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Natural history collections management in North America

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Definitions of terms

The word *museum*, first used to describe the university building at ancient Alexandria, soon came to mean “a place for study” (August, 1983:138). In terms of natural history collections management, this is an important distinction to make—museums are places where collections are studied. I define study broadly, to cover everything from public exhibition to scientific research, but its the use of the collection that describes a natural history museum’s function.

In North America, the courts define a museum as “a repository or a collection of natural, scientific or literary curiosities or objects of interest, or works or art” (August, 1983:139). The word *collection* means “a group of things collected and arranged” (August, 1983:140). The words *collect* and *arrange*, in turn, come from Latin words meaning “to gather up” and “to put in proper order” (August, 1983:140)—in other words, to manage. Collections management is caring for and managing collections for study.

As has been noted, collections management means different things to different people (Roberts, 1988). I will define management as meaning “to treat with care, to manipulate, to keep in order, to balance current resource demands with long-term future needs” (Manning and Simmons, 1991:46). Collections management means keeping data associated with specimens, while maintaining specimens so that they are retrievable; so that they can be used for research, education, or exhibition; and so that they can be kept in good condition for as long as possible.

Natural history collections management is a relatively new specialization. It is the direct result of the growth of collections in both size and complexity, combined with the increased research and teaching demands on the scientists who traditionally have cared for them.

Personnel

In the United States, the people who manage collections are usually called *collections manager*, or sometimes *curator*; in Canada, they are usually called *curatorial assistant* or *curator* (Cato, 1991). In Europe, the titles

curator, *keeper* and *information scientist* have all been used or proposed (Horie, 1986).

Although *curator* has been defined as a person with curatorial responsibilities (Horie, 1986), in the United States perhaps a more descriptive term for *curator* would be *scientist* or *researcher*. As Humphrey recently noted, most *curators* of systematics collections have research and teaching as their principal responsibilities (Humphrey, 1992). But for purposes of this paper, I will call the workers who have direct responsibility for collections care *collections managers*.

What is the role of the *collections manager*? First and foremost, it is to preserve the collection, and its associated data, while fulfilling the museum's ethical and legal obligations, which includes the conservation of specimens and data (Manning and Simmons, 1991). Conservation, or more precisely, preventive conservation, is rapidly becoming one of the driving forces of collections management in North America. For purposes of this paper, I will define *conservation* to mean the preservation of a specimen so as to retain as completely as possible its original condition.

A *collections manager* maintains and refines the collection and data; plans, arranges, and maintains storage systems; monitors the storage environment and specimen condition; monitors equipment and supplies needed to care for collections; trains and supervises other *collections care* staff; ensures loans are processed and visitors are appropriately accommodated; manages collection records and other data associated with the collection; maintains familiarity with the preservation and conservation literature and techniques relevant to the collections; interacts with members of the scientific community, with the other staff of the museum, and with "outer museum" (Humphrey, 1991) uses of collections; and conducts research projects relating to the care of the collection. The *collections manager* also assists with setting goals, planning, and other administrative aspects of collection care, helps prepare and implement policies, procedures, and long-range plans, participates in professional organizations, disseminates information to advance the museum profession and the standing of the museum in the scientific community. Obviously, the *collections manager's* job overlaps somewhat with that of both traditional *curators* (or *researchers*) and *registrars* (Cato, 1991).

But then, what is the role of the *curator*? The American Association of Museums (AAM) defines a *curator* as someone primarily in a research role with only supervisory responsibilities over the collection (Glaser, 1980), and distinguishes the *collections manager* as the one who "may perform the combined functions of *registrar* and *curatorial assistant*" (Glaser, 1980:31). A *registrar* primarily organizes and maintains forms, documents, files, and records.

In the United States, the title of *curator* is usually conferred on a PhD-level researcher, not on someone primarily engaged in *collections care* (Lindberg, 1989a). These PhD-level researchers have also been termed *scientist-curators* (Laub, 1985:50) and *scholar-curators* (Washburn, 1967:46).

