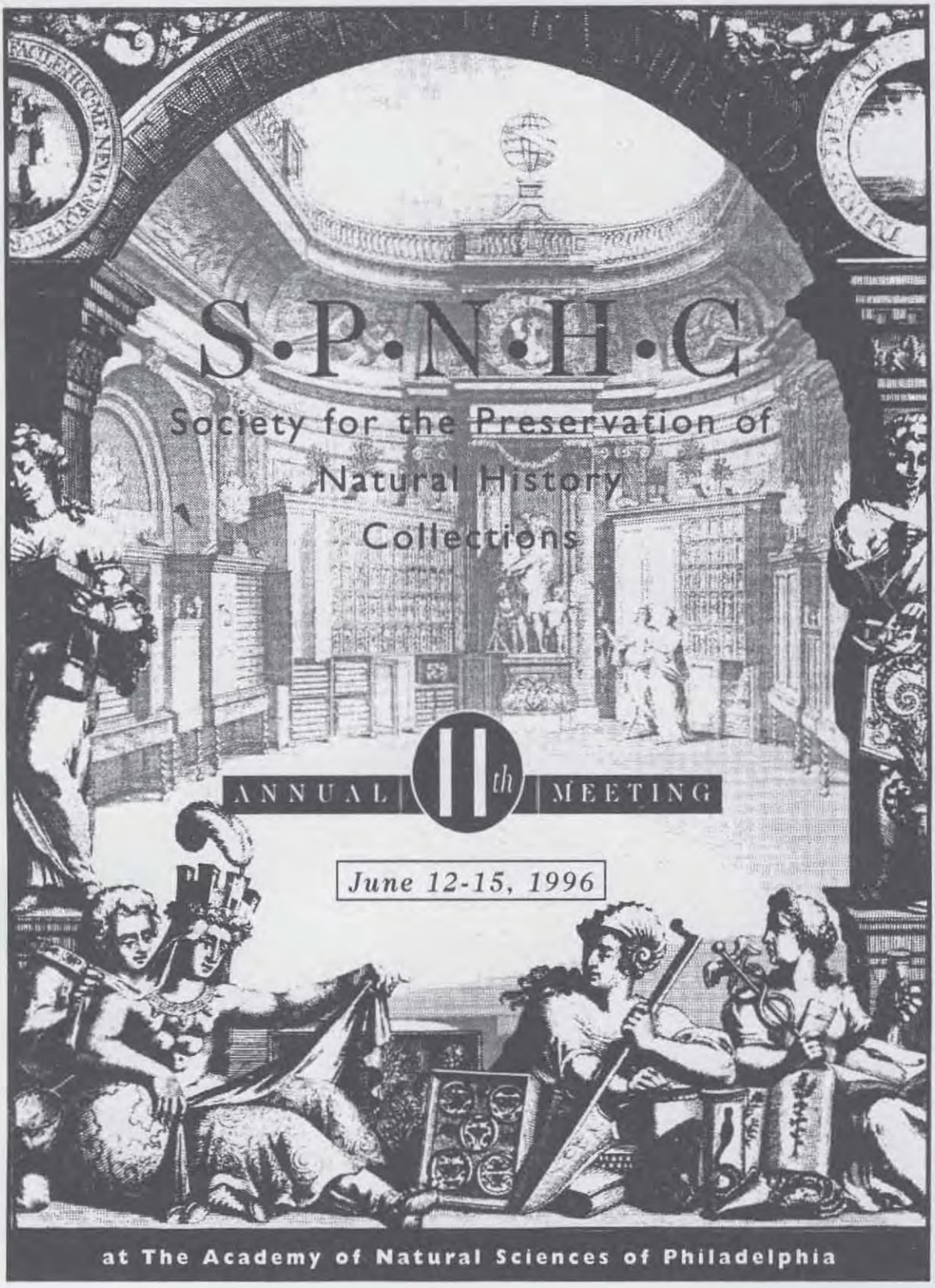
Program & Abstracts



ACKNOWLEDGEMENTS

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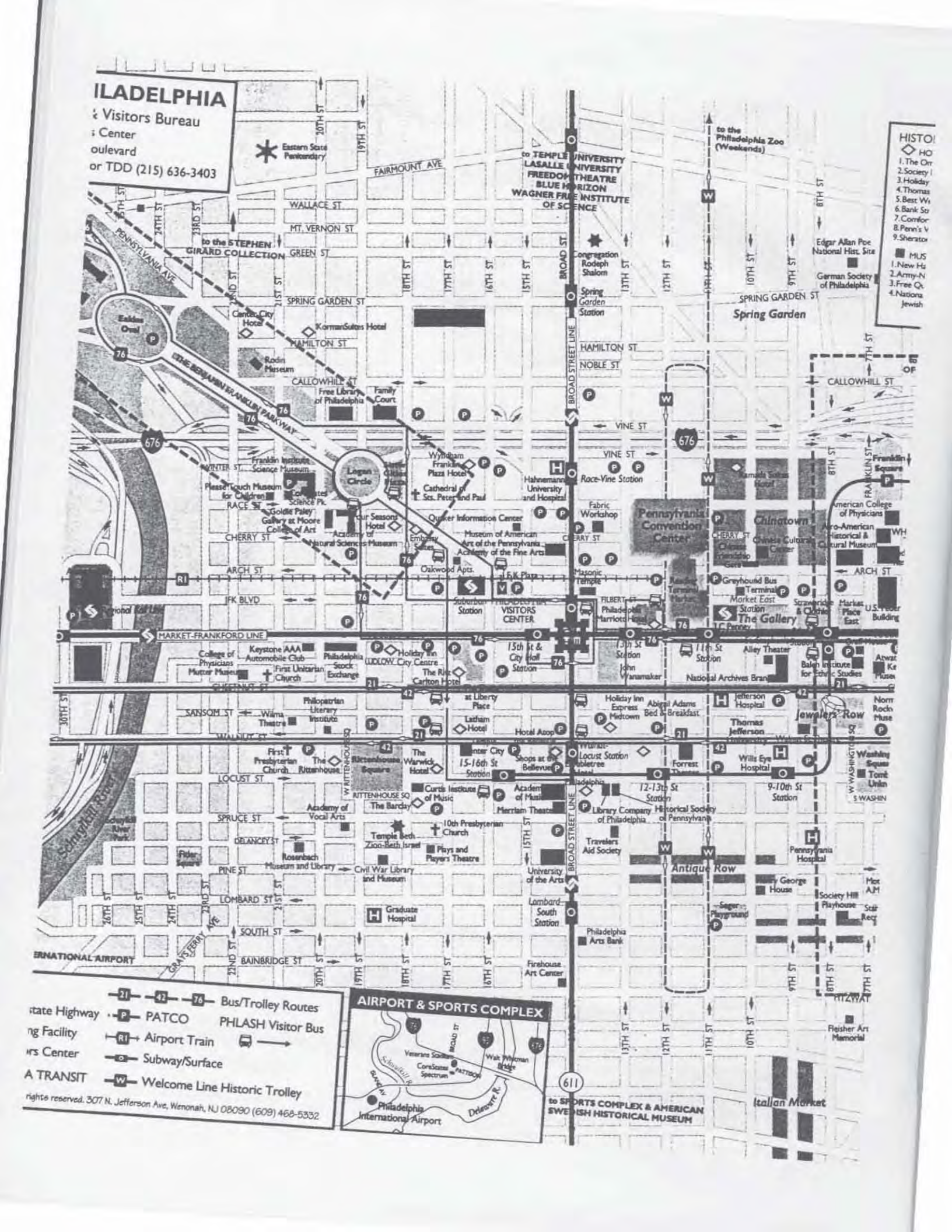
Thanks to Susan Glassman and Gretchen Worden for the Historic Institutions Round Robin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Museum Heritage Group Round-Table Meeting
Wednesday, June 12, 2:00 p.m.
Academy of Natural Sciences, Library Reading Room (2nd floor)

Formed in 1995, the Museum Heritage Round-Table was established to create a network of individuals interested in the history and heritage of museums in North America. Members include a wide range of museum profesisonals and scholars concerned with issues of museum history, collection treatment and conservation, display methodologies and interpretation. The meeting at SPNHC will provide an overview of the goals and mission of the group followed by an open discussion of issues related to preservation, programming, interpretation and funding. The event is open to all SPNHC delegates.

For more information on the Museum Heritage Group, contact Susan Glassman at the Wagner Free Institute of Science, Philadelphia ☎ (215) 763-6529

Program — Thursday, June 13

* = presenter

MORNING SESSION. MODERATOR: ELANA BENAMY

8:45-9:00 Welcoming remarks and announcements

9:00-9:40 **Meredith Lane**, NSF. Roles of natural history collections

9:40-10:00 **Robert Waller.** Preventive conservation planning for large and diverse collections

10:00-10:20 **Robert Huxley* & Stephen Blackmore.** Managing research and curation in a large collection: Experiences from the Natural History Museum, London

10:20-11:00 *Coffee break, Vendors, Posters*

11:00-11:20 **John Simmons.** U. S. Organization for Biodiversity Information

11:20-11:40 **Jane Pickering.** The survival of a 17th century collection: Tradescant's rarities

11:40-12:00 **Robert Huxley* & Charlie Jarvis.** Challenges facing a large historical collection

12:00-2:00 *Lunch break (WCCR Luncheon)*

AFTERNOON SESSION. MODERATOR: EARLE SPAMER

2:00-3:00 KEYNOTE ADDRESS. **Susan Glassman* & Gretchen Worden*** The Soap Lady and the Saber Tooth: The collections of the Mütter Museum and the Wagner Free Institute of Science in Philadelphia

3:00-3:20 **Tom Strang.** Long ago and far away

3:20-3:40 **Julia Golden.** Samuel Calvin, paleontologist and photographer

3:40-4:10 *Coffee break, Vendors, Posters*

4:10-4:30 **Tom Crist*, Gary McGowan & Nina Long.** Stabilization and conservation of specimens in the anatomical collection of the Wistar Institute

4:30-4:50 **Arthur Washburn.** Use and disuse of anatomical models in medical education

4:50-5:10 **Marilyn Massaro.** Tidal wave of conservation sweeps Ocean State's historic bird collections

5:30-8:30 ***Historic Museum Round Robin Tour.*** ***Included with conference registration—no additional cost!***

Program — Friday, June 14

* = presenter

MORNING SESSION. MODERATOR: NED GILMORE

8:45-9:00 Announcements

9:00-9:20 **Richard Rabeler.** Saving important herbaria at small colleges

9:20-9:40 **Gretchen Anderson* & Lori Leirdahl.** Preservation outreach: The visible conservation laboratory

9:40-10:00 Video presentation: A different kind of science and conservation at the Academy

10:00-10:30 *Coffee break, Vendors, Posters*

10:30-12:00 **Annual General Meeting**

12:00-1:45 *Lunch Break*

AFTERNOON SESSION. MODERATOR: TED DAESCHLER

1:45-1:50 Announcements

1:50-2:10 **Stephen Lemay.** Concretion care and management

2:10-2:30 **Andries van Dam.** Conservation of fluid preserved specimens. The physical interaction between preservative fluid, jars, and sealant

2:30-2:50 **Lisa F. Palmer.** Assessing preservation fluids in a wet collection: How important is container style?

2:50-3:10 **Janet Waddington*, Malcolm Black & Helen Coxon.** Efflorescence on calcitic fossils in storage

3:10-3:30 **David von Endt, M. G. Harasewych & J. Post.** Byne's Disease revisited

3:30-4:00 *Coffee Break, Vendors, Posters*

4:00-4:20 **Jean DeMouthe.** Computer fields: Early phase of collection database design

4:20-4:40 **George F. Russell.** A new transaction management system for the National Museum of Natural History

4:40-5:00 **Lisa F. Palmer.** Requirements and options for digitizing natural history illustrations

7:00-11:30 ***Banquet and Dance***

Posters

Neogene marine invertebrates of tropical America: A World Wide Web taxonomy database
Julia Golden

American collections, 1785-1835, in the herbarium of the Liverpool Museum (LIV)
Donna Hughes & Angus Gunn

Natural Sciences Conservation Group
Donna Hughes

Fragilariforma virescens and its distribution: The use of historical collections to discover biogeographical boundaries
Karen Webb & David Williams (attended by Robert Huxley)

Planning for museum moves
Karen Whitmore & Diane Erwin

150 years of invertebrate paleontology at Yale University
Russell White

Sorting databases to reflect the physical organization of collections
Susan Woodward

Developing staff and resources for managing collections
Paisley Cato, Robert Waller, Llyn Sharp, John Simmon & Stephen Williams

Track trekking through time (or Edward Hitchcock's legwork legacy)
Linda Thomas

Applications of the SPNHC Storage Handbook: Maximizing totally inadequate and overcrowded collections storage space
Gretchen Anderson & Lori Leirdahl

Reclaiming the past: Repatriation of a design
Lori Leirdahl

Abstracts

Applications of the SPNHC Storage Handbook: Maximizing totally inadequate and overcrowded collections storage space

ANDERSON, GRETCHEN and LORI LEIRDAHL

The Science Museum of Minnesota, 30 E 10th St., St. Paul,MN 55101, USA

All collections based institutions complain about over-crowded, over-packed storage conditions. The SPNHC storage handbook offers a template for many excellent mounts to be used in an attempt to alleviate these type of problems.

