

Program and Abstracts

Collections on the Move: Strategies for a New Millennium



spnhc'98

**Society for the Preservation of
Natural History Collections**
13th Annual Meeting

25-30 May 1998

University of Alberta
Edmonton, Canada

Program and Abstracts



spnhc '98

Collections on the Move: Strategies for a New Millennium

**Society for the Preservation of
Natural History Collections**
13th Annual Meeting

25-30 May 1998

Table of Contents

| | |
|----------------------|----|
| <i>Welcome</i> | 2 |
| <i>Map of Campus</i> | 3 |
| <i>Program</i> | 5 |
| <i>Workshop</i> | 10 |
| <i>Abstracts</i> | 11 |



Museums and Collections Services
University of Alberta
Edmonton, Canada

Welcome

Welcome from Janine Andrews, *Executive Director, Learning Systems Enterprises, University of Alberta*

On behalf of the University of Alberta, I would like to welcome you to Edmonton for the 13th Annual Meeting of the Society for the Preservation of Natural History Collections. As an institution with over 17 million objects, specimens and works of art in its collections, and approximately 90% of those in natural history disciplines, we are excited to be hosting this conference. It provides the opportunity to share knowledge, expertise, questions and concerns with colleagues working in natural history collections around the world. I hope that you enjoy your time at the University of Alberta.

Welcome from the Local Arrangements Committee

We would like to add our heartfelt welcome to everyone attending SPNHC '98. The conference theme *Collections on the Move: Strategies for a New Millennium* was borne of discussions here on campus among our collections staff and observing the key issues at last year's conference. From the response to this year's workshop in particular, it would seem that "moving collections" is very topical. We hope that you enjoy the program that has been put together to complement this theme, as well as the activities and tours. Planning for this conference, which began approximately two years ago, has been an exciting process. As it fast approaches, we are now looking forward to putting faces to the people that we have met through e-mail, by telephone and fax. Thank you to everyone who has contributed to making this conference happen. Enjoy the week!

Frannie Blondheim, *Conference Co-chair*

Leslie Latta-Guthrie, *Conference Co-chair*

Lisa Barty, *Conference Coordinator*

Welcome from Grant Hughes, *President, Society for the Preservation of Natural History Collections*

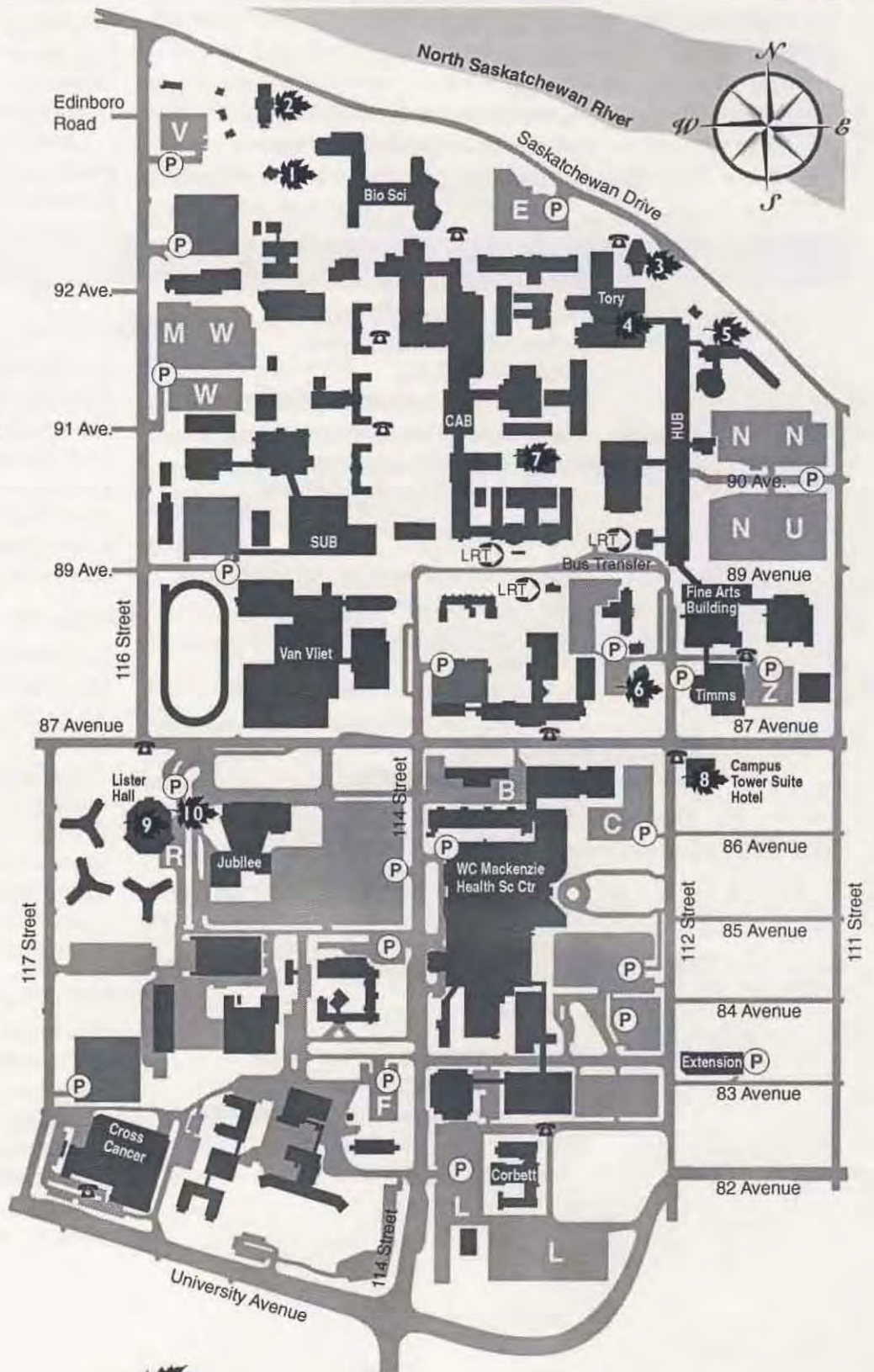
I would like to welcome all members to the 13th Annual General Meeting of the Society for the Preservation of Natural History Collections. This includes a special welcome to our new members and everyone who is attending your first SPNHC conference. I'm sure that you will find the sessions, posters and the workshop to be a good way to improve your knowledge about preserving natural history collections. This is also a great chance to meet colleagues with similar interests to yours so I hope that you make lots of contacts that will be useful for years to come. Enjoy the week and I hope I get a chance to visit with each of you.



to the University of Alberta

Conference Sites

- 1 Ring House #1**
 - Administrative offices for Museums and Collections Services
- 2 Faculty Club**
 - Council Member Luncheon
- 3 HM Tory Lecture Theatres (aka Tory Turtle)**
 - Sessions
- 4 Tory Galleria**
 - Registration
 - Icebreaker
 - Coffee break area/trade show
 - Meeting spot for on-campus collections tours
- 5 Humanities Centre**
 - Committee Rooms/ SIG Rooms (Special Interest Groups)
- 6 Home Economics Building**
 - Workshop tour
- 7 Power Plant**
 - Informal get-together
- 8 Campus Tower Suite Hotel**
- 9 Lister Hall**
 - Residence accommodation
 - Workshop
- 10 Parking lot adjacent to Lister Hall**
 - Bus loading for all off-campus tours and banquet
 - Royal Tyrrell Museum
 - Devonian Botanic Garden
 - Provincial Museum of Alberta
 - Barn Dance



- (P)** Visitor Parking
- (M)** Parking Zones
- LRT** LRT Entrances
- (Phone icon)** Outdoor Pay Phones

Acknowledgements

Local Arrangements Committee

Frannie Blondheim, *Conference Co-chair,
Museums and Collections Services*
Leslie Latta-Guthrie, *Conference
Co-chair, Museums and Collections
Services*
Lisa Barty, *Conference Coordinator,
Museums and Collections Services*

Program Committee

Frannie Blondheim, *Program Committee
Chair, Museums and Collections Services*
Dr. Nancy Kerr, *Department of Human
Ecology, University of Alberta*
Dr. Bruce McGillivray, *Provincial
Museum of Alberta*
Dr. Joe Nelson, *Department of Biological
Sciences, University of Alberta*
Dr. Pam Willoughby, *Department of
Anthropology, University of Alberta*

Workshop Development Team

Leslie Latta-Guthrie, *Workshop Chair,
Museums and Collections Services*
Lisa Barty, *Museums and Collections
Services*
Jim Corrigan, *Museums and Collections
Services*
Anne Lambert, *Department of Human
Ecology, University of Alberta*
Wayne Roberts, *Department of Biological
Sciences, University of Alberta*
Audrey Yardley-Jones, *Museums Alberta*

Financial Support

University of Alberta Conference Fund
Museums Alberta, *Special Projects Grant*

Tour Hosts

Provincial Museum of Alberta
Devonian Botanic Garden
Royal Tyrrell Museum of Palaeontology
Museums and Collections at the
University of Alberta

Workshop Supporters

Clothing and Textiles Collection,
University of Alberta
University of Alberta Press
Canadian Museum of Nature
University of Alberta Archives
Historic Sites Service, *Alberta
Community Development*
Museums Alberta
Provincial Museum of Alberta
Museums and Collections Services
University of Alberta Museum of
Zoology

Volunteers

Julia Boberg
Adrienne Boender
Georgie Brooks
John Bruner
Irene Karsten
Petra Reichwein
Joao Sousa
Al Vanterpool

Moderators

Janine Andrews
Elana Benamy
Jon Greggs
Iris Hardy
Emily Kaplan
Leslie Latta-Guthrie
Christine Niezgoda
Jennifer Paduan
Cindy Ramotnik
Linda Thomas
Audrey Yardley-Jones

In Addition -

We would also like to acknowledge the considerable assistance, support and advice provided by all the staff of Museums and Collections Services, and Learning Systems Enterprises at the University of Alberta; the SPNHC Executive; and the hosts of past SPNHC conferences.

Program

Monday

25 May

Departure: 6:45 am

**Pre-Conference Trip to the
Royal Tyrrell Museum and Valley Geological Tour**

Return Approximately 10:30 pm

The Royal Tyrrell Museum of Palaeontology, located near Drumheller, is one of the only Canadian museums devoted to the study and display of ancient life through fossils. Explore the permanent galleries and visit the popular exhibit "Lost and Found - What Science Says About Hollywood Dinosaurs". This trip includes a behind-the-scenes tour of the museum, tour of the public galleries, and a three hour guided tour of Willow Creek, one of the area's richest sedimentary rock formations.

Tuesday

26 May

8:30 am - 7:00 pm

Registration Desk Open - Tory Galleria

8:30 - 9:00 am

Coffee and Tea Served

9:00 am - noon

Selected Committee Meetings

Conservation Committee - Humanities Centre, Room 2-15

Documentation Committee - Humanities Centre, Room 2-33

10:30 am

Coffee Break - Tory Galleria

1:00 - 3:00 pm

Selected Committee Meetings

Awards & Recognition Committee - Humanities Centre, Room 2-15

Conference Committee - Humanities Centre, Room 2-21

Finance Committee - Humanities Centre, Room 2-22

3:00 pm

Coffee Break - Tory Galleria

3:30 - 5:30 pm

Selected Committee Meetings

Education & Training Committee - Humanities Centre, Room 2-21

Membership Committee - Humanities Centre, Room 2-22

Publications Committee - Humanities Centre, Room 2-26

Sessional Committee on Professionalism - Humanities Centre, Room 2-30

5:30 pm

Informal Get Together

The Power Plant - U of A Campus

Evening

Executive Council Meeting - Location to be announced

- 8:00 am - 5:00 pm** **Registration Desk Open - Tory Galleria**
- 9:00 am** **Off-Campus Collections Tours**
All buses leave promptly from the parking lot adjacent to Lister Hall. A reminder that pre-registration for both off-campus tours is required.
The Devonian Botanic Garden
Arrival back to campus: 1:00 pm
Established in 1959, the Garden includes an authentic Japanese Garden, attractive floral gardens, collections of native and alpine plants, ecological reserves and a Butterfly House within this almost 200 acre site.
OR
The Provincial Museum of Alberta
Arrival back to campus: 12:30 pm
Curatorial staff will guide small groups through the galleries, and behind-the-scenes of the Provincial Museum of Alberta. There will be time to explore on your own, and visit the gift shop where selected museum publications will be offered at a discount to conference delegates.
- Noon** **Council Member Luncheon - Faculty Club**
- 1:30 - 5:00 pm** **Campus Collections Tours - Meet in the Tory Galleria**
Join a guided tour to some of the University's diverse natural history museums and collections. Pre-registration is required as space on the tours is limited. For further details, consult the "Campus Collections Tours" information insert in your registration kit or go to the Registration Desk.
- 1:30 - 5:00 pm** **Council Meeting - Humanities Centre, Room 1-7**
- 2:15 & 3:30 pm** **Coffee Break - Tory Galleria**
- 7:00 - 10:00 pm** **Icebreaker - Tory Galleria**
- 7:30 pm** **Opening Remarks**
Join us for an informal evening to renew acquaintances, meet new colleagues, view the poster session and discuss product innovations with vendors participating in the Suppliers Trade Show and Community Heritage Showcase.

- 8:30 am - 5:00 pm** **Registration Desk Open - Tory Galleria**
Trade Show and Poster Area Open - Tory Galleria
- 8:30 - 9:00 am** **Coffee and Tea Served - Tory Galleria**
- 9:00 - 9:30 am** **Welcome and Introduction - Tory Lecture Theatre 12**
Janine Andrews, Executive Director, Learning Systems Enterprises, University of Alberta; Ernie Ingles, Associate Vice-President, Learning Systems, University of Alberta
- 9:30 - 10:30 am** **Keynote Address - Tory Lecture Theatre 12**
Speaking for the Dead: Forensic Anthropology and Human Identification (Abstract on page 11)
Dr. Owen Beattie, Professor of Anthropology, University of Alberta
Moderator: Janine Andrews
- 10:30 am** **Coffee Break - Tory Galleria**

11:00 - 12:00 noon

Moving Towards the New Millennium: Changing Roles of Natural History Museums (Abstract on Page 11)

Panel Discussion - Tory Lecture Theatre 12

Moderator: Janine Andrews, Executive Director, Learning Systems Enterprises, University of Alberta

Presenters: Dr. Bruce McGillivray, Provincial Museum of Alberta; Dr. Joe Nelson, University of Alberta; Ross Hastings, Provincial Museum of Alberta

12:00 - 1:30 pm

Lunch on your own

World Council of Collections Resources (WCCR) Meeting, Humanities Centre, Room 1-7

(Note: everyone welcome, bring your own lunch)

1:30 - 3:00 pm

Computerization in Natural History Collections

Paper Session One - Tory Lecture Theatre 12

Moderator: Linda Thomas, Pratt Museum of Natural History

1. **The OZ Project: Biocollection Data Management Software**
Laura A. Green, Natural History Museum, University of Kansas
2. **A Picture Speaks a Thousand Words - Image Based Databasing: A New Approach to Conservation Documentation**
Chris Collins, University of Cambridge
3. **Collecting Event Capture: A New Specimen Database, Coordinated with a Video Information Management System and Accessed Over the Web**
Jennifer Paduan, Monterey Bay Aquarium Research Institute
4. **Natural Science Collections Get a Boost on the WEB**
Bonnie Szirtes, Canadian Heritage Information Network (CHIN)
5. **U of A Teaching and Research Collections: Multi MIMSY! Oracle at Work**
Leslie Latta-Guthrie, Jim Whittome, Museums and Collections Services, University of Alberta

3:00 - 3:30 pm

Coffee Break - Tory Galleria

3:30 - 4:45 pm

Roles of Natural History Collections

Paper Session Two - Tory Lecture Theatre 12

Moderator: Jennifer Paduan, Monterey Bay Aquarium Research Institute

1. **The JLB Smith Institute Ichthyology Collection: Past, Present and Exciting Future?**
Andrew C. Bentley, JLB Institute of Ichthyology
2. **The Role of Collections in Rare Plant Conservation in Alberta**
Joyce Gould, Rene Belland; Alberta Environmental Protection; Devonian Botanic Garden, University of Alberta
3. **Development of an Interactive Exhibit Using Fossils and Its Educational Effects**
Jong-Deock Lim, Biodiversity Research Centre, University of Kansas
4. **Managing Federally Owned Vertebrate Paleontology Collections**
Mary E.T. Flint, Jane C. MacKnight, Idaho Museum of Natural History, Idaho State University



| | |
|------------------------|--|
| 5:30 pm | The Great Edmonton Barn Dance Come join us for a night of western hospitality at the Old Timer's Cabin. Bring your denim and cowboy boots and prepare for a fun filled evening of western food, music, dancing and of course... the limbo. |
| 5:30, 6:10 and 6:45 pm | Bus leaves from the parking lot adjacent to Lister Hall |
| 6:00 - 7:00 pm | Cocktails |
| 7:00 pm | Dinner |
| 8:15 pm - 1:00 am | Program and Entertainment featuring the music of Texas Tadoo and line dancing instruction provided by Sugarfoot Express. |
| 10:00 pm - 1:00 am | Shuttle bus will begin returning delegates to Lister Hall and Campus Tower Suites approximately every 45 minutes. |

Friday

29 May

| | |
|--------------------|--|
| 8:30 am - 5:00 pm | Registration Desk Open - Tory Galleria Trade Fair and Poster Area Open - Tory Galleria |
| 8:30 - 9:00 am | Coffee and Tea Served - Tory Galleria |
| 9:00 to 10:00 am | Special Interest Group Meetings Anthropology SIG , Humanities Centre, Room 2-34 Moderator: Emily Kaplan, National Museum of the American Indian Botany SIG , Humanities Centre, Room 2-42 Moderator: Christine Niezgoda, Field Museum of Natural History Conservation SIG , Humanities Centre, Room 2-15 Moderator: Audrey Yardley-Jones, Museums Alberta Geology SIG , Humanities Centre, Room 2-33 Moderator: Jon Greggs, University of Calgary Paleontology SIG , Humanities Centre, Room 2-26 Moderator: Elana Benamy, Academy of Natural Sciences Zoology SIG , Humanities Centre, Room 2-21 Moderator: Cindy Ramotnik, U.S. Geological Survey |
| 10:00 am | Coffee Break - Tory Galleria |
| 10:30 - 12:00 noon | Annual General Meeting - Tory Lecture Theatre 12 Moderator: Grant Hughes, President, SPNHC |
| 12:00-1:30 pm | Lunch on Your Own |
| 1:30 - 3:00 pm | Conservation Research for Natural History Collections Paper Session Three - Tory Lecture Theatre 12 Moderator: Iris Hardy, Geological Survey of Canada 1. Conservation of Fluid-preserved Specimens: Properties of Sealants and Their Effect on Preservation Quality Andries J. van Dam, Leiden University 2. A Review of Oxygen and Barrier Films for the Medium to Long Term Storage of Geological Materials and (Surprisingly) Related Material Chris Collins, Sarah Whelan, University of Cambridge 3. Laser-Cleaning Paleontology John F. Asmus, Institute for Pure and Applied Physical Sciences, University of California |

4. **A Possible Alternate Mounting Medium for Microscope Slides**
Charles L. Messenger, Mauritz C. (Skip) Sterner, *University of Nebraska State Museum*
5. **Spirit Collections: Changes in the Amino Acids of Feather at Elevated Temperatures**
D.W. Von Endt, P.E. Hare, *Smithsonian Institution, Geophysical Laboratory, Carnegie Institution of Washington*
- 3:00 - 3:30 pm Coffee Break - Tory Galleria
-
- 3:30 - 4:45 pm **Managing and Moving Collections**
Paper Session Four - Tory Lecture Theatre 12
Moderator: Leslie Latta-Guthrie, *University of Alberta*
1. **The National Museum of the American Indian Begins to Move Its Collection: A Report on the First Stages**
Emily Kaplan, *National Museum of the American Indian*
 2. **A Collection Assessment Survey for Invertebrate Paleontology: An Example from the Yale Peabody Museum**
Russell (Tim) White, *Peabody Museum of Natural History, Yale University*
 3. **12 Milliseconds Flat**
Tom Strang, P. Marcon, *Canadian Conservation Institute*
 4. **Betwixt and Between, Ideal and Reality: We're Almost There!**
Carole S. DeFord, *Cranbrook Institute of Science*
- 4:45 - 5:00 pm **Closing Remarks**
Sally Shelton, *President, SPNHC*
-
- 5:00 - 7:00 pm **Council Meeting - Humanities Centre, Room 1-7**
- 5:00 pm **Dinner/Evening Events On Your Own**
Some unstructured time for you to check out West Edmonton Mall, visit the Edmonton Space and Science Centre, stroll through Old Strathcona or rest up for the Saturday workshop. Information is provided in your registration kit on things to see and do in Edmonton. Please visit the Registration Desk if you have questions or require further information.

Post-conference Workshop

Moving Collections

8:30 am - 5:00 pm

Workshop Part A - Banquet Room, Lister Hall

Using an interactive approach, this workshop will explore the movement of collection resources to new or upgraded, converted or purpose-built facilities. Through case studies, a diversity of issues will be examined.

Registration

Introduction and Overview

Session 1: Planning Process

Case Study Presentation: Lori Benson, *Science Museum of Minnesota*

Summarization: Jim Corrigan, *University of Alberta*

Session 2: Collection Management Thoughts

Case Study Presentation: Anne Lambert, Suzanne McLean, Jim Whittome, *University of Alberta*

Session 3: Conservation Ideas (Supplies & Materials)

Case Study Presentation: Jean-Marc Gagnon, *Canadian Museum of Nature*

Summarization: Audrey Yardley-Jones, *Museums Alberta*

Session 4: Buildings/Facilities from an Alberta Architectural Perspective

Case Study Presentation: Murray Cann, *Government of Alberta*

Session 5: Physical Move

Case Study Presentation: Jim Solomon, *Missouri Botanical Garden*

Summarization: Iris Hardy, *Geological Survey of Canada (Atlantic)*

5:30 - 8:00 pm

Workshop Part B - Stollery Centre, Business Building

Introduction to Evening Case Study Process

Dinner: Case Study Break-Outs

Case Study Highlights

Evaluation & Conclusion to a Hard Day's Work

(A detailed schedule will be distributed to all Workshop participants)

Abstracts for Keynote Address and Panel Discussion

Speaking for the Dead: Forensic Anthropology and Human Identification

Dr. Owen Beattie

Department of Anthropology, 13-29 HM Tory Building, University of Alberta, Edmonton, AB, T6G 2H4, Canada

This talk will demonstrate through discussion and illustration, the nature of the evidence that is collected by a forensic anthropologist during the process of identifying the physical remains of recently dead humans. Case examples will range from the exhumation and on-site examination and analysis of frozen and preserved sailors from the 1845 arctic expedition of Sir John Franklin, to current international investigations of genocide and crimes against humanity in countries such as Rwanda, Somalia, and the former Yugoslavia. Central to all of the investigations is the observation that the maintenance of the integrity of the physical evidence collected by investigators and researchers is critical to the process of objective interpretation of these historical events.

Dr Beattie is Professor and Associate Chair, Department of Anthropology at the University of Alberta. He received his PhD from Simon Fraser University, Department of Archeology in 1981. His areas of expertise include forensic anthropology/archeology, human skeletal analysis, exhumations and physical anthropology.

Keynote Address

9:30 - 10:30 am, Thursday 29 May

Moving Towards the New Millennium: Changing Roles of Natural History Collections

Dr. Joseph S. Nelson

Department of Biological Sciences, CW 405, Biological Sciences Centre, University of Alberta, Edmonton, AB, T6G 2E9, Canada

Dr. Bruce McGillivray

Assistant Director, Provincial Museum of Alberta, 12845-102 Avenue, Edmonton, AB, T5N 0M6, Canada

Ross Hastings

Curator of Botany, Provincial Museum of Alberta, 12845-102 Avenue, Edmonton, AB, T5N 0M6, Canada

As we move towards the new millennium, the role of natural history collections in public institutions is often challenged. Dr. Nelson, Convener of the Museum of Zoology and Curator of Ichthyology Collections at the University of Alberta, provides a university perspective on the vital teaching and research function of museums in biology departments. Dr. McGillivray brings his views from two perspectives: having recently conducted a study tour of natural history museums in France, and from his tenure as Assistant Director at the Provincial Museum of Alberta. Ross Hastings provides a case study describing the successful adoption of a collection, in terms of both the physical move, and its use in two different institutions.

Panel Discussion

11:00 am - 12:00 noon, Thursday 29 May



Abstracts for Poster and Oral Presentations

(listed alphabetically by author)

Integrated Pest Management at a Nature Center

Anderson, Gretchen

Science Museum of Minnesota, 30 East 10th Street, St Paul, MN, 55101, USA

The Lee and Rose Warner Nature Center is the oldest nature center in Minnesota. Operated by the Science Museum of Minnesota, programming began in 1967 in the Trailside Museum. The teaching collections held at the nature center include a full range of natural history specimens: study skins, egg collections and a great deal of taxidermy (local and exotic animals). Over the past seven years the conservator at the Science Museum has been helping nature center staff to improve collections care, including monitoring for infestations, arsenic testing and improvements to storage.

Following the wet summer of 1997 a mold infestation blossomed in the primary storage area used for taxidermy. Problems contributing to the infestation included: three uninsulated, outside walls, a door opening to the outside, poor air circulation and an unfinished ceiling. The room was severely overcrowded. The mounts and specimens were covered with dust and cobwebs. The infestation proved the catalyst to make much needed improvements to the space, on a very tight budget. The poster shows how we mitigated the immediate situation and the final results.

Poster

Laser-Cleaning Paleontology

Asmus, John F.

*Institute for Pure and Applied Physical Sciences, University of California San Diego,
La Jolla, CA, 92093-0360, USA*

While producing archival holograms of deteriorating Venetian artistic patrimony in 1972 we discovered that concentrated laser radiation is capable of cleaning surfaces. The following year controlled studies were performed at UCSD that revealed that laser divestment of fragile surfaces may be performed in a self-limiting manner so that no measurable damage is induced, even at SEM resolution. Further, it was demonstrated that through careful choice of laser parameters virtually all materials employed in the arts (from stone to textiles) could be laser-cleaned with less alteration than with conventional chemical, mechanical, ultrasonic, and abrasive measures. For many years laser cleaning was only rarely employed in art-conservation projects due to limited experience and a general lack of suitable laser systems. That situation has changed dramatically in the past five years with the formation of the LACONA Society in Europe (Lasers for the CONservation of Art) and the emergence of several firms in Europe and China that manufacture laser cleaning systems. Consequently, with the assistance of the San Diego Natural History Museum, we have begun probative experiments on the laser-cleaning of natural history items. Encouraging results have emerged from the laser cleaning of mineral collections and fossils. In some instances it appears that laser cleaning will be faster than conventional methods. The next tests will involve varying laser wavelength to optimize the process.

Oral Presentation

Session Three 1:30 pm, Friday 29 May

Moving Don or "You're going to put what in a Cessena?"

Benson, Lori

Science Museum of Minnesota, 30 East 10th Street, St. Paul, MN, 55101, USA

In January 1994, Don the gorilla, a long time favorite of school children, died at Como Zoo in St. Paul, Minnesota. After much controversy, the Zoo donated the gorilla to the Science Museum of Minnesota with the hopes that he would continue to be used to educate the public.

The staff of the museum had to overcome a series of obstacles to prepare the gorilla for exhibit and study. A large freezer had to be acquired to hold the carcass until the proper taxidermist was selected. The gorilla needed to be transferred from the zoo freezer to the museum freezer, a taxidermist had to be hired, a donor found to fund the taxidermy and finally the problem of shipping a frozen 400 lb dead gorilla that needed to remain frozen halfway across the country. The process has taken four years but the mounted gorilla will return to the museum in late June.

Poster

The JLB Smith Institute Ichthyology Collection: Past, Present and Uncertain Future?

Bentley, Andrew C.

JLB Smith Institute of Ichthyology, Private Bag 1015, Grahamstown, 6140, South Africa

The Department of Ichthyology, a faculty at Rhodes University, Grahamstown, South Africa, was established by Prof. JLB Smith in 1946. The JLB Smith Institute of Ichthyology, a museum affiliated to Rhodes University, was founded after his death in 1968. In 1980 the Institute was proclaimed a Declared Cultural Institution and is accredited with the Southern African Museums Association. The fish collection at the JLB Smith Institute represents the largest collection of southern African fish anywhere in the world. It is the largest ichthyology collection in Africa and the second largest in the southern hemisphere. The collection consists of over 56 000 lots encompassing well over 750 000 specimens. The collection consists primarily of an alcohol preserved wet collection but also includes a dry collection of skeletons and shark jaws, x-ray plates, photographic slides and ink drawings. The collection contains members of the marine, freshwater and estuarine environments of southern Africa and beyond. The oldest lot dates back to the 1860's. The collection is housed in the basement of the Institute on approximately 2 kilometres of shelving and is protected by a state-of-the-art Halon gas fire detection unit. The collection is linked to an in-house DOS based collection database called FISHNET which we are looking to upgrade to a relevant windows based program. Future directions and developments both for the Institute and the collection are exciting and diverse.

Oral Presentation

Session Two 3:30 pm, Thursday 28 May

Collections Conservation : The Importance of Plans and Priorities

Casjens, Laurel

Utah Museum of Natural History, Salt Lake City, UT, 84112, USA

One goal of museum collections staff is to preserve the collections housed by the Museum. Essentially every museum is understaffed and underfunded for the myriad of needs involved with taking proper care of its collections. Without a conservation plan which identifies the most pressing needs and determines priorities for the funds which are available, important activities may be ignored because we have gotten used to the situation as it is.

A plan is also crucial when applying for grants, as it shows that the Museum knows where it is going and what it needs to do. A plan involves determining needs, solutions, and resources needed to implement the solutions.

Poster

On the Early Mounting of Princeton's Vertebrate Fossil Collection: The Legacy of F. C. Hill.

Chandler, Christine

Division of Vertebrate Paleontology, Yale Peabody Museum, P.O. Box 208118, New Haven, CT, 06520-8118, USA

The distinctive character of many of the older natural history collections in the US, particularly those associated with colleges and universities, can often be ascribed to the "genius" of those museums' earliest curators. The E. M. Museum of Geology and Archeology, which would later become the Princeton Museum of Natural History, is no exception. Established in 1856 by Arnold Guyot, it would never achieve the prominence of the Agassiz's Museum of Comparative Zoology at Harvard or Marsh's Peabody Museum at Yale, but it would become a vital resource for Princeton's emerging programs in science. Guyot's intent was to provide a collection to be used particularly for undergraduate teaching. To this end, he hired a naturalist trained at H. A. Ward's Natural Science Establishment by the name of Franklin C. Hill. Hill was well versed in the mounting of specimens and undertook the preparation of the vertebrate collection, serving as its curator from 1876 until his death in 1890. Unlike the other natural history museums mentioned above which tended to have an army of preparators and/or researchers, Hill toiled alone most of the time, a situation which had both positive and negative results. He was one of the first in this country to make extensive use of mounted specimens, and his influence in this respect may have extended to one of Princeton's own who later became famous for revolutionizing the use of mounted material in museum displays, Henry Fairfield Osborn.

Poster



A Review of Oxygen and Barrier Films for the Medium to Long Term Storage of Geological Materials and (Surprisingly) Related Material

Collins, Chris and Sarah Whelan

Geological Conservation Unit, Dept. of Earth Sciences, University of Cambridge, Madingley Rise, Madingley Road, Cambridge, CB3 0EZ, UK

There is increasing interest in the use of oxygen scavengers for the long-term storage of museum materials. Our work initially concentrated on the use of oxygen barriers and scavengers for the storage of palaeontological and mineralogical materials prone to oxidation or photo-oxidation. The work then moved on to assess the suitability of this technology for storing other materials in the collections, in particular magnetic tapes.

The Geological Conservation Unit has had under review a range of oxygen scavengers and barrier films from Europe, Japan and the USA for the last 3 years. The work has allowed us to assess: the suitability and effectiveness of barrier films; the effects of oxygen scavengers on geological materials; the environments that the various scavengers develop in sealed containers.

The Oxygen Scavengers that have been reviewed in the survey include the Ageless RP(TM) system and Ageless Z from Mitsubishi Gas Chemical Company and ATCO Oxygen absorbers from Standa Industrie, France. Other oxygen scavengers are currently being assessed.

The Barrier Films reviewed include Archipress(TM) pouches, Cryovac BDF 200 (WR Grace and Co.), ESCAL(TM) (Mitsubishi Gas Chemical Company). Other materials were reviewed on a limited basis, as they could not be sourced in the UK.

Assessment of the oxygen barriers and films are made on their suitability for storing geological and associated materials.

The work undertaken is aimed at producing practical solutions to storage problems in our collections with a low impact and minimal intervention as a priority.

Oral Presentation

Session Three 1:30 pm, Friday 29 May

A Picture Speaks a Thousand Words - Imaged Based Databasing: a New Approach to Conservation Documentation

Collins, Chris

Geological Conservation Unit, Dept. of Earth Sciences, University of Cambridge, Madingley Rise, Madingley Road, Cambridge, CB3 0EZ, UK

Documentation procedures at the Geological Conservation Unit have for the last 5 years become more image orientated moving away from traditional text based systems. This has been due to the varying requirements and abilities of the data users and the people inputting the data. We have found that this new approach to documentation increases our ability to: input data quickly and accurately; assess deterioration of objects; assess past conservation treatments and materials; monitor objects effectively; manipulate our data for research. Developments in hardware and software mean that we have computerized the process.

A digital image now forms the core platform for documentation of our conservation procedures. Structural and other relevant conservation data is then overlaid onto the image using a standard set of symbols and data dictionaries developed at the Unit. Where necessary the images are then backed up with tick box style documentation that is easily linked to the image.

The current system allows us to: acquire digital images (still, video or sound image); overlay data onto and manipulate the image; add text based forms through a variety of data platforms; review and manipulate the data for research and specimen assessment; reduces our need to develop expensive archives for conservation data in paper form.

Further developments are underway which will allow interactive access over the Internet to conservators and preparators working with similar materials.

Oral Presentation

Session One 1:30 pm, Thursday 28 May

Betwixt and Between, Ideal and Reality: We're Almost There

DeFord, Carole S.,

Cranbrook Institute of Science, Collections Department, P.O. Box 801, 1221 Woodward Avenue, Bloomfield Hills, MI, 48303-0801, USA

Your organization is going to build a new institution or they are going to completely renovate your current spaces. You are told to plan for anything and everything that would be the absolute, ideal, best for collections that you are responsible for. So you set to work, first finding out exactly what you have to protect, evaluating each of your collections with an eye to the mission statement of your collections, their value for what will be needed by your institution in the future for research, exhibition and/or hands-on programs. Next, you dive into the new world of what is currently offered, test results and reasonably available for rehousing your objects. You've slaved hours over the drawings, made countless phone calls, pleaded on the e-mail for help to which members of this group gladly and freely respond.

Now you present your report and requests—only to find out that it was all a dream. As your disappointment abates, there is just enough time to see what can be done with what is readily and actually available. There are so many different people, with so many different needs and perceptions, how do you satisfy everyone? My institution is “half way there” at the moment. In this presentation, I will share my experiences about moving from ideals to a new home for collections.

Oral Presentation

Session Four 3:30 pm, Friday 29 May

Moving an Elephant

Doyle, A. M.

The Natural History Museum, 155 Pinner Road, Harrow, Middlesex, HA1 4EU, England

The dismantling, removal and remounting of a display of fossil elephants in a new gallery is described. Gallery design criteria are constantly changing as the project evolves and thorough planning is needed. The conservator is best equipped to understand the specimen's needs but these do not always match the requirements of design staff. A balance can be achieved for now but we are likely to return to the issue in the future.

Poster

Managing Federally-Owned Vertebrate Paleontology Collections

Flint, Mary E.T., and Jane C. MacKnight

Idaho Museum of Natural History, Idaho State University, Box 8096, Pocatello, ID, 83209, USA

The Idaho Museum of Natural History is the primary repository for vertebrate paleontology specimens in the state. With collections dating back to 1919, IMNH's vertebrate paleontology collection consists of approximately 45,000 cataloged specimens that represent over 1300 localities, mostly from Idaho. Between 90-95% of the specimens were found on federal lands and therefore are considered federal property. Until the mid-1980s, the federal government provided no financial support to curate these collections.

In 1984, the museum received its first federal grant specifically to improve collections care of vertebrate paleontology specimens. Since that time, the museum has received just over \$200,000 in federal support for curation. While this is a relatively low level of funding, the support has enabled IMNH to improve storage conditions, computerize the catalog, conduct inventories and cover student and staff salaries. Access to the IMNH vertebrate paleontology collection has been greatly improved with this modest level of federal support and research on the collection is increasing. However, long-term financial support for ongoing curation of the collection remains the obligation of the state of Idaho and the museum. This presentation will summarize the improvements made to the collection over the past decade

Oral Presentation

Session Two 3:30 pm, Thursday 28 May

Experiences with Neutrase Enzyme for Skeletonization of Medium-Sized Birds

Gisbert, Julio; Francisco Hernandez-Carrasquilla and Rosa Garcia-Perea

Museo Nacional de Ciencias Naturales, J. Gutierrez Abascal 2, Madrid, 28006, Spain

Different types of enzymes have been successfully used for skeletonization processes along recent years. However, published information on the subject is scarce, preventing an adequate evaluation of these techniques. With the aim to contribute to fill out these gaps, we present herein the results of our experience in using neutrase enzyme for preparing skeletons of medium-sized birds. Our sample consisted of 104 complete, frozen specimens, split in two groups: 30 individuals of Anatidae (ducks), and 74 of Corvidae (crows). The first group was different of the second one by having large amounts of fat tissues. Specimens were skinned and eviscerated, blood tissues were removed and muscles were softened, in order to make easy enzyme activity. Carcasses were individually stored in jars of different sizes filled up with a solution of neutrase, and kept in a stove at 40°C. Remains of digested tissues were removed with tape water, and after bones were clean, a spraying of ethyl alcohol was applied to them, in order to guarantee stop of enzyme activity. Bones were left to dry in the open air. Our results suggest that skeletonization using enzymes is an useful, fast method to remove tissues, but processes involved in preparation and finish are time-consuming. A comparison with other methods, such as dermestid beetles, show some advantages and drawbacks of this technique.

Poster

The Role of Collections in Rare Plant Conservation in Alberta

Gould, Joyce and Rene Belland

Alberta Natural Heritage Information Centre, Alberta Environmental Protection, 2nd Floor, 9820-106 Street, Edmonton, AB, T5K 2J6, Canada (JG), Plant Conservation Research Centre, Devonian Botanic Garden, University of Alberta, Edmonton, AB, T6G 2E1, Canada

Alberta formally joined the network of Conservation Data Centres and Natural Heritage Programs of The Nature Conservancy in 1996 thereby establishing the Alberta Natural Heritage Information Centre. The goal of the Centre is to have a dynamic system that houses information on rare species in the province. The information in the Centre is then used to assist with protected areas selection and management, impact assessment and determining priorities for species conservation projects.

The framework of the Centre is based on good, systematic collections. This talk will focus on the role of collections in conservation efforts of rare plants, both moss and vascular, in Alberta. Collections have been used to assist with the assessment of status of species and of sites. Examples will be given which demonstrate this. In addition, the link between the computerized specimen information for mosses at the University of Alberta and the Centre will be discussed.

Oral Presentation

Session Two 3:30 pm, Thursday 28 May

The OZ Project: Biocollection Data Management Software

Green, Laura A.

University of Kansas Natural History Museum, Dyche Hall, Lawrence, KS, 66045, USA

The OZ Project, located at The University of Kansas Natural History Museum with NSF support, has created a comprehensive database management system for biocollections. This Windows 95-compatible application provides collection managers with tools to catalogue specimens and related material, perform transaction management, create labels and reports, and query their data efficiently. This program differs from other collections software because it is based on a complex data model designed to accommodate paleontology, ornithology, mammalogy, botany, entomology, ichthyology, herpetology, and invertebrate collections. Also, tasks such as accessions, loans, and deaccessions can be easily linked to objects within the collection. The data model was derived from previous works including the ASC Committee on Computerization and Networking Information Model (1993), the Berkeley MVZ model (1995), and completed with the input of experts in the field of biocollections data modeling. The application allows for the cataloging of data from multiple disciplines. Most importantly, this program allows the cataloging of separate types of collections within the same program. Photographic, sound, kayrotypic and histological preparations, tissue, and DNA collections may all be catalogued with separate numbering systems. Also unique to the program is the sophisticated reporting system for labels, invoices, mailing lists, and annual reports. The interface has been written in Delphi, but can be customized (or tailored) extensively without programming, including the selection of fields visible on a form, their placement, sequence, captions, and the format of acceptable input. The OZ Project will release the program in August of 1998, free of charge from the Internet.

Oral Presentation

Session One 1:30 pm, Thursday 28 May

Compactorization of the United States National Herbarium

Hollenberg, Linda A.

*Smithsonian Institution, National Museum of Natural History, Department of Botany, MRC 166,
Washington, DC, 20560, USA*

The United States National Herbarium (US) currently has 4.5 million specimens. To accommodate growth, various options were considered and debated, including moving selected portions of the collection to a satellite facility in Suitland, MD. As the advantages for maintaining the collection together were overwhelming, the staff decided to compactorize in existing space. Issues to be resolved included the building's floor load capacity, pest management, fire suppression, accessibility, lighting and physical barriers (such as columns, air ducts, etc.).

After consideration of the above factors, the herbarium (two floors) was divided into 20 sections (bays) that could be compactorized.

The first phase of compactorization (two bays) began in the fall of 1997 with renovation of building space. Following space renovation, the electric compactor system (for the first two bays) was installed. For purposes of conservation and pest control, existing enclosed metal cabinets were loaded onto custom built carriages.

There are presently two aisles per twelve rows of compactorized cases, creating approximately 36% total expansion. In the future, one of the aisles can be filled in with an additional carriage of cases (2 rows), creating a total expansion of over 50%. Specimen examination space and visitors' desks were retained and relocated to the center aisle of the herbarium. This will be a multi-year project, tied to availability of funds and the museum-wide heating, ventilation and air conditioning renovation.

Poster

The National Museum of the American Indian Begins to Move Its Collection: A Report on the First Stages

Kaplan, Emily

*The National Museum of the American Indian, Research Branch, 3401 Bruckner Blvd.,
Bronx, NY, 10461, USA*

The National Museum of the American Indian is one of the largest native American collections in the world, comprised of one million objects representing indigenous people from the entire Western Hemisphere. The museum, formerly a private collection, has been part of the Smithsonian Institution since 1989. The collection is currently housed in a severely overcrowded, deteriorating building in the Bronx, NY. A new collections storage, conservation, and research facility known as the Cultural Resources Center is under construction on Smithsonian property in Suitland, Maryland, not far from the U.S. National Mall in Washington D.C. where a new NMAI museum will be built.

The transfer of the collection from New York to Suitland is scheduled to begin in 1999 and be completed within five years. This presentation summarizes pre-move activities, focusing particularly on the results of a recently completed Pilot Move in which 16,450 archaeological objects from a discreet portion of the collection were moved by museum staff to off-site storage. The Pilot Move was designed as a way to work out strategies for data tracking, conservation, packing methods and materials, digital imaging, and staffing in order to make an informed plan for the move of the entire collection and as a way to make necessary space available for the first of several staging areas for the move of the rest of the collection.

Oral Presentation

Session Four 3:30 pm, Friday 28 May

Fossils: A Collection Move at the Royal British Columbia Museum

Kerik, Joan C.

Royal British Columbia Museum, PO Box 9815 Stn Prov Govt., Victoria, BC, V8W 9W2, Canada

The fossil collection of the Royal British Columbia Museum was moved in the fall of 1997. It had previously been stored in an environmentally uncontrolled space. It was moved into environmentally regulated space in the Fannin Building (Curatorial Tower). With the move there was an opportunity to begin upgrading fossil collection storage to Museum Conservation standards, and to increase storage and work space. The poster will show before and after photos of the storage areas and conservation concerns.

Poster

Coyote Lake Sanctuary, and

Significant Features, Vegetation Types, Wetlands Topography of the Greater Coyote Lake Management Area, Alberta

Kohli, B., Deirdre E. Griffiths, Graham C.D. Griffiths,

Department of Biological Sciences, University of Alberta, Edmonton, T6G 2E9, Canada (BK), 117 Collingwood Cove, 51551 Range Road 212A, Sherwood Park AB, T8G 1B2 Canada

The Coyote Lake Nature Sanctuary is situated on a low ridge about 800-850 meters above sea level. It contains slightly alkaline oligotrophic water with low electrical conductivity and moderately high pH. This lake contains a remarkable diverse flora of aquatic plants. The broad shoreline marsh is also unusually diverse. Upland forest contains several cordilleran species at the eastern limits of their range. Due to fire history, most upland forest is dominated by *Populus tremuloides* and *Betula papyrifera*. Climax stands of *Picea glauca* are more localized. Coyote Lake area has high summer rainfall, which favours the development of bog forest, swamps (treed fens) and other types of wetlands. Of special interest are the extensive tracts of highly diverse larch-black spruce swamp on areas receiving seepage of calcareous groundwater. About 50 species of water birds have been recorded on this lake.

A significant features assessment of Crown land west and north of the Coyote Lake Natural Area was conducted in 1988. Features assessed included surficial deposits and soils, bedrock geology, hydrology, vegetation types and significant vascular plant and animal species (mammals, birds, herptiles, fish and butterflies). Several series of aerial photographs (1951, 1961, 1969, 1976, 1980 1982 and 1987) were examined to determine land use changes, especially on adjacent quarter sections, fire history and its impact on 1988 conditions, drought patterns, beaver colonizations, wetland stability and oil and gas activity. Mapping included topographical contours, significant features, vegetation types, land use history, watershed features and regional context.

This report contains an account of the survey results, documentation of new and rare species, descriptions of variants of vegetation types analyzed in detail in Griffiths and Griffiths 1987 report on the Coyote Lake Natural Area, recommendations for future management, annotated checklists of significant vascular plants and vertebrate fauna, and four maps.

Poster

UofA Teaching & Research Collections: Multi MIMSY/Oracle at Work

Latta-Guthrie, Leslie and Jim Whittome

Museums and Collections Services, University of Alberta, Ring House 1, Edmonton, AB, T6G 2E2, Canada

Fossils, meteorites, birds, fish, mammals, reptiles and amphibians are just some of the things you'll find in the University of Alberta's museums and collections. The UofA began collecting in 1910. Now, there are over 40 collections located across campus in departments and faculties where they are used in teaching and research activities. In total, there are over 17 million artifacts, specimens, objects and works of art, making this one of the largest collections in Canada. Museums and Collections Services provides professional museum services and expertise in support of these primary sources. The diversity of collections material, from human to natural history, and the variety of systems employed in documentation have made this a challenging process. The challenge is being met with the implementation of Multi MIMSY, a leading edge database management software application built on the Oracle Developer 2000 platform. This presentation will demonstrate various levels of access to UofA natural history material using Multi MIMSY.

Oral Presentation

Session One 1:30 pm, Thursday 28 May

The Expected Responsibilities of Privately Owned Natural History Collections

Lemay, Stephen

Authentic Fossils, PO Box AA769, Evanston, IL, 60204, USA

Private collections of any kind require paper work! From incoming; meaning data collected, purchased, or other, to outgoing, meaning thrown away or donated, or other. All collections need a paper trail; it gives the object its authenticity. The documentation gives the object its true value and without it, it is just a thing of curiosity. The same applies to all natural history collections. The collecting of geological material in recent years by the general public has come to an alarming scale because of their lack of any kind of documentation. They even lack a Fieldbook, which is the first and simplest form of record keeping. The perfect example of this is the Mazon Creek area collections of Illinois. Of the thousands of private hunters since 1855, there have been only 4 field notebooks detailing the paleoecology of the area. Two others were never seen by the author. Of the total only two can be located to this day. This even includes the 67 known published privately owned Mazon Creek collections published by Mary Carman in *Fieldiana* geology. The field notebooks of Mazon Creek and other collections must contain the date acquired in any form. The date is placed on the specimen. The date serves as the page number in the field book and serves as a lot number and follows the specimen everywhere. An outline of 1) who you collected with, 2) who collected what, 3) how long you collected, 4) the location, and this can vary from one to several in one day; and when this happens, this is known as "stops". "Stops" indicate individual locations where material was collected in one day. The stops are indicated with Roman numerals to avoid confusion with other numerical digits when catalogued and labeling the specimens. When washed and sorted for classification, one must list whole, halves, parts and pieces. These private collections need lists and notebooks relating to anything in the collection. The moment the individual accepts the responsibility to pick up a rock or fossil they are expected to do the paper work. The individual who neglects doing the paperwork or even refuses to do it, shouldn't be allowed to collect or maintain a collection. Once the specimen is picked up off the ground without paperwork it has no value at all. The general public must be made aware of this because they are destroying vast amounts of paleoecology every day.

Poster



Development of an Interactive Exhibit Using Fossils and Its Educational Effects **Lim, Jong-Deock**

Kansas Natural History Museum and Department of Systematics and Ecology, University of Kansas, Lawrence, KS, 66045, USA

"Sorting Game," a new exhibit in the University of Nebraska State Museum (UNSM), provides interactive experiences with vertebrate micro-fossils for museum visitors. The new interactive exhibit gives visitors a chance to sort fossils from matrix just as do professional vertebrate paleontologists. The "Identification Table" enables participants to identify what they find by comparing them with six categories of mounted, labeled specimens.

The fossils used in this study are from the Bug Creek Anthills (latest Cretaceous or earliest Paleocene) in eastern Montana. Fish remains, especially gar scales, are abundant in the BCA sample but terrestrial fossils, including teeth of dinosaurs and tiny mammals, are also common.

Mock-ups of the "Sorting Game" were tested during two evaluations. On average, a group interacted with the "Sorting Box" for nearly 13 minutes, found over half of the fossils in the "Sorting Box," and successfully identified more than 1/3 of the specimens in the "Identification Table."

This presentation demonstrates that observing museum visitor's interaction with mock-ups enhance development of exhibit design. The new interactive exhibit should contribute to the public's understanding of vertebrate micro-fossils. Not only does this help visitors to remember what they have learned, it also provides new stimulation as they tour exhibition halls. This study indicates interactive experience is as educationally productive as a guided tour or lecture.

Presentation

Session Two 3:30 pm, Thursday 28 May

A Possible Alternate Mounting Medium for Microscope Slides

Messenger, Charles L. and Mauritz C. (Skip) Sterner,

University of Nebraska State Museum, Department of Entomology; Department of Parasitology, University of Nebraska, W436 Nebraska Hall, Lincoln, NB 68588-0514, USA

Over the years several materials have been presented as possible replacements for Canadian balsam, due to Canadian balsam's escalating cost, and darkening which normally occurs over a period of time. Such products as "Clear Mount" and "Permout" were initially tried with rather disastrous results. Over time, oxidation occurred resulting in the complete obscuring, and in severe cases, damage to the specimen.

We have tested both B-15 and B-72 for their possible use as a mounting medium. Although these products have enjoyed good initial acceptance as a consolidating product, we have tried to determine their suitability as a mounting medium for microscopic slides in Parasitology, pollen mounting in Botany, and for insect parts in Entomology. An accelerated aging test, chemical reaction tests for stained material, and refraction comparison tests have been performed.

Oral Presentation

Session Three, 1:30 pm, Friday 29 May

Collecting Event Capture: A New Specimen Database, Coordinated with a Video Information Management System and Accessed Over the Web

Paduan, Jennifer B.

Monterey Bay Aquarium Research Institute, 7700 Sandholdt Road, PO Box 628, Moss Landing, CA, 95039, USA

Thorough documentation of samples enhances their scientific value. However, it can be difficult to ensure that accurate information about samples is recorded at the time of collection. At MBARI, we are developing a system that captures collecting event information in real-time, populates a database with this data, descriptions, and images automatically, and offers web-based retrieval.

Collecting events are recorded with a video camera on our research submersible, and the video is transmitted by fiber-optic cable to the support ship. There, the video is annotated by a technician using an application named VICKI. This application is object-oriented and utilizes a structured rule base to manage complex information, such as taxonomy and lithology. Each video annotation is merged with time, navigation, and ancillary sensor data. Digital still images can be snapped from the video feed, automatically referenced in the annotation file, and viewed on the web.

After each dive, a script parses sample collecting information from the video annotation file and generates an HTML file that lists the samples, together with corresponding images and collecting event data. The scientist can print the list, compare it on deck with the samples that successfully made it to the surface, write comments, and mark the samples to be added to the archival database. That database is being prototyped in MSAccess on an NT server on shore. It will manage storage location, citation, and loan information as well as collecting event data. User interfaces for edits and typical queries of the database are being created for the web.

Oral Presentation

Session One 1:30 pm, Thursday 28 May

Natural History Fluid Collections as Genetic Repositories

Russ, Jill L.; Connie J. Kolman, Karsten E. Hartel, Darrell J. Siebert and Noreen Tuross

Smithsonian Center for Materials Research and Education, 4210 Silver Hill Road, Suitland, MD, 20746, USA, (JLR, CJK, NT); Ichthyology Department, Museum of Comparative Zoology, Harvard University, 26 Oxford Street, Cambridge, MA, 02138, USA (KEH); Department of Zoology, The Natural History Museum, Cromwell Road, London, SW7 5BD, UK (DJS).

Although most natural history collections were never intended for such purposes, molecular analyses of these repositories are increasing in importance, due to recent advances in molecular biology that permit the analysis of fragmented pieces of genetic material. However, the molecular status and the actual ability to use archival specimens remains largely untested. In addition, archival specimens pose unique challenges to researchers, as the DNA is likely to be damaged and present in greatly reduced amounts relative to fresh specimens. An assessment of forty one fluid stored fish from the Museum of Comparative Zoology (MCZ) at Harvard University and twenty seven fluid stored fish from the Natural History Museum (NHM) in London was performed. The specimens from these collections were chosen because they reportedly had never been fixed with formalin, a fixative agent which interferes with and can even prevent retrieval of amplifiable DNA. A two-tiered criterion for successful retrieval of genetic information was used. First, DNA extracted from the archival specimens was tested for its ability to support increasingly large polymerase chain reaction (PCR) amplification products. Second, selective PCR products were authenticated by determining their DNA sequence. Successful PCR results were as high as 70% for the small sized (118bp) PCR product. Correct DNA sequences for the large (357bp) PCR product was recovered in 18% of the cases. Our results demonstrate that valuable genetic information can be retrieved from non-formalin-fixed natural history collections greater than 130 years old. We have also demonstrated that rigorous controls and alterations in the experimental design are needed to authenticate the results and eliminate contamination of artifacts.

Poster

heydja get that right?

Sendall, Kelly

Royal British Columbia Museum, PO Box 9815, Stn. Prov. Gov't, Victoria, BC, V8W 9W2, Canada

The foundation of any natural history museum is its collection. The collection usually consists of two equally important elements - the specimens and the database. Collection managers until recently have dealt primarily with the physical collection and its needs. Recently the utilization of the collections database has increased greatly. The database has a completely different set of maintenance requirements than the physical collection of specimens.

Subsets of data are usually drawn from a database in some form of query report. In order to do that efficiently and effectively the data itself must have been entered accurately and consistently. Add in the ever-present financial constraints of an average museum and it is not unusual to find volunteers, students, or contractors entering data. Unfortunately, that is likely to come with an increase in errors. Consequently, someone has to review the records for correct spelling. An easier way would be to incorporate a list of accepted values as a relational database, not unlike a spell checker found in most word processing programs. Lists of species, for example, can be adopted from accepted conventions, developed manually before data entry starts, or edited from a frequency list of entries within one field of an existing database.

Some museum specific database applications have within them a "controlled vocabulary" used to qualify an entry in any given field. They are, however, expensive. As an alternative, a method to incorporate some of the lists that are available is explained, as well as how to develop your own. Foxpro® and Microsoft Access® are used as two examples of database programs.

Poster

Fluorescent Mineral Exhibit - Making an Interpretive, Aesthetic and Scientific Statement

Smith, Dorian; Blondheim, Frannie; Hildebrandt, Bernd and Liu, Bing

Department of Earth and Atmospheric Sciences, 1-26 Earth Sciences Building, University of Alberta, Edmonton, AB, T6G 2E3, Canada; Museums and Collections Services, Ring House #1, University of Alberta, Edmonton, AB, T6G 2E2, Canada

A new exhibition of longwave and shortwave fluorescent mineral specimens in the existing Mineralogy and Petrology Museum of the University of Alberta gave us the opportunity to utilize various new techniques to achieve a valuable interpretive experience. A large didactic panel with an in-depth explanation and illustration of fluorescence and phosphorescence was developed. Utilizing an inkjet plotter to output a digital file allowed us to achieve full colour interpretive panel. Nesting the specimens in a rigid insulation foam covered in black sand-sized slag material (derived from copper smelting and deemed safe for our use by the Canadian Conservation Institute) provided a suitable support for the fragile specimens.

Concerns regarding the proper sequence of minerals, from shortwave to longwave UV exposure, and their aesthetic placement as to colour and size, determined the final layout. In order to allow the viewer full control of the various lights, each light source - shortwave, longwave and fluorescent light - is regulated by its own switch on the control panel. Labels, printed in fluorescent inks on clear plastic, enhance the exhibit in its various light phases. Upon installation of the exhibit it was determined that additional attention has to be given to the shielding of extraneous light into the specimen viewing area. Ron Mussieux, at the Provincial Museum of Alberta, and several internet responses from collections in the United States and South Africa provided valuable information.

Poster

12 Milliseconds Flat

Strang, T. and P. Marcon

Canadian Conservation Institute, 1030 Innes Road, Ottawa, ON, K1A 0M5, Canada

Most recently The Hague received a damaged \$250,000 dinosaur when it slid out of a truck during delivery (Ottawa Citizen). The Three Graces, the world's most expensive sculpture at £7.5 million developed a hairline crack which is being blamed on transit (Daily Telegraph). A number of items in an exhibit of Martha Sturdy's furniture was destroyed in truck transit to New York City (Venture, CBC).

These disasters to valuable objects represent the ever present hazards in shipping which could have been anticipated and the damage prevented by the application of better package design or by the use of skilled art handlers.

Four cases involving recent packaging projects at CCI illustrate how applying basic packaging principles can cope with the uncertainties of shipping fragile objects including items for which detailed fragility information is not yet available.

One, objects with unknown fragility characteristics: "The Bard" hollow plaster sculpture was modeled and testing of package evaluated the performance of proposed system before shipping to five exhibit venues.

Two, tight time-frames: The plaster "Serpent Column" packing system was designed by telephone consultation, with an artist description and faxed sketch.

Three, a highly fragile glass object with inaccessible fragile internal structures, easily broken during construction: Catherine Richard's "Charged Hearts" exhibit is based on the "terrella" aurora borealis simulation.

Four, scientific demonstration equipment: Glass aquaria, computer, electronic sensors etc. are routinely shipped by any available mode to workshop venues without damage. This last design is an example of a simplified approach to protective packaging which the CCI is making available as part of a suite of alternatives. Predesigned and tested for a specific weight of contents and shock isolation, all the packer has to do is immobilize the contents.

All of these examples illustrate the relationship between package design and the transportation environment; the amount of protection needed in the package is dictated by both the fragility of the goods, and the care with which it will be transported. Within Canada, CCI can offer both advice on package design and also high quality transportation services through the Exhibitions Transportation Services (ETS).

Oral Presentation

Session 3:30 pm Friday 29 May

Natural Science Collections Get a Boost on the Web!

Szirtes, Bonnie

Canadian Heritage Information Network (CHIN), 15 Eddy St., 4th Floor, Hull, Quebec, K1A 0M5, Canada

The Canadian Heritage Information Network (CHIN) has just celebrated its 25th anniversary! Since its inception in 1972, CHIN has evolved from the early stages of automated collections records and mainframe computer storage to its current role as the gateway to Canadian cultural heritage. Today, a global audience can access the riches of Canadian museums through the Internet (<http://www.chin.gc.ca>).

This paper will provide an update of CHIN's current activities with particular emphasis on the revamped Natural Sciences National Inventory. This valuable, on-line resource has an improved, user-friendly interface and a new, simple way of contributing data. Demonstrations will also be shown at the CHIN booth in the Exhibitors' Hall.

Oral Presentation

Session One 1:30 pm, Thursday 28 May

Conservation of Fluid-Preserved Specimens Properties of Sealants and Their Effect on Preservation Quality

van Dam, Andries J.

Leiden Museum of Anatomy, Leiden University, P.O. Box 9602, 2300 RC Leiden, The Netherlands

In sealed glass jars with glass lids, the seal is considered to be the weakest part with respect to fluid loss and outside contamination problems, both of which can result in a rapid decay of the specimen.

For this reason, the Leiden Museum of Anatomy conducted a survey on the quality of three types of sealants used in their fluid collection by periodically observing the fluid loss, examining the condition of the seal and roughly monitoring storage conditions during a period of ten years.

Analysis of the data show a direct relationship between environmental conditions, the individual properties of the sealants and the condition of the seals. As a result, more exact procedures can be developed concerning the utility and reliability of sealants used in preservation.

Oral Presentation

Session Three, 1:30 pm, Friday 29 May

Spirit Collections: Changes in the Amino Acids of Feather at Elevated Temperatures

Von Endt, D.W., and P.E. Hare,

Smithsonian Institution, Washington, D.C., 20056, USA; Geophysical laboratory, Carnegie Institution of Washington, 525 I Broad Branch Road, N.W., Washington, D.C., 20015, USA

Keratins are important protein components of the epidermal appendages (e.g. feather, hair, hooves) of many vertebrates. Numerous specimens containing keratin are stored in natural history collections in fluids. As part of a study to determine the deterioration reactions prevalent in keratins stored in fluids, we present here differences in the rates of deterioration of the individual amino acids composing feather under simulated aging conditions. Samples of feather were heated in 70% ethanol plus 1% formaldehyde, and 50% 2-propanol at 120 C, 140 C and 160 C for various time periods. Results indicate that stereochemical changes (changes from L to D; termed racemization) in the amino acids of feather occur before compositional changes, with the most rapid racemization taking place in aspartic acid. This change was most severe in the ethanol plus formalin solution. The composition of the amino acids in feather also changed through time: serine and threonine decreased in amounts, most severely in ethanol plus formalin solution. These data indicate that free formalin in alcohol solutions poses some danger to the stability of even a stable protein such as feather keratin. The racemization data also indicate that this type of reaction may be useful as an indicator of the state of keratin preservation; and if feathers are stored under the same conditions, racemization may be used as an indicator of the age of the sample.

Oral Presentation

Session Three 1:30 pm Friday 29 May

Digital Imaging: Uses in the Natural History Museum

White, Russell D.

Division of Invertebrate Paleontology, Peabody Museum of Natural History, Yale University, 170 Whitney Ave., PO Box 208118, New Haven, CT, 06520-8118, USA

There are many applications for digital imaging in the natural history museum. World Wide Web pages, reports, in-house documents and image archives benefit from the various digital products (i.e., cameras, scanners, printers, software) that are available on the market today. Many inexpensive consumer-market cameras are available to museum professionals that produce clean, high quality images for a fraction of the cost of professional-series cameras. Attributes of these cameras that enhance their utility include internal hard drives, data cartridges, flashes, close-up lenses, and the control over depth of field. Lossless compression routines provide even greater economization of disk space allowing for more than 40 images saved on the camera. Hard-copy "prints" can be produced on ink-jet, laser-jet or dye-sublimation printers depending on your needs.

Poster

A Collection Assessment Survey for Invertebrate Paleontology: An Example from the Yale Peabody Museum

White, Russell D.

Division of Invertebrate Paleontology, Peabody Museum of Natural History, Yale University, 170 Whitney Ave., PO Box 208118, New Haven, CT, 06520-8118, USA

A Collection Assessment Survey is a valuable tool for determining priorities for long-term planning and programmatic agendas for natural history collections management. At the Yale Peabody Museum (YPM) a collection assessment survey was performed to evaluate the level of physical curation, documentation and identification of the curated and "uncurated backlog" of invertebrate fