

Travelling exhibits have become a popular phenomenon supported by the co-operation among museums, government cultural agencies, and commercial firms. Large museums and universities in the United States continue to be the principal supporters of these exchanges and art museums seem to be the most active participants. Managing travelling exhibits is a balancing act in object tracking. Like a medical record on a patient, object documentation traces what, when, where and how an object moves through time in the exhibit event.

#### **D. RELATIONSHIPS BETWEEN EXHIBITS MANAGEMENT SYSTEMS AND COLLECTION MANAGEMENT SYSTEMS IN THE UNITED STATES**

How do exhibit loan records relate to collections management records? Well organized and well managed collections management records are like a building's foundation. They are the records that a curator needs first to start planning an exhibit proposal. Collections management records include information on acquisition, registration, cataloguing, deaccessioning, loan processing, internal inventory control, shipping, conservation, and collections planning. The curator reads the history of the object through these records.

Loan agreement forms and condition reports are examples of forms used in both collection records and exhibit records. When an object is loaned to a museum's collection, the museum requires a legal loan form and a condition report to be drawn up between the lender and the museum. The collection loan is usually longer in duration than an exhibit loan. Exhibits require a loan form and a condition report for each object or each group of objects sent by the lender. This means that collection loans usually involve one object at a time and exhibit loans include many objects all at once. In other words, there is more paperwork involved in exhibits than in collections. Exhibit records draw from collections management records in the areas of acquisition, registration, catalog, and previous shipping information. All other exhibit paperwork differs from the collection records and is a function of moving, insuring, protecting, placing, advertising, explaining and ultimately justifying the exhibit objects. In-house exhibits and travelling exhibits both start with collection management records.

A museum should first have an operating collections management system in place before considering an auxiliary system for exhibit management. Museums reflect their control of their collections and operations through their records. The following examples show that various agencies and museums are organizing

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their collections and are beginning to computerize their records. Today, researchers can access information from these collections records to plan exhibits.

In 1935, the United States Congress passed the Historic Sites Act, P.L. 74-292, which authorized the National Park Service of the Department of the Interior to make surveys, to acquire and preserve drawings, plans, photographs and other data relating to historic buildings. The Historic American Buildings Survey (HABS) has become a continuing resource for historians and architects. The National Park Service, the American Institute of Architects and the Library of Congress are still working on this project.

A fifty year computer index of HABS and the Historic American Engineering Records (HAER) was recently developed and resulted in the first catalogue to the collection in forty-two years. Starting in 1982, a project began to review accumulated records since the 1960s. Documentation now includes over 20,300 historic structures, about 38,000 measured drawings, approximately 78,500 archival photographs, and 29,400 pages of archival and historical data. Access to this index is through the Prints and Photographs Division of the Library of Congress or the HABS/HAER office in Washington, D.C.<sup>34</sup>

Another National Park Service (NPS) collections management project is to automate the National Park Service 900,000 museum collection records.<sup>35</sup> Within the 337 park units, over 300 have museum collections. These range from millions of objects and items in the large parks such as Mesa Verde National Park, the Colonial National Historic Park, and the Western Archaeological and Conservation Center in Tucson, Arizona, to smaller parks with only several hundred items.

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34. Harley McKee, Recording Historic Buildings (Washington D.C.: U.S. Dept. of Interior, National Park Service, 1970), 1-5. The National Park Service newsletter, Courier (January 1986): 14, updates the above book. Ann Huston, Historian, Western Regional Office, NPS, telephone conversation, 19 December 1988.

35. Joan Bacharach (Museum Registrar, National Park Service), interview, 6 June 1985. Interview with Barbara Burrows (Yosemite Registrar), 23 December 1985. Paper given by Joan Bacharach, to the Museum Computer Network Conference, Mexico City, "Automation of the National Park Service Museum Collection," (24-25 October, 1985): 1-24. Interview with Diane Nicholson (Western Regional Curator, National Park Service), 19 March 1986.

NPS museum collection types are varied, including maritime history collections housed aboard the Balclutha in San Francisco, the John Quincy Adams home in Quincy, Massachusetts, the Carl Sandberg home in North Carolina, the John Muir home in Martinez, California, the paleontological collections at John Day Fossil Beds National Monument in Oregon, the Marine specimens at Cape Cod National Seashore, the ethnographic collections at Nez Perce National Historic Park in Idaho, and the archaeological collections at Chaco Canyon, New Mexico.

National Park curators and supervisors have been keeping collection records since 1916 when Congress established the National Park Service. Today curators catalogue all museum property on a three-part museum catalogue record form. One copy goes to the national catalogue at Harper's Ferry and the other two go into numerical and subject files in the parks.