For the past 6 years, the conservation department at the Science Museum of Minnesota has applied the basic conceptsof containerization to improve storage for high priority objects. Our storage conditions were extremely poor when this project began. Through a series of IMS Conservation Project grants, an NSF emergency grant (to offset costs of treating a mold infestation), administrative support and a lot of creative hard work, we have been able to significantly improve storage of collections. This poster will show highlights of our storage solutions. The information presented will look familiar to many at SPNHC. Much of the inspiration was taken from courses through SPNHC and the storage handbook.

Poster Session

Preservation outreach: The Visible Conservation Lab

ANDERSON, GRETCHEN and LORI LEIRDAHL

The Science Museum of Minnesota, 30 E 10th St., St. Paul,MN 55101, USA

One of the key educational purposes of science and natural history museums is to raise the awareness of the scientific disciplines that work "behind-the-scenes". Without that awareness it is difficult to raise the funds to continue working. To that end, the Science Museum of Minnesota (SMM) opened its first "visible lab" in 1982. This consisted of a small Plexiglas room (10 x 10) with windows that opened for easy communication with the visitor. The "Lab" was staffed by volunteers and paid staff from the scientific disciplines represented at the museum: Archaeology, Ethnology, Biology, Paleontology and Conservation. Since then, the concept of this interface, bringing behind-the-scenes collections based science to the view of the public has become a permanent fixture at the museum with successful labs in the Paleontology Hall and Our Minnesota, the earth sciences/biology hall of the museum.

The conservation department at the Science Museum of Minnesota opened the Conservation Visible Lab in January 1994 in the Cecil C. March Hall of Anthropology. The space is used jointly by conservation, anthropology and collections management with the aim of making current projects and research more accessible to the public. This talk will describe the development of programming for the lab, an analysis of positive and negative aspects of programming the lab, and the success of this form of outreach.

Friday, 9:20 a.m.

Developing staff resources for managing collections

CATO, PAISLEY S., R. ROBERT WALLER, LLYN SHARP, JOHN SIMMONS and STEPHEN L. WILLIAMS

Virginia Museum of Natural History, 1001 Douglas Avenue, Martinsville, Virginia 24112, USA • Canadian Museum of Nature, Box 3443, Station D, Ottawa, Ontario K1P 6P4, Canada • Virginia Museum of Natural History-Virginia Tech, 428 North Main Street, Blacksburg, Virginia, 24061-0542, USA • Natural History Museum, University of Kansas, Lawrence, Kansas 66045, USA • Strecker Museum Complex, Baylor University, P.O. Box 97154, Waco, Texas 76798-7154, USA

For institutions to meet their responsibilities for collection management and deliver collection-based products and services efficiently and effectively, it is essential that they plan specifically and strategically for training and continuous learning of staff involved in the collection management system. Recognizing this, the Canadian Museum of Nature and the Virginia Museum of Natural History collaborated on a project to establish a framework for developing staff resources for collection management. In addition to providing a framework and system for an institution to plan for training, the project also formulated recommendations to institutions having responsibility for collections, and to the professional museum community. Briefly stated, the most significant of these recommendations are:

For institutions: Invest in staff by proceeding with a professional development plan that will benefit the institution. The plan should ensure that skills and knowledge will be available at present and in the future to provide products and services to clients to fulfill institutional collection management priorities based on the institution s mission, goals and objectives.

For the professional museum community: Develop standards for initial and continuing education of individuals as collection management professionals. Support the development and implementation of flexible training options such as short courses, workshops, distance education modules and encourage cooperative efforts among institutions to address training needs.

Poster Session

Stabilization and conservation of specimens in the Anatomical Collection of The Wistar Institute

CRIST, THOMAS A., GARY S. MCGOWAN, and NINA P. LONG

John Milner Associates, Inc., 1216 Arch Street, 5th Floor, Philadelphia, PA 19107, USA •John Milner Associates, Inc., 6 World Trade Center, B-26-A, New York, NY 10048, USA •The Wistar Institute of Anatomy and Biology, 3601 Spruce Street, Philadelphia, PA 19104-4268, USA

Beginning in the late 18th century, anatomists in the United States increasingly relied on teaching models and injected preparations of human specimens to facilitate and encourage the understanding of gross human anatomy among medical practitioners. The Wistar Institute Anatomical Collection represents a significant example of this type of anatomical collection, many specimens of which are associated with a number of pioneering anatomists in American medical history. Conservation of the collection required innovative and creative solutions to storage problems and the implementation of a detailed health and safety plan. Strategies and methods were developed by Principal Conservator Gary McGowan of John Milner Associates, Inc. to stabilize the collection and upgrade storage conditions.Significant levels of formaldehyde and other compounds used in 19th century preservation treatments were determined to be present in the Wistar Collection. Physical concerns centered on the historic housing of the specimens. Measures were taken to correct the effects of aging storage containers and the subsequent loss of fixing fluids and preservatives. Advanced deterioration of some of the wet tissue samples necessitated immediate intervention. Conservation was required to mitigate the effects of evaporating materials and to ensure a more secure environment for curatorial and scholarly access. Additionally, in consultation with personnel from The Wistar Institute Biosafety Office, a Health and Safety Plan was designed for the treatment and storage of the specimens in accordance with applicable OSHA regulations. This unique collection required development of numerous creative solutions for rehousing, preserving, and storing the materials which may be of interest to other museums holding similar types of specimens.

Thursday, 4:10 p.m.

Computer fields: An early phase of collection base design

DEMOUTHE, JEAN F.

California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118, USA

Keeping data in and retrieving it from modern database programs is as simple as it has ever been. The user-friendly programs now available for Apple and IBM sytems allow even the rawest computer novice to create and use databases for cataloguing and other collection tasks. A nice new database program tempts one to leap right in and start loading fields and designing forms and reports. However, in order to prevent future frustration and long hours of revisions, this urge should be subdued (take a cold shower). The first things that should be determined are the purpose and goals of the database. What will it be used for? And how? And by whom? How much time is available for this project? Decisions then must be made about the amount and nature of the information to be stored and used to fulfill these goals.

Field determination is the single most important step in the early stages of database design. A field is the designated space into which pieces of information are placed. They vary in size and type, which will determine their accessibility for certain tasks within the database. A single collection can be expressed in terms of data in many different ways. But an over-designed database, one with too many fields, or many long, wordy fields, may be difficult to use, both in terms of data entry and general use. The most important rule is: Keep It Simple!

Friday, 4:00 p.m.

Neogene marine invertebrates of tropical America: A World-Wide Web taxonomy database

GOLDEN, JULIA

Department of Geology, University of Iowa, Iowa City, IA 52242 USA

Neogene Marine Invertebrates of Tropical America (NMITA) is a "virtual" collection on the World-Wide Web (http://porites.geology.uiowa.edu). It contains images and information on specimens and taxa collected as part of two large multi-taxa fossil sampling programs: (1) the Panama Paleontology Project based at the Smithsonian Tropical Research Institute, Panama; and (2) the Dominican Republic project based at the Natural History Museum in Basel, Switzerland. NMITA is designed for use in education and research in systematics and evolutionary paleontology. Partial information is currently available for hermatypic corals, gastropods, and ostracodes. Users may click on taxa to receive conventional taxonomic information on authorship, synonyms, type specimens, morphology, and distribution. Alternatively they may click on maps and stratigraphic columns to receive faunal lists for specific horizons. A simple image-based search routine is also provided to assist in identifying hermatypic coral genera. Other search routines are under development.

NMITA currently contains ~230 images stored as .gif files. The associated text files have been directly coded as html. The main server is NCSA httpd running on an IBM RS6000 model 220 with 16MB memory and 5GB diskspace. Presently our development efforts focus on integrating the server with a relational taxonomic and specimen database to allow more sophisticated queries.

The model for this database is patterned after the Information Model for Biological Collections of the Association of Systematic Collections. The ASC model has been enhanced by the addition of entities related to morphologic characters and illustrations. Common data entry screens will insure that specimen information recorded by taxonomic specialists from several countries and institutions will conform to the database standards. This control will allow collection management features such as cataloguing, authority files, loan tracking, and conservation documentation to be integrated into the system and adapted to each institution's needs.

Poster Session

Samuel Calvin, paleontologist and photographer

GOLDEN, JULIA

Department of Geology, University of Iowa, Iowa City, IA 52242 USA

An 1855 act of the Iowa Legislature established the "Cabinet of Natural History" to house the specimens from the state's first geological survey. The Cabinet, housed in the State University founded in 1847, became the foundation of the first university-based natural history collection West of the Mississippi River. A few specimens remain from the Hall 1855 and the subsequent White 1866 surveys; the real core of the collection dates from the appointment of Samuel Calvin, Professor of Natural History in 1873. Calvin was an innovative and dedicated teacher, first Director of the Iowa Geological Survey, founding editor of the journal, American Geologist, a President of the Geological Society of America, and an avid photographer.

Today the paleontology repository in the Department of Geology houses more than 1 million specimens of which approximately 7,000 are primary types and 20,000 are figured or mentioned specimens. Significant segments of the collection include: Paleozoic cephalopods; Paleozoic echinoderms; Neogene corals; fusulinids; conodonts; and Quaternary micro-mammals.

The Calvin Photographic Collection, also housed in Geology, consists of more than 7,000 gelatin dry plate glass negatives taken from 1879 to the early 1900's. Calvin used these photographs as teaching aids by reproducing the images as lantern slides for class and public lectures, and by creating the "Plate Book," used as a paleontology laboratory manual.

Thursday, 3:20 p.m.

Natural Sciences Conservation Group

HUGHES, DONNA

Natural Sciences Conservation Group, U.K., c/o Ludlow Museum, Old Street, Ludlow, Shropshire, SY8 1NW, U.K.

In March 1995 the membership of the Natural Sciences Conservation Section voted at their AGM to separate from UKIC and form a new group if the planned UKIC restructuring came into force. This has now occurred and a new organisation the Natural Sciences Conservation Group has formed.

The aims of the group include:

- •Raising the public profile of the conservation and preservation of natural science collections and objects.
- •Promoting research and an exchange of ideas across conservation disciplines.
- •Developing training courses and instituting professional standards and qualifications in natural science conservation.
- •Promoting advances in technical and ethical standards of natural science conservation.

Membership of Natural Sciences Conservation Group is open to all those involved and interested in the care and conservation of natural science objects in the U.K. and overseas.

Poster Session

American Collections, 1785-1835, in the Herbarium of Liverpool Museum (LIV)

HUGHES, DONNA M. and ANGUS GUNN

Department of Botany, National Museums and Galleries on Merseyside, Liverpool L3 8EN. U.K.

The early 19th century was one of the most active periods for Botany in Liverpool, England. The Liverpool Botanic Garden, opened in 1803, was quickly established as one of the leading gardens of its day and several others, including Philadelphia, were modelled on it. The garden sponsored only one collecting expedition - John Bradbury's voyage up the Missouri in 1810-11, but received many specimens from botanists world-wide, most importantly Sir J.E. Smith, owner of the Linnean collections. Amongst the other collectors represented in the Liverpool Botanic Garden herbarium are Francis Boott (New Hampshire & Massachusetts 1816-17), Archibald Menzies (West Coast of N. America 1787-89, Hawaii 1793-94), Henry Muhlenberg (Pennsylvania 1793-99), Thomas Nuttall (many U.S. States including Hawaii 1815-35) and Charles S. Parker (S. Carolina 1827). Many of these specimens are on their original "non-standard" herbarium sheets and present a number of curatorial problems.

The second source of early American collections is the herbarium of John Forbes Royle. Although mainly containing material from the Indian subcontinent, it contains specimens from Thomas Bridges (Chile 1832), David Douglas (N.W. America 1823-27), Thomas Drummond (Louisiana 1832-33) and Christian Schiede & Ferdinand Deppe (Mexico 1828-29). This material is currently being conserved as part of the Roylean Herbarium project.

Poster Session

Managing research and curation in a large collection: Experiences from The Natural History Museum, London

HUXLEY, ROBERT and STEPHEN BLACKMORE

Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD, UK

What is the best way to manage the many complex activities of a modern systematics collection? A major reorganization of scientific departments at the Natural History Museum in London divided research activity from collections management in 1990. Posts in the Museum were allocated either primarily to research or to curation and steering groups were set up to advise on policy in these areas. Similar management structures have been developed in other institutions around the world. Such systems recognise that many activities such as accessions, loans and disposal policies, pest control, and information technology strategies cross the taxon based boundaries on which departments and sections have been based traditionally. Having a unified collections programme and management structure allows these issues to be handled in a more homogeneous and efficient way. Most importantly it allows a comprehensive and strategic approach to long term planning that is difficult to develop from a highly divided structure. Centrally managed curatorial resources can be deployed independently of traditional taxonomic boundaries. There are also advantages to staff development and the promotion of professionalism in collections management which has tended to go unrecognised in the past. Different degrees of separation are possible but we argue that whilst the primary functions are divided a closely integrated approach is essential. Curators should develop a level of specialist knowledge that enables them to contribute to research and there are many benefits to be gained by close communication betweenresearch and curation staff.

Thursday, 10:00 a.m.

Challenges facing a large historical collection

HUXLEY, ROBERT and CHARLIE E. JARVIS

Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD, UK

The Natural History Museum, London, UK holds many important historical collections including those of Sir Hans Sloane, Joseph Banks, John Clayton and George Clifford. Such botanical collections have particular problems of conservation and accessibility. However many principles apply to other types of collection. Apart from their historical value, these herbaria contain many type specimens and have considerable scientific importance. For example, the collections of Clifford, Hermann and Clayton were seen and studied by Linnaeus and are regularly consulted in establishing the application of the names he described. Studies such as the Linnaean Plant Name Typification Project, and also the historical "Engelbert Kaempfer Werke", cataloguing Kaempfer's Japanese specimens, contribute greatly to the value of the collections, but increased use may bring its own problems.

Problems of such collections include: limited information with the specimens making linking of associated literature sources and drawings important; the indexing of many specimens using pre-Linnaean names making locating specimens under a modern name difficult; the general problems of handling old and delicate material; restricted access to important specimens.

Solutions include: digitization of specimens and drawings; databasing of nomenclatural information to reduce handling and broaden the availability of information; transfer of this information to CD and the Internet.

Priority has been given to areas of heaviest use or poorest condition such as Sloane's Jamaican Plants. Other activities will include improvement of accommodation and a condition survey. In this way a valuable part of our scientific and cultural heritage will be available to a wide audience for at least another 300 years.

Thursday, 11:40 a.m.

Roles of natural history collections

LANE, MEREDITH A.

Division of Environmental Biology, National Science Foundation, 4201 Wilson Blvd., Suite 635, Arlington, VA, 22230, USA
(After 30 June 1997: *Natural History Museum, University of Kansas, Lawrence, KS, 66045, USA*)

Natural history collections have always contained a wealth of data: genetic and phylogenetic information stored as an inherent part of the samples of organisms themselves, and biogeographic, ecological, and biographical information stored in the labels that are affixed to them. Together, a preserved organism and its label are a scientific specimen that has great intrinsic value. Separately, the label is a piece of paper with meaningless inscriptions upon it, and the plant, spider, microbe, mushroom, or bird, though carefully preserved, is just so much dead organic matter. Natural history collections are the fundamental repository of what humankind knows about the diversity of living things. Before the advent of computers, natural history collections were physical databases from which geographic or ecological analyses and reports could be extracted by human visitation and transcription, usually a laborious and time-consuming task. However, such analyses are invaluable for a host of applications. Computerization of label data makes such reports on distribution and ecology of species more readily available to potential users. Databases that incorporate images and/or georeferencing coordinates expand the data resource available; software now available can employ these data to plot distribution maps or create other graphic interpretations. Collections personnel must incorporate information provision into their normal suite of tasks in order to demonstrate that collections are valuable to users of data (policymakers and others) in order to promote and preserve those collections for future generations. Biodiversity informatics msut be the primary task of natural history collections now and in the future.

Thursday, 9:00 a.m.

Reclaiming the past: Repatriation of a design

LEIRDAHL, LORI

The Science Museum of Minnesota, 30 E 10th St., St. Paul,MN 55101, USA

The Science Museum of Minnesota has been studying the designs incorporated in the weavings of the Highland Maya of Chiapas, Mexico since 1977. In 1996, the museum had a unique opportunity to expand the research potential of the collection by collaborating with the weavers of Sna Jolobil Weaving Cooperative in San Cristobal de Las Casas. Two weavers from the cooperative were asked to replicate a textile from a 19th century fragment acquired by the museum in 1995.

The project blended research, collections management and exhibition. One weaver spent four days making a detailed diagram and analyzing the materials of the fragment. The design woven into the fragment was unfamiliar to the weavers. Two replicas will be completed, one for the museum and the other in Chiapas where the original fragment was found. The designs, available in drawn and woven form, will be available in Chiapas for other weavers. Video and photographic documentation was made of the process along with interviews of the weavers to complement the accession records.

Poster Session

Concretion care and management

LEMAY, STEPHEN

P.O. Box AAA 769, Evanston, IL 60204, USA

Fossil-bearing concretions may contain unstable minerals and thus require special attention. Concretions are known from many localities. They are known in many forms from pure pyrite to nearly pure clay. Most contain a stable mineral base with only a very small number actually showing signs of "pyrite disease." Practical experience has shown that if a pyrite-bearing specimen is going to disintegrate, it will do so within the first five to ten years following collection. Therefore it is important to review collections specimen by specimen during the first decade to monitor specimen safety.

One site in Illinois, near Morris, Grundy County, produced many nodules with high pyrite content. Material from this area will not be in many collections created prior to 1940 when strip mining began. Because these nodules have the highest pryite content, their condition must be closey monitored.

A second important aspect of collections management is the need for compiling detailed records of collecting site data. The fossiliferous nodules from this region represent near-shore and off-shore fauna and terrestrial flora and fauna. In order to understand the distribution of plants and animals and the paleoecology, it is necessary to know from where fossils are collected. Records should include location (as precise as possible), date collected, name of the collector, condition of the specimen and whether both part and counter-part (or other fragments) are present.

Friday, 1:50 p.m.

Tidal wave of conservation sweeps Ocean State's historic bird collections

MASSARO, MARILYN R.

Museum of Natural History, Roger Williams Park, Providence, Rhode Island 02905, USA

Despite its small size, Rhode Island is home to a remarkably rich legacy of historic bird collections. The century-old Museum of Natural History in Providence houses the Manly Hardy Collection of North American Birds. It was touted as one of the four most complete privately owned collections of its kind at the time of Hardy's death in 1910. It is also home to the Charles H. Smith Collection which served as a major reference for the only comprehensive work on the state's avifauna published to date ("Birds of Rhode Island," Howe & Sturtevant, 1899). The Norman Bird Sanctuary in Newport County houses the Edward Sturtevant Collection gathered by this work's co-author. The Elizabeth Dickens Collection, on reposit at the Block Island School, chronicles half a century of the ornithological history of this strategic stop-over site on the Atlantic Flyway. A recently "discovered" antiquarian gem is a wall-size tableau of mounted birds installed in 1862 in the Moses Brown School, Providence.

These collections are irreplaceable historic artifacts of the Pre-Protectionist collecting fervor that characterized 19th Century naturalists at a regional level. With heightened awareness for the value of biological collection resources, and the recent formation of a state-wide Natural History Survey, all of these bird collections have undergone or are currently undergoing major conservation projects for the first time in their histories.

Thursday, 4:50 p.m.

Assessing preservation fluids in a wet collection: How important is container style?

PALMER, LISA F.

Smithsonian Institution, National Museum of Natural History, Division of Fishes, MRC 159, Washington, DC 20560 USA

Storage containers can influence preservation fluids over time. For example, some containers have poor quality closures that allow for a high rate of fluid evaporation, resulting in shifts in preservative concentration. However, it is not widely known to what extent container styles affect fluid quality.

To identify factors that contribute to changes in preservatives, an assessment was conducted of ethanol samples taken from the Smithsonian Institution Division of Mammals wet collection. Examined were fluid quality differences among container styles, and the associations among fluid quality, specimen preservation and collection management practices.

Fluid samples were taken from 272 specimen containers. Containers represented the primary styles used in the collection, and varied in size, composition (glass as well as several non-glass varieties), shape and closure. After examining the condition of container, lid, closure style, and interior labels, fluid samples were analyzed using density and pH measurements. Specimen condition, judged by gross morphology, was noted. Preliminary analysis of the data suggests that differences in fluid levels, density and pH exist between glass and non-glass container styles. Differences in fluid quality also were noted among glass variants but appear to be functions of container size and may result from collection management practices. The assessment underscores the need to acquire base line data from rigid, scientific experimentation in order to understand chemical interplays during specimen preservation.

Friday, 2:30 p.m.

Requirements and options for digitizing natural history illustrations

PALMER, LISA F.

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The National Museum of Natural History, Smithsonian Institution, is developing a Collections and Research Information System (CRIS) to improve the Museum's transaction management and cataloging capabilities, and to provide public access to collections and research information. Part of the plan is to design a system to acquire, process, and store non-textual files. Other concerns include: creating digital reproductions of fragile documents for distribution to many users while limiting the physical handling of original records; and using standards that offer interchangeability and compatibility with both current and future data systems.

Fifteen scientific illustrations from the Fish Illustration Collection were chosen for a detailed investigation of digital imaging options. Many illustrations exhibit characteristics, such as regions of high detail, low contrast, specular reflecting surfaces, or subtle color variation, that may make their conversion to a digital format problematic. High quality digital scans between 300 pixels per inch (ppi) and 600 ppi were made directly from original illustrations. Comparisons between these images and images derived from 35mm slides and 4" x 5" transparencies suggest that converting original documents directly to digital images produce equal or better results than images produced using an intermediate photographic process.

Additional issues addressed include the use of de facto file formats (e.g. TIFF), image compression standards (e.g. Baseline JPEG), light exposure levels, and enhancements.

Friday, 4:40 p.m.

The survival of a 17th century collection : Tradescant's rarities

PICKERING, J.

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The Tradescant "Ark" in Lambeth, London opened in about 1630 and was the most renowned museum of its day. The zoological portion of this collection which survives in the Oxford University Museum comprises some 40 species of animals, representing most classes of the animal kingdom then known. The most well-known survivor is, of course, the dodo.

It is useful to consider the survival of the Tradescant Collection in the framework of the risk assessment procedure developed by Robert Waller and colleagues. By studying the types of specimens which have survived, together with the condition of the surviving material it is possible to look at the effects of the ten agents of deterioration retrospectively. Comparison of the types of specimens which survive with the original catalogue of the Tradescant collection in 1656 shows that it is those types most susceptible to pest attack which have gone. The second most important agent of deterioration is custodial neglect, particularly in the loss of specimens' associated data (such as labels).

The collection which survives is mainly the tougher parts of animals, such as bones and horns; their condition gives an indication of the effects of other agents of deterioration. Physical forces have played a major part in damaging these specimens. However, the collection is in reasonable condition, particularly in comparison to, for example, early nineteenth century collections of similar material. It would appear that it is the rare and sporadic risks which have caused most damage in the long term, since it can be certain in a timetable of nearly 400 years that they will happen.

Thursday, 11:20 a.m.

Saving important herbaria at small colleges

RABELER, RICHARD K.

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The small college herbarium often includes both historically significant material and recent collections; it is often a labor of love for a single individual. What happens when that person retires or passes away? Given the heightened interest in molecular biology, the appointment of a new curator is quite unlikely.

The collection could be at risk if no one else at the institution is aware of the contents and/or value of the collection. Disposal or destruction of historically significant specimens is a real possibility. I will summarize the options which should be considered in such situations, using my recent experience with the Hoysradt Herbarium at Hartwick College as a case study.

Friday, 9:00 a.m.

A new transaction management system for the National Museum of Natural History

RUSSELL, GEORGE F.

The United State National Herbarium, National Museum of Natural History, generates over one thousand specimen transactions per year, involving over one hundred thousand specimens. As part of a multi-disciplinary organization which centralizes the recordkeeping and documentation for such transactions, it is necessary to coordinate our management of transaction information with our Registrar, the Shipping Office, and other scientific departments. A new computerized system for managing specimen transactions (CRIS-TM) has recently been implemented in NMNH. This is a multi-user client-server based system which uses a Sybase database residing on a UNIX server and a Windows interface on PC clients. The current system links the Departments of Botany and Entomology with the Office of the Registrar and shipping offices at two different collections buildings. CRIS-TM provides greater control over and access to transaction data and the specimen data contained in the transactions. Other features include multi-level security, user profiles, forms printing, transaction and shipment linking, standard lookup tables and edit checking, standard query generation, and automated backup. Future improvements will include ad hoc query capability, direct linking to specimen catalog databases, monitoring specimen processing, and user messaging.

Friday, 4:20 p.m.

U.S. Organization for Biodiversity Information

SIMMONS, JOHN E.

Natural History Museum, University of Kansas, Lawrence, Kansas 66045-2454, USA

The U.S. Organization for Biodiversity Information (US-OBI) was launched in April 1996 at a workshop at the San Diego Supercomputer Center by a group of 45 scientists representing the biological collections-based community in the United States. The purpose of US-OBI is to create an organization to provide the infrastructure and tools necessary to organize information derived from biological collections and associated biodiversity enterprises into a maximally accessible form to meet the needs of science and society. US-OBI will achieve this goal by making it possible to combine and integrate data from mutiple natural history collections with other large data sets (e.g., climatological and geographic). US-OBI will offer many collection management tools useful to enhance the management of biological collections, including data dictionaries, data transfer standards, error checking and validation of locality records, taxonomic indices, information management solutions, and communication technology. During its first year, US-OBI wili launch several demonstration projects which will show how linked collections data can be used to to answer cross-disciplinary questions. US-OBI will promote guidelines, standards, training, software, educational materialsand other support for participating collections. The US-OBI project will make it easier to obtain information from disparate collections and combine this information to resolve global biodiversity issues of critical concern to systematists, biologists, biogeographers, conservationists, government agencies, the public, and the private sector.

Thursday, 11:00 a.m.

Long ago and far away

STRANG, TOM

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The Late Eocene "Fossil Forest" site on Axel Heiberg Island at 80 degrees North latitude has been the focus of international research parties for 10 years since its discovery. The CCI has been involved from the start when it brought Parylene coating technology to the problems of preserving for research and display the intact, fragile, unpetrified cones, needle, and leaf remains. Treatment of the excavated wood was also investigated. Applying CCI's long experience in treating waterlogged archeological material to the novel situation of large masses of compressed wood, techniques were developed to dimensionally stabilize the wood. The final component of CCI's involvement has been periodic field seasons monitoring the site for erosion rates, stump appearance and disappearance, and human intervention. The 1995 season incorporated centimeter level GPS survey technology, following four other surveys which progressed through the history of that discipline, from plane table and alidade to optical total station. While heavily visited over the decade by scientists and the military, the last few years have seen an increase in eco-tourist visitation. With the site's inclusion in the "Canada North" volume of National Geographic's "Touring North America" series, we expect greater numbers walking over what has been described as the "archtypical fossil forest". Similar material of mostly petrified examples are to be found around the arctic, but not unpetrified stumps in growth position on large exposed horizontal strata, surrounded by their intact leaves. It would take only 30 Twin Otters full of visitors to eliminate every stump now visible if every person trod or removed a souvenier. Last year the CCI removed obscene graffitti constructed from rocks, survey markers that would pose hazards to helicopers which frequently land on the stump fields, and a recently planted tree. The site has no protected status.

Thursday, 3:00 p.m.

Track trekking through time (or Edward Hitchcock's legwork legacy)

THOMAS, LINDA L.

Pratt Museum of Natural History, Amherst College, Amherst, Massachusetts 01002, USA

The Pratt Museum of Natural History at Amherst College houses several collections dating to the 1830's. Its best known and most studied collection is the Hitchcock Ichnology Collection, comprised of 1096 sandstone and shale slabs (~18,350 tracks), primarily from the Connecticut Valley and containing dinosaur, reptilian, amphibian and invertebrate tracks. The Collection includes many types and the first evidence of dinosaurs found in North America.

Edward Hitchcock, Amherst College professor and president, and first state geologist of Massachusetts, amassed, and meticulously studied and catalogued these tracks thereby establishing the field of (paleo)ichnology. His title at Amherst, Professor of Natural Theology and Geology, reflects the tense though working relationship between religion and scientific thought in the first half of the 19th century.

The second half of the 19th century brought extensive bone bed discoveries in western North America. Ichnological research diminished, and the Ichnology Collection generally remained overlooked until a "paleoichnological renaissance" began two decades ago.

Additional scientific notice increased curatorial attention to the Collection. An inventory was completed, a locator map and spreadsheet were developed to increase accessibility to the randomly stored slabs, several outstanding loans were recalled, and numerous slabs were cleaned and labels correctly repositioned.

Poster Session

Conservation of fluid preserved specimens: The physical interaction between preservative fluid, jar and sealant

VAN DAM, ANDRIES J.

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In the Museum of Anatomy Leidy, a collection of preparations of the human body has been brought together over a period of 400 years. Famous are the anatomical and pathological collections from the 17th and 18th century which have been prepared by anatomists such as Rau, Albinus, van Doeveren, Bonn, Brugmans and Sandifort. During these four centuries there have been evolutionary changes in conservation methods. This presentation outlines the most significant problems, caused by the use of new combinations of preservative fluids, jars and sealants. One of these problems, which is often not recognized and therefore unsolved, is the increasing negative pressure in sealed jars. This may cause the cracking of jars or lids and their occasional implosion. An explanation of this phenomenon is given together with possible solutions, such as the use of a bi-directional valve.

Friday, 2:10 p.m.

Byne's disease revisited

VON ENDT, D. W., M. G. HARASEWYCH and J. POST

Smithsonian Institution, Washington D.C. 20560, USA

Efflorescences appearing on stored mollusk shells were first described at the turn of the century. This "disease" was named after its discoverer, L. Byne. Modern analyses indicated that the efflorescences were calcium diacetate or calcium acetate-formate. We have induced the formation of "Byne's disease" on samples of cowry, clam and oyster shell held at 80 C in the presence of pure formic and acetic acids, a 50/50 mixture of each and a 75/25 mixture of each. In addition we tested old museum storage materials [samples of oak, pine, old specimen drawers (poplar), masonite, cork, cardboard boxes and cotton batting) at 80 C in the presence and absence of added water for their ability to induce Byne's disease in these same three types of shell. The production of formic and acetic acids were followed by analyzing the atmospheres periodically using mass spectrometry. The storage materials produced primarily formic acid, and some acetic acid. Oak produced the most of both acids, cotton batting the least, with the other storage materials producing intermediate quantities. All storage materials except cotton induced some degree of Byne's disease, especially on oyster. Crystallographic data indicated that the efflorescences were composed primarily of calcium formate and calcium acetate. A related, but previously undescribed mineral also was discovered. SEM analysis of the shell samples revealed the presence of microorganisms, which may provide another mechanism for the formation of the efflorescences.

Friday, 3:10 p.m.

Efflorescence on calcitic fossils in storage

WADDINGTON, JANET B., MALCOLM BACK, and HELEN COXON

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A white efflorescence has been observed on calcitic fossils stored in wooden cabinets and drawers. The efflorescence appears as a greasy white powder or small spherules on the fossil, the matrix, or both. Specimens from any given taxon, locality, stratigraphic formation, or storage unit may be affected differently or not at all.

Samples of the efflorescence, the fossil, and the matrix were analyzed using x-ray diffraction (XRD). Preliminary results indicate the formation of gypsum, bassanite, calcium formate, and magnesium formate on different specimens. Samples indeterminate by XRD will be analyzed using infrared spectroscopy.

Preliminary qualitative testing using a modified Oddy test does not indicate the presence of corrosive vapours inside the cabinets. Temperature and relative humidity in the room were tracked over a fifteen month period using a data logger. An internal probe used over a 10 day period indicated that the wooden cabinets provide excellent buffering against large short term fluctuations.

Friday, 2:50 p.m.

Preventive conservation planning for large and diverse collections

WALLER, ROBERT

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The Canadian Museum of Nature is in the process of implementing three systems to enable it to plan the use of, and be accountable for, funds directed toward preventive conservation. The first system, risk assessment and management, employs simplifying models to obtain estimates of the magnitudes of specific risks to collections. Based on these, mitigation strategies are proposed, evaluated and ranked in terms of costs, risks, and benefits both during the implementation phase and over a projected long-term. The system of categories of specimens facilitates, when necessary, setting priorities for risk mitigation projects on the most important parts of collections. Finally, specific preventive conservation issues that are not best quantified from the broad perspective of risk assessment and management are addressed by a collection profiling system. This system was derived from the collection health index system introduced by R. McGuinley. It identifies preventive conservation issues arising within isolated parts of collections.

Thursday, 9:40 a.m.

The use and disuse of anatomical models in medical education

WASHBURN, ARTHUR

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The history of anatomical models and the history of anatomical study are intimately linked. The conditions under which human dissections were conducted have been influenced by religious and social views throughout history. Though human dissections may have occurred in Greece as early as the 4th century B.C., some of the earliest recorded post-mortems were those that took place at the University of Bologna, in northern Italy, during the 13th century. After regulations and standards for human dissections in medical education had been established there, other Italian schools soon adopted the Bologna protocol. During the 16th and 17th centuries in Europe, human dissections became public spectacles, and demand for human bodies often exceeded the supply. This lead to practices giving new meaning to the word "resurrection." By the late 18th century, several collections of anatomical wax models were in use as teaching aids in both Florence and Vienna, thus easing the demand for human cadavers. In Philadelphia, one of America's preeminent anatomists and teachers, Dr. Caspar Wistar, enhanced his anatomical instruction through the use of heroic-sized anatomical models and dried and wax-injected human remains. So valuable did these teaching aids prove to be that they became central to the Wistar and Horner Museum. Today, in the United States, anatomical study is based primarily on the lecture and the cadaver dissection, with little role for models. While models are available from numerous reputable purveyors of educational anatomical products, none compare with the detail of the dry injected or wax models of the 18th and 19th centuries.

Thursday, 4:30 p.m.

Fragilariforma virescens and its distribution: The use of historical collections to discover biogeographical boundaries

WEBB, KAREN and DAVID M. WILLIAMS

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The diatom collections held in the Botany Department of the Natural History Museum in London are a valuable research resource for diatomists the world over. The 180,000 strong slide collection which contains many important historical slides, is at present being used for the determination of the geographical boundaries of the freshwater species *Fragilariforma virescens*. *Fragilaria virescens* was described by Ralfs in 1843, and has since been commonly misidentified on the slides in the collections. Williams and Round recombined the species in 1988 and it now stands as the type species for their genus *Fragilariforma*. Due to the misidentifications, this species was shown to have a very wide geographical distribution, seemingly covering all of the continents. Since re-examining the strewn slides held at the museum and others on loan from other institutions we have discovered that the geographical distribution is in fact much narrower than has generally been perceived.The historical collections have been the key to this project, enabling us to access information which may long since have become inaccessible without them.

Poster Session

Planning for museum moves

WETMORE, KAREN L. and DIANE M. ERWIN

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Although moving a museums' collections may be a curator's worst nightmare, at some point many museums are faced with this seemingly monstrous task. UCMP has just completed such a move to its new facility in the Valley Life Sciences Building (VLSB) with minimal damage to the collections. This presentation will describe the methods used, with recommendations for future moves.

For the UCMP move, a variety of packing methods were used. Most specimens were packed in their cabinet drawers, the drawers then loaded into transfer cases (our Bassett cases with wheels attached), and the transfer cases rolled into trucks for transport to VLSB. Microfossil slides were packed and moved in their slide cabinets, and some larger specimens were moved on individual dollies. In general, it was best to use the minimum amount of padding needed to keep a specimen from moving or touching other specimens. Consideration should be given to using permanent storage containers that reduce the work needed to pack a collection for a major move.

The UCMP move was complicated by the need to bolt the Bassett cases onto new compactor storage racks as the cases and fossils were moved. This required a detailed schedule to coordinate the activities of the professional movers and the cabinet work crews, and active supervision of the work in progress.

Poster Session

150 Years of invertebrate paleontology at Yale University

WHITE, RUSSELL D.

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Yale's acquisitions of invertebrate fossils began in the 1820's by Benjamin Silliman and for much of the century the holdings continued to grow through his efforts and those of James D. Dana. In 1866, Yale's collections were incorporated into the newly endowed Peabody Museum of Natural History, and through the influence of Othniel C. Marsh, the collections' size and scope gained an international flavor. The first invertebrate paleontologist at Yale was Charles E. Beecher who was appointed Curator and Professor of Geology in 1891. Using the Yale collection of trilobites and brachiopods, Beecher developed one of the earliest classifications for both groups and later, in the late 1890's, turned his attention to the study of the ventral anatomy of *Triarthrus* from the Ordovician Frankfort Shale near Rome, New York. The invertebrate fossil holdings began to flourish when Charles Schuchert was called to Yale to replace Beecher after his untimely death in 1903. With Schuchert's generosity, the collections grew enormously through three avenues: purchase of private collections, support of graduate student field work, and acquisition of choice brachiopod collections. In 1917, Carl O. Dunbar, Schuchert's former student, was appointed to the Yale faculty and curatorial board of Peabody. Initially, Dunbar spent nearly every summer collecting in the Appalachians and Mid-West, expanding has familiarity with North American paleontology and stratigraphy, and building a regional stratigraphic collection for teaching and exhibition. During the Schuchert-Dunbar era, the holdings of the division increased seven-fold, approaching 3.0 million specimens. Following the Schuchert-Dunbar era, the direction of invertebrate paleontology changed to molluscan systematics and evolution with the appointment of Karl M. Waage and A. Lee McAlester.

Poster Session

Computers: Sorting databases to reflect the physical organization of collections

WOODWARD, SUSAN M.

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It is tradition to physically organize natural history collections hierarchically by taxonomic, geographic, and catalogue number information. The number of levels of hierarchical sorting may not be consistent throughout the collection. A mechanism was needed that permitted the actual specimen database, or listings generated from the database, to be sorted in the same order in which specimens should appear in the collection. The sorting capabilities of some commercial software packages are limited by the length of the character string to be sorted; furthermore, sorting is only alphanumeric or numeric. Coded fields were defined for the Order, Family, Subfamily, Country, Province, County, and Catalogue Number fields in the ROM Mammalogy specimen database. A series of real numbers (two digits plus one decimal place) were used as codes. Numeric sorting of the relevant designated codes enables the database to mimic the organization of the collection. The numeric codes permit the sorting of far more fields than either the raw alpha data or unique substrings of that alpha data would allow.

Poster Session