, fossil rustling has become a growing concern for land managers and has sparked a heated debate within the scientific community. This debate has risen to the attention of the general public through books, magazines, and television documentaries. Less well known to the public and, I suspect, to many of the readers of *CRM* are the increasing instances of theft of fossil vertebrate remains from museum and private collections. These thefts are international in occurrence and collections managers need to be aware of this new threat to specimens under their care. It is a threat that is here to stay and collection managers and scientists need to

work together to prevent it and to recover specimens.

The Scope of the Problem

The best known and documented incidents involve the Paleontological Museum of the Russian Academy of Sciences (PIN), Moscow, which is the main repository for the fossils of the former Soviet Union. In 1992, Dr. L.P. Tatarinov alerted colleagues to the fact that 12 skulls of 230-million-year-old Early Triassic amphibians had been stolen, and it was possible that the specimens might be offered for sale in the West.[5] Shishkin provided more details and noted that a total of 15 amphibian skulls had been stolen, all from a single exhibit case. [6] Stolen items were single skulls of *Aphanerama rostratum* (PIN 42771/1), *Benthosuchus sushkini* (PIN 2243/1 holotype), *Benthosuschus bystrowi* (PIN 37831/1, holotype), *Benthosuchus korabkari* (PIN 3200/65), and 11 skulls of *Thoosuchus jakavlevi* (PIN 3200 nos. 6, 81, 82, 132, 154, 160, and 190, plus 4 more skulls). All the skulls were in an excellent state of preservation and some had been chemically prepared and thus were devoid of infilling matrix, making them very fragile. Included in this theft were several type specimens, i.e., specimens that are the formal name bearers for a species. Such specimens are of great paleontological importance, and the loss is a disaster for systematic and phylogenetic research.

> *Because that's where the money is.*
>
> Response of Willie Sutton (1901-1980) when asked why he robbed banks.

Subsequent revelations showed that the theft problem was much more serious than initially thought and that nearly 50 specimens were missing.[7] Even worse news was that the exhibit case from which the specimens disappeared did not have a broken lock, leading to the suspicion that someone from within the institute might have been involved. In 1994, the Joint Moscow-Bristol Working Group for the Return of Stolen Russian Fossil Material was established to repatriate missing specimens.[8] However, to date only one specimen, a skull of *Thoosuchus*, has been recovered, thanks to the sharp eye of Dr. Rupert Wild, paleontologist of the State Museum for Natural History in Stuttgart.[9]

In 1996, word came of the additional theft of five 65-million-year-old dinosaur specimens from the PIN.[10] The specimens were two undescribed skulls of *Protoceratops andrewsi* (PIN 3147/7, 3148/8), one skull of *Breviceratops kozlowskii* (PIN 3142/1, syntype), and the upper and lower jaws of the tyrannosaurid *Tarbosaurus eferemovi* (PIN 551/2, 551/3, holotype). Once again, some type specimens were taken. However, this time the specimens were stolen from locked museum cabinets in storage areas. On December 21, 1995, a German fossil dealer was charged with taking meteorites and fossils out of Russia without proper documents, although none of the missing items were part of the package.[11] However, this dealer had sold the *Thoosuchus* skull in Germany, which was ultimately recovered by Dr. Wild.[12,13] Other missing vertebrate material from the PIN includes six mammoth tusks.[14]

Theft problems are more widespread in Russia than just the PIN. Mammoth tusks have been taken from the Zoological Institute in St. Petersburg.[15] In late 1999, the holotype specimen of the 270-million-year old shark *Helicoprion bessonovi* disappeared from the St. Petersburg Museum of Geological Research. Fortunately, this specimen has been recovered with the aid of a fossil dealer.[16]

From the other side of the world, bad news came from Argentina in February 1994. A break-in at the Museum of Paleontology at the University of La Rioja resulted in the theft of numerous 230-million-year-old reptile specimens.[17] Lost material included a cast of the skull and 56 actual vertebrae of the prosauropod dinosaur *Riojasaurus incertus*, two skulls of the mammal-like reptile *Probainognathus jenseni* (UPLR16, 17, including the holotype), and the holotype skulls of the mammal-like reptiles *Probelesodon lewisi* (UPLR 18) and *P. minor* (UPLR 12). To date none of the material has been recovered.

Even private collections have been struck. The Maxberg specimen of the 140-million-year-old *Archaeopteryx*, the third of only eight specimens of this earliest known bird, was part of a private collection in Pappenheim, Germany. When the owner, Mr. Eduard Opitsch, died in 1991, the specimen could not be located in his estate. There was no evidence that it had been sold and the Department of Public Prosecution in Ansbach investigated the case as a theft. The specimen has not been recovered.[18]

We cannot sit back and be smug about this. Theft is not merely a problem overseas; there have been numerous incidents here at home. The traveling exhibit "The Dinosaurs of Jurassic Park and the Lost World" includes a number of pieces of amber with animal inclusions that were on loan from The Swedish Amber Museum. In 1999, after touring cities in Alabama and Maryland, a number of the amber specimens were missing. Most of the stolen 40 million-year-old pieces contained invertebrates (including spiders, flies, beetles, etc.), but one piece contained mammal hair, an extremely rare inclusion in amber. An investigation is currently underway.

The Cleveland-Lloyd Dinosaur Quarry in Emery County, Utah, is a National Natural Landmark on BLM land and has produced the remains of nearly 50 specimens of the 145-million-year-old carnivorous dinosaur *Allosaurus*. In September 1996, unknown persons broke into both the visitor center and the protective building over the quarry site and took fossil bones of *Allosaurus* and the giant plant eating-dinosaur *Apatosaurus*. The specimens have not been recovered.[19]

In 1996, two 25-million-year-old fossils of the rhinoceros *Diceratherium* were stolen from the Ruthven Museum Building at the University of Michigan. The thieves dismantled the exhibit case, took a skull and a limb, and then reassembled the case.[20] The specimens have not been recovered.

In 1997, a number of bones of the carnivorous dinosaurs *Torvosaurus* and *Albertosaurus* were stolen from an exhibit case in the Museum of Western Colorado. The specimens were on loan from Brigham Young University and have not been recovered.[21]

In 1994, half of a *Tyrannosaurus rex* jaw was stolen from the collection storage area of the Museum of Paleontology at the University of California, Berkeley. The theft was not publicized for fear of driving the thief and the fossil underground. The FBI became involved because the specimen had come from BLM land and was technically federal property. Later a paleontologist noticed a cast of the missing specimen on exhibit in a private museum in Wyoming and also noticed that similar casts were being sold in a fossil catalog. The FBI tracked the fossil market through Belgium and Germany before locating the specimen in the hands of a European dealer. The specimen was returned, with much fanfare, to the Museum of Paleontology in July 1999.[22]

Finally, collections theft has occurred even at my own institution. A visitor leaned over the railing and pulled part of a foot bone of the giant plant-eater *Diplodocus* (DINO 14840) off the quarry face within the visitor center at Dinosaur National Monument. A nearby ranger was being distracted by friends of the thief, and it was only the sharp eye (and loud voice) of a German visitor that called attention to the fact that the bone had been pulled off and slipped under a shirt. Although the individuals were forced to return the bone before they left, subsequent examination revealed that part of the bone was missing and is presumably still in the possession of the thieves. This blatant theft occurred during our busy season with several hundred visitors in the center.

Where Do We Go From Here?

Is this litany of woes complete? I don't know, but I suspect not. Is this just the tip of the iceberg? Maybe, but we really don't know. There is no central clearing house tracking the theft of vertebrate fossils from museums. Thus, the stories related here are merely some of a collection of those that I have run across through my own ongoing informal research on this topic. Thefts may not be publicized for a variety of reasons, such as institutional embarrassment, suspicion that the specimen is merely misplaced within the collections, or fear of alerting the suspects during the investigation. Regardless, it is clear that vertebrate fossil theft is an international trend in collections management.

The frequent failure of stolen specimens to show up on the open market indicates that there is a booming underground market for stolen specimens. How do we, as collections managers, mitigate this threat, yet provide the public and the scientific community the necessary access to specimens for research and education?

There needs to be an increased proactive approach to prevent the theft of specimens. Increased security is an obvious step, including the alarming of exhibit cases (not just exhibit areas) and enhanced security in collections storage and exhibit areas. There are some promising new technologies for permanently documenting specimen ownership through implantation of micro-grams size digital watermarks.[23] This "gamma watermarking" will make identification

of stolen specimens easier and hopefully may serve to discourage theft. However, this really only comes into play **after** a specimen has been stolen. Museum security issues have been discussed in many places, and I will not dwell on them here. However, it is clear that the problem of theft is going to force implementation of ever more stringent policies and practices.

It is in the area of what to do after a specimen is stolen that the greatest improvements can be made. Some reports of stolen specimens have been published in the *News Bulletin of the Society of Vertebrate Paleontology.* While that is a good, direct notification to the scientific community, the *News Bulletin* comes out only twice a year, and reports often lack photos or drawings of the specimen.

I believe the time has come to develop an international database for stolen vertebrate fossils. Many such databases already exist for cultural items.[24] Such online databases can be very effective. Since its establishment in 1991, The Art Loss Register has been involved in the recovery of over 1,000 stolen items valued at $80-90 million.[25] The development of such a database does not necessarily require the involvement of law enforcement agencies; it may be best managed under the auspices of a professional scientific society, such as the Society of Vertebrate Paleontology.

Crucial to such a database will be the posting of images of the missing specimens. When the stolen specimen is a described one, there may be sufficient published photos or line drawings in the scientific literature to post with an alert. However, except for the smallest of museums, it will simply not be financially feasible to photograph entire collections as a matter of standard curatorial practice. Even having a photographic collection of the highest-value specimens will often be impossible, especially in larger museums. This is where the broader scientific community can play a crucial role. While institution X may not have a photographic archive of every bone of taxon Z that is in its collections, it is highly likely that photos of all those bones can be found in the research files of one or a few of the scientists who work on taxon Z (at least for vertebrates). By announcing the theft of a specimen, it becomes probable that a researcher can provide a photo of the specimen that can be used to further alert the scientific and commercial communities. This increases the buy-in of the entire scientific community in the recovery effort.

Ultimately, the database must go beyond just vertebrate fossils and include fossil invertebrates, and paleobotanical, and paleoichnological items. Fossil invertebrates such as trilobites and ammonites can command high prices. Only a few years ago a single specimen of the trilobite *Arctinurus* sold for $10,000. If any fossils are being stolen from an institution, all fossils are at risk, as evidenced by the fact that the thefts at the Paleontological Institute in Moscow included a substantial number of ammonites.[26] A full paleontological theft database will require a coordinated effort between international scientific societies, such as the Paleontological Society, The Society of Vertebrate Paleontology, and the Palaeontological Association. Such a database will also serve to increase the interest of law enforcement agencies in retrieving stolen fossils.

Finally, we must move beyond the issue of institutional embarrassment. It is in the best interest of the specimens and the discipline to report thefts in a timely manner and to disseminate the information as widely as possible. An analysis of how the theft occurred might allow other institutions to take steps to close that loophole and prevent another theft. While the strategy of silence may have worked in the case of the Berkeley *T. rex* jaw, I believe that ultimately more thefts will be prevented and fossils retrieved by making it widely known that the specimens have been stolen.

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Gary L. Williams

Biological Inventories to Use Museum Voucher Information

Fiscal year 2000 marks the first year of the National Park Service (NPS) Natural Resource Challenge, a five-year initiative designed to revitalize natural resource management throughout the Service. One of the major goals of the Challenge is to accelerate completion of the basic natural resource inventories being funded through the Servicewide Natural Resource Inventory and Monitoring (I&M) Program. Those basic inventories consist of 12 biological and geo-physical datasets and are being completed in approximately 270 parks throughout the nation. In FY 2000, the I&M Program received a base increase of approximately $7.3 million. With that increase, the program expects to complete the basic resource inventories over a period of about eight years. One of the inventories receiving emphasis in FY 2000 is biological resources.

Goals of Biological Resource Inventories

The basic goal of the biological inventory program is to provide park managers with comprehensive, scientifically-based information about the nature and condition of selected biological resources occurring within park boundaries. The information will be presented in a form that increases the accessibility and utility for making management decisions, for scientific research, and for educating the public. The inventories will also lay the groundwork necessary for park managers to develop effective monitoring programs and to formulate effective management strategies for resource management and protection. To attain these basic goals, biological inventories have been designed to meet three basic objectives:

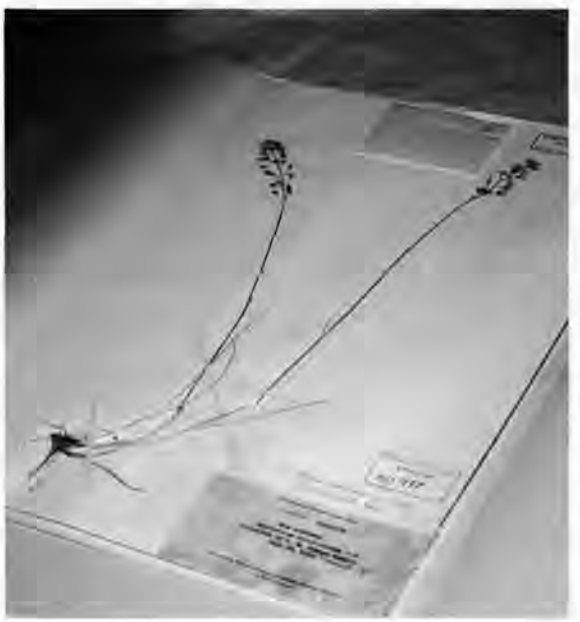
- To document through existing, verifiable data and targeted field investigations the occurrence of at least 90% of the species of vertebrates and vascular plants currently estimated to occur in the park

- To describe the distribution and relative abundance of species of special concern, such as Threatened and Endangered species, exotics, and other species of special management interest occurring within park boundaries
- To provide the baseline information needed to develop a general monitoring strategy and design that can be implemented by parks once inventories have been completed, tailored to specific park threats and resource issues

Conducting field inventories for biological resources can be very costly and time consuming. Therefore, major attention is being given to conducting the inventories in the most cost-effective manner. One way costs are being minimized is by conducting the inventories in networks of parks, rather than in individual parks. Previous efforts have shown that significant cost savings and efficiencies can be realized by working simultaneously in several parks in close proximity to each other. Therefore, all natural resource parks included in the biological inventory program have been organized into 32 separate park networks. These networks are essentially the same as those that will be utilized for ecological monitoring efforts in the future.

Museum Voucher Searches

Another way that cost of the biological inventories is being minimized is by making maximum use of existing information, especially that available from examination of voucher specimens in parks and non-NPS museum and herbaria collections. The NPS has spent considerable amounts of funding in previous years conducting inventories for many species of vertebrates and vascular plants in parks. In this respect, it will be important for the NPS to be able to provide "evidence" that these particular species occur in parks or at least have been known to occur in the park at some time in the past. Information about the historical presence in parks is critical, especially if more recent surveys do not find the species in the park. Information on vouchers is being gathered through both centralized efforts and by the efforts of individual parks or park networks.



Botanical specimen collected in 1922, Yosemite National Park, (Catalog Number YOSE 65895). Photo by Ann Hitchcock, Museum Management Program, National Park Service.

Central Office Searches. The I&M Program Office in Fort Collins, Colorado, is reviewing the NPS Automated National Catalog System (ANCS+) data for voucher specimens that are in park collections. In addition, the Program will organize and conduct systematic searches of major museums and herbaria where voucher specimens of vertebrates and vascular plants collected in parks are likely to be found. These searches will be conducted both online and, when necessary, by having I&M staff visit the museum or herbarium. Major museums, such as the Smithsonian Institution, are known to house considerable numbers of voucher specimens of species collected in parks over the years. In April 1999, I&M Program staff met with personnel from the Smithsonian to discuss online availability of voucher specimens. Availability varies considerably by taxonomic group. Specimens of mammals are generally available online, but collections of other taxa, especially fish, are not available online.

To supplement the online searches of museum and herbaria records, the I&M Program plans to hire research associates through Colorado State University to travel to major museums and herbaria to conduct on-site searches of databases and other sources available on site for information about vouchers from park locations. But, the research associates will not examine actual specimens or make an attempt to confirm taxonomic accuracy of the collections.

Park-Based Searches. Parks facilitate the I&M Program Office searches of ANCS+ and also search non-electronic catalog records for vouchers in park collections. In addition to the centralized searches of non-NPS museums and herbaria organized and conducted by the I&M Program Office, the Program will provide parks and park networks with funding to query other museums and herbaria in their immediate area to learn of the presence of vouchers collected in parks in that network. An example of how this

Small mammal storage, Yosemite National Park. Photo by Michael Dixon, Yosemite National Park, National Park Service.

process might work in parks throughout the Service is found in an effort by parks in the Northeast Region.

In preparation for conducting new field inventories for Northeast Region parks, the region has contacted the Carnegie Institute and other museums and universities in the region to locate voucher specimens, which were collected in those parks. The region has encountered difficulties in this effort, including: the museums often lack electronic databases that catalog their holdings; and the generalized locational information associated with some vouchers makes it difficult to determine if those particular specimens were actually collected within the park boundaries. The region has found that one efficient way of locating collections is to begin with the collection permits obtained from the park. It is often possible to determine from those historical records what species were collected and where the voucher specimens might be located.

A second example is found at Denali National Park in Alaska. In 1998, the I&M Program provided Denali National Park with a limited amount of funding to begin the development of a vascular plant database for the park. A portion of that funding was provided to Dr. John Kartesz from the University of North Carolina. Dr. Kartesz constructed a preliminary database containing a listing of species, which could potentially occur in the park, based upon information abstracted from a national database he maintains on species locations at the county level and other sources. The park provided ANCS+ data on cataloged species from the park and repository locations for the specimens. Dr. Kartesz examined all vascular plant specimens in the park's collection. He then searched records maintained at the University of Alaska in Fairbanks to locate voucher specimens, which confirmed the species occurrence in the park. Other species listings for Denali National Park were obtained from the University of California, Berkeley, Alaska Pacific University, and the Alaska State Historical Museum, where additional vouchers were identified.

Voucher Specimen Database

The I&M Program is also developing a species database, called NPSpecies, to document the present, past, and probable occurrence of vertebrates and vascular plants in NPS units. The program is developing the database in Microsoft Access format for distribution to individual parks. A second, Internet-based version in Oracle is also being developed. The database is expected to be completed in FY 2001.

Two major data categories in NPSpecies are a species checklist and the supporting evidence. Each park's checklist will include data about federal and state threatened and endangered status, The Nature Conservancy Global Rank, abundance, residency, and nativity.

Voucher information will be included in the NPSpecies database as one of three separate forms of evidence. Other forms will include references, such as journal articles or reports, and documented observations. A concerted effort is being made to interface the NPSpecies database with the ANCS+ database maintained by parks and the NPS Cultural Resources Directorate. Several of the data fields in NPSpecies that pertain to vouchers also occur in ANCS+. Information about vouchers in parks contained in ANCS+ is being imported into NPSpecies. Although there are currently no physical linkages between NPSpecies and ANCS+, it may be possible in the future to construct those linkages through the fields in each database that contain information on species ID and location.

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CRM Online Exclusive

For a table describing the variables in the NPSpecies and ANCS+ databases related to voucher records, go to *CRM Online* at <http://www.cr.nps.gov/crm>.

A. C. Roosevelt

New Information from Old Collections

The Interface of Science and Systematic Collections

Old museum collections have value for inspiring new scientific field research, but there are problems ahead in preserving collections' research potential in the future. I illustrate my discussion with examples of the role of collection research in guiding my field research in the Brazilian Amazon.

After finishing my doctoral dissertation on prehistoric agriculture in the Orinoco basin, Venezuela, I decided to review museum collections from Greater Amazonia—the tropical lowlands east of the Andes—to write a synthesis of the archeology. In doing background research for the dissertation, I had learned that the majority of research in the lowlands had not been published but that many of the collections and records from the research had been deposited in museum and university collections. At this time, I was Curator of South and Central American Anthropology at the Museum of the American Indian, Heye Foundation. In 1981, a curator from another museum told me about an under-applied-for funding program at the National Endowment for the Arts (NEA), the Fellowship for Museum Professionals. It gave funds for curators to develop their expertise with a research project of their own choosing. I successfully applied to NEA for a grant to tour South American collections in museums and universities in the Western Hemisphere and Europe in 1981-82.

My museum tour was a real eye-opener about lowland archeology, and, providentially, it led to contacts that gained me excavation permits and National Science Foundation (NSF) and National Endowment for the Humanities (NEH) funding for research in the Brazilian Amazon over the last 20 years or so. Among the several important unknown facts that emerged from my examination of these collections, I learned that the archeological sequence for the Brazilian Amazon in the textbooks was completely wrong. In many textbooks, it began about 3,000 years ago with an invasion of ceramic-age agricultural people from the Andes. A few researchers had challenged the idea of Amazonian cultural retardation,[1] but had not been able to produce empirical evidence needed for a new sequence. What I eventually discovered from the collections and subsequent field research was that the sequence actually began more than 11,000 years ago with pre-ceramic tropical forest hunter-gatherers who made spectacular rock paintings and exquisitely-flaked triangular projectile points. In addition, far from being Andean offshoots, the first Brazilian cultures to make pottery vessels were the earliest in the Americas, appearing about 7,500 years ago, more than 2,000 years earlier than Andean pottery-making cultures. Many other interesting facets about Amazonian archeology and archeologists emerged in the course of the 20 years of research, and, here, I relate only a few examples.

How did the new information emerge from the dusty shelves? First, my examination of the collections and archives revealed that earlier research had recovered important categories of materials not mentioned in the current literature in English. One category was early Archaic stage pottery. The Archaic was defined as the stage of broad-spectrum hunting and gathering that New World peoples developed after the end of the Ice-Age, when world climates warmed, the glaciers melted, and the megafauna became extinct. It was generally assumed by archeologists at the time that people who made pottery were agriculturalists, because agriculture allowed sedentary settlement, considered a necessity for pottery cultures. Hunter-gatherers were thought too nomadic to find pottery useful. What we now know is that there are hunter-gatherers that are sedentary and even complex in culture.[2] Some natural resources are dense and productive enough to support sedentary settlement, and key among these are fisheries. In Amazonia, such

resources are a prominent part of the landscape, but archeologists tended to evaluate the potential for human land use in terms of agriculture, so they underestimated the evolutionary significance of the wild resources. But some early geologists working in Amazonia had discovered what appeared to be early fishing villages with crude pottery. They could not date them directly, since the discovery of radiocarbon dating would not be made until the next century, but their research on fluvial terrace geology suggested that they were of early post-glacial age.

At the Harvard Peabody Museum, I was fortunate enough to come across both the collections and archival papers of one of these geologists, Charles Frederick Hartt. (I learned of his research in a reference by Helen Constance Palmatary,[3] of the University of Pennsylvania Museum, to his 1885 Portuguese article in the Archivos do Museu Nacional de Rio de Janeiro.[4]) He had written a book on his excavations at Lower Amazon archeological sites, such as the shell mound Taperinha, Para, Brazil, in the 1860s, but it had been lost before it was published. He had deposited pottery and shells from Taperinha both at Harvard, where he studied under Louis Agassiz, and at Cornell, where he later taught. The Harvard collection held a large enough sample of datable material that the curators felt that some could be destroyed for dating and yet the majority of the collection would be intact. Accelerator Mass Spectrometry allowed radiocarbon dating of very small samples, limiting the amount of destruction. The information gained from dating would set an important collection in its cultural and chronological context for the first time. Accordingly, Harvard gave me permission to take a sample for radiocarbon dating, and the sample came out about 6,000 B.P., at the time the earliest date for pottery in the New World. This date set the stage for the revision of Amazonian culture history, a process that was to reverberate in New World culture history as a whole.

Rock crystal, stemmed, triangular projectile point, Museu Paraense Emilio Goeldi, Belem, Brazil (Roosevelt, et al., 1996: Figure 1A).

It was interesting to me at the time of this collection research that the collections at Cornell had not been cataloged with sufficient precision to preserve Hartt's exact proveniences in contrast to the situation with the collections at Harvard. Hartt's meticulous paper labels, which were preserved at the Peabody, had been removed in many cases from the objects in the Cornell collection, and a new series of catalog numbers had been added, which in several cases had switched proveniences and thus raised doubt about which sites the objects came from. Clearly, the Harvard collection, which had long been administered by a series of professional collection managers, archivists, conservators, and curators, was in better shape for new scientific research than the Cornell collection, which had been curated part time by professors and cataloged by a student without professional curatorial supervision.

Equally important for my future research was another discovery at the Peabody. When I had reviewed the object collection, the curator asked me if I would like to see the X-files. What were these mysteriously-named files? They turned out to be the series of unpublished paper records associated with each object collection in the museum. When those for the Hartt collection were brought out to me in a large, battered tray, in their midst was a tall stack of yellow-lined, legal pages tied neatly up with one of those librarians' pink tape cords. As soon as I saw the pile of yellow pages, I knew they must be Hartt's long-lost book. It had been sent by his student, Orville Derby, to the Peabody from Brazil upon Hartt's untimely death in his 30s from Yellow Fever, but for some reason Harvard had never published it, and its presence in the collection remained unknown to the outside world.

The radiocarbon date from the Hartt collection and the information that I gleaned from his manuscript were the basis for a successful series of applications to NEH for funds to excavate in the Santarem-Monte Alegre Region

(about half-way between Manaus and Belem on the Lower Amazon in Brazil). With the help of Hartt's detailed descriptions of his and his research team's finds at Taperinha and other sites, I was able to design and carry out surveys and excavations in the Lower Amazon between 1985 and 1993. At Taperinha we found—just as Hartt had described—a 6-meter-deep stack of intact strata of shell, fishbones, and pottery, and the large series of dates run on these placed the occupation of the mound between c. 7,100 and 6,000 years ago. The existence of this little-known early pottery culture aroused surprise and controversy when I and my colleagues first published it in 1991 in *Science*.[5] Our article has since been followed by the publication of similar dates from nine other sites in eastern Amazonia, the largest cluster of early pottery sites yet known in the Americas.[6] Many of these had been dated in the early decades of radiocarbon dating, but the unexpectedly early dates lay unpublished in the Smithsonian Anthropology Archives, because they seemed wrong in the light of the theories of the time. The existence of these and the newly dated sites has helped to change Western Hemisphere culture history by interposing a phase of early ceramic-age fishing peoples after the Paleoindians and before the first horticultural "Formative" peoples.[7]

In the second example of new information from old collections, Hartt and some of his students had mentioned the existence of numerous finely flaked flint spear-points, and I found examples of them in nearly every sizeable early collection of artifacts from Amazonia: the Cultural Center Museum in Santarem; the Museu Paraense Emilio Goeldi, Belem; the Museu de Etnographia e Arqueologia, Universidade de Sao Paulo; the Museu Nacional, Rio de Janeiro; the University of Pennsylvania Museum, Philadelphia; the Museum of the American Indian, New York; etc. Since such points had never been found in ceramic-age sites in the Amazon, by process of elimination they had to be pre-ceramic. A Brazilian scholar at the Museu Goeldi, a museum that held such points, had published an article there describing two of the pre-ceramic points,[8] but his work, which was in Portuguese, was not integrated into English textbooks. The prevailing view among North American Paleoindian specialists was that Paleoindians were nomadic peoples who lived by specialized big-game hunting in cool upland interior steppes throughout the Americas between about 11,000 and 10,000 years before the present (B.P.). As I mentioned above, the first broad-spectrum foragers were thought to have appeared only after the Paleoindians had run out of game and habitat, sometime after 10,000 B.P. Only then, according to the theory, did people expand from the high plains into lowland coasts and forests. The game-poor tropical forest, however, was assumed to have been off-limits to humans until the discovery of agriculture made it possible for people to enter the Amazon basin.

Some archeologists had questioned this view of the peopling of the Americas,[9,10] but until our work in Monte Alegre, no one had been able to find a sealed, stratified site that produced enough spear points, food remains, and dates to document scientifically the existence of foragers contemporary with Clovis. But where were we to look for such a site? Erosion and deposition are very active processes in lowland tropical rainforest basins, and most Ice-Age surfaces are either deeply buried under recent sediment or washed away long ago. It happened, however, that both Hartt[11] and Alfred Russell Wallace[12] had written about possibly early rock art and caves in Monte Alegre, Para, Brazil, on the north bank of the Amazon opposite Santarem. There they described exploring low sandstone ranges riddled with caves and covered with bold rock paintings. I decided that the best place to look for early pre-ceramic people was to go where there were signs of human occupation, as at Monte Alegre. I could have organized a general survey to cover systematic transects of territory searching the landsurface for sites, but the chance of finding an exposed site in such a large region was slim. At the caves, at least, early sediments strata would be sheltered from erosion, and the rock art showed that someone had been there.

In fact, it took ridiculously little time to find an intact, stratified site with all the desired features. I went to Monte Alegre in 1988 to find out if anyone still knew about the caves that Wallace and Hartt had visited and met Nelsi Sadeck, then a high school ecology teacher. He knew all about Hartt's and Wallace's visits and took me to the caves the very next day. Then and there I was able to determine that Caverna da Pedra Pintada, which had abundant artifacts and food remains exposed in erosion at a tourist path cut below its entrance in 1974, was the site to excavate. Our excavations there, carried out in

1991 and 1992, recovered 30,000 stone artifacts, pigment, and many thousands of burnt nuts, seeds, shells, and bones. And lying undisturbed in place for more than 10,000 years, there were broken spear points of some of the same forms that were in the museum collections that I saw with the NEA grant. An added dividend of the research was the find of spattered paint drops in the Paleoindian layers. The chemical similarity of this paint to that in the ceiling paintings high above the excavations allowed us to conclude that the first Amazonian people had been avid painters as well as foragers who collected plants, fished, shellfished, and hunted small game. We ran 58 radiocarbon dates on fruits, seeds, and wood from the five main layers of the occupation, and all fell between 11,200 and 10,000 years ago. Most interesting, the stable carbon isotope ratios of these specimens were approximately the same as mature tropical forest in the vicinity, documenting a similar degree of vegetation cover in the terminal Pleistocene epoch. Some climatologists had speculated that tropical forest had disappeared from places like Monte Alegre in Glacial times, but our results and those of others since then show that the forest continued. The ancient remains included no taxa or isotope ratios typical of savannas. These ancient Amazonians were undoubtedly forest foragers, not savanna hunters.

Many other archeologists have since documented comparable, non-big-game hunters among both North and South American Paleoindian cultures, but this culture was one of the first to gain international recognition through our publications in *Science*.[13,14] The general significance of these findings about the early occupation of tropical rainforests is that they do not fit the prevailing assumption that early human hunter-gatherers lived in open, steppe environments by practicing big-game hunting, an adaptation that is supposed to have imprinted our genome with various current human traits such as tendencies to violence, male dominance, and a preference for open, grassy, temperate habitats (i.e., suburban lawns!).[15] Since the research at Monte Alegre, I and my colleagues have been working at archeological sites in Central Africa, following up on the question about the nature of early human ecological and social adaptations. A series of new finds by several researchers in Africa suggest that the tropical forest was the habitat where the hominid bipedal locomotion and the prehistoric stone tool cultures may have appeared first, in a context of broad-spectrum hunting and gathering, rather than big-game hunting.[16,17,18] If so, then, the implications of our ancient adaptations for the development of the human genome will have to be revised.

So it was that dusty old collections led to new research that changed the picture of the first radiation of humans into the new world and raise questions about the early history of human ecological adaptation. Both Taperinha and the Monte Alegre hills, which are two of the last few undisturbed wooded areas along the mainstream in the Lower Amazon, are under consideration to be made into functioning natural and cultural history parks and reserves. If they can be so consecrated, it will not be a moment too soon. Subsidized colonization for agriculture and cattle has eaten up the majority of the mature tropical forest stands around these sites, and increased tourism, facilitated by the extension of new roads into the forest, has brought a heavy toll of damage to the rock art and the strata of the sites. It would indeed be ironic if such ancient habitats and archeological monuments important in the history of world cultures should be destroyed so soon after they were brought to the light of science.

The future for collections such as our excavated material from Taperinha and Monte Alegre is also not so rosy. The proper disposition of new systematic collections from current NSF- and NEH-funded field research is a serious problem for future archeological science. Such collections constitute the original data on which scientific conclusions were based and should be preserved

Rock crystal, stemmed, triangular projectile point, broken in manufacture, in situ, *Excavation Unit 10, Caverna da Pedra Pintada, Para, Brazil (Roosevelt, et. al. 1996: Figure 6A).*

as archives for purposes of checking and documenting data. In principle, also, they can serve as the early collections have, as a source of data for new research, which becomes needed as interpretations change and new questions arise. Unfortunately, many such new collections may soon be lost to scientific knowledge because of problems in curation at the museums and universities through which scientists apply to get their grants. On the premise that these institutions are housing the scientists and their laboratories and helping to administer the research, NSF includes hefty overhead funds for them in its budgets. However, it is often the case that many universities receiving sponsored research do not maintain the facilities and know-how to curate the collections adequately. Even some museums with sponsored funding do not take seriously their responsibility to house the collections gathered through sponsored research. Some decline to acquire field collections because of a lack of interest in sherds, rocks, and fragmentary biological specimens, compared to art objects, and refuse even to commit to store them during analysis. I, for example, have to store field collections from the Amazon research in the damp basement of my slightly decrepit 1850s Evanston house, not in my climate-controlled lab at The Field Museum of Natural History, because the museum will not be acquiring them, and my department does not have the space to store them.

NSF does have a program to fund applications for curation of systematic anthropology collections, but the funds are insufficient to provide for the curation of most new collections. This means that, unless a principal investigator can find a museum willing to acquire them, future researchers will not be able to check results or pursue other lines of research on the collections. One solution to this problem is for NSF to make it a requirement of funding that the sponsoring institutions that get the overhead take responsibility for the permanent, professional curation of the collections and records resulting from that research. Another is for archeologists who create field collections needing curation to try to find positions in university museums, where the connection of collections and scientific research have long been maintained. Without such solutions, valuable scientific collections will be lost, and the scholarly heritage of research on the long-term interaction of humans and the environment, a knowledge base urgently needed in the search for sustainable uses for tropical habitats, will be all the poorer.

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All That Glitters Is Not Gold

Death Valley is a land that sparks the imagination and lures the adventurous. The history of Death Valley is replete with legends and lore of hidden gold, lost and found treasures, outrageous hoaxes, and get-rich-quick schemes, all of which generated great public interest and intense media scrutiny. Though many would come to Death Valley in search of fortune and fame, the rugged land seldom and reluctantly relinquished its riches.

On January 5, 1999, a Death Valley National Park visitor delivered a mysterious trunk and its contents to park headquarters. The visitor claimed he had found the trunk under a rock overhang deep within the park's backcountry. A handwritten manifest and a letter in the trunk purportedly associated the find with the "Lost '49ers," a group of men, women, and children who traveled through Death Valley in December 1849 and January 1850 en route to the gold fields of California. If validated, the trunk would be historically significant, as only a small number of artifacts from this group of argonauts are known to exist.

Chest or trunk, date and manufacture unknown. Contents of the trunk have various dates and origin of manufacture. (DEVA63126) Photo courtesy Death Valley National Park, National Park Service.

At first glance, the trunk appeared to be a wonderful talisman of the personal possessions of a group of people headed for new beginnings in California. Upon closer scrutiny, however, National Park Service (NPS) staff soon discovered a number of discrepancies, and so began the long and methodical process of authenticating the "treasure."

The most obvious disparities included a lack of dirt or dust, scant evidence of insect or rodent damage, inconsistent corrosion of metals, and well-preserved fabrics. These conditions are not typical of a trunk stashed in a rock outcropping, subject to 150 years of sunlight, wind, dust, precipitation, and extreme temperatures. NPS museum conservation staff also discovered the presence of 20th-century adhesives.

NPS curatorial staff then contacted subject experts and historians from other NPS sites, area museums, regional universities, the Federal Bureau of Investigation, the Smithsonian Institution, and Christie's Auction House, to assist in dating and verifying specific objects. Although many items are authentic to the 1849 period, a number of the items originate from later dates. For example, the pottery mark of a lidded ceramic dish dates from 1914 to the present; a doll's date of manufacture is approximately 1910; and all of the coins showed inconsistent wear patterns. In addition, one of the gold coins was conclusively described and dated to 1853!

The discovery of the Death Valley trunk generated a great deal of press from all over the world. NPS staff continues to receive inquiries from those who believe the trunk is not bunk, and from those intent on solving its mystery. The trunk is now located in the park's museum collection and NPS staff will continue to investigate the origin of the trunk and will determine what, if any, further actions will be taken.

Blair Davenport
Museum Curator
Death Valley National Park
California and Nevada

Catharine Hawks and Kathryn Makos

Inherent and Acquired Hazards in Museum Objects

Implications for Care and Use of Collections

Museum collections are sources of a variety of hazards that reflect the nature of the collections, as well as the history of their use and the efforts to preserve them against various agents of deterioration. Some hazards derive from the specimens or objects themselves. Other hazards have been acquired as a result of intentional or inadvertent modifications of materials before and/or after they become part of a collection.

A collection object may pose a danger to humans because it is an inherently hazardous material; for example, a fossil that contains gamma-emitting uranium progeny, a sample of the mercury ore cinnabar, or seeds from *Strychnos nux-vomica*, a source of strychnine. In these instances, the specimens or objects are hazardous without intervention. Other collection items may have been initially designed to be hazardous, with or without intent. A container of curare deliberately extracted from a plant for use as an arrow poison was intended to be hazardous. A musket ball, while designed as a trauma-producing missile rather than as means to induce lead poisoning, may still be toxic should a collector inhale dust from its decomposition products. There are numerous products of the past centuries that fit into one of these categories. Black powder was meant to be hazardous, but lead paint as an original finish on an architectural embellishment and the asbestos used as the reinforcing fiber in a modeling material were not intended to pose hazards. All three can become very dangerous as they age.

NPS conservator Toby Raphael uses a vacuum with a high-efficiency particulate air (HEPA) filter to remove dust from an arsenic-treated bearskin from President Theodore Roosevelt's home, Sagamore Hill National Historic Site (SAHI 7102). Photo courtesy Department of Conservation, Harpers Ferry Center, National Park Service.

An object or specimen may have acquired hazardous character as a result of a post-production modification by the culture that used it. An indigenous South American hunter may have applied curare to an arrow tip. While the sharp point poses an obvious risk of physical damage, the presence of the poison greatly increases the hazard posed by the weapon. An early-20th-century furrier preparing a bear skin rug for a hunter may have simply tanned the skin and recommended regular cleaning to keep it in good condition. The housekeeper in the hunter's home could have periodically treated the fur with a toxic solution available from taxidermists to keep the rug safe from insects or rodents. While there may have been a recognized risk to the person applying the solution, it is likely that no one assumed there would be a long-term risk when the treatment was dry. It would not have occurred to most people that children who frolicked on the rug, or the maid who took it outside to shake or beat it to remove dust would be exposed to arsenic from these activities. When the arrow became part of a museum collection, any knowledgeable anthropologist would have suspected the presence of the poison. When the rug became part of the collection in the historic home of the hunter, few museum staff would have suspected that cleaning the rug with a standard vacuum would pose a hazard to their health.

Some objects become hazardous through inadvertent exposure to hazardous materials. A

photographic negative exposed to flood waters contaminated with raw sewage, or a pastel whose surface has been contaminated by asbestos fibers from decrepitating pipe insulation are examples of objects that can be salvaged, but cannot be completely decontaminated without causing further damage. Many collectors would be understandably reluctant to destroy these items, even if they could never be made "safe."

The primary concern of most collectors, whether private individuals or staff at collecting institutions, is preservation of their holdings. No matter what the impetus for the collecting may have been, loss of a collection translates to scientific, historic, educational, aesthetic, sentimental and/or financial loss. As a consequence, collectors have sometimes taken draconian measures to protect objects. It is only in fairly recent times that humidity, light, and gaseous pollutants have been recognized as potent agents of deterioration. In the past, the damage from these sources was often dismissed as the inevitable consequence of age. Damage from various disasters was not seen as preventable. However, the disfiguring effects of dust, rodents, and insects were obvious. Cleaning could take care of the dust problem, but it never truly solved the problem of pests. For centuries, the battle against pests has been the focus of collections care for organic materials. From the late-18th century until very recently, pesticides were perceived as the only successful means to prevent loss of these collections. Some of the residues of pesticide use have created long-lived hazards that are now well understood. The effects of others remain unknown.

One way or another, many of the objects and specimens that are now part of public trust collections, or are held in private hands, can pose some sort of hazard to anyone who cares for or uses them. The source of the hazards frequently has nothing to do with the current holders of collections, who may have simply inherited the hazards along with the collections. However, at least in North America, the individuals and institutions that house collections are perceived to have an ethical and, increasingly, a legal responsibility for the safety of the caretakers and the users of these resources.

Inherent Hazards

It is possible that archives and history and art collections are the main repositories of collection items that are hazardous by nature or design. After all, most plant, animal, and mineral materials in their native state are not hazardous to humans. That is the main reason they have been so useful to mankind. These, or moderate modifications of these, form the bulk of natural science and anthropological collections.

Archives and history and art collections reflect humankind's ability to greatly manipulate natural materials or to synthesize new materials for a host of purposes. These collections can include very complex objects. The origin, or even the presence, of some of the materials of which they are composed may not be easy to discern. The risks they offer may not have been recognized when the objects were created. For example, the inventors of safety film (acetate base film) never intended to design a chemical vapor hazard. They were, in fact, trying to eliminate the fire hazard inadvertently posed by celluloid (cellulose nitrate) films. Today, we have a fairly sound understanding of the hazards of both film types and know that there are preservation and safety strategies to minimize the risks.[1,2]

The hazards in art materials are most often discussed with an eye to protecting the artist, rather than collectors, because it is the artists who are at greatest risk.[3,4] The hazards in the finished product are often less than those from the products used in fabrication. The artist who created an artificial patina on a bronze sculpture would have been at risk if the patination solution contained chromic acid.[5] A collector who enjoys touching the bronze might pick up small amounts of chromium from the finish, but the exposure is likely to be very minor. For reasons that have nothing to do with personal safety, art museum staff would rarely handle a bronze with ungloved hands, reducing the risk dramatically. It would be naïve to assume that this kind of scenario is always the case. Certainly conservators, who use a variety of interventive treatments in their work, are exposed to hazards from these materials. There are times when a finished work can be quite hazardous to anyone. Some ceramic glazes and enameled jewelry in decorative arts collections contain uranium pigments that emit radioactivity measurable at some distance from the objects.[6]

That, that is, is. (William Shakespeare, *Twelfth-Night*, Act IV, Scene ii.)

Selected inherently hazardous items in history collections have been reviewed in publica-

Research Assistant Michael Lambert enters well-labeled radioactive mineral storage area, Department of Geology, National Museums and Galleries of Wales, Cardiff. Photo by Barbara Cumberland, Department of Conservation, Harpers Ferry Center, National Park Service.

tions such as those on firearms and ordnance,[7] and pharmaceuticals.[8] At least one is now recognized as a result of new regulations—battery acids in transportation collections, which were never meant for long-term storage and now require secondary containment and spill control measures. Others, from radioisotopes in old medical equipment to cadmium sulfide coatings on photovoltaic cells, may be known, if less well publicized. Many are yet to be discovered. Some inherent hazards become dangerous via deterioration of their matrix, by decomposition of the material itself, or because the material is extremely stable over time. Was the yellow pigment used in the exfoliating paint on a decorated metal box formulated with orpiment (arsenic sulfide)? Was the iridescence in that inlay derived from mother of pearl, or from a synthetic pearl essence, possibly containing lead carbonate?[9] Are the crystals on that bottle with a decomposing seal from the acid in the bottle? Was that textile initially treated with a commercial mothproofing agent? To what degree do these pose a health hazard to anyone who works with or uses the objects? There really is no way to answer the last question without answers to those that precede it.

Anthropological holdings may have inherent hazards in the form of deliberately manufactured weapons or poisons, or perhaps because they incorporate potentially toxic minerals, metals, or other materials whose hazards may not have been understood when the objects were created. It is also possible that recently collected ethnographic items may be a source of biohazards, for instance anthrax on unprocessed wool, although this is likely to be rare.

In natural science collections, biohazards may be the most prevalent inherent hazards in recent vertebrate collections. Specimens from salvage operations or other collecting may host fleas or ticks that carry diseases, or blood-borne pathogens that are easily transferred to humans.[10,11,12,13] Cryogenic preservation could give these a long life in collections. In invertebrate and botany collections the inherent hazards are apt to arise from a toxic agent that may cause a reaction in humans that handle the specimens. Toxic minerals, especially those that have a friable nature, can be handling and inhalation hazards in geology collections.[14] Radiation hazards may also be present in geology collections, and are an ongoing problem in paleontology holdings.[15,16] Specimens containing iron sulfides in both collections can become handling hazards if the sulfides oxidize to produce acidic deterioration products.[17] Fortunately, as the cited literature attests, most of these problems have been the subject of research, and for at least two, hantavirus in biological specimens and radiation from paleontology specimens, there are published recommendations for safe practice.[18,19]

Acquired Hazards, Intentional Alterations

The main reason that large assemblages of organic materials exist in natural science and anthropological collections today is that natural historians in the late 1700s discovered that some poisons could protect these materials from pests, especially insect pests.[20] In 1748, a noted French naturalist lamented that collectors could see their collections daily destroyed by ravenous insects.[21] A great many early collections appear to have met this fate,[22] prompting an urgent need to find methods to mitigate the problem. The response was a host of publications that advocated the use of arsenic and/or mercury salts to stop the depredations.[23,24] Use of these chemicals continued for two centuries. Arsenic may seem to be a shocking choice to modern minds, but it was a widely available pesticide in the past, and its heavy use in collections was merely an extension of its use in other venues. In reality, the presence of arsenic residues poses few hazards that cannot be easily addressed during routine collections use. Mercury salt residues pose more serious problems

because initially and through time, they are a persistent vapor hazard.[25]

The battle against pests continues to this day. Modern knowledge of insect life cycles and habitat requirements, improved environments in collections facilities, new storage and display case designs, and a desire to reduce reliance on chemicals in order to protect the global environment and human safety have resulted in new, generally non-chemical, methods of pest control. This does not mean that use of chemicals has been eliminated, merely that other methods are available. As author Hawks can attest, developing countries continue to use many highly toxic compounds, including mercury salts. Field biologists and collections staff anywhere may resort to chemical control when faced with massive infestations. The full array of pesticides used in the past may never be known completely, but surveys suggest that strychnine, hydrogen cyanide, carbon disulfide, boric acid, DDT, dichlorvos, ethylene oxide, methyl bromide, naphthalene, paradichlorobenzene, sulfuryl fluoride, lindane, and malathion are among those used with collections.[26,27,28] It should not be assumed that their use was limited to anthropology or biology collections. After all, archives, and art and history collections also contain organic materials.

I see it all perfectly; there are two possible situations—one can either do this or that. My honest opinion and my friendly advice is this: do it or do not do it—you will regret both. Søren Kierkegaard, *Either/Or*, Vol.2. (1843, transl.1987).

Of course, pesticides are not the only deliberate alterations of collections that may leave behind hazardous residues. In the geosciences, preparation of specimens by digesting the matrix with an acid can leave behind acid residues unless neutralized properly.[29] Author Hawks recently visited a collection where current staff noted that they had been burned by acid residues because of poor work by a past preparator. In the biological sciences, the number of different materials that have been used in preparation of dry specimens is remark-able.[30,31,32,33] Add to this the kinds of materials used in fluid-preserved collections[34,35] or microscopy preparations[36,37] and the number becomes staggering. The literature cited here is merely a brief introduction to what are, in effect, many thousands of publications on preparation methods. The hazards, if any, posed by the presence of most materials that may have been used in preparing or caring for collections is a largely unexplored topic.

The further problem in identifying hazards lies in understanding what may have been done to individual objects or specimens. There may be published techniques for various collections, but there are few records that link specific treatments to specific items. If we knew exactly what had happened to objects while in our own care, we might still be ignorant of treatments applied while they were on loan to others for research or exhibition. All of this has an impact on how collections can be handled safely, and on what types of uses they may still serve. A review of the extensive literature on the impact of pesticides on collections preservation is beyond the scope of this paper. A good discussion of the impact of various treatments on utility of some specimens for research and interpretation is found in Stephen Williams' text, *Destructive Preservation: A Review of the Effect of Standard Preservation Practices on the Future Use of Natural History Collections.*[38] What works to preserve a specimen or object for one use may well render it unfit for another.

Herbarium specimen with staining from mercury salt residues. Note: Staining is not always visible after mercury salt treatment. Photo by Catharine Hawks.

Despite this, our collected heritage continues to be used in ever more inventive ways.

Acquired Hazards, Unintentional Alterations

If the objects or specimens in a collection are not intrinsically hazardous and have never been intentionally treated with anything, this does not guarantee that they pose no risk. If the items sat in a storeroom where asbestos was released from a friable insulation, and then were moved to a new facility long before anyone suspected the problem, how would current caretakers know that the objects might be a safety hazard to themselves or anyone else? How would they even decide when to test? If these decisions are made and the tests show asbestos contamination, what happens when the object is a boat made of bundles of woven grasses or the specimens are a collection of soil core samples? Is decontamination possible? Objects sometimes become contaminated when they are housed in storage cabinets that previously held contaminated items. A recent survey revealed that mercury vapor from mineral specimens could be taken up by wooden cabinets and then released over time, long after removal of the minerals.[39]

You never know what is enough unless you know what is more than enough. William Blake, *The Marriage of Heaven and Hell,* "Proverbs of Hell"(1790-93).

When a rare book library has been exposed to prolonged high humidity or to flood water, mold infestations tend to follow. After the books have been dried and cleaned, do any mold spores remain? Of course, they do, but does this constitute a hazard to library patrons or staff? If recently collected biological specimens are attacked by pests, and the infestation is controlled by a non-chemical method, such as anoxia or freezing, is it possible to remove all traces of the insect frass that might otherwise trigger an allergic reaction? The best of fire protection does not always contravene human cupidity or stupidity, and either one can start a fire. Even if fire in a collection facility is extinguished before the collections are charred or melted, smoke may deposit soot on everything and the soot may have adsorbed or absorbed toxic residues from the burning of other materials. Again, removal of much of the soot may be possible, depending upon the objects to be cleaned, but complete removal may not be feasible. Perhaps one advantage in hazards from modern disasters is that we have learned that what we can't undo, we can at least record. Today, when collections staff know that something has been altered there may be documentation to that effect.

Inherited Responsibility

In less than 250 years, collectors have managed to bring together an incredible "cabinet of curiosities" that has helped illuminate the geology of our planet and that of its nearest neighbors in the solar system; displays the diversity of life on earth; and holds the thoughts, arts and industry of humankind. Nothing quite like it has ever existed before, it could never be assembled again, and it continues to grow. The uses we make of this remarkable resource may be constrained at times by the way it was created or cared for, but it can certainly be argued that these restraints are preferable to not having it at all.

Today, few collecting institutions or even private collectors are unaware that at least some of their holdings may be hazardous in some way. The specifics of which holdings and what hazards are still lacking, but at least a sense of caution exists and efforts are underway to air these issues through conferences and other forums. The University of Nebraska has a web page devoted to the problem of mercury vapor in its herbarium.[40] The National Park Service has collaborated with the Society for the Preservation of Natural History Collections on a proposed symposium on pesticide residues in collections. Staff at the Arizona State Museum organized a meeting with tribal groups to discuss the repatriation of potentially contaminated sacred objects. Instead of bemoaning the actions of past collectors who, after all, did the best they could with the limited tools and knowledge at their disposal, these organizations are taking positive steps toward making the best of our legacy.

While it is unlikely that we can ever fully mitigate the hazards, there is sufficient knowledge to make some educated guesses about what might merit testing and to adopt some prudent practices. Sadly, the simplest effective precaution seems to be the most difficult to implement widely—the use of gloves for handling objects or specimens. More sophisticated precautions probably warrant research before they can be deemed to be feasible. For example, author Makos has been monitoring mercury vapor concentrations in over a hundred storage cabinets, and the decrease in vapor concentrations when the cabi-

net doors are opened for specific amounts of time. These data will eventually allow anyone accessing this collection to follow a protocol to protect them from the vapor. Both authors are involved in developing a test strip that may be a reliable and inexpensive means to find out whether mercury vapor is a problem in a suspect collection. A researcher in Wales has explored concentrations of arsenic and mercury residues on herbarium sheets.[41] The more projects like these that are underway, the faster we can develop pragmatic approaches that reduce the risks from collection-based hazards.

I don't believe in villains or heroes, only in right or wrong ways that individuals are taken, not by choice, but by necessity or by certain still uncomprehended influences in themselves, their circumstances and their antecedents. Tennessee Williams, *New York Post* 17 March 1957.

Public health and environmental science resources for monitoring and evaluation of risk are available to many through their institution's insurance company, risk management firm, or the safety department in their university or state/local government. Often, these traditional safety offices have never been made aware of myriad potential hazards housed in collections. It will be up to the collecting institution to give them the information to begin the necessary monitoring and evaluation.

"Right to know" legislation charges us to make those who work with and use our collections as aware of the hazards as possible. The responsibility extends beyond the typical employer-employee training and includes transmitting information on potentially hazardous collection items that are shipped, and/or loaned, donated or repatriated to others. We need to move beyond regulatory requirements and take an ethical stance that makes furthering our understanding of the hazards a priority for all who hold collections.

Notes

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Collections Conservation
Some Current Issues and Trends

The Decade of Indigenous People, resolved and proclaimed 1994-2004 by the United Nations, has encouraged historical reflection, provoked controversy, and stimulated respect for cultural diversity in many corners of the world. The concept of indigenous cultural survival (a reference to those with origin and life in a particular region and environment as opposed to those having political colonization in a particular region) has been expressed through increased public awareness on issues of heritage, social problems, and legal rights. More specifically, many special activities, publications, conferences, and indigenously curated museum exhibitions have confirmed the interest and concern on the part of indigenous populations for their material culture.

New partnerships and responsibilities for the preservation of the physical and cultural integrity for collections of indigenous heritage on the part of museum managers, exhibit designers, educators, and conservators have also been supported by an international indigenous heritage movement. As museums of anthropology throughout the country have developed or remodeled their exhibition halls to effect cultural reconciliation, cultural issues have also affected the traditional behind-the-scene activities, including conservation. Thus, the current priority of collection repatriation claims by tribes under various state laws and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, the obligation to interpret previous alterations or treatments, and the growing development of tribal museums and cultural centers have aspects that significantly involve the conservation and preservation of artifacts. Some of these aspects contradict the basic tenets of conservation. There is a growing recognition of the need for guidelines on the study, treatment, or non-treatment of these collections.

Conservators are concerned with the preservation and management of cultural property. Studies in the field of conservation have traditionally approached their objective from a primarily material-based perspective. Typically, the conservator starts with the artifact structure assuming that this is all that remains or needs to be studied. After a review of the construction materials and techniques, comparative methods are used to assess the artifacts' response to the environment or the state of deterioration, and the symptoms of deterioration are examined and reported. Finally, treatment techniques are evaluated and new treatments are devised to stabilize the symptoms of deterioration that are visible on the artifact.

Many curators have observed that museum settings often imbue objects with new meanings, but few have recognized the need to record and evaluate the alteration of items of material culture through their entire existence (i.e., from indigenous manufacture to museum storage or display). However, conservators, such as Carolyn Rose of the Smithsonian Institution's National Museum of Natural History, who pioneered the sub-discipline of ethnographic/archeological objects conservation, did. Rose suggested three considerations that went beyond the basic conservation approach that assesses the composition, the construction, and the deterioration of objects.[1] She proposed that after establishing the nature of the object, conservators should consider

- the initial use of the object within its culture,
- the subsequent uses of the object by others, and
- its use in museum education and research.

The need to expand this basis of analysis is closely linked to the current issues of aboriginal repatriation which have forced many archeological and ethnological curators in the United States and elsewhere in the world to review the value of collections with reference to the practice of curation and preservation. The care and treatment of indigenous cultural objects by non-indigenous conservators calls for sensitivity, a different point of view, and different background knowledge from the other sub-disciplines in conservation. To achieve this goal, aspects of cultural context

Conservation of this Plains Indian beaded moccasin from Agate Fossil Beds National Monument involved discussion with the Oglala Lakota Historical Society, which advised the park on its museum exhibits (AGFO 269). Photo courtesy Department of Conservation, Harpers Ferry Center, National Park Service.

must be considered by the conservator. These include the context of collection or acquisition (intent, research design, method); the context of current conservation methods or trends at the time of collection; and the context of current indigenous issues and priorities including the long-term preservation approaches and techniques used by indigenous peoples.

Conservators charged with the preservation of indigenous collections must gain a knowledge of the legal requirements regarding the repatriation of claimed collections, uphold a moral responsibility to professional ethical standards, and adopt greater sensitivity to ethnic concerns that relate to particular collections. These issues are of such importance that they have begun to change the way we manage and conserve collections. Some examples that illustrate current areas of concern include the following.

Legal Issues: Documenting the Use of Chemical Pesticides on Collections

With the passage of NAGPRA, American Indian tribes have begun to receive cultural objects previously held in museum collections. Many of these objects have been treated with chemical poisons to aid in preservation. The need for information that is specific to objects in order to reduce the potential human health risks involved in handling these returned objects is a serious concern. The NAGPRA regulations (43 CFR 10.10(e)) indicate that

> The museum official or Federal agency official must inform the recipients of repatriations of any presently known treatment of human remains, funerary objects, sacred objects, or objects of cultural patrimony with pesticides, preservatives, or other substances that represent a potential hazard to the objects or to persons handling objects.[2]

While modern conservation is a relatively new profession for museum collections, it is usually the conservator that can best determine the motives, materials, and methods used in previous preservation activities. The same skills that are honed by the conservator to execute stabilizing or restorative treatments are now needed to accurately study and interpret the evidence of any previous action received by the artifact. These might include chemical preservatives or pesticides, mounts or alterations made for exhibition, or restorative treatments.

In the case of potential chemical contamination by pesticides, conservators striving to meet the requirements of NAGPRA must obtain and provide an introductory understanding of the rationale for the use of chemical poisons in the context of their institution's collection history. They must physically examine, screen by spot testing, or instrumentally analyze the artifacts. They must learn the potential health risks in reintroducing a functional object back into the community through preservation, handling, restoration, or use. They must be prepared to coordinate, interpret, and disseminate information on medical referral and/or health care professionals including chemical hygienists and medical toxicologists.

Ethical Standards: Changing Perspectives in Conservation

The goal of conservation is to preserve cultural property. Professional ethics promote honest and responsible behavior, provide guidelines for practice, and assist in the solution of moral dilemmas. Historically, for most conservators, there is an ethical responsibility to the historic and aesthetic integrity of the object. However, due to their size, diversity, history of neglect, and potentially changing legal status most conservators of ethnographic and archeological collections believe that different approaches, treatments, and ethics are required for the preservation of these collections. For example, preservation efforts that merely focus on single issues like cleaning, coating, aesthetic integration of damaged areas, or complete restoration, often exacerbate original problems and create new ones. Comprehensive and professional conservation reports are most useful when they are combined with reports from other disciplines to form part of the necessary information for long-range strategic planning,

repatriation consultations and transfers, and ongoing collection care.

Some of the most important issues that complicate the ethical process of determining appropriate conservation care and treatment for objects of ethnographic and archeological origin are the growing size of research-based collections, the intrinsic research potential of an entire complex of diverse materials that accompany systematic collections, the larger concerns of ownership, and the associated but non-tangible attributes, such as music made by an instrument or the religious power of an object. The preservation of archeological collections includes a wide range of artifacts as well as environmental samples (pollen, soil, flotation, faunal), chronometric samples (archeomagnetism, dendrochronology, radiocarbon), human remains (cremations or inhumations), and archeological archives (photographs, field and laboratory records, maps, computerized data, reports and publications, and legal and budgetary materials).

In addition to the physical needs of the material, the conservation needs of research collections are characterized by the dynamics of their volume, the rate of their growth, the new developments in the disciplines that use them for research, and requirements of preservation laws and regulations. The conservator must be aware that all the characteristics that make these collections appropriate for research use must be preserved. When these collections are cataloged in lots and organized in like groups, the conservation concerns for environmental controls and specialized supports or housings are more easily addressed, but concerns for contextual information are more difficult to resolve.