In 1963, Walker proposed "that the term 'curator' be reserved for those who have the care of collections entrusted to them and for those who do care for collections" (Walker, 1963:295). This suggestion was not well accepted, probably because there is too much tradition associated with the title of "curator." In the United States, a natural history curator is defined to mean "scientist", but in history museums, curator is used for those involved in collections care (Washburn, 1967). Washburn saw the passing of the era of what he termed the "scholar-curator" (Washburn, 1967:46) and regretted it, fearing that some sort of "museum specialist will displace the scholar-curator, as the professional librarian has shouldered out the scholar-librarian" (Washburn, 1967:46). He failed to see that what was really happening was that the incredible growth in size, complexity of collections, research techniques and collection care are such that one person can no longer do justice to both collections management and full-time systematics research. Those areas of responsibility—research and collections care—had to be divided.

As Yamamoto wrote about the Royal Ontario Museum, "the concept [of collection management] is still evolving" (Yamamoto, 1985:276). A 1990 survey by a committee of the Society for the Preservation of Natural History Collections (SPNHC) of collection care positions drew a profile of typical collections managers in North America (Cato, 1991). These people have Master's degrees; have been working in the field for 11 years and in their present jobs for five years; 71 percent of them spend more than 40 hours a week on professional and job-related activities. They earn a salary of US\$ 25,000, and spend most of their time managing specimens or data. They are involved with professional societies and publishing in their field. Ranked in order, the frequency of job tasks are: management of specimens and data; management of personnel; general collection support and administration; public service; specimen preparation; research and publication; and teaching.

Of the people in this survey, 40 percent had the title of collections manager (all in the United States); 17 percent were curators; 11 percent were curatorial assistants (all in Canada); the remainder had a variety of other titles. Of those who had the title collections manager, 52 percent had a master's degree, 7 percent had a doctoral degree. Of those called curator, 35 percent had a master's degree, 40 percent had a doctoral degree. Eighty-five percent considered their jobs to be a professional position as opposed to a technical position, but only 58 percent of their institutions classified their jobs as professional (the institutions considered 53 percent of the collections managers professionals, but 80 percent of the curators were considered professionals).

For purposes of this paper, a *professional* is one who conforms to the standards of a profession. A *profession* requires specialized knowledge and usually intensive academic preparation. By contrast, someone in a *technical* position would be a *technician*, which can be defined as a specialist in the technical details of a subject or occupation. The difference is important—professional means specialized knowledge and intensive academic preparation; technical means merely a mastery of certain technical details.

Collections managers have also been incorrectly referred to as "paraprofessionals." The definition of a paraprofessional is someone trained to assist a professional person. This is not what collections managers do.

The survey documented that, "In practice, the care of natural history collections is handled increasingly by the growing profession of collection managers, individuals trained primarily in the care and conservation of collections" (Cato, 1988:51). What training do collections managers need? The AAM recommends that a collections manager have a degree in a discipline field and that a museum studies degree is desirable (Glaser, 1980). I believe that for natural science collections, the preferable combination is a degree in a discipline field and a graduate degree in museum studies with an emphasis in museum collections management and training in preventive conservation. Museum studies encompasses that body of knowledge that defines collections management as a professional pursuit, yet natural history collection care workers have sadly neglected museum studies literature, to their detriment.

There are 18 museum studies programs in the United States offering Master's degrees with emphasis in the management of scientific collections (Genoways, 1989). In addition, the National Institute for the Conservation of Cultural Property (NIC) has published an excellent curriculum for an intensive, four-week course on collections care and maintenance (NIC, 1991).

Historical development of collections management in North America

Natural History museum work is rich in tradition. There is a long tradition of on-the-job training (Stansfield, 1980), a tradition of the autonomy of curators over their collections, and the oral tradition of procedures and techniques being handed down from curator to student.

The body of knowledge contained in this oral tradition has rarely been codified. Robert Boyle, writing in 1666 about the then-new technique of preserving specimens in alcohol, stated that because he was writing in haste, "...I must content my self to have mention'd that, which is Essential, leaving divers other things, which a little practise may teach the Curious, unmentioned..." (Boyle, 1666:200). Unfortunately, few people since Boyle's time have bothered to write down what they have learned, either.

These oral traditions, autonomy, and on-the-job training are responsible, in part, for a crisis in natural history museums today—a crisis of too many specimens for the staff to care for, of not enough training available for the staff, and specimens deteriorating because of inadequate environmental conditions and a lack of knowledge about how to deal with many problems.

Historic attitudes towards museum work

A paper published in 1748 on preserving birds stated that "There is no great skill required for putting one or several [specimens] into a Vessel full of Spirit of Wine, or very strong brandy" (Reamur, 1748:307). This idea that "no great skill" is required for museum work has persisted.

In 1931, the American biologist and museum builder Alexander Ruthven, of the University of Michigan Museum of Zoology, wrote that "Museum work cannot properly be considered a profession for it is only incidental to the recognized disciplines. It is simply a technique, or more generally a group of techniques, which must be determined, guided, and used by those skilled in the several fields of knowledge best cultivated in these institutions" (Ruthven, 1931:26). He went on to say that "Directors and curators should be scholars, not technologists, if the museums are to be real 'nurseries of living thoughts'" (Ruthven, 1931:29). Yet, Ruthven also wrote that "As a technique, museum work is too important to be neglected" (Ruthven, 1931:26).

Clearly, attitudes have changed somewhat since 1931. The most important change has been a recent recognition that collections have simply outgrown their traditional curators—most systematic collections are too large and complex to be managed by someone who is also expected to be a full-time researcher and often a teacher as well; and the size, complexity, and age of collections demand that those caring for them have a greater knowledge of collections care than was thought necessary in the past. Add to this the fact that our knowledge of collection care has greatly increased in recent years.

A 1963 paper on curation stated that "The custodial part of the curator's job has a much broader and more important significance than many people seem to realize today" (Walker, 1963:292). The author worried that "Having decided that research is their most important function, many curators are tending to concentrate their entire attention to this one activity" (Walker, 1963:292). In a 1985 paper on natural history curators, Laub defined a curator as a scientist "first and foremost" (Laub, 1985:48) and further explained that "Commonly, the cataloguing and placement of specimens in storage cases is done by persons other than the curator" (Laub, 1985:49). Despite this admission that curators do not actually care for collections, Laub thought little of collections managers. He wrote that "The argument has been advanced that curators should have responsibilities for research and higher education only, while collection managers (who are not professional scientists) should be responsible for the maintenance and increase of collections... I feel that the value of the scientist-curator's training, activities, and experience are of such importance to the development and care of a collection that it is unwise to 'divorce' the scientist from interest in and ultimate responsibility for the collection" (Laub, 1985:50). This is a very curious viewpoint. I believe that Laub has missed something important—a collections manager does not 'divorce' the scientist from the collection at all—instead, the collections manager enables the scientist to make better use of the collection.

But shouldn't the researchers using the collections know best how to care for them? After all, have they not inherited the mantle of curator through their academic lineage? This is actually part of the problem. Researchers (or scholar-curators) are not taught modern collections care. They learn the oral tradition, but they are taught nothing about preventive conservation, management, or the wealth of information available in the museum studies literature. They were only taught how to run a collection so that it could be used—they were not taught how to manage complex collections as I have

defined collections management. In the edition available from 1969 to 1991 of one of the most widely used texts on systematics (Mayr, 1969), the section dealing with "Curating of Collections" was very short—just five and a half pages out of a total of 428 pages in the book. To add irony to insult, the single photograph in the "Curating of Collections" section (of some bird specimens in trays in a case) was printed sideways. In the current edition (Mayr and Ashlock, 1991), "Curating of Collections" is still five and a half pages long, although the text has grown to 475 pages. Another recent systematics text (Wiley, 1981) devotes six pages to curation of a total of 439 pages. All three of these texts address the importance of curation, but clearly they can impart very little knowledge of the subject in just five or six pages.

In university museums, where most scholar-curators are trained, the problem is particularly acute. As one scholar-curator pointed out, "Except in the well-endowed academic museums, support staffing seldom includes museum professionals. Instead, graduate students, research and laboratory assistants are delegated responsibilities as collections managers, technicians and museum assistants. And because many of these persons are transient in the academic setting, continuity and stability of care and expertise fluctuate greatly from year to year," (Lindberg, 1989a:8). Several scholar-curators have suggested that collections care should be formally taught in graduate systematic biology programs (Humphrey, 1989; Lindberg, 1989b), but no universities are doing this yet.

Although scholar-curators should be better educated about collections management, it would be inappropriate to try to train PhD students in systematics to be collections managers. A PhD in systematics is not needed to manage collections—but a degree in museum studies is very important. Collections management is a specialization in and of itself. The roles of research and collections care have some overlap, but they are complimentary professions in the museum field.

Many traditional scholar-curators have been reluctant to delegate the authority for the collections care part of their jobs, even though both they and their collections would benefit if they did (Murdoch, 1992). There are two main causes for this. First, because of their lack of training in collections management and preventive conservation, many PhD researchers do not really understand the complexity of day-to-day modern collections management. Secondly, the scholar-curators are deeply steeped in the oral traditions of curation. As a group, they have been unwilling or unable to establish curatorial standards for what they do now, much less look for better ways to care for specimens. An example of this can be found in the attempts of the Association of Systematics Collections (ASC) to address collections management.

The ASC is an institutional membership organization for systematic collections. The officers, committee memberships, and councils of the ASC are made up chiefly of PhD researchers and administrators. At the 1989 annual meeting in Lincoln, Nebraska, the ASC held workshops on "Educating Systematists/Curators" and "Collections Management and Preservation." Among the ideas expressed by some of these scholar-curators was that their

graduate students were well-trained in collections management because each student had the opportunity to work in the collection, during which time "they do all the things that a curator or collections manager does," such as prepare loans, supervise undergraduate preparators, and assist visitors. Note that these activities are all related to *using* the collection, not to *caring for* the collection. In a subsequent publication, one scholar-curator admitted that "the lack of formal course work in contemporary collection conservation and preparation allows for the passing on of 'bad habits' from curatorial generation to curatorial generation" (Lindberg, 1989b:65). This is a serious problem—the people in charge of the collections in North America are, for the most part, PhD scholar-curators who received their training in collections care only through an inadequate oral tradition.

With a few notable exceptions, neither the scholar-curators nor ASC have done much about collections management. In 1973, the ASC announced the formation of the "Council on Standards for Systematics Collections" as part of the development of a major report on systematics collections (Anon., 1973). This council was supposed to develop standards for "physical facilities, collection storage, preservation, specimen and data acquisition and documentation, collection growth, and interinstitutional loans" (Anon., 1973:12), all of which are collections management issues. The council also intended to look at the broader issues of the nature of systematics collections and electronic data processing. The council formed two subcommittees, one on preservation, the other on data standards (Anon., 1974a). The preservation subcommittee then set out to collect information (Anon., 1974b).

The following year the preservation subcommittee, in attempting "the determination of specific standards of preservation related to individual disciplines", reported that "a series of preliminary and necessarily more general standards has been written" (Anon., 1975:3). However, the report cautioned that "Much remains to be done toward the delineation of specific standards that can be used by collection managers, staff, users, and students associated with systematics collections" (Anon., 1975:3). The recommendations listed in the report were very general, for example, "Collections and specimens must be housed in buildings and storage facilities that provide adequate protection from fire, water, dust, excessive heat or light, and other physical and biological hazards" (Anon., 1975:4). The vast majority of the recommendations concerned access to the collection, which is to say, collection use rather than collection preservation. Nothing more was reported by this committee in the ASC Newsletter until 1980.