In 1982 a committee began to revise the manual system to standardize the information for microcomputers within each park. In 1984, the NPS published the Museum Handbook as a guide to cataloguing procedures. Regional Curators, from the ten national regions took an instructor's museum records workshop. They, in turn, trained their employees in each region.

The NPS analyzed hardware and software. The committee recommendation for hardware was to use IBM-PC or XT with ten megabyte storage capacity for smaller parks and minicomputers for large parks and their software recommendation was dBASE III and ORACLE. The Curatorial Services Branch tested both of these database systems and started using dBASE III Plus in 1987. The National Park Service proposes to add other curatorial capabilities to this system; among them are inventory control (museum supplies and orders) and exhibitions.

At present the NPS software is being used in the parks around the country. Training includes instruction on collection management, research and interpretative use of the software. The database program is not just a way to produce catalog cards. It is three databases in one: Accessions, Cultural History and Natural History. Standard and ad hoc reports act as an accession book, a catalog file, an inventory check, a link to conservation databases for condition and maintenance checks, an analysis tool in interpreting archaeological ethnological, and historical sites, and a research tool to keep track of things like Spring molt, and photographic collections. There are security access levels with a "read only" access for researchers to keep records intact and prevent changes. Security also blocks off sensitive fields like Archaeological material locations and value. Once all the parks have brought their records up to date it will be an

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invaluable accountability tool and an asset to funding justification. Standardizing input rules, data content and format, in their software user manual, has helped exchange information. Parks will eventually exchange data between parks, between regions and with headquarters in Harper's Ferry. Public access is still through the individual Parks. Within the parks, networking and videodisc additions are in the planning stages. Hopefully, as this collection management software grows in records and therefore capability, exhibitions will be planned by drawing from the collection records in all the parks.<sup>36</sup>

Large natural history museums were among the first to develop their own software systems over twenty years ago, because there were no commercial packages available for the special needs of these collections.<sup>37</sup> Notable among these software systems was the Self-Generating Master (SELGEM) produced in 1970 by the Information Systems Division of the Smithsonian Institution.<sup>38</sup> SELGEM originated from an earlier system called Smithsonian Institution Information Retrieval (SIIR) and was first used by the National Museum of Natural History. SELGEM consists of general computer programs for information processing, including collections documentation, and research. The system was written for Honeywell computer equipment but was adapted to other computers. As an incentive to early record control, the National Science Foundation gave grants for SELGEM development and the Smithsonian offered the software gratis to grant recipients.<sup>39</sup> However, recipients had to find their own system support. Because of this backing it became the most used system in U. S. museums at the time.<sup>40</sup> David Bearman estimated that

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36. Joan Bachrach NPS Computer Cataloging Workshop, San Francisco, CA, April, 4-7, 1988. Diane Nicholson, telephone conversation, 19 December 1988.

37. Joel Bloom et al., Museums for a New Century, 46.

38. Robert Chenhall, Museum Cataloging in the Computer Age (Nashville, Tennessee: A.A.S.L.H., 1975), 93-149.

39. Effie Hall Dilworth, programmer in SELGEM and TAXIR, for the Museum of Vertebrate Biology, Univ. CA. Berkeley, interview, Nov. 11, 1988.

40. David Vance, "The Museum Computer Network in Context," Chapter 5, Museum Documentation Systems, Developments and Applications, Light, Roberts, Stewart, (London: Butterworths, 1986), 37-47. An excellent review of collection management system evolution to the present.

it cost about 6 million dollars to develop and maintain between 1970 and 1983.<sup>41</sup>

Dr. Jack Heller, a professor of computer science at State University of New York at Stony Brook, designed the General Retrieval and Information Processing for Humanities-Oriented Studies (GRIPHOS) in the late 1960s and early 1970s. It was first used at the United Nations for library bibliographic records. GRIPHOS is a generalized system that processes museum documentation and it was used most widely by art museums for catalogue files, film library files and biography files. In 1971 it began to be used for research in archaeological data. It was designed for medium to large scale IBM computers. The Museum Computer Network Inc. (MCN), was established in 1968 to market and support GRIPHOS operation. GRIPHOS became obsolete by the mid-1970s but its work on a trial data bank from 12 art museum museums to define fields or "data categories" (artist, date, material, provenance, etc.) has been incorporated in current generation commercial systems.

In the 1970s there was a shift in museums in the United States toward accountability for museum collections. Collection documentation and preservation came to the forefront because public attention was focused on cultural heritage and ecological concerns. Art and antiquities collections were recognized again as valuable. Older staff, with personal knowledge of the collection, retired, leaving incomplete and disjointed collection documentation. Adverse publicity on questionable accessioning and deaccessioning practices caused pressure from administrators, government officials, insurance brokers and curators to change the way records were kept.<sup>42</sup>

Innovations in data processing, notably miniaturization, and the generally low cost of microcomputers encouraged many museums to start computerization. Since 1980, microcomputers and minicomputers with database software have become the economical solution to cataloguing and indexing museum collections. Today's hard disks have a storage capacity that far exceeds GRIPHOS and SELGEM hardware and usually a more flexible relational software structure.

Typical of large science museum computer systems is the one now in use at the California Academy of Sciences. Usually, each

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41. David Bearman, estimated expense of SELGEM from 1970-1983.

42. Marie Malaro, A Legal Primer on Managing Museum Collections, Washington D.C.: Smithsonian Institution Press, 1985.

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department in a science museum keeps separate collection records because the collections are so large. Norm Penny, the Collections Manager for the Entomology department, uses R:base 4000 software to catalog the collection of about seven and a half million insects and arachnids. Four computers are tied together by a network and four more are planned. The entomologists enter information into twenty-five data fields to complete a record.<sup>43</sup>

Most museums in the United States are still struggling in the 1980s with inventory and information control for large collections of objects and data. However, Sarasan stated in 1983<sup>44</sup> that museums are beginning to adopt a more professional attitude toward computerization. Administrators are funding research about computer systems and are hiring people for this purpose. More realistic budgets are drawn for computer projects. There is an interest and awareness in commercially available software packages that are much more sophisticated than SELGEM or GRIPHOS, as an alternative to creating tailored systems.

D. Andrew Roberts, a British authority on documentation, suggested in 1982 that the use of microcomputers in United States museums would probably be the most significant museum system development in the next ten years.<sup>45</sup> The reason for this, he said, is that in the United States there is an emphasis on local museum computer facilities. There is no national museum computer advisory and standardization board like the Museum Documentation Association, MDA, in the United Kingdom, or the Canadian National Inventory Programme. No central library in the United States provides an international source of museum documentation information like the International Council of Museums (ICOM) and UNESCO library in Paris.

To supplement this lack of central support, commercial companies have developed museum computer systems. The Art Museum Association of America (AMAA), has recently joined with the American Federation of the Arts (AFA). AFA helps art museum

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43. "Entomology," and "Staff," California Academy of Sciences Annual Report, 1984-1985 (San Francisco: CAS, 1985), 16, 39. Supplemented by a conversation with Norman Penny, 1 March 1986.

44. Lenore Sarasan and A.M. Neuner, Museum Collections and Computers (Lawrence, Kansas: Association of Systematics Collections, 1983), 7.

45. D.A. Roberts, "Computerized Inventories, Catalogues and Indexes of Museum Collections," Art Libraries Journal (Summer 1982): 33-38.

staff use computers in administration, collections and loan management. A consulting firm, the Williamson Group, provides AFA member museums with software, hardware, training, and service. The AMAA conducted a survey in 1982 and found that of the 362 responding art museums, 26 were using computers (16 percent for collections management). They started the ARTIS museum computer system in 1983. A follow-up survey in 1984 showed 140 museums had in-house collection systems. This is a dramatic jump in computer use. Loan capabilities are included in the software at present but most exhibit tasks are not supported yet.<sup>46</sup>

Some museums have been highly successful in creating collection database management systems using local area networks. E. M. Avedon describes a striking example of collection information exchange in MUSE, the Canadian Museum Association journal.<sup>47</sup> The Museum and Archive of Games at the University of Waterloo initiated the Waterloo-Wellington Museum Computer Network in Ontario. The ten network museums now share computer equipment and common databases. Since each of the museums has access to the collection information of each of the other museums, they can plan rotating exhibits. Electronic mail is sent between members regarding possible loans of items during the exhibit planning stage. Labels are created from the collections database or by inputting new information. Future plans for this system include computer-aided exhibit design.

Currently, museum staff use computer applications such as databases, spreadsheets and word processors, throughout their museum departments, especially at a microcomputer level. Museum staff have automated the collections management process, with varying success, as a management tool to control their collections. But adequate systems for exhibits management are not yet available. Since exhibit systems gather information from collection, registration, conservation, accounting, curatorial, and administrative records, they offer museum staff a challenge in planning and in sharing data.

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46. Art Museum Association of America brochure, "AMAA Membership Information and Guide to Programs," (1986): 7. Survey from Eric Brizze (Computer Services Assistant), San Francisco AMAA office. Discussions with Chris Dougherty, Williamson Group, October, 1988.

47. E. M. Avedon, "A Community Museum Computer Network," MUSE 3 (Summer 1985): 18-24. Steve Neufeld, Ontario Museum Assoc., says a provincial-wide network called Trillium has been established between Ontario museums. The Royal Ontario Museum is planning to put an exhibit schedule on it. Phone conversation, 22 December 88.