Conservators are attempting to institute professional practices, to recognize professional standards, and to identify minimal educational requirements. For example, The American Institute for Conservation of Historic and Artistic Works is exploring the benefits and responsibilities of certification within conservation.[3] The organization has already worked with the U.S. Secretary of the Interior to formulate minimum professional standards for conservators since conservation is now listed as one of the recognized professions in the National Historic Preservation Act. With the creation and enforcement of laws to protect illegally obtained cultural property, conservators must now understand the ethical implications of working with such materials.

Ethnic Sensitivity: Special Approaches to Indigenous Collections

Developments in both new legal regulations and changing professional attitudes have begun to influence the approach conservators take in the care and treatment of cultural property. New methodologies must include serious consideration of both tangible and non-tangible information. Non-tangible information may be defined as that information that provides the contextual meaning or sympathetic understanding of objects. It may or may not reflect the original artist's or maker's intent but may reveal equally significant information regarding the cultural purpose or function of an artifact. For example, a deformed basket may reflect normal use, or it may represent poor care. This information, combined with data concerning the entire life of the object, will help to clarify the approach needed for preservation activities.

Of particular importance is the role of tribal people in the process of preservation. With advice, conservators and collection managers may need to consider special requirements in the conservation process such as: separation of certain objects from other objects; separation of objects from differing cultures; use of housings and barriers that do not seal completely; placement that is specific to direction, or height that is relational to the ground level, and position or proximity to other cultural objects; care that includes scheduled access for offerings or blessings; or access for activities that go beyond viewing, such as use.

There is a greater need for "two-way" exchanges between conservators and indigenous peoples regarding the care and conservation of collections. The opportunity to share and disseminate modern technologies, while providing an effective experience in "real" conservation issues, problems, and practices, poses a new challenge for conservators. Examples of indigenous involvement have enabled the inclusion of important cultural perspectives to the conservation plan for a collection or a particular piece. A greater awareness of the lifeways and value systems of indigenous groups whose work is being conserved has offered significant advantages to the conservation process. For example, indigenous opinion regarding appropriate conditions for storage, interpretation while on exhibit, the level of cleaning or shininess for pieces of jewelry, or the determination of appropriate levels of loss compensation

for damaged painted surfaces, lost feathers, or missing beads can be extremely useful.

Conclusions

The application of these new areas of concern to conservation have begun to clarify and expand the traditional basic considerations by requiring a greater interdisciplinary, cross-cultural and historic understanding than has previously been practiced. The Collections Assessment Program (CAP) and the Save our Sculptures (SOS) campaigns that are administered by Heritage Preservation have been tremendously successful in raising public awareness of conservation and providing outreach efforts to many small museums, historical sites and communities throughout the nation.[4] Creative application of these programs has begun to help tribal museums and cultural centers, archeological sites, and other cultural resource institutions to participate and benefit. As conservators of ethnographic and archeological collections grapple with the task of explaining the goals of conservation and how to choose a competent conservator, they must continue to consider a wider range of issues related to indigenous collections. A greater awareness of relevant legal issues, the inclusion of revised ethical standards, and a willingness to learn and include new cultural perspectives have become major components to the practice of conservation in 2000.

Notes

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3. Information about the American Institute for Conservation of Historic and Artistic Works may be found at < http://aic.stanford.edu >.
4. Information about the programs of Heritage Preservation may be found at <http://www.heritagepreservation.org >.

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Florissant Fossil Beds Creates Database of Non-NPS Collections

Paleontological collections of 34-million-year-old plant and insect fossils from the area around Florissant, Colorado, were made for about a century before the creation of Florissant Fossil Beds National Monument. These collections include the type specimens for about 1,500 new species that have been described in numerous publications. Some of the early publications did not illustrate these specimens, nor did they indicate the museums where they were to be kept. In some cases, entire museum collections were transferred to other museums, which then assigned new catalog numbers. Currently, the type and published collections of Florissant fossils are housed in at least 14 different museums throughout North America and Europe. Some of these museums do not maintain computerized databases. As a consequence of these factors, information pertaining to Florissant type and published specimens has become complexly scattered throughout the literature and among different museums.

I have been engaged in a project since 1995 to integrate all of the museum collection and publication data into a new database. More than a dozen museums from Berkeley to London have been visited to examine collections and acquire data on site. New photographs are being taken for all of these specimens, some of which have not been illustrated previously or were illustrated only by drawings. The equivalent of about one year has been spent on-site at these museums.

The illustrated database includes about 5,000 specimens. It will be made available as a web site—a virtual museum of the important fossils from Florissant. This will help lead researchers directly to the museums where these important fossils are housed.

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Jay Stewart and Robert Joseph

Validating the Past in the Present
First Nations' Collaborations with Museums

During the 1990s, inspired by sometimes patient, sometimes militant, but always persistent messages from Native American and First Nations individuals, cultural and political organizations, many museums and art galleries began to change the way they portrayed Native American material and sacred culture. Thus, a number of museums today are consulting the rightful owners of privileges to present the histories of their artifacts in the museum context. This can apply both to older ethnographic specimens and, significantly, to newly created pieces. With the agreement and authority of the chiefs or families who are the rightful owners, institutions will commission contemporary artists to create artifacts that are later validated by use in traditional ceremony and then integrated into an exhibit or collection. In addition, these new pieces are often made available for the chiefs or families to borrow for use in future ceremonies. In the process, museum professionals learn how to properly care for regalia and are able to record specific and detailed information relating to the history, use, and significance of artifacts. In the past this information was not always elicited by museum collectors nor was it always forthcoming when objects were acquired.

Wawaditła ("He orders them to come inside"), the ceremonial house of Chief Nakapenkum, Mungo Martin, built by him in 1954 in Thunderbird Park, Victoria. Photo courtesy the Royal British Columbia Museum, Victoria, British Columbia (PN 22259).

Since the 1950s, there have been isolated museological examples showing respect for traditional ways in the care and exhibition of First Nations artifacts, particularly in British Columbia, Canada. An early example of this consultation and co-operation was the construction in 1954 of the ceremonial house of Chief Nakapenkum (Mungo Martin) in Thunderbird Park, adjacent to the British Columbia Provincial Museum (now the Royal British Columbia Museum) in Victoria. Chief Mungo Martin exercised an inherited prerogative when he built the house on the museum property, modeled on a prototype that stood in Fort Rupert village in the late-19th century. The museum not only recognized Mungo Martin's title to the ceremonial house, but also agreed to use it in accordance with his instructions. His successor currently holds the same authority, and his written permission must be obtained by any tribal group or outside agency that wants to use the house for ceremonial, political, cultural, or educational purposes.

The Royal British Columbia Museum applied a similar protocol in 1977, when the house of Chief Kwakwabalasami (Jonathan Hunt) of the Kwakwaka'wakw Nation (formerly Kwakiutl) was constructed and installed in a permanent exhibit within the museum. Because the house, and many of its attendant architectural features, came as a dowry through Hunt's wife's uncle, both Hunt and his wife were involved in a contractual arrangement whereby they allowed their rights inherent in the house to be displayed for the visiting public. The terms also ensured that the prerogatives displayed were not alienated from them and their heirs. As with the Mungo Martin House, use of the Hunt House for school and public programs is always negotiated with the current rights holder on an event-by-event basis.

The privileges that came as a dowry from Mrs. Hunt's childless uncle included the house-frontal painting featuring a Sisiutl and two

Thunderbirds; the four carved houseposts featuring ancestral Sea Eagles, Seals, Grizzly Bears, Ravens and Killerwhales; and the speaker's figure inside the entrance. Included inside the house are a ceremonial dance screen, two Cannibal Bird masks acquired through the judicious marriage of the chief's eldest son, and a talking stick that was bestowed on the son at the time of his birth by a Heiltsuk (formerly Bella Bella) chief. Singers and orators were hired to record the Hamatsa (Cannibal Dancer) and Cannibal Bird songs and recount the history of the house. Excerpts from this ethnographic record are included in the exhibit sound track, incorporating some of the speeches of welcome and songs in Kwakwala (the language of the Kwakwaka'wakw people).

The house was dedicated in a ceremony attended by a small number of Kwakwaka'wakw chiefs, museum staff, and volunteers. The installation of the house as an exhibit meant that it also had to be validated within the wider Kwakwaka'wakw community. At a later event in Alert Bay (a major Kwakwaka'wakw village on Cormorant Island, off the northeast coast of Vancouver Island), Hunt and his wife held a potlatch ceremony to complete the affirmation process.

At the time of the agreement, the museum had the advantage of First Nations artists on staff, notably the son and grandsons of Chief Kwakwabalasami. While these artifacts and ritual privileges are exhibited and are directly accessible to the visiting public—they can enter the house, sit in the settee, and touch the masks—they are not alienated from the heirs of the privileges who continue to exercise authority over them today.

Another instance of cultural sensitivity took place during the 1980s, when the staff at the Campbell River Museum on central Vancouver Island developed the storyline for exhibits that were installed in its new premises in 1998. Since the curatorial policy of the museum required the legitimate owners of ceremonial privileges to participate as advisors for the exhibitions and associated programs, several First Nations families were involved in the development of the exhibits. A chiefly Gwawa'enuxw (one of the tribes [independent villages] of the Kwakwaka'wakw Nation) family owned a complex dance involving a suite of masks, potentially numbering in excess of 40, and had shown a modest version of it at a potlatch to which museum staff had been invited. The staff and potlatch host family thought that

Sea Eagle mask and costume. The Sea Eagle dancer "calls out" many sea creatures, one by one, to perform on the floor of the dance house. Made by Kwakwaka'wakw artist Calvin Hunt, shown in the photo. Photo by Dane Simoes. Photo courtesy The Museum at Campbell River (988.34 a-d).

the saga of a young boy who journeys to the Undersea Realm and remains there for four years encountering many real and supernatural sea creatures, would lend itself to a successful public exhibit. The museum entered into negotiations with Elsie Williams, the widow of the Chief who owned the privilege, for its inclusion as a permanent exhibit. An agreement was reached permitting the institution to commission, over a period of time, a new suite of masks, created by contemporary Kwakwaka'wakw carvers, for display in the exhibit. In the beginning, more than two dozen artists recommended by the family were told of the exhibit plans and the Williams family's involvement, and each was asked to make a particular mask. Most of these artists were best known for their work for the art market, but they also had created regalia for use in traditional ceremonies. The artists made their individual pieces knowing they were working for a chiefly family and that the masks would be danced as well as exhibited in a public forum; many of them stated they were inspired to create exceptionally fine and complex works for the family.

Chief Tom Willie, family historian and second husband of Elsie Williams, recorded the saga of the young hero's adventures in the undersea

realm in the Kwakwala language, provided a gloss in English, and recorded the song narrating the story, which is enacted by dancers wearing the masks. Chief Robert Joseph, a close relative, wrote and recorded the exhibit narration in English, enhancing it with Kwakwala phrases, terms, and honorific oratory. The growing suite of masks was exhibited twice at family potlatches between 1988, when it was commissioned, and the installation of the exhibit in 1998, thereby validating the masks as ethnographic specimens.

Recently, the family agreed to leave the masks on permanent display and commissioned another suite of masks for continuing use by the family. The current chief has forbidden photographs of the exhibit installation, although, with permission, the museum can publish record photographs of the individual masks.

These modern-day museum collaborations have a precedent: in 1904, the ethnographer Charles H. Newcombe arranged for several Northwest Coast artists to be resident cultural interpreters at the World's Exposition in St. Louis. Masks, including a Bakwas and an Echo, were made at that time by Kwakwaka'wakw carver Bob Harris, and these and other artifacts were used in public performances in St. Louis and later incorporated into the collection of The Field Museum in Chicago.

Recently, 180 masks from 10 of the 14 First Nations on the Northwest Coast were featured in a major traveling exhibit mounted by the Vancouver Art Gallery that toured North America. *Down From the Shimmering Sky: Masks of the Northwest Coast* was created with the authority and involvement of political and cultural designates of the Nations on the Pacific coast. Representatives of the Musqueam Nation of the Coast Salish requested that their sacred Sxwaixwe mask not be shown. However, the opening venue of the exhibit in Vancouver was in Musqueam traditional territory, and it was essential that they formally approve of the exhibit concept and allow the foreign masks to come into their homeland. Ultimately, the Musqueam Band co- hosted the exhibit at the Vancouver venue.

For this exhibit, masks were borrowed from chiefly families and private collectors as well as public institutions in Europe, the United States, and Canada. It was imperative to follow traditional protocols of respect for handling the masks when transporting them between venues: the beaks of Cannibal Bird masks were tied shut, and the masks were wrapped in blankets when in transit. In addition, some masks were unwrapped in the presence of representatives from the originating Nation who sometimes performed private ceremonies in the galleries once the masks were installed. Also, blessing ceremonies took place at appropriate times during the installation and deinstallation of the exhibit; these sanctified the exhibition spaces and the museum people who were working with the masks, and finally, the ceremonies prepared the masks to be moved from one location to another. Label copy used the correct spelling of tribal names and the names of masks as designated by tribal authorities. Permission was sought from the appropriate tribal authorities in Ontario, Oklahoma, Oregon, and California before the exhibit entered the traditional territories of the First Nation on whose land the host museum was located. At each venue, the opening ceremonies were witnessed by local tribal representatives, sometimes involving them, when appropriate. On two occasions, masks were temporarily removed from the exhibition at the request of the artist or the owner, so they could be used in traditional ceremony. To contextualize an installation of a group of Cannibal Bird masks, they were positioned by an

Mask representing Bakwas, the Wild Man of the Woods, carved by Kwakwaka'waw artist Bob Harris in 1904 at the World's Exposition in St. Louis where it was used in a public dance performance. Now in The Field Museum, Chicago. Photo by Charles Carpenter, courtesy The Field Museum (Neg. No. CSA13595).

accomplished Kwakwaka'wakw dancer so they would be seen in aspects similar to an actual dance performance. Because these masks were all of contemporary manufacture, the owners and creators agreed that they could be exhibited unobstructed by glass, thus creating a contextual ambiance not usually found in an art museum installation. They were placed in front of a painted ceremonial curtain that was commissioned by the Vancouver Art Gallery and that featured the family prerogatives of Chief Robert Joseph, a curator of the exhibit.

In the past, masks and regalia were completely hidden away and used only with authority of the chief during a potlatch. Then, in a period beginning in the early-20th century, they were used frequently in public demonstrations and performances. Over the past century the display of Kwakwaka'wakw ceremonial artifacts has reached a point where it is now common to see them in public places, including commercial galleries, airports, and museums. Traditional items are often represented in art for sale: for example, masks, rattles, and button blankets. Since artists in Kwakwaka'wakw society are very prominent in their own communities, and many have achieved international renown, they have taken the lead in the respectful display of ceremonial regalia in commercial contexts. Increasingly, the current generation of artists is recognizing a strong spiritual dimension in its artworks and is trying to be sensitive to the way they are displayed and used. In the last decade, debate in the community has re-emerged regarding what should and should not be done with these masks in order to be sensitive to the concerns of dancers and chiefs. These discussions were very much a part of the development process for *Down From the Shimmering Sky*. As the curators of the show, we wanted to share the high regard and reverence that is felt for these masks while exhibiting them for the public. One way we did this was to wrap a Cannibal Bird mask in a blanket, as is traditionally done when they are stored away between uses. It was exhibited alone in a small room to remind museum visitors of the reverence and sanctity that attends the masks when not in use.

For the opening ceremony at the Vancouver Art Gallery, the Musgamagw (one of the tribes [independent villages] of the Kwakwaka'wakw Nation) chiefs allowed a sacred dance to be performed, which recognized and acknowledged the importance of the exhibit on behalf of a culture that has existed for a very long time. They followed the proper protocol by having an important ceremony to show the public how much respect they had for the exhibit.

By being aware of cultural sensitivities and engaging in consultations, museums can begin to resolve the ethical and legal issues of exhibiting material that is private, personal, and sacred. This process also provides a first-person context for the subject by introducing the First Nations voice, the only authority that can speak about the privileges presented, confirming the fact that these are continuing and current practices. The practice of displaying contemporary objects together with ethnographic pieces of considerable age further reflects the continuum and reinforces the living culture.

The honor of sharing personal traditional information, provided by the First Nations owners to museums, offers unparalleled opportunities for visitors to understand art and artifacts in their rightful and authentic contexts.

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Barbara Franco

What's New in Exhibits?

As someone who has worked on history exhibitions for more than 30 years, I am often asked what is new in museum exhibits. I have a two-fold answer: nothing and everything. Some things haven't changed. Whether they are 19th-century cabinets of curiosity, 20th-century interpretive exhibits, or the technology-rich presentations promised by the 21st century, successful exhibits engage visitors in social learning and satisfy their expectations to see the real thing.

At the same time, everything about exhibition development is changing because the environment in which we work and the basic assumptions about that work are changing. In my current position as director of The Historical Society of Washington, DC, I am involved in the process of planning exhibitions for a new City Museum of Washington that will open in 2003. As we develop these new exhibits we realize that they must look forward to addressing the issues of the 21st century as well as accurately portraying the past. In particular, we have identified several broad trends that we think will affect the exhibits that we are designing now and for the future. The world we live in is increasingly characterized by greater complexity, more diverse populations, changing audiences, and multiple perspectives. Decentralization of information means that there is no longer a single source for information, and even historical expertise is moving away from centralized authority toward greater local involvement and new formats. There is a growing recognition that old boundaries are changing as we see new configurations in which "neighborhood," "regional," and "global" are becoming the dominant categories for everyday interactions and identities. Perhaps most importantly, technology and the Internet are changing the way we think. Hypertext and the concept of non-linear connections have created opportunities for linking information and people in new relationships. For The Historical Society and others creating exhibits and working with cultural resources of all kinds, these trends are having an impact on what we do and how we do it.

It is already possible to see the evidence of these changes in current museum exhibits. The Minnesota History Center's exhibits pioneered a non-sequential approach that abandoned a chronological structure for exhibits in favor of themes that allow visitors to take multiple paths through the exhibits and to access information in a more random and individually directed fashion. *Minnesota A To Z* pioneered a new approach to history exhibits based on a random access and non-linear approach that has been widely adapted by other exhibitions. Conveying history through multiple perspectives has also become a common practice in many history exhibits. The voice of the curator is increasingly joined or even replaced by the voices of first person accounts. An exhibit on communities at the Minnesota History Center explicitly used the voice of the community members to tell the story of communities as diverse as a small town, the deaf, a

Minnesota A to Z *at the Minnesota History Center. Photo courtesy Minnesota Historical Society.*

neighborhood, and Vietnam veterans. A new commitment to shared authority in exhibits can also be seen in the use of exhibition teams representing different specializations, in the participation of community advisory groups and in consultation of specific subject specialists in the exhibition development process. In this new environment, the curator of an exhibition is much less likely to serve as the only authority for an exhibition. The changing attitudes toward education and entertainment are another example of the blurring of traditional boundaries. Audience research consistently shows that visitors to museums want education and entertainment. Heritage tourism, the History Channel, visitation to museums, genealogy, and reenactments all fall into a category that defies distinction as either entertainment or education. The exhibits we produce are part of a new category of leisure-time learning. Multi-media shows and museum theater programs in museums are evidence that performance is now part of our educational missions.

The work of exhibition developers will continue to be influenced by these trends, just as exhibits have always responded to changing audience needs and to changes in the society. Nineteenth-century exhibitions began as cabinets of curiosity that were based on collections that had been assembled with or without the benefit of particular themes and agendas. The exhibit was the collections with very little additional explanation. The 20th century saw the refinement of the interpretive exhibition in which ideas became the defining element and were often more important than the collections. Perfected by the generation of historians who entered the field of public history since the 1960s, these exhibits were, and still are, often based on research papers that are then translated into exhibitions by designers and curators, using objects as visual illustration. At their best these exhibits were good history, at their worst they could become the infamous "book on the wall." The operative word in exhibits these days is "experience." What is the look and feel of the exhibit? How does the design convey the messages of the exhibition just as much as the labels or the artifacts? Increasingly museums speak about the visitor experience, and how we are creating memorable experiences. In large part that experience is based on the tangible evidence that museums collect, the material culture that defines and describes everyday life. Part of the job for exhibition developers whose goal is to create an experience includes planning for what visitors will do in the exhibit, not just what they will see. The big question for museums and exhibit developers today is not whether things are changing, but rather how we should react to the changes that are shaping our field. What will exhibits in the 21st century look like and how will they differ from what we do now?

Technology has had an enormous impact on exhibitions. Hypertext, the basis for web communication, is defined as an approach to information in which data is stored in a network of nodes and links and viewed through interactive interfaces that permit the user to traverse links as desired and to access information in a complex and non-linear fashion. Databases can assemble huge amounts of information and visual images and make that information available in exhibits as well as in your home. Layering of information in labels has now been extended to the possibility of an almost unlimited amount of information when a visitor chooses to access it. Wireless communication now makes it possible to make information available anywhere in the world through hand-held computers, telephones, and other electronic devices. The possibilities of this new technology can be daunting. Some museums are discovering the Internet as a new environment in which to present exhibitions. Toledo's Attic is a project of a historical society that made the decision not to expand its facilities, but rather to present 20th-century exhibitions in an online museum with changing online exhibitions. The same issues of good design, voice, collections, and participation are just as important in the development of these online exhibits.

Although the Information Age and the concept of hypertext have reinforced non-linear and non-sequential communication, the Internet has also spurred a rediscovery of narrative. The voice in an exhibition is now more important than ever before. Who tells the story has become as important as what is told. In designing exhibitions, we have become more aware of the subtle distinctions between the voice of experience and the voice of curatorial analysis. Exhibition evaluation has taught us that public audiences prefer to learn from the voice of experience. Oral history has thus become an important component of many current exhibits. The Historical Society, for example, has just completed an exhibition on *Growing Up in Washington* during the 20th century that is based on more than 50 oral history

Home Place Minnesota *an object theater at the Minnesota History Center. Photo courtesy Minnesota Historical Society.*

interviews and features specific "poster children" who tell their story as the basic narrative for the exhibit storyline. Narrative—the human art of storytelling—is the way that people have always made sense of information. Now with the increased complexity and volume of information available to us, narrative has once again become an important vehicle for understanding and making sense out of overwhelming amounts of information. Increasingly, we see exhibits that use storytelling techniques in first-person interpretation, oral histories, or interactive computers that help convey the ideas and content in more accessible narrative formats. Exhibits in the future will need to access the power of narrative to be truly successful in communicating complex ideas and information.

Audience research is also teaching us that visitors are ready and willing to grapple with more complex and more difficult issues. Recent audience research for the new City Museum in Washington revealed that the residents of the Washington metropolitan area expected the new museum to address issues of race, slavery, and other difficult topics. This is already a growing trend in museums across the country. Colonial Williamsburg's controversial portrayals of slavery have become some of their most popular and successful programs. The Underground Railroad program at Conner Prairie in Indiana has gotten rave reviews from participants who describe their emotional response to participating in reenacting the experiences of escaping slaves. House museums have discovered that their visitors are often much more interested in the life of the servants who worked in the house than they are in the owners. Rather than moving away from difficult topics, exhibition developers will be challenged to find appropriate ways to deal with difficult issues.

The Historical Society's new City Museum is looking forward to developing exhibits that embrace these new trends. The 21st century that we envision in a new City Museum will have four attributes that I believe will be characteristic of successful museums and exhibits. First it embraces the decentralization of information. The museum building as simply a container seems anachronistic as we look ahead to a museum concept in which architecture and programs must serve as channels for the flow of information. Second, exhibits will be connective in every sense of the word. The Internet will serve as both a vehicle for communication and as a model for the web-like relationships that will link organizations and collections. Third, partnerships and collaboration have already increased, but they will become essential in order to be successful in this environment. For organizations whose mission is to present place-based history, working without the full involvement of community members will be unthinkable. Fourth, the museum of the future, like the museum of the past, must be trustworthy. *The Presence of the Past,* the influential study published by Roy Rosenzweig and David Thelen, has shown that history museums are rated among the most trusted sources for historical information by Americans. The challenge for developers of history exhibits will be how we learn to share authority with our communities and still retain our trustworthiness as sources of authentic information and real things. The 21st century offers new opportunities and new challenges to create exhibitions that harness the power of technology, partnerships, and authenticity in the truly connective museums of the future.

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Susan P. Schreiber

Interpreting Slavery at National Trust Sites

A Case Study in Addressing Difficult Topics

Amidst all the discussion in recent years about the responsibilities of museums both to educate and entertain, perhaps nothing focuses the issue for history museums and historic sites more emphatically than a finding in the Center for History-Making's survey of 1,500 Americans, analyzed by Roy Rosenzweig and David Thelen in *The Presence of the Past: Popular Uses of History in American Life.** In ranking the trustworthiness of sources for information about the past, only one third of respondents gave their high school history teachers high marks, but 80% trusted what they learn from museums! For the country's several thousand historic sites, these results are both wonderfully affirming and somewhat scary. If "seeing is believing" at historic sites, there is much to see—architecture, historical landscapes, furnishings, period costumes, even documents—and it all looks so convincing. Visitors believe these things "speak for themselves"; those of us working in the field know objects that seem so concrete and fixed are merely fragments, pieces of a jigsaw puzzle that is far from complete. What meaning these fragments of past culture have derives from the cultural and professional contexts we bring to them as historians, curators, educators, preservation architects, archeologists, landscape specialists, interpreters, and guides. While it is encouraging to know that the public believes the stories imparted by museums, this only increases our responsibility to make sure our interpretations are as inclusive and as accurate as we can make them. This is a tall order.

Stairs leading down to slave work spaces and storage rooms, Drayton Hall, Charleston, South Carolina. Photo courtesy National Trust for Historic Preservation (DH.int.0040).

History is an interpretive construct that continuously changes, reflecting the questions and perspectives of the contemporary culture as it seeks to make the past meaningful to its own world. Our understanding of the past has changed since Washington's Headquarters State Historic Site in Newburgh, New York, was established on July 4, 1850, as the first publicly operated historic site in America. Through much of the 20th century, the study and teaching of history continued to focus on the great men and great events; but starting in the 1970s, interpretations began to change, in part responding to social changes, including the civil rights movement, resistance against the War in Vietnam, the women's movement, and the American Indian movement, and to the rise of social history among academic historians, which examined history "from the bottom up." The focus of American history began to move beyond the "great white men" to include the struggles and achievements of ordinary people in the past. There has been a parallel change in history education, from relying totally on the textbook, with its single authoritative voice, to a more hands-on and discovery-based curriculum that incorporates a range of sources and themes. At the beginning of the 21st century, the increased awareness of the "global community" and of a more ethnically and culturally diverse population in the U.S. further changes what we want to know about the past.

Of all historic sites, historic house museums particularly have been bastions of "traditional"

cultural values. The National Trust for Historic Preservation has 20 such sites, ranging from Montpelier, home of James Madison, Father of the Constitution, to the home and studio of architect Frank Lloyd Wright. For the past decade or longer, many National Trust sites have taken steps to develop broader and more inclusive interpretations of the sites as a whole, both physically and in terms of interpretive themes and stories. Two recent additions to the collection—the Gaylord Building, an industrial site along the Illinois and Michigan Canal, and the Lower East Side Tenement Museum—very pointedly interpret the lives of "ordinary" working people. Still, across the board there is much more to do to make the sites more meaningful, not only for our current public, but also for new audiences who have not visited our sites in the past. To survive, to flourish, historic sites must reach out to the public with a picture of the past that is more complete, more inclusive, and ultimately, more honest.

Nowhere is this challenge more difficult than at sites where the history includes the enslavement of Africans and their descendents. What follows is a description of some of the work a few National Trust sites have been doing together to address the interpretation of slavery and the progress they have begun to make. Their experiences have implications for a whole range of sites across the country as they develop more inclusive interpretations that bring to light the complex and often disturbing stories that have so often been kept in the shadows.

Slaves once lived at eight of the National Trust's sites. Most are plantation sites: Belle Grove, Montpelier, Oatlands, and Woodlawn, all in Virginia; Shadows-on-the-Teche in Louisiana; and Drayton Hall in South Carolina; but slaves also lived for a time at Cliveden in Philadelphia and Decatur House in Washington, DC. And at several of these, substantial staff resources have gone into the development of African-American history interpretation. Over the past 10 years, for example, Shadows-on-the-Teche has been co-teaching African-American history courses at several area high schools and involving these students in the site's research and presentation of African-American history. At Drayton Hall, in addition to information in the general guided house tour and self-guided landscape tour, a daily program gives visitors an opportunity to explore evidence of slave life in more depth. An exhibit at Montpelier and an audio tour of the landscape installed in 1998 identifies slaves by name and tells some of their individual stories.

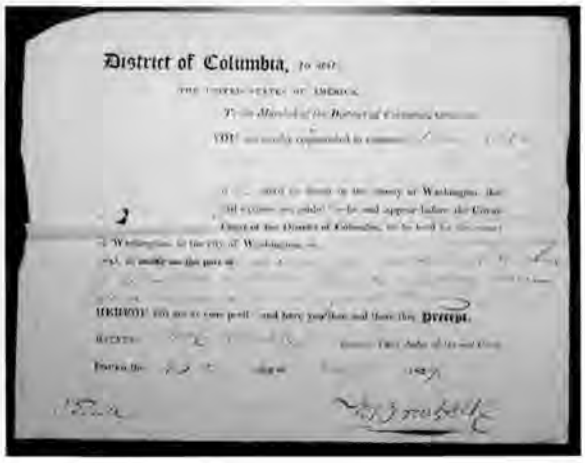
For the most part, however, the focus of interpretation at all of these sites has been on the white families who owned them. The interpretation of African Americans (who in most cases were the majority of occupants in the 18th and 19th centuries) has been marginal and general, particularly in the guided tour, which is the baseline experience for most visitors. The goal for the Trust's modestly-funded initiative was to advance the process of interpreting the sites more holistically and, in particular, to incorporate the interpretation of slavery into the core public offerings: guided tours of the houses and interpretive signage and self-guided tours of the landscape. We decided to focus on the six sites within driving distance of Washington, DC, (and of each other) over a six-month period from September 1999 to February 2000, with a final workshop the following fall. Because of funding considerations, Drayton Hall and Shadows-on-the-Teche would participate largely through site visits from our historian consultant and long-distance dialogue.

The project was organized around five day-long workshops spaced about a month apart. The workshops were attended by teams of two to five staff members per site, including curators, educators, and guides, who would spearhead the process at their respective sites. Each workshop was held at a different site; people got to see one another's sites firsthand; and whichever site was hosting the meeting became the focus for a case study. Workshop topics included contextual history, research, the telling of slaves' stories through site resources, thematic tours, and guide training. Between workshops, the site teams did contextual reading, conducted site-specific research, worked on storylines and themes for the new tours, and began planning exhibits, self-guided landscape tours, and other programs. They received specially-prepared background papers on the history of slavery in the upper South, particularly Virginia, customized bibliographies, copies of journal articles, etc., and key publications. Leading the workshops was John Schlotterbeck, Professor of History at DePauw University, who is both a scholar of southern history and a strong and insightful advocate for the interpretation of history at historic sites. Professor Schlotterbeck was on sabbatical and thus available to work with the Trust sites intensively over several months. He

visited each site at least twice and provided guidance and support to individual sites through frequent e-mail and conference calls. He also visited several prominent sites that interpret slavery (including Monticello, Colonial Williamsburg, Mt. Vernon, Conner Prairie, and Middleton Place) and brought his observations back to the group. We also had assistance from James Horton, Professor of History at George Washington University, who shared his research and perspective at the workshop at Decatur House, and from Robert Watson, formerly of Colonial Williamsburg and now on the faculty at Hampton University, who provided constructive criticism and encouragement at three of the workshops.

The first workshop, held September 1999, at Montpelier, bristled both with enthusiasm and friction. Most people were excited about finally getting some help with what they considered an important but daunting task. At the same time, they expressed a number of concerns. Was there enough research to move forward in presenting the story to the public? While all of the sites had some documentation relating to slavery, the information often seemed too scanty for substantive interpretation. Little was known about the slaves as individuals or about how slaves' lives at a particular site fit into the larger history of slavery in the region and over time. Much of the concern revolved around how to talk with visitors about slavery and how to give guides the skills to be comfortable and effective. How would a guide react if visitors asked questions such as whether the slave owner was a good or bad master? In some cases, there was a feeling that introducing slavery in a significant way would reflect negatively on the white owners, a significant issue for sites that had been preserved by descendents of the original owners as memorials to their ancestors' achievements. Another concern was about how visitors, both blacks and whites, would react to an interpretation that included slavery, as well as beautiful furnishings and gardens. Could the tour incorporate both? And many people in this nearly all white group expressed concern about the lack of African-American staff at the sites and whether or not whites could be accepted as credible interpreters of slavery. Finally, there was concern about how the extra demands of the slavery interpretation initiative would impact already tight work schedules and budgets. Discussion was a bit guarded, since few knew one another or had visited each other's sites. Some people remained silent, not sure where they stood.

Six months later, at the February 2000 workshop at Woodlawn in Alexandria, Virginia, the mood was completely different. Staff from the various sites mixed easily and, for the most part, talked openly about their ideas and their concerns. While they didn't gloss over the challenges that lay ahead in training interpretive staff to deal with the issues that might arise or the need to do more research, the excitement about exploring the site's history in a new way with the public was palpable, and there was a sense that they had taken some significant first steps. Each institution had made real progress. Oatlands, for example, which had always focused on the early-20th-century history as a country estate, had begun planning signage for the landscape, which, for the first time, would identify outbuildings by their original use and include excerpts from plantation diaries identifying slaves by name. The curator, on close reading of the diary of a plantation mistress, discovered evidence of possible resistance by a house slave, Fan. In many cases, being able to focus on an individual slave gave the interpretive story presence and immediacy. Research led to unexpected discoveries. Staff examining the Henry Clay papers for information about his occupancy at Decatur House, uncovered the existence of the first slave who could be documented to the site, a woman named Lotty Dupuy, who had brought suit against Clay, petitioning for her freedom. Lotty's dramatic story has now been woven into the interpretation of a room recently discovered to have been a kitchen, a space where she would have almost certainly spent much of her time. At Belle Grove, with a list of the names of slaves in hand, the process has begun to flesh out daily lives and people the site as never before. Having already collected documentary informa-


District of Columbia,

Summons for Henry Clay to appear at court to defend his ownership of Lotty Dupuy. Photo courtesy National Archives and Records Administration (Entry 6, Box 437, Folder 121, Unit No. NWCTBPO).

tion about the lives of particular slaves, Woodlawn is incorporating new thematic material into the furnishing plan as well as the tour, including a reproduction slave pallet two guides have made, which is being used in a bedchamber. At Cliveden, an exhibit on African Americans will convey to the public that slavery did not just occur in the South. Several sites are setting up committees of local educators, historians, and community members to advise them on interpreting African-American history, to develop outreach programs, and to recruit volunteers.

This process is by no means over, and we have a long way to go, especially in finding the most effective ways to ensure the public receives the new interpretation. At the February workshop, a staff member from Drayton Hall had the participants do a guide training exercise, used to surface discomfort in talking about the history of blacks and whites at that site. Each person was given a 3x5 card and asked to complete the following sentence as they thought a guide, or even they, might: "I would be more comfortable talking to visitors about slavery if...."

Some of the responses that were handed in, read, and discussed, included:

"...if I felt I had good information and not just generalities."

"...if there were no African Americans in my group."

"...if I weren't white with a Southern accent."

"...if I was sure my supervisor was really behind me."

In terms of fostering a dialogue with visitors about the history of slavery, many issues need to be addressed. Perhaps above all, there is the crying need for a more diverse staff at all of these sites. Still, all of these sites are in very different places than they were last summer.

Dependency buildings, possibly the kitchen and laundry, Oatlands, Leesburg, Virginia. Photo courtesy National Trust for Historic Preservation (OT.out.0085).

Looking back on what's been accomplished thus far, there are several factors that stand out as being instrumental in nurturing change. Perhaps first and foremost, a group of sites has been participating in this process together. The resources of each staff have been strengthened and enlarged by interaction and collaboration with their peers. The group has included both professionals and the guides who are out on the front lines working directly with visitors. Second, the involvement of outside scholars who can help sites see their histories from different perspectives and in the context of larger themes has been critical. Third, within this context, the participants have begun to focus on the stories of individuals; even when the information is sketchy, there is a real person there, not just a group, and that makes a difference—and will make a difference to visitors.

While the history of blacks and whites on plantations is one of the most challenging issues we face as we look at our past, it is not the only sensitive topic or story hidden from view. Behind every great country estate is the story of the people whose labor enabled the owner to amass the great wealth needed to maintain a sumptuous lifestyle. Relationships between different ethnic groups, conflicts between workers and managers, and gender orientation are just a few other topics we need to address if we are to earn the public's high esteem for trustworthiness and value.

Ruth Abram, founder and president of the Lower East Side Tenement Museum, talks about the "Usable Past." What does it mean for historic sites to make the past usable? I think it means that while on the one hand our charge is to preserve and protect the buildings, landscapes, and collections in our care, when it comes to interpreting these sites to the public, we must do just the opposite. If we are going to be able to use the past to anchor our perspective and inform our choices for the present and future, we need to take the stories of these sites apart and open them up for exploration. The sites involved in the National Trust's slavery interpretation initiative will be meeting again this fall, and we'll see how far we've come.

Note

* Columbia University Press, 1998.

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Arch Horst

The Park Bookstore Earns More Than Money

National parks value their resources. The parks' central mission is to preserve and interpret landscapes, buildings, and artifacts. In an effort to underwrite their mission, parks have turned to commerce in the form of bookstores. This potentially awkward embrace of park resources (particularly museum collections) and commerce often produces significant income, in some cases over $500,000 in annual support for an individual park. Desiring to increase their support of park activities, the cooperating associations that run the stores have expanded their selection of interpretive merchandise beyond books. As a result, it is now more accurate to call them park stores, not bookstores.

Fortunately, income is not the only benefit received from a successful retail operation. A well-designed and merchandised store can also extend the impact of a park's museum collections and interpretive themes far beyond its exhibits, programs, and site. And it can be done with a sense of style and retailing savvy that reflects well on the park. We have all seen such stores; we leave them feeling good about what the park and the store had to offer. What are the characteristics of a successful park store, one that creatively resolves the inherent tension between commerce and park collections and themes? Based on ten years of evaluating and designing museum and park stores, my colleague Judy Flam and I believe the characteristics can be distilled to the following four.

United States Holocaust Memorial Museum Store. Careful merchandise selection and store design produced a store that addresses the visitors' intellectual and physical needs while expressing and extending the museum's specific mission. Photo by Edward Owen, Washington, DC.

Successful stores meet the needs of the customer. Given the importance parks place on their mission, it is natural to think that all decisions affecting a park store should be made from the park's perspective. This point of view, however, overlooks the fact that if the customers' needs and interests are not met, then there will be no transaction.

To ensure that a store serves the park visitors, the successful retailer continuously refines his or her sense of the park's visitors/customers. Where do they come from? What is the age range? Generally, what are their income levels? Why did they come to the park? How long did they stay? What did they do during their visit? What did they like about the visit? Where else have they visited in the immediate area? Answers to these questions will reveal visitor preferences and valuable clues for creating a visitor-focused store. Significantly, answers to these same questions can also help park staff refine the programs and services provided for park visitors.

Understanding the visitors' interests and needs does not require that the park's interests be overwhelmed in a rush "to give the customer what he wants." The mere fact that the visitors have chosen to visit a particular park indicates that there is a significant overlap of the visitors' and park's concerns. For instance, when planning the store for the United States Holocaust Memorial Museum, we repeatedly asked: "What will the visitors experience?" "Will they be looking for a store?" "What will they want to buy?" The answers to these and other questions led us to establish a merchandise mix that was almost exclusively books—a merchandise mix that met the needs of the visitors and was reflective of the museum's mission, collections, exhibits, and programs.

Addressing the customers' needs and interests requires, in most cases, that more than books

be sold. Visitors have different responses to a park visit and they will choose to "extend" or "concretize" the visit in merchandise to which they are attracted and that they can afford. Stores that limit themselves to merchandise attractive to park staff reduce their sales and the opportunity for some visitors to extend the visit beyond the park's boundaries. Such a result is unfortunate from both a mission and profit perspective.

Understanding the visitors also means that the store needs to change periodically. This is a retail reality that might seem to park personnel (who are committed to preserving the past) as indecisive, lacking commitment. In fact, retailers have learned that if they are to increase sales and better serve their customer they must continually adjust the merchandise mix, relocate merchandise in the store and mark down poor selling or no longer related merchandise. In addition, as the seasons change, so do the visitors; the location of merchandise and the emphasis given to certain merchandise also needs to change if each season's customers, and the park, are to be well served.

Successful stores carefully and creatively relate the merchandise to the settings, collections, and programs of the park. To some, the relation of merchandise to park themes begins and ends with National Park Service Director's Order No. 32: "Cooperating Associations." But successful retailing in a national park is about making interesting, unexpected, inspired, and appropriate connections between customers and park themes; selecting merchandise cannot be so easily codified. How does a successful store manager gain the insight to make those connections? The manager must be thoroughly familiar with the park, perhaps even "visit" with family or friends who have never visited before to experience first hand what visitors see, hear, and respond to. Store managers read park materials and talk to program developers and interpreters to keep abreast of new themes and programs.

With this background, the store manager/buyer can then enter the retail marketplace, looking for merchandise that relates to the park and appeals to the park's particular range of visitors. In parks that are tightly focused on a single momentous event or important individual (the Lincoln Memorial, for instance) the job is relatively easy. More creativity is called for in those parks with more diffuse topics or ones with less historic significance. In those cases, the store personnel are more dependent on cross-merchandising (the grouping of related but different types of merchandise) to expand the visitor's understanding of the subject and to encourage a purchase.

Stores have a duty (rarely, if ever, ignored) not to encourage illegal or questionable practices. Contemporary Native American pots and baskets can be sold if they relate to the collections and themes and only if authentic craftsmanship and materials are used. But the store must also take the opportunity to clearly explain the heritage preservation issues and why the items being sold are consistent with exemplary heritage preservation practices.

Naturally, "relatedness" alone is not a sufficient criterion for adding a product to the merchandise mix. The quality of an item is equally important. National parks are committed to pursuing their mission with the highest standards, and therefore the store should only present merchandise that is designed, manufactured, and packaged to similar standards. The store has an obligation to reinforce that benefit.

For the many park retailers committed to serving their parks with well-related and high-quality merchandise, the national park's ambivalence about certain merchandise—in some parks, for example, T-shirts, jewelry, or film—is unfortunate. Visitors ask for these items and are clearly disappointed when they are referred somewhere else; this represents a failure to serve the visitor. Equally important, not having **well-designed** T-shirts and jewelry or film also fails to serve the park, as they represent opportunities for the visitors to take their experience home with them and share it with others.

Successful stores are designed to maximize their retail potential. This is often a challenge. Space, for one, can be at a premium within a visitor center, and achieving the optimum size can be difficult. The optimum size is dependent on the number of merchandise items for sale, the number of visitors, and the fluctuations in visitor traffic. A store that is too large can have as negative an impact on sales as a store that is too small. In the first instance, the merchandise is so spread out and repetitive that the store looks empty, or equally undesirable, the cost of carrying sufficient inventory to make the store look full unreasonably increases operating costs. We have adjusted the size of stores up and down to better serve the customers and better present the merchandise. Most recently, at the Sugarlands Visitor Center in

Great Smoky Mountains National Park Sugarlands Visitor Center Store. Building a store that could accommodate the large number of visitors has resulted in a greater than 50% increase in sales. Photo by the author.

the Great Smoky Mountains National Park, we designed a new store that was four times larger than the previous store. In this case, the goal was to better accommodate the surges of visitors in the peak seasons and the pulses of visitors arriving on tour buses. The store's management had observed that sales dipped precipitously in those situations and reasoned that a larger store was the answer. Its retailing instincts were confirmed; the larger store has seen a 50% increase in sales.

Also challenging are the design and construction budgets available for renovating an existing store or for building a new store. Because every dollar spent on park store improvements is a dollar that is no longer available for supporting park programs, the cooperating associations that run the stores are naturally uncomfortable appearing to invest too much in store improvements. Unfortunately, nothing depresses sales, and consequently the long-term support of park operations, more than a store that appears cobbled together or generic. Successful designs are those that reflect and support the stature of the park. In some instances this mandates a more extensive investment, in others only careful planning and fixture selection is required, or can be justified. Store improvements should be seen as an investment in a future income stream, not as an expense.

Where a store or stores are located in a national park often presents a challenge. The well-established rule of thumb is that the store should be at the point where visitors enter and leave the park. But there are often multiple points of entry and exit making it difficult to reach all of the visitors. Signage within the park that identifies store location(s) can help. While this may seem overtly commercial, directing visitors to stores and their interpretive merchandise has important interpretive value for those visitors who will not have the benefit of a park program or contact with a park ranger.

A well understood tenet of successful retailing is that the longer you hold a customer in a store the more likely you are to make a sale or to make a higher sale. Niketown and Disney stores, for example, rely on video technology and animated figures to attract and hold customers. While these strategies are not appropriate for stores in a national park, the strategic inclusion of exhibits, graphics, and other interpretive material can serve the same purpose, stimulating visitors and giving the store more time to capture the visitors' attention with merchandise. In the new store we are currently designing at Grand Canyon National Park, the cooperating association is devoting one quarter of the store to interpretive exhibits that will supplement Park Service material in the park's new Canyon View Information Plaza. These exhibits will hold the visitor in the store and will provide the opportunity to directly relate merchandise to park themes. In some parks, the view from the store, especially if it is artfully framed, can have a similar benefit.

Finally, stores need to be designed with the visitors' shopping styles in mind. For some visitors, and in some parks, this means providing a place for visitors to rest. It almost always means organizing the store so that visitors can easily find the merchandise that interests them. It means locating the books in the quietest section of the store so book customers have the chance to fully consider their purchases; while this might appear to be de-emphasizing the books, it actually increases book sales. Conversely, it often means placing more impulse items—cards, mementos—at the front of the store, so visitors with very little time to shop can still make a purchase that will extend their visit.

Successful stores are operated to provide a positive experience for the visitor. A national park meets the visitor more than halfway; helpful rangers, visitor programs, informative literature, and interpretive signage all contribute to a memorable and meaningful experience. Successful stores strive to extend that level of service and accommodation into the store itself. Store design, as discussed above, is an important feature of service, as is having the merchandise that appeals to visitors, but equally important is training staff who go beyond being merely courteous and proficient. The store staff can help fulfill the store's (and park's) mission by assisting customers to appreciate the connection between the park's collections and themes and the merchandise. The store is often the last stop in the park and therefore the last opportunity to reinforce the park's message. Indeed, providing helpful insights about park collections and themes is doubly important for those visitors who, regrettably, never get beyond the store or visitor center.

These four characteristics of a successful store can be summarized in a single sentence. **A successful park store is site-specific.** Nothing undermines the potential of a park store more quickly than unresponsiveness to the interests and needs of visitors, unrelated or low quality merchandise, a generic appearance, or poor customer service.

Stores fulfill their retail and interpretive mission when they commit to interpreting the park's museum collections and themes. When they are given the freedom to do so in broad and innovative ways, they not only serve their financial mission but also enhance their interpretive function and expand the impact of the park far beyond its boundaries. It is a creative endeavor and takes the active participation and sympathetic support of the interpreters, park administrators, and those responsible for the collections.

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Jane Sledge

Surf's Up—
Do You Know Where Your Wet Suit Is?

Recently I noticed my son, John Jensen, age 7, wearing his personal floatation device, an object known to many as a life jacket, as he used our home computer. I didn't ask why, but I wondered if he were worried about falling overboard into the vast ocean of information. I haven't seen many museum staff sporting life jackets or wetsuits lately, but I know that they are concerned with the vastness of the information space and its challenge to museums to provide authentic, interesting, and reliable voyages. This is not a new concern. In 1968, Everett Ellin wrote, "As the museum audience everywhere continues to grow at an alarming rate, we are coming to recognize that the textual and visual data descriptive of our public collections (of art, scientific, and historical material) must be made more accessible and employed in far more imaginative ways than are possible by conventional means."[1] The trouble is, we are still searching for answers.

Museums are faced with many hurdles in using the Web creatively: existing processes and procedures are hard to change; technically knowledgeable staff are scarce and expensive; revenue generation from online products has yet to provide significant returns; virtual audiences are mysterious; digitization and content creation are expensive; and copyright issues are ubiquitous. We face more challenges in 2000 than Ellin in 1968 ever considered possible.

Process

Robert Janes writes, "...there is abundant evidence to indicate that organizational change and adaptation occur with great difficulty in museums."[2] Shifting staff priorities to work in a digital environment, to produce, mark-up, and

share content on an on-going basis, as part of regular work, is an enormous, threatening, and often difficult change for museums. It requires the commitment and support of senior management who are often leery of such an undertaking because there have not been many reports of success stories. There are few tried and tested models to follow. While some museums[3] are beginning to rethink their project management structures so that the idea or the concept to be developed comes first and then careful consideration is given to the multiple media in which the idea will be presented, most museums are continuing to see collections information systems and the Internet as two separate entities.

For most of the last 30 years, when museums thought about information management systems, they focussed on databases. Information resource management is more than this—it also includes text, images, videotape, film, and sound recordings. In 1998, the Consortium for the Computer Interchange of Museum Information (CIMI) undertook a case study to understand how information flowed in a museum. The Integrated Information Management Working Group reported, "In most institutions these records or documents are viewed as discreet sets of material usually controlled and maintained by those who created them. For example, the registrar's office might hold all of the object files; curators would maintain scholarly research, exhibition files and related documents; public affairs staff create information for publication; and the educators provide the public with many types of learning materials." The Working Group found that there was no clear understanding of what "integrated" information meant and that while museums might aspire to implement "standards," they preferred ad hoc solutions because this provides more flexibility.[4] Ad hoc solutions are easier because they can be tailored to fit existing systems and processes, but they mitigate against integrated information both within and without the institution.

It is always easier to integrate information that adheres to guidelines, such as the *National Park Service Museum Handbook*. A number of museum guidelines for information exist; the web site of the International Committee for Documentation (CIDOC), <http://www.cidoc.icom.org>, provides an overview. The Museum Documentation Association (MDA) web site, <http://www.mda.uk.org>, also offers a good standards section. But, for the most part these published standards are for databases, not for text and other media. CIMI has working groups studying the use of meta-data tags for resource discovery and the application of XML, an internationally accepted standard for structuring electronic information for access, in museum environments. This is an important area to watch for new developments.

It has been more than 30 years since Ellin wrote about the challenges of making our information accessible to our public audiences. For a large portion of this time museums considered the major challenge to be one of collections management and inventory control, not accessibility. In 1997, Howard Besser predicted the increasing convergence of the worlds of collections management and online exhibits.[5] How far have we really gone with the convergence? One example is a recent project, Intelligent Labelling Explorer (ILEX), developed by the University of Edinburgh in collaboration with the National Museums of Scotland. ILEX offers the ability to tune museum labels to account for different types of visits, the interests of the visitors, and their evolving knowledge during a visit.[6] "The knowledge base has two main sources: firstly information parsed straight from the museum's own database, and secondly information gathered during a number of interviews with the gallery's curator."[7] This type of project is more the exception than the rule. While many museums offer web sites with virtual exhibitions and access to online catalogs, it is rare to be able to click from an interesting object in a virtual exhibition to similar objects in the collections information system to a museum publication about the context of these objects. While cyberspace may seem to threaten national boundaries, the boundaries remain strong between different museum functions such as exhibits and registration, and systems integration remains elusive.

Staff

Even well-off museums have difficulty retaining staff with information management and web design skills. Six figure salary offers from recently established Internet companies are very tempting to underpaid museum staff. It is equally difficult to hire knowledgeable and creative staff when recent graduates of university digital communications programs are offered starting salaries greater than a small museum director's salary. Many museums owe a large vote

of thanks for web site development to their enthusiastic volunteer supporters and creative partnerships with universities and corporations. While museums are challenged to generate enough funding for "bricks and mortar" operations, they increasingly have to consider expanding budgets for the virtual realm. Some museums find that virtual visitors significantly outnumber physical visitors. "The Museum of the History of Science in Oxford [England] has a website [sic] that reflects its great collections of scientific instruments. It currently receives about 100,000 individual virtual visits a year (about 1.5 million hits) compared with 35,000 actual visitors," <http://www.mhs.ox.ac.uk>.[8] Virtual visitors are "real" visitors and require service.

Revenue Generation

Unfortunately, it has been difficult to generate revenue from the virtual visitors. Visitors don't expect to pay for service. However, they will pay for other things. Within the last 18 months a number of e-commerce businesses have begun to solicit museum participation in museum store networks: <http://MuseumCompany.com>, <http://www.MuseumNetwork.com>, <http://www.MuseumShop.com>, <http:// www.imageexchange.com>, and <http://www.theorigins.com>.

Opportunities have arisen in the area of content offerings. Recently consultants[9] have begun to recommend that museums consider the licensing potential of online content. Increasingly opportunities are being offered to museums to join consortia that aggregate and package content. The Museum of Modern Art, New York, and The Tate Gallery, United Kingdom, announced in April 2000 that they had formed a partnership and agreed to create an independent for-profit e-business that will establish the premier destination on the Internet for individuals to access, understand, and purchase the best in modern art, design, and culture."[10] Other examples include: the Art Museum Image Consortium <http://www.amico.org>—AMICO is a not-for-profit association of institutions with collections of art, that have come together to enable educational use of the digital documentation of their collections; Fathom.com—a unique international consortium of leading universities and cultural institutions dedicated to creating and disseminating knowledge; and the Research Library Group's Cultural Materials Initiative <http://www.rlg.org/culturalres/goals.html>.

To participate in these content ventures, museums will be called to dedicate more staff to content creation and content management. At the May 2000 American Association of Museums annual meeting, Naree Wongse-Saint discussed the difference in scale between museum operations and private industry noting that she had moved from a not-for-profit network (ArtsEdNet) with a staff of five to a for-profit portal (Lightspan.com) with a production group of 50 people. And, museums will need to gain a better understanding of their virtual audiences and their needs.

Audience

The web audience holds mysteries for museum staff. Management rarely sees it. In some museums, web visitors exist more as a statistic than as a real entity. Yet virtual visitors are a growing and powerful entity. What does this audience want? What capacities does the audience have? What percentage of the audience has high bandwidth and the capability to quickly access images, video, and use programs like Shockwave and Quick Time Virtual Reality (QTVR)? How do visitors select museum web sites? These questions are difficult and time-consuming to answer. NareeWongse-Saint suggests that museums stop considering their physical and virtual audiences as parallel, unconnected universes. She recommends that museums remember their mission and goals and consider how the virtual audiences fit within these goals. Successful museum web sites have developed different segments of their sites for different audience capabilities. The United States Holocaust Memorial Museum <http://www.ushmm.org/> has a great educational web "exhibition" on the Voyage of the St. Louis. It developed this site with some features requiring high bandwidth because, as a staff member reported at the Museums and the Web 2000 conference in Minneapolis, staff determined that the primary audience for this "exhibit," American schools, have high bandwidth connections to the Internet. Just as in the physical museum, some virtual visitors want the simple tour while others desire in-depth intensive access and the ability to interact with staff. There will be classroom visitors and disabled visitors, scholars, and foreign visitors who do not understand English. There will be visitors who are expert at navigating

dense information resources and Internet novices. For more information about understanding visitors and tracking their needs, I recommend, "Tracking the Virtual Visitor: A Report from the National Gallery of Art," in the March/April 2000 issue of *Museum News.*[11]

Satisfying visitors' diverse needs with scarce staff resources and limited budgets is difficult. Visitors are not concerned with museum problems; they seek personal and efficient service. Visitors may support the museum when they have developed a relationship but to build the relationship, their needs must be met. Visitors may need to be able to find directions to the museum and information about opening hours easily if they are planning a visit, or, as is often the case, they will seek flexible access to content.

Content

The creation of digital content is expensive. Steve Puglia notes, "The Library of Congress's Digital Library/Ameritech Competition applicants requested an average of $19.00 per image which included an average cost for digital conversion of $6.60 per image and an average cost for cataloging, description, or indexing of $12.60 per image. The National Archives and Records Administration estimates its electronic access project digitizing costs as between $12.60 to $17.60 per image."[12] The acquisition of equipment—scanners, digital cameras, and digital videos—is only the tip of the iceberg. Outside the collections management system, the creation of digital content is usually project based—focused on presenting and highlighting special collections, done in conjunction with an exhibit, or undertaken as part of a special program. The long-term management and care needed to preserve the investment in digitization requires considerable planning. As the capabilities of digital cameras increase, museums can capture high-resolution images between 18 to 36 megabytes. Museums store these high-resolution images on CD-ROM, or DVD rather than online. One large museum has said that it has an archival collection of over 3,000 CD's. As museums incorporate digital imaging in conservation and movement tracking, and develop 3-D images for their web sites, they will need to consider mass storage solutions to enable the diverse systems throughout a museum to retrieve digital images on demand. Even low-resolution images (500-700 Kb), taken for conservation documentation purposes begin to add up. As the National Museum of the American Indian prepares for the opening of its new museum on the National Mall, conservators will review and assess some 5,000-7,000 objects for potential exhibition in the new building. At approximately 10 digital images apiece for conservation purposes, 5,000 objects require 50,000 digital images. It is challenging to manage digital assets. Subject matter description lacks easy-to-apply vocabulary standards. While controlled vocabularies are recommended, these are not available for all areas of interest.[13] The importance of managing rights and permissions for digital assets will continue to grow.

Copyright

Staff are disappointed occasionally to discover that the museum does not have the copyright for its own collections objects. Staff may also discover that when photographs and videos have been taken of events that the museum desires to present on the Web, the necessary releases to show the museum visitor looking at the object or the teacher interacting with her class at the museum were never prepared or signed. Obtaining the necessary clearances, verifying deed of gift records for the transfer of copyright, and acquiring copyright permissions take time. Museums need to incorporate new processes into field research, collections acquisitions, and public events to insure that materials will be available for use both in the museum and in the web environment. Museums may use a "fair use" defense for images for which they do not hold copyright. "Fair use permits certain good-faith uses that, in other contexts, would be an infringement. These include criticism, comment, news reporting, teaching, scholarship, and research."[14] The American Association of Museums text, *A Museum Guide to Copyright and Trademark*[15] provides an introduction to copyright and trademark issues. The *Guide* provides background in some of the new questions and issues that museum staff are increasingly called upon to consider and answer, e.g., "Can we put a link to your site on our site?" or web site domain name disputes.

Conclusion

The information economy provides an ocean of issues with which museums must contend. Institutional boundaries are blurring. Museums are forming partnerships with a variety of enterprises from the entertainment industry to universities. Content is in demand but collec-

tions information systems records are not enough. Nothing is as simple as it seems and there may be no single guide but that of practical common sense. A virtual wet suit or a life jacket may well be a useful thing to have on the desktop when it all seems too complicated or expensive. Perhaps a modicum of comfort might be drawn from the fact that museums everywhere, large and small, face the same challenges.

There are life rafts around—organizations such as the Consortium for the Computer Interchange of Museum Information (CIMI) offer important opportunities for research, testbeds, and trials that the rest of us could not afford on our own. The Museum Computer Network <http://www.mcn.edu> and Museum and Archives Informatics <http://www.archimuse.com> offer the ability to attend conferences and hear first-hand the experience of others. The National Initiative for Networked Cultural Heritage (NINCH) <http://www.ninch.org> offers an online platform for the cultural community to collaborate and learn from each other to advance the goal of an integrated, distributed body of cultural material accessible to all. When you are weary of surfing alone, jump on board. These organizations may not have all the answers, but swimming alone is rarely a good alternative.

Notes

1 Everett Ellin, "An International Survey of Museum Computer Activity." An unpublished paper authored for the 8th General Conference of the International Council of Museums and delivered before the session on Collections and Research, Munich, August 7, 1968.

2 Robert R. Janes, *Museums and the Paradox of Change* (Calgary: Glenbow Museum, 1997, 2d ed.), xiv.

3 Staff at the University of Pennsylvania Museum of Archaeology and Anthropology, in conversation at the November 1999 Museum Computer Network Conference in Philadelphia.

4 Margaretta B. Sander and John Perkins, eds, CIMI Consortium Integrated Information Management Working Group, A Model for Museum Information Management, Version 0.11 Draft for Comment, 6 March 1999, <http:// www.cimi.org> The IIM Model Document.

5 Howard Besser, "Integrating Collections Management Information into Online Exhibits: The Worldwide Web as a Facilitator for Linking 2 Separate Processes," *Museums and the Web* (Los Angeles: March 16-19, 1997) <http://www.archimuse.com/mw97/speak/besser.htm>.

6 Jon Oberlander, Mick O'Donnell, Chris Mellish, and Alistair Knott, "Conversation In The Museum: Experiments In Dynamic Hypermedia With The Intelligent Labeling Explorer," *The New Review of Hypermedia and Multimedia* 1998: 11-45.

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8 National Museum Directors Conference, *A Netful of Jewels New Museums in the Learning Age* (UK: National Museum Directors Conference, 1999), 7.

9 Darren Kornblut. "On-line Primetime—Promoting via Portals and other traffic building tricks," *Museums and the Web 2000.* Pittsburgh: Archives and Museum Informatics, 2000.

10 Press Release, April 17, 2000. "MoMA & Tate Gallery Announce Joint Commercial Web Venture," <http://www.moma.org/docs/press/2000/fF_PO02,c8458,.htm>.

11 Neal B. Johnson, "Tracking the Virtual Visitor: A Report from the National Gallery of Art," *Museum News* (March/April 2000).

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14 Christine Steiner, "Introduction," *A Museum Guide to Copyright and Trademark.* (Washington, D.C: American Association of Museums, 1999), 9.

15 American Association of Museums. *A Museum Guide to Copyright and Trademark.* (Washington, DC: American Association of Museums, 1999).

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Diane Vogt-O'Connor

A Precarious Balance
Collections Access and Intellectual Property Rights

In the 20th century, museum staff talked of balancing collections access against preservation concerns. At the cusp of the 21st century, museum staff are rapidly discovering that the ability to balance collections access against the risks of intellectual property rights lawsuits is a survival skill of equal importance. Such concerns are not new. Since the founding of our nation, U.S. lawmakers have been trying to solve the problem of how to strike a balance between two groups,[1] including:

- democratic society's need to have rapid and unlimited access to creative works and inventions to inspire other potential creators, and as key resources for public betterment in the arts and sciences, education, news reporting, and criticism[2]
- creators' (artists, authors, and inventors) needs to control how their works are used and make a profitable living from their works

Lawmakers and the courts adopted intellectual property rights (IPR) legislation (and the supporting IPR case law) as the most effective way to balance the competing needs of creators and the public. Museum staff face intellectual property rights issues in almost every aspect of daily life. [3]

What is protected by intellectual property rights?

While facts, ideas, and principles can't be protected, intellectual property rights protect:

- original creative works in fixed form through the use of copyrights,
- designs, materials, processes, and inventions through the use of patents, and
- a manufacturer's products and services through the use of trade names and marks.[4]

Note: Naturally occurring scientific specimens, archeological artifacts, raw data, and natural and physical processes have no intellectual property rights protections.

Creators of intellectual property—who may be architects, artists, authors, inventors, manufacturers, museum staff, sculptors, writers, or others—may sell, license, or transfer intellectual property rights to others, including museums.[5] Creators may sell individual rights or all rights. Museums, like libraries and archives, often own works without owning the work's intellectual property rights.[6] For the museum to own or lease the intellectual property rights, the rights owner (usually the creator of the work or the creator's heirs if the creator is dead) must either transfer the rights in writing or license usage of them to the museum.[7] Check transmittal documents, such as a Deed of Gift, to see if the museum received the appropriate rights.[8] Museums that lack intellectual property rights to their collections are limited in how they may use their collections. When museums lack rights, each potential usage must be analyzed for potential legal risks.

Intellectual property rights are governed by a wide range of legislation, some of which forms part of our most basic legislation, the U.S. Constitution. [9]

What are intellectual property rights?

Copyrights (Copyright Act of 1976, 17 USC 101-810 et seq. [1988 & Supp. V 1993]; Sonny Bono Term Extension Act of 1998 [PL 105-298, 112 Stat. 2827]; and the Digital Millennium Copyright Act [PL 105-304, 112 Stat. 2860]) allow creators the right to exclusively benefit from their work (currently for their lifetime plus 70 years), while protecting and defining acceptable usage by all other individuals and organizations.

Under copyright law, the creator holds all rights to copy or reproduce, distribute or publish, exhibit or display, publicly perform, change (alter) the work, or produce derivative works (spin-off products such as posters or T-shirts).

In addition under the Visual Artist's Rights Act artists have "moral rights" for fine art works created after June 1, 1991, including the rights to have:

- their works attributed correctly and no works that aren't their own wrongly attributed to them,
- their work maintained without alteration, **and**
- their works protected from destruction during the artist's lifetime.[10]

"Fair use" is a special exemption to copyright protection, which allows use of materials if the usage fits four criteria:

- The usage is of small and insignificant portions of the work (but not the most significant portion of the work or the bulk of the work).

- The usage is for "transformative" purposes such as commentary, criticism, news reporting, parody, scholarship, and teaching (but not for public distribution, exhibition, derivative works, adaptations, public performance, or for profit purposes).
- The usage doesn't affect the market for the work (for example, the usage is not-for-profit and no money changes hands).
- The nature of the work is not dramatic or fictional, but rather factual or conceptual.[11]

If a museum makes "fair use" of copyright-protected materials, permission of the work's creator isn't necessary.[12] However "fair usages" must be justifiable according to the four criteria listed above.[13] **Note:** Museum staff may always copy unprotected materials (such as facts, ideas, and concepts); works with little creative authorship (such as slogans); works whose copyright protections have lapsed (such as works published before 1923), or works that never had protected status due to their circumstances of creation (such as works by federal employees).

Patents (U.S. Constitution Article I, Section 8 and 35 U.S.C. 1 et seq.) are authorizations granted by the federal government to inventors and/or their employers to exclusively produce, sell, or use their inventions (usually designs, machines, or processes) within the United States for 14 years (design patent) or 20 years (utility patent) from the date of filing a patent application. Patents prohibit other individuals from making, using, selling, or offering for sale protected patented items in the U.S., including museums making reproductions. Inventors may patent designs, machines, manufacturing methods, or materials, including chemical compositions that function "usefully" according to U.S. Patent and Trademark Office definitions. Ideas, suggestions, and natural or physical processes may **not** be patented.[14] There are no restrictions on exhibiting patented items. Once they are patented, anyone may purchase and display detailed drawings of a patent-protected invention from the U.S. Patent Office.[15]

Trademarks (common law, state, and federal law) are brand names, symbols/logos, and/or words used by businesses (including museums) to distinguish their products and services from their competitor's products and services.

Trademarks can't be used to stop competitors from selling or producing similar goods. Instead, trademarks "brand" or indicate the creator or manufacturer of the goods. Museums most frequently use their names or buildings as trademarks, particularly for their shops, reproductions, and services. To function, trademarks do NOT have to be registered. However, once registered with the U.S. Patent and Trademark Office, manufacturers may list their trade name with a registration notice symbol (®). Current registration lasts for 10 years with optional renewal. Trademarks may be searched online at <http://www.uspto.gov/tmdb/index.html.> When a trademark is used to "brand" a service, it is called a service mark. Materials with trade and service marks owned by others may be exhibited and cited by name in museum publications as long as it is clear that the museum is not the source of the goods or services associated with the mark.[16]

The closely related rights of privacy and publicity are sometimes seen as synonymous with intellectual property rights.

Privacy rights (5 USC 552a and state laws including Restatement [Second] of Torts 652A-652I) protect private living individuals by giving them the right to be left alone from intrusions into their private lives. Privacy rights give private living individuals the right to be free from unwanted disclosure of private, potentially embarrassing information (such as medical or psychiatric histories, personnel records, confidential lawyer-client or clergy-client discussions), or from statements that place the individual in a false or misleading light. Individuals are also protected from having their name, face, nude image, fingerprints, house, or private words used by another for gain. Privacy law protections are non-commercial rights that end with death. In other words, the dead have no right to privacy under U.S. law. **Note:** Private information may only be viewed or copied by permission of the individuals documented. All other access to private information on living private individuals is generally prohibited by law, whether for profit or not.

Museums frequently encounter privacy issues when they hold oral/video histories or ethnographic interviews (and transcripts) that lack signed permission forms from the interviewer and interviewee. Museums holding still photographs and moving images of identifiable private living individuals without model releases from the individuals shown may also face privacy difficulties.[17]

Publicity rights (state common or statutory law in almost half the states) protect celebrities and grant them the right to benefit from any

usage of their name, face, image, voice, or other aspects of their image for commercial gain. Publicity law protections are commercial rights which may extend after death of the celebrity. Museums most often encounter these issues when they use materials that document living or dead celebrities, such as oral and video histories and/or still or moving images to produce commercial products such as clothing, tote bags, posters, or similar items. To produce such items, a museum must have written authorization or license from the celebrity or the celebrity's estate. Such authorization is not necessary if the celebrity is a federal employee shown in the course of their official duties, such as a U.S. president.[18]

When do intellectual property rights affect museums?

Due to their roles as keepers, managers, users, and creators of material culture and specimens, museums deal with intellectual property rights on a daily basis. A few of the key museum encounters are described below.

Museums as Researchers. In their roles as researchers, museum staff use copyrighted materials, such as books and manuscripts, as they research exhibitions, publications, and object documentation. During the research process, care must be taken not to infringe copyrights by plagiarism, unwarranted copying, or other activities that don't fall into the "fair use" realm. To prevent future problems, all copies should be marked with the word "copy," with the source of the materials (institutional name), and with rights that were acquired with the copy, if any (for example, "Use for research only, no publishing permission was acquired"). Museums may use copyrighted, patented, and trademarked items as research sources, but not materials protected by privacy laws.

Museums as Collections Managers. As collections managers and registrars, museums must document the intellectual property rights of the collections they manage. Deeds of gift should state the status of the copyrights received. If the deed of gift says nothing, the museum does not have the copyrights. If the museum doesn't receive the copyrights, collections documentation should clearly specify how the museum and researchers may use the collections. Museum staff may seek and obtain/purchase a license from the copyright holder to use the work in protected ways, such as in a publication. Generally, copyright is held by the creator or his/her heirs for up to 70 years after the death of the creator.[19] However, creators may have sold or transferred rights or the rights may have been held by the creator's employer if the work was a "work for hire" done as part of employment responsibilities. If the donor didn't own the copyrights, the museum staff may wish to track down the copyright holder to obtain the right to use the materials for other than "fair use" purposes.

Once the copyright holder(s) are discovered, the museum may

- request the gift of all copyright either now or in the creator's will, **or**
- purchase all copyrights, **or**
- purchase (license) just one or two of the copyrights (such as the right to copy and to publish), **or**
- request a license to use the materials for a particular project or program.

Museums as Rights Managers. If the museum owns the copyrights, the museum must enforce them or lose them. Copyright management involves using the materials with a proper copyright notice (©, the name of the copyright holder, and the date), and notifying users how and when to use protected materials. If wrongful use is discovered by the copyright holder, the holder is responsible for notifying the user that such usage must stop. If the unauthorized usage doesn't stop, the copyright holder must pursue a legal judgment against the user. Museums must be careful to always use their own trademarks correctly or risk losing them. Museums rarely hold or manage patents. Watch for materials that contain the images, words, fingerprints, and names of living private individuals and treat these materials as restricted. Materials protected by privacy restrictions must not be made available until the documented individual either authorizes use in writing or the individual(s) documented are dead.

Museums as Providers of Access and 2- and 3-D Reproductions to Researchers. As holders of heritage objects, museums provide access to their non-restricted holdings through copies, exhibits, study centers, web sites, and publications. Materials protected by privacy restrictions must not be made available until the documented individual either authorizes use in writing or the individual(s) documented are dead. Researchers and publishers should be alerted to the intellectual property status of materials they are interested in using and asked to sign a usage agreement stipulating how they will use the materials. Museums must not grant permissions for which they lack

the corresponding rights. If the museum lacks the copyrights to an item, it must grant only fair use copies for purposes of scholarship, parody, criticism, and news reporting, not for public distribution, publication, reproduction, performance, exhibition, or the production of derivative works such as tote bags or posters.

Museums as Publishers and Exhibit Preparators. As publishers of exhibit catalogs and exhibit preparators, museums must obtain permissions from holders of intellectual property rights, such as creators of objects or their heirs. The copyright law does allow museums to exhibit the works they own and one copy, even if the museum does not own the copyrights. However, the museum may not copy and put the work in other exhibits, or send it to multiple workstations over a local area network, or transmit it over the Web unless the additional exhibit is judged to be a fair usage.[20] Privacy- and publicity-protected materials should not be used in exhibitions without permissions; although patented and trademarked items may be used.

Museums as Sponsors and Venues for Performing Arts Activities. As institutions that sponsor performing arts concerts and performances, museums must ensure that no pirated works are being performed that are covered by protections.

Museums as Contracting Parties. Museums frequently use the services of contractors, volunteers, and cooperators to conduct research, prepare exhibits and publications, and assist with special project work. In some cases such assistance can cause tricky intellectual property rights situations, as they may not have the same legal status as works of employees. For example, works created by federal employees during the normal course of doing business are **not** protected by copyright (although they may be protected by privacy and publicity laws). Contractors, cooperators, and volunteers may own the copyrights to works they created while working for the government depending upon what their contract, or other written agreement states. Only contracts that state that a work is a "work for hire" or that clearly spells out in writing that the museum receives all copyrights ensure that the museum obtains the copyrights.

Summary

As museums provide access to their collections, museum staff must become more active managers of the intellectual property rights to these collections. Without responsible rights management, museums face a wide range of legal risks from lawsuits to significant damage to donor and public relations. Responsible rights management increasingly forms a key element in the curatorial skill set, as it does for archivists and librarians.

Notes

1 The U.S. Constitution Art. I Sect 8, cl.8 reads, "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."

2 For a good overview on how copyright affects society see Michael S. Shapiro, "Not control, Progress," on the AAM web site at <http://www.aam-us.org/des.htm>.

3 For a good overview of how this balancing act has been managed by museums, see Stephen E. Weil, "Not Money, Control" on the AAM web site at <http://www.aam-us.org/des.htm>.

4 See Christine Steiner, *A Museum Guide to Copyright and Trademark.* Washington, DC: AAM, 1999; and Marie C. Malaro, *A Legal Primer on Managing Museum Collections.* 2nd ed. Washington, DC: Smithsonian Institution Press, 1998. Also see Goldstein, Paul. Copyright. 2nd ed. Boston: Little, Brown, 1996.

5 Patricia McClung and Christie Stephenson, eds., *Images Online: Perspectives on the Museum Education Site Licensing Project.* Los Angeles: The J. Paul Getty Trust, 1998.

6 Laura N. Gassaway and Sarah K. Wiant, *Libraries and Copyright: A Guide to Copyright Law in the 1990s.* Washington, DC: Special Libraries Association, 1994.

7 See the Rights and Reproductions Information Network (RARIN) of the AAM Registrar's Committee at <http://www.panix.com/-squigle/rarin/01rcsite.html>.

8 See Rebecca A. Buck and Jean Gilmore, eds., *The New Museum Registration Methods.* 4th ed. Washington, DC: American Association of Museums, 1998, and National Park Service, *Museum Handbook,* Part II, Museum Records, Chapters 2, Accessioning and 3, Cataloging. Washington, DC: Government Printing Office 1984.

9 U.S. Constitution, op cit.

10 Christine Steiner, ed. op cit. 32-33.

11 See also the Copyright Law of the United Sates of America at the Copyright Office of the Library of Congress at <lcweb.loc.gov/copyright/title17/#top> and *Copyright Crash Course* of the University of Texas at <http:.www.utsystem.edu/ogc/intellectual property/cprtindx.htm> and the Coalition for Networked Information Copyright Forum at <www.cni.org/Hforums/cni-copyright>.

12 Guidance on Fair Use for museums may be found in Christine Steiner, "The Double Edged Sword: Museums and the Fair Use Doctrine" published initially in "Museums and Fair Use" *Museum News* 76, No. 5 (September/October 1997), also currently on the AAM web site at <http://www.aam-us.org/

des.htm>. Also see the Conference on Fair Use (CONFU) at <http://www.uspto.gov/web/offices/dcom/oliaconfu/>.

13 Also see William F. Patry, *The Fair Use Privilege in Copyright Law.* 2nd ed. Washington, DC: Bureau of National Affairs Books, 1995 and Melville B. Nimmer and David Nimmer, *Nimmer on Copyright.* New York: Matthew Bender & Co., 1998.

14 See the web site of the U.S. Patent and Trademark Office at <http://www.uspto.gov/>.

15 U.S. Constitution, op cit.

16 See also J. Thomas McCarthy, *McCarthy on Trademarks and Unfair Competition.* 4th ed., Eagan, MN: West Group, 1999, and International Trademark Association at <www.inta.org/>.

17 _____. *The Rights of Publicity and Privacy.* Eagan, MN: West Group, 1999, and MacNeil, Heather. *Without Consent: The Ethics of Disclosing Personal Information.* Methchen, N.J: Scarecrow Press, Inc., 1992.

18 ibid.

19 See the chart in the online version of this *CRM* issue for the term of copyright protection for various published and unpublished materials.

20 Christine Steiner, ed., op cit.

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CRM Online Exclusive

See the "Intellectual Property Rights Action Chart," *CRM Online* at <http://www.cr.nps.gov/crm>.

POW Photos Donated to Andersonville National Historic Site

Andersonville National Historic Site exists to preserve and interpret the history of American prisoners of war. Our work brings us in close contact with men and women who experienced captivity, from World War II to the present. The park has had a formal partnership with the American Ex-Prisoners of War since 1984, and this relationship was instrumental to the planning, construction, and opening of the National Prisoner of War Museum in April 1998. These former POWs are a source of artifact donations, oral histories, volunteer POW hosts, and often serve as advocates for the park. They are living sources of the history the park interprets.

Angelo Spinelli, an Army Signal Corps photographer taken prisoner in North Africa, took over 400 photographs secretly of Stalag III-B and Stalag III-A in February 1943. Upon arrival at Stalag III-B, he traded eight packs of cigarettes for a Bessa Voightlander camera, and proceeded to document, in complete secrecy and at great personal risk, life as a POW of the Germans. Andersonville's Chief Ranger, Fred Sanchez, made contact with Mr. Spinelli and established a relationship, which included conducting an oral history of his experience for the park's oral history collection.

A group of American POWs dividing their bread rations and preparing for a meal at Stalag 3-B in North Africa. Photo taken secretly by POW Angelo Spinelli. Andersonville National Historic Site (accession ANDE-699). Photo courtesy Andersonville National Historic Site, National Park Service.

To celebrate Former Prisoner of War Recognition Day and the second anniversary of the opening of the National Prisoner of War Museum, Sanchez planned a temporary/traveling exhibit using 92 of Spinelli's photographs, most of which have never been published. On April 7, 2000, the park hosted a reception to debut the exhibit and honor Mr. Spinelli. However, the most important event to occur in the course of producing the exhibit was Mr. Spinelli's decision to donate the negatives, the two German cameras, and the tripod he used. There is no other single collection of artifacts that document life as a POW of the Germans like this one, which will become even more important once those who experienced captivity are gone. This priceless collection is one of the most significant additions to National Park Service cultural resources in recent years. It is also a perfect example of how a park, and ultimately the public, can benefit when the Park Service reaches out to other individuals and organizations devoted to the same history.

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Museum Collections in the Information Age

With the growing accessibility of computer hardware and software, the mushrooming popularity of the Internet, and its ever-increasing availability of public information for educational and research uses, cultural institutions are faced with new expectations and demands for the intellectual content of their resources. By the end of the 20th century, many institutions had automated or had started the process of automating their collection records.

Why automate museum collection records?

When a museum undertakes a project of automating its collections records, the goals of the project usually include:

- Adoption and enforcement of uniform vocabulary and documentation standards
- Consistency of accession, exhibit, loan handling, and deaccession processes
- Facilitated electronic data interchange between institutions
- Enhanced staff accessibility to collections data
- Increased accountability for museum artifacts
- Improved production (or staff) efficiency
- Assisted museum policy implementation
- Better ways of educating the public
- Risk management and disaster planning for collections data
- Efficiency of records storage
- Quicker and more comprehensive access to information, which encourages further research and more efficient response to queries
- Improved interpretation of museum collections for the public

Although many of these goals can be accomplished using manual methods of documenting collections and processes, a computerized application is particularly well suited to accomplishing these goals. At the beginning of the 21st century, many museums have done a good job of addressing these goals through automation, with the notable exception of providing robust public access to all their valuable information.

How can a museum balance public access to and preservation and protection of collections?

Let us review National Park Service museums as an example. The implementation of the original National Park Service Automated National Catalog System (ANCS) in 1987and the current usage of ANCS+ (a customized version of *Re:discovery for Windows*) address many of these automation goals for the National Park Service, which cares for one of the world's largest and most diverse collections. However, ANCS+ is primarily used by national park personnel, who do not always make it readily available to the general public. Much of the information collected and tracked by ANCS+ is of no interest to the public or is inappropriate for public access due to security or other valid restriction reasons. However, there is a significant amount of descriptive, historical, scientific, and interpretive information that the National Park Service (or any museum) has a responsibility to make easily accessible by the public. Such availability is the fulfillment of one of a museum's primary goals of interpreting collections for the public and making them accessible.

Unfortunately, making collections physically available to the public often directly conflicts with another primary goal of museums—that of caring for and protecting these collections. A major benefit of the new information age is that now museums can make electronic facsimiles of collections available to the worldwide public without endangering the collections themselves.

If an institution makes these electronic facsimiles available to the public using standard web browser software, it can fulfill its education and access mandates, while at the same time protecting the originals. Some national park sites make this information readily accessible to the public using these means, but most have not yet done so. In the future, we will see an increased emphasis on this method of providing appropriate access.

Have institutions other than museums seen the need to make their information resources available to the public?

Libraries are a great example of institutions that have historically had a need to make collections information available to the public. Over the past 30 years, libraries have used various methods to make their information available both at the library location and remotely. For many years now, major bibliographic databases

have been available through various online facilities that primarily serve libraries as they catalog books (non-unique objects). Two such major databases are

- RLIN, the Research Libraries Information Network, a service of the Research Libraries Group, Inc., and
- OCLC, the Online Computer Library Center, Inc.

The information contained in these databases is available to member institutions, not the public. The goal in developing these large databases is to allow libraries to use pre-written descriptions of books and other materials to avoid costly re-cataloging efforts. Not only does recataloging involve a duplication of effort, it may also yield questionable results depending on the expertise of the catalogers. To avoid these pitfalls, member libraries download standard bibliographic records for inclusion in their in-house computerized or printed card catalog. Public access to the information contained in the central databases at RLIN or OCLC is, therefore, only available to the public through the member library facility.

Now with Internet access, the public seeking book-related information can make a virtual visit to many libraries that have made their computerized card catalogs available to web browsers. As a result, Internet users can search these posted card catalogs to get information about a book or to learn if an individual institution has the book.

What special problems exist for museums that want to provide public access?

Uniqueness. Library collections are usually composed of non-unique collections and therefore catalogers are able to use standard descriptions. Museum collections contain many unique items. Although an object may have similar qualities to an object at another institution, the museum staff must still create a unique catalog entry. Therefore, in order to get information about a museum object, one must obtain that information directly from the museum. In the past, this meant contacting or going to the museum.

Care for the Collection. Museums make collections available to the public via public display, either at the institution or through traveling exhibitions. However, only a small portion of the collection is actually on display at any one time. The remainder of the collection is kept in storage and may be unavailable to the public. The reasons that a large part of collections are kept in storage may be many, including a lack of exhibit space, preservation and protection sensitivities, and the need to select a few items to be representative of the whole. All objects are not needed to tell the story, but they provide the research basis for the story. Since many of these artifacts are delicate, museums must find a way to make the collection available and at the same time exercise proper care. If a library book becomes damaged or lost, unless it is a rare or unusual book, it often can be replaced. If a museum object is lost or damaged, it is not replaceable.

How can a museum make appropriate information available to the public?

The Internet provides museums, worldwide, a way to display and interpret their collections (through images and text facsimiles) to the public without risk to the collection and at the same time protect sensitive information such as donor, appraisal, and location data. Museums making their collections available to the public through the use of a standard web browser are inviting everyone to view their resources.

How does the public search a museum collection on the Internet?

An example of a public search of a collection database is provided by the Springfield Armory National Historic Site. This site is available through the National Park Service web site, Park Net, at the Springfield Armory home page <http://www.nps.gov/SPAR>. In this example, the user types the word(s) of interest "Jefferson Davis," and clicks a Search button as shown in Figure 1. The results are presented first in a list format showing all related image thumbnails and a summary of all catalog information that relates to Jefferson Davis, as shown in Figure 2. The user can view a higher resolution version of the images by clicking on the thumbnail image or additional details from the artifact catalog by clicking the object title as shown in Figure 3. In this example, the catalog notes that appear below the area shown in Figure 3 state that this rifle model first saw

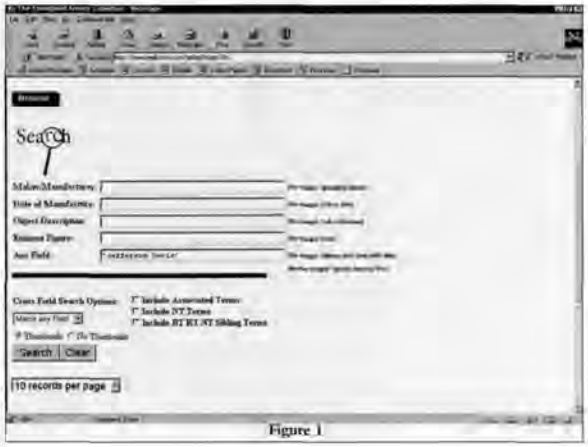

Fig. 1. User types the word(s) of interest and clicks a Search button.

Fig.2. Search results show a list of catalog records found with brief descriptions and image thumbnails.

Fig. 3. User clicks on object title to view a higher resolution image and additional catalog record details.

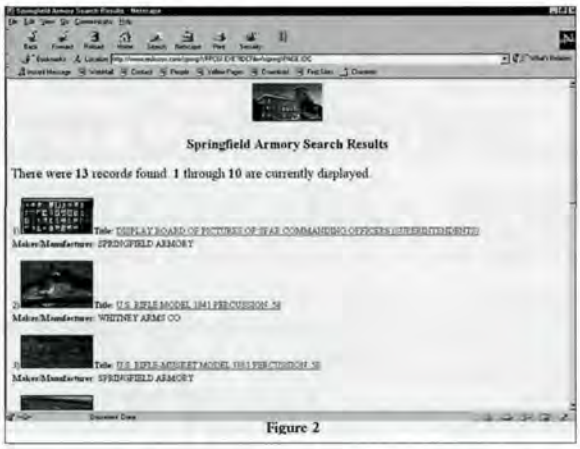

Figure 2

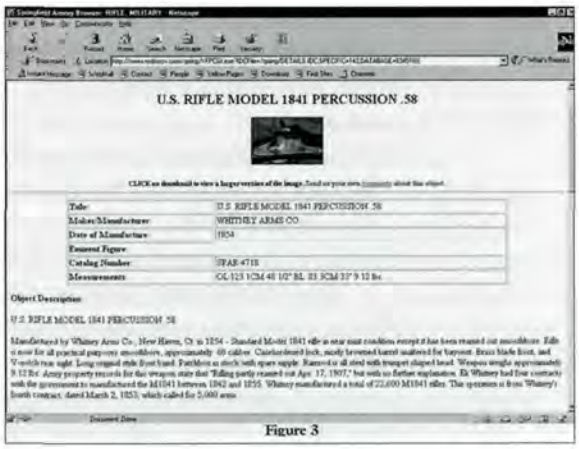

Figure 3

action in the hands of Colonel Jefferson Davis's First Mississippi Volunteer Infantry Regiment during the Mexican War.

How can a museum protect sensitive or unedited catalog details from being displayed to the public?

The institution displays only a selected subset of the data. The institution can determine which fields are shown and which records are displayed. The staff can edit records with public viewing in mind and make those edited records available. The public then sees only the appropriate portions of the selected records on the web site.

Summary

As Internet facilities improve in speed and become available to more and more people around the world, this new forum will become increasingly important as a way to interpret collections and educate the public. For today, images and text are still the only practical visual media for most Internet users. However, in the near future, sound and video presentations will become more common. As museums automate collections and describe them in images and text, they must always keep in mind their public audience. It is likely that what they write today will be read by the world tomorrow!

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Maria Papageorge Kouroupas

The International Pillage of Cultural Property

This year marks the 30th anniversary of UNESCO's Convention on the Means of Prohibiting the Illicit Import, Export and Transfer of Ownership of Cultural Property. Adopted in 1970, this treaty forms the largest and longest standing framework for international cooperation in the ongoing effort to reduce the incentive for further pillage of archeological sites and of ethnological objects important to the traditional practices of indigenous and cultural groups around the world. So far, 91 countries have become party to the Convention, including the United States. Countries differ in their implementation of the Convention, the United States having perhaps the most unique approach as set forth in the 1983 Convention on Cultural Property Implementation Act. The administrative apparatus for this U.S. government effort originally resided at the former U.S. Information Agency, but since October 1, 1999, is the domain of the U.S. Department of State where the president has delegated his decision-making responsibilities. The enforcement function

remains with the U.S. Customs Service of the Department of the Treasury. The review and recommendation functions under the 1983 Act are vested in the Cultural Property Advisory Committee, which is appointed by the president and administered by the Department of State.

The U.S. implementing legislation is a means of responding to petitions from other countries seeking U.S. import restrictions on archeological or ethnological material, the pillage of which places their cultural patrimony in jeopardy. As perhaps the world's largest art market, the U.S. is a significant destination for cultural property pillaged from other countries. Therefore, the U.S. effort under the 1970 Convention as implemented by the Cultural Property Implementation Act, is to reduce the incentive for further pillage of archeological or ethnological materials. However, when Congress considered UNESCO Convention implementing legislation it viewed the problem of pillage through a domestic lens as well, and concluded that "the interest of the United States in this matter extends beyond our import market and our interest in fostering careful study of foreign cultures. In recent years, the increasing interest in Native American, Hawaiian, and Alaskan artifacts concomitantly has spurred the pillaging of U.S. historic sites. The destruction of such sites and the disappearance of the historic record evidenced by the articles found in them has given rise to a profound national interest in joining other countries to control the trafficking of such articles in international commerce."

It is worth noting that the first country to request assistance from the U.S. under the Convention and the U.S. Cultural Property Implementation Act was Canada, a country with which we share not only a long open border, but also a rich Native and non-Native heritage. Mindful of the precedental nature of this request, as the first to be considered under the Act, significant time and attention were devoted to the issue of appropriate statutory interpretation. Toward that end, the U.S. government sought a legal opinion from the Department of Justice and carefully considered the views offered by sectors of the interested public before rendering a determination. Finally, in 1997, the two countries entered into a bilateral cultural property agreement that imposes U.S. import restrictions on certain categories of archeological and ethnological material representing the following cultural groups: Inuit, Subarctic Indian, Northwest Coast Indian, Plateau Indian, Plains Indian, and Woodlands Indian. It also covers archeological material (at least 250 years old) from historic shipwrecks and other underwater historic sites. A reciprocal provision in the agreement, drafted in consultation with the National Park Service, recognizes the existence of U.S. laws that protect archeological resources and Native American cultural objects as well as historic shipwrecks, and offers Canada's pledge to cooperate with the U.S. government in recovering objects that have entered Canada illicitly.

As is the case with all import restrictions imposed by the U.S., on a country-by-country basis, those objects that represent categories designated as restricted may not enter the U.S. after the effective date of the import restriction unless accompanied by an export certificate issued by the country of origin. This designated list is published in the *Federal Register* by the U.S. Customs Service. If restricted objects arrive in the U.S. without an export certificate or verifiable documentation showing that the object left the country of origin prior to the import restriction, then it may be returned to the country of origin. A designated list is representative and formulated from knowledge about documented materials in public and private collections. What is already out of the ground, such as Maya polychrome terra cottas, Djenne clay figures, or gold Moche jewelry, assists us in knowing what may still remain in context until, hopefully, systematic archeological excavations are undertaken.

The paramount importance of documentation with respect to the movement of cultural objects is evident to museum curators and others whose task it is to care for them. But documentation is anathema to those who wish to perpetuate an illicit trade in artifacts, for it is the large supply of pillaged archeological and ethnological material that is undocumented that feeds the clandestine trade—an activity with few risks balanced against the likelihood of high gain. By reducing the appearance in the U.S. of illicitly traded material, opportunities are then created to explore access to this material under legal and safe circumstances for educational, scientific and cultural purposes—a goal that is envisioned in the Cultural Property Implementation Act.

To promote the importance of documentation, it is generally the practice of the U.S. to encourage countries with which it enters into

bilateral cultural property agreements that impose import restrictions, to register objects already in public and private collections. Increasingly, new national patrimony laws mandate this practice while forbidding the further expansion of private collections. But to implement such a mandate requires a clearly defined framework, trained personnel, and support mechanisms that are not readily available in most source countries. The challenge is to find ways to support countries needing to fulfill the documentation requirements of their laws. Such documentation would include the recording of looted material, of course, but for the sake of beginning to draw the net around private collections of looted objects, as most source countries wish to do, it is a prudent course.

With the recent development of Object ID, there seems little excuse today for allowing cultural objects to go undocumented. Object ID is the result of years of careful research, consultation, and analysis conducted by the then Getty Information Institute (now in the hands of the Council on the Prevention of Art Theft [COPAT] in London) in collaboration with museums, cultural heritage organizations, the art trade, insurance companies and appraisers, and police and customs organizations. It is an international standard for recording unique identifying information about a particular object of art or antiquity. Primarily developed as a means of identifying and recovering stolen cultural objects, Object ID is a simple tool based on a common sense approach to recording data about a particular object. Available in many languages and widely adopted already, it can be implemented with pencil and paper or through the use of the most sophisticated database.

Object ID is even useful in the description of classes of objects as opposed to individual objects that comprise a particular collection. For example, it is incorporated in the image database developed by the Cultural Property office of the Department of State to provide museums, collectors, law enforcement entities, and others with information about the classes of objects that are restricted from entry into the U.S. This database is part of a comprehensive web site <http://exchanges.state.gov/education/culprop> about U.S. implementation of the 1970 UNESCO Convention. Information can be found on this site about U.S. emergency import restrictions and bilateral agreements with countries like Cyprus, Cambodia, Canada, Peru, Guatemala, El Salvador, and Mali. An agreement is pending with Nicaragua, and requests from Italy and Bolivia are being processed.

As the ultimate repository for most movable cultural property, museums can influence more scrupulous trading and collecting practices by adopting stronger acquisitions policies that require verifiable documentation associated with their purchases or gifts. Shortly after the UNESCO Convention was first adopted, numerous university museums embraced policies that do not permit the acquisition of objects that left the country of origin prior to 1970. Others adopted similar policies at the time the U.S. implementing legislation went into effect in 1983. Such policies, as that of the Smithsonian Institution, reflect the spirit of the 1970 UNESCO Convention. By exceeding the legal threshold they demonstrate a strong ethical stance against any collecting practice that would promote further looting. This posture promotes a licit trade in documented material, an activity the U.S. Cultural Property Act supports.

But most private museums in the U.S. that are inclined to collect antiquities do not have such policies. One, the J. Paul Getty Museum, stands out as a relatively new exception. In 1995, the Getty Museum revised its acquisitions policy with a provision on "documented provenance" that establishes 1995 as its threshold year. It reads, "proposed acquisitions must come from established, well-documented (i.e., published) collections. Publication must precede the date of adoption of these revisions, November 1995." Thus, the Getty profoundly altered its collecting practice and has created a net through which recently looted antiquities will not pass.

Of the codes of ethics crafted by professional organizations, that of the International Council of Museums (ICOM) seems to set the highest threshold of professional and institutional responsibility. "Museums should recognize the relationship between the marketplace and the initial and often destructive taking of an object for the commercial market, and must recognize that it is highly unethical for a museum to support in any way, whether directly or indirectly, that illicit market." The code also provides that a museum should not acquire an object that may have been exported from its country of origin "in violation of that country's export laws." In practice, it is believed that European museums are

more likely to adhere to the ICOM policy than museums in the U.S. which follow the less stringent codes set by the American Association of Museums and the Association of Art Museum Directors.

ICOM has become highly activist in the international fight against illicit trafficking in cultural property by producing a series of handbooks on looting in Africa, Latin America, and Cambodia (Angkor). Entitled "One Hundred Missing Objects," these handbooks have been directly responsible for the recovery of numerous objects that had been stolen or pillaged from their countries of origin. At least one has been located in an American museum and voluntarily returned. Another recent step ICOM has taken in this fight is the signing of memoranda of understanding with the World Customs Organization and INTERPOL. These agreements will strengthen cooperation between museum professionals and law enforcement with respect to training and the sharing of information. The latest move on the part of ICOM is a new web site known as the "Red List" (<http://www.icom.org/redlist/>), which posts categories of African archeological objects that are vulnerable to looting today. Recognizing that heightened awareness is a major tool in the struggle to reduce pillage, the "Red List" is intended to inform art dealers, auction houses, museums, police, and customs officials worldwide about looting in Africa and the types of objects being illicitly taken from context and entered onto the market.

Technological advances, such as the Internet; developments, such as Object ID; heightened public awareness; and a more engaged and knowledgeable law enforcement community, are all new and effective tools in combating pillage. Institutions and individuals alike are challenged to act responsibly as stewards in the care of the world's cultural heritage, for as we all know, this heritage is composed of unique and irreplaceable representations of humankind. Stewardship obligates us, in whatever part of the world we occupy, to document for posterity, essential information drawn from the undisturbed context of these non-renewable resources. The Aymara Indians of Coroma, Bolivia, whose ancient ceremonial textiles were systematically removed from their bundles under clandestine circumstances and entered onto the U.S. and Canadian markets, have now documented their remaining textiles and placed them in safekeeping. They have done this for the sake of centuries of tradition, which they wish to preserve and perpetuate for generations to follow.

The local residents of the renowned archeological region of Sipan in Peru, once the looters, are now stewards of the royal Moche tombs found there. They now understand the long-term benefit to having a scientifically unearthed site and local museum to house the documented treasures of their ancestor, the Lord of Sipan. The Malians of Djenne, through cultural missions assigned there by the National Museum in Bamako, have discovered not only the intrinsic value of objects representing their heritage, but also the long-term value of protecting and recording their cultural heritage so that its testimony is not rendered mute because of looting. El Salvador now has a new National Museum—only a few years ago it had none—and is engaged in the long task of documenting its collection.

These are some of the benefits that accrue to those nations with which the United States engages in cultural property protection within the framework of the 1970 UNESCO Convention. Emboldened by U.S. willingness to cooperate in protecting their heritage, countries quickly realize they are the stakeholders and have embraced the opportunity to pursue sustainable strategies for safeguarding their national patrimony together with stepped-up legal measures. It is a slow but steady, country by country progression, as is the participation in the 1970 Convention by other major art-importing countries. In that regard, the dynamic is shifting in favor of wider participation now that France has entered the Convention and implementing legislation is being prepared by Switzerland and Japan. It must be noted, too, that the United Kingdom is holding public hearings on this matter this spring. As more market countries are added to the framework, perhaps opportunities will open up for the U.S. to recover its pillaged cultural property abroad, for, as noted earlier, "...the increasing interest in Native American, Hawaiian, and Alaskan artifacts...has spurred the pillaging of U.S. historic sites."

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Preservation are discovering the need to interpret not only the landowner, but all contributors. Schreiber points out the challenge that addressing slavery presents to the staff interpreting the collections and structures of the National Trust. Yet another trend in interpretation is that of integrating the museum store as part of the visitor's educational and recreational experience. Horst describes how park and museum bookstores can contribute to the interpretive mission as well as financially support collections and programs.

Of all issues, technology may be the most powerful trendsetter. To name only a few trends, it is redefining the museum audience; the collection and storage of data; and access to information—the very essence of museums. Perhaps it will redefine the museum itself. Sledge, Vogt-O'Connor, and Black and Edwards draw our attention to the issues and opportunities in the information access and technology arena.

In spite of the controversy that museums sometime engender with their exhibits, for the most part, museums have been conservative institutions, documenting our natural and cultural heritage rather than changing it. The issues in this *CRM* are only a few among the many that museums face. Yet these issues trend toward museums playing a more pivotal role in determining not only how we document and interpret our cultural and natural heritage, but also how we use information (in the form of the rich resources of museums) to shape the natural and human environments of the future.

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