By 1980, the Council on Standards had been changed to the Council on Curatorial Methods and was "reactivated" (Lee, 1980a). But the Council again ran up against the unyielding forces of tradition and autonomy. Its report stated that "Each discipline in Systematics has some generally agreed upon practices relative to curatorial procedures and data documentation, etc., but there is virtually no unity of approval on even a regional basis, let alone a national scale. In truth, very few, if any *standards* exist" (Lee, 1980a:9). The article goes on to discuss the negative reaction by the systematics community at large to the idea of curatorial standards, saying that "There are few words

which can stir up misgivings, doubts, fears and even anger as quickly in practising systematists as the term *standards*" (Lee, 1980a:9). A suggestion came to the council that "Rather than 'curatorial standards,' how about a venture into 'curatorial ideals'?" (Roth, 1980:43), but even this appears to have met resistance. Eventually, the Council settled for "the development of interdisciplinary guidelines for the management of voucher specimens" (Lee, 1980b:57; Lee, 1980c; Bell, 1981). The Council established a working group to "insure a minimal level of preparation that will maximize future use of voucher specimens" (Van Syoc, 1981). This effort resulted in a publication (Lee, 1982; Lee et al. 1982) useful in many ways, but the recommendations were still very general. For example, "If long term storage and use are to be guaranteed, application of correct procedures is highly critical. This is accomplished best through work done under the direction of trained biologists" (Lee et al., 1982:13). There is no attempt to define what "correct procedures" are, nor what training the "trained biologists" should have. It was apparently assumed that traditional preparation and management procedures did not need to be examined. Despite good leadership and a willing group of committed scientists, collections management issues were not seriously addressed.

After this, the Council planned to turn its attention to the less controversial area of specimen records and record management (Sutton, 1980).

A recent report from the "ASC Workshop on Collections Resources for the 1990s," funded by the National Science Foundation of the United States (NSF), has again called for the establishment of standards for collection storage and collections management and manuals on preservation and conservation of specimens (Hoagland and Mabee, 1988). Clearly some of the scholar-curators know there are problems, but not enough of them are yet willing to make changes.

In 1984, the ASC reported on a survey designed to project priorities for the systematics community for the next decade (Anon., 1984). This report mentions funding needed for the curation of collections and the development of "new curatorial techniques" (Anon., 1984:38), but "support staff" (Anon., 1984:38) are only mentioned in the context of being needed "to process the backlog and the growing volume of new materials being added to systematics collections" (Anon., 1984:38). No mention was made of the need for more trained staff to better manage and care for what is already in collections.

The present situation

How should natural history collections be managed? In North America, there is a growing emphasis on the conservation of specimens and data and the stability of the collections storage environment (Shepard, 1988). The emphasis is on preventive conservation instead of treatment of individual specimens (there are very few conservators working in natural history (Hawks, 1990), and it is unlikely that there are going to be many more in the near future). Both good collections management and good conservation practices start with the prevention of problems.

Although the situation is improving, there are still problems in the understanding of collections management by collection users. A recent plea for "Collection Needs" in the ASC Newsletter (Funk, 1989) made two main points: (1) more systematists need to be trained to use collections; (2) funding is needed to make more collections and process more specimens so that "they are usable" (Funk, 1989:22) by systematists. This plea, however, did not mention what collections management techniques should be used, what training collections care personnel should have, that preparation methods must be analyzed for conservation soundness, or that greater use of collections and increased collection growth make these "collection needs" even more urgent (Simmons, 1989). The scholar-curator still sees collections management first in terms of access to specimens, not in terms of collection care and conservation. Perhaps this is natural, but it puts the collections manager in the role of mediating between the use of collections and preservation of collections (Cato, 1991), although the collections manager is not often given the authority to fulfil this role. As stated by Hoagland and Mabee (1988:4), "Without the political muscle of tenured faculty, the collections managers find themselves unable to defend the collections against more powerful competing interests."

In many cases, collections managers in North America are expected to take responsibility for collection care without being given the authority needed to carry out this responsibility. Most North American natural history collections are under the charge of scholar-curators, researchers, or scientists. Collections care personnel—usually without a PhD and without tenure, lack the authority and prestige that comes with research positions. This means they rank very low in the hierarchical structure of academia. A recently published pamphlet on "Careers in Biological Systematics" does not even mention collection care jobs (Cato, 1988), it only discusses research and teaching positions.

Some researchers feel that collection use should take precedence over collections care (Conrad, 1990), failing to realize that when collection use comes before preservation, the users will soon be out of business as they will end up with a useless collection. They argue from the position that "...museums understand that the desire to take care of collections derives from the need to use them" (Conrad, 1990:1), and make this argument in opposition to the AAM for their insistence that care of collections is the primary responsibility of all museums. The argument is illogical—collections cannot be used if they don't exist, and they won't exist unless their care is the *primary* responsibility of the institution which houses them. The use of collections should not mean that they can't be properly cared for, nor should caring for collections proscribe their use. Several other authors have evaluated the museum missions of education, exhibition and research and have more rationally concluded that "...we must acknowledge that we owe support to collections..." (Novacek, 1990:356).

The necessity for research to be conducted with museum specimens, even though this complicates the mission of preserving them, cannot be overstated. Collections not used for research risk becoming irrelevant (Foster, 1982).

However, research needs cannot be allowed to completely dictate collections management policy. Use of specimens must be very carefully evaluated by both the researcher and the collections manager in terms of specimens available, effect of the research on the specimens, and expected use of the resulting data (Manning and Simmons, 1992).

Collections management positions have evolved rapidly over the last fifteen years (Cato, 1991). Survey data "emphasize the importance of collection manager-type positions to overall collection care goals in an institution" (Cato, 1991:92). Collections managers are involved in the development of policy and procedures (Simmons, 1991), and all aspects of specimen care from collection and preservation through identification, organization and storage, use, research, and dissemination of information (Cato, 1991). Through all these tasks, the collections manager has a particular responsibility to the collection users to make the collection accessible, and a particular responsibility to the collection to care for it (Simmons, 1986).

I am using the term *collections management* in a very broad sense, such that *curation* describes a subset of collection management activities. Collection management subsumes a broad definition of curation, as in "The term 'curation' implies management functions regarding collections, i.e., processing, cataloging, accessioning, conserving, storing, maintaining, and making collections and their documentation available for research" (Marquardt et al., 1982:409).

What does it mean to have a "curated" collection? Traditional scholar-curators define it as a collection that is organized so that specimens can be retrieved (Steffan, 1977). However, a well-curated collection should also mean that specimens are stored under the best possible environmental conditions, that handling and use are closely monitored, and that steps are taken to improve the longevity of the specimens.

In a recent essay (McGinley, 1990) a scholar-curator at the Smithsonian Institution suggested that "instead of collection management, we tend to practice a system of 'ad hoc management' that is, dealing with problems as they become apparent and seem important at the time" (McGinley, 1990:30). The writer recommends that each collection should (1) develop a mission statement; (2) based on that statement, establish priorities for collection growth; and (3) identify problems with the collection. From this framework, he developed a "Collections Standards and Profiling System" which rates the "health" of a collection using a numerical coding system to identify the curation status of basic storage units (drawers, boxes, or other units). These categories describe conservation problems, identification problems, labelling, placement of specimens in units, and status of data recapture. Using this system, a profile of the collection can be produced to show clearly where problems are and how they can be addressed. This system has great potential as a collections management tool, particularly in a very large collection.

At the 1989 ASC meeting session on "Collections Management and Preservation," Kimball Garrett of the Los Angeles County Museum of Natural History, summarized the chief impediments to proper collection management faced in North America:

1. Inadequate staffing and funding for collections.
2. A lack of basic research in collection care materials and procedures.
3. The inadequacy and inconsistency in the basic training of collections managers.
4. Lack of recognition by many curators of the functions and responsibilities of collections managers. Collections managers should not be used merely as research assistants.
5. The tendency of many curators to choose collection growth over collection care.
6. Some curators are out of touch with progressive collection care techniques and needs. They would rather continue using improper techniques for collection care because it is perceived to be easier or cheaper than comprehensive collections management.
7. Lack of recognition on the part of many administrators of the role of collections managers. Collections managers are often treated like second-class citizens.

The future of natural history collections management

There are two distinct components to collections management (Cato, 1990). One of these includes cataloguing, tracking, identification, and physical location of specimens, which all falls under the general heading of *registration and documentation*. The second component is that involved with the physical existence of the specimens, the prevention of their *deterioration*. The greatest growth and improvement in collections management has definitely been with *registration and documentation*, especially the advances made in electronic data management. By contrast, the physical safety of the specimens "has really taken a back seat in the realm of collection management" (Cato, 1990:12).

The advances made in electronic data processing do have a downside—they can obscure the more important tasks of collections management. There is a real danger of collections management being made synonymous with computerization in the minds of many collections users (Cato, 1990).

The growth in size and complexity of collections has created a demand for new management techniques and policies (Cato and Schmidly, 1991; MacBeath and Gooding, 1969). Even very small museums benefit greatly from the development of a collections care program (Kopeck, 1991; Silvy and Cato, 1991). Long-range planning is lacking in most life science collections. Cato (1991) reported that only 42.2 percent had long-range growth and development plans; a mere 29.4 percent had plans for improving collections management, and just 31.4 percent had long-range collection conservation plans.

Long-range planning is important for good collections management. Preparing a plan should involve three types of specialists—conservators, scholar-curators, and collections managers (Cato, 1990). Conservators are trained to look at the collection environment and evaluate the longevity of the specimen. Scholar-curators bring the perspective of the use of the collection and directions for growth. Collections managers work from the perspective of both collection use and preservation. “The combined evaluations of all three specialists are essential to the development of a workable long-range plan for a collection” (Cato, 1990:13). This is recognized by the Code of Ethics proposed by the AAM which calls for curators to “work in cooperation with the registrar, collections manager, conservator and other staff to ensure that the collections and related documentation are well maintained” (Lester, 1983:38).

Policy statements are important for carrying out the mission of the museum (Sledge, 1988). They serve both as a guide and “a public statement of the museum’s professional standards regarding objects left in its care” (Malaro, 1979:57). Collections managers should play a key role in preparing policy and procedural statements. Of natural history collections surveyed in North America, 78.9 percent had loan policy and preparation plans, but only 59.6 percent had written acquisition/field preparation plans; 56.1 percent had general management policies and procedures; and a mere 21.1 percent had conservation treatment plans (Cato, 1991).

As Cato (1990) stated, “A systematic questioning of procedures and techniques should be an integral part of a collection manager’s job. The collection manager...should function...as a type of systems analyst to pull apart the management system that is currently in place and to analyze it.” In doing this, the collections manager will discover problem areas where research is needed, and can then coordinate working with specialists to address these problems. In this regard, an important initiative has been undertaken by the NIC with the collaboration of ASC and SPNHC. The project is designed “to explore the conservation and preservation needs of the natural science specimens...that repose in museum, university and other institutional collections” (NIC news release, 1992). Funded by the NSF, the project convened working groups to gather and analyze three types of information:

1. Basic problems affecting the overall general care of natural science collections.
2. Specific conservation problems in need of research (both collection specific and common to several disciplines).
3. Collections care and conservation training and information resources that are currently available and those that are needed for the future.

These working groups brought together collections managers, scholar-curators, material scientists, conservators, administrators, and other collections care workers and users of collections. One preliminary observation from this project is that the answers to many of the conservation questions already exist in the materials science literature. The problem is one of communication and access to information. The collections manager is in an ideal position to coordinate information from materials scientists,

conservators, and other collections care workers, to work with conservators to establish preventive conservation measures, and to identify areas where research is needed (Rose, 1991). Thus, the professional collections manager must remain current with professional museum standards, with the research needs in the appropriate scientific disciplines, and with conservation standards for the collection (Cato, 1990).

New strategies for collections management

Increasingly, there are calls for changes in “management structure, roles and responsibilities for...collections management function” (Tyler, 1990:7) in museums, and a movement “to look critically at roles and responsibilities of research scientists, curators, collections managers, support units, and administrators—the collection management team” (Tyler, 1990:7).

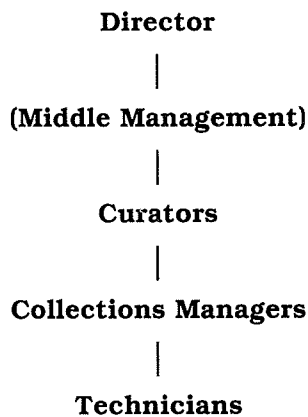


Fig 1. The traditional power structure in natural history museums in North America.

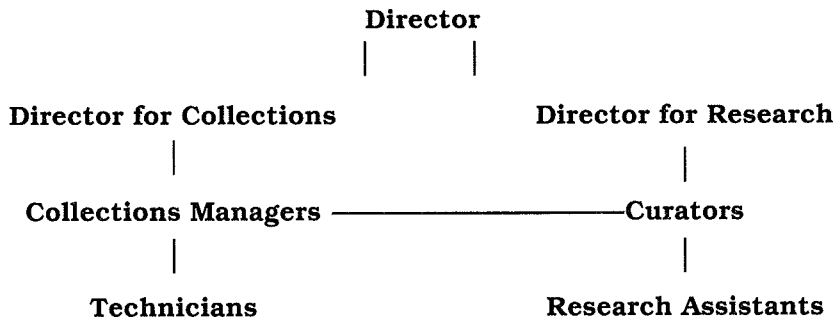


Fig 2. The power structure that has evolved to reflect the changed relationship between collections management and research.

The traditional power structure in natural history museums in North America is one of linear descent from director to collections manager (Fig. 1). But several institutions have changed to systems which reflect how the relationship between collections management and research has evolved (Fig. 2).

The Royal Ontario Museum in Toronto has implemented a collections management system headed by a Coordinator of Collection Management whose job is "to develop, implement, and coordinate collection management related plans, schedules and activities" (Yamamoto, 1985:276). The Coordinator of Collection Management reports directly to the Associate Director Curatorial, who oversees the science departments (Waddington, 1989). The Coordinator of Collection Management manages pest control, risk management projects, facilitates safety concerns, and chairs the Collection Management Committee. This committee "helps coordinate the physical and human resources for collection management" (Waddington, 1989:29) and coordinates electronic documentation records. This system "provides a workable balance of departmental independence and institutional accountability" (Waddington, 1989:30).

The Canadian Museum of Nature in Ottawa has created completely separate divisions of Research and Collections to enable scholar-curators to focus on research and collections care personnel to focus on collections management (Anon, 1992).

At the University of Kansas Museum of Natural History, which is in large part bound by the traditional constraints of an academic hierarchy, there is now a Collections Managers Committee, appointed by the Director. This committee meets monthly to discuss common problems and work on common projects. The committee has produced the museum policies for collections management, pest control, and chemical hygiene.

Summary

The professionalization of collections managers, the recognition of their particular knowledge and skills, and the realization of how their role facilitates carrying out the mission of natural history collections reflect the evolution of natural history collections management in North America. With the growing emphasis in collections management on preventive conservation, the role of collections manager as mediator between the use and preservation of the collections is becoming ever more important. Continued professionalization of collections managers positions will result in better care of collections and enhanced access to collections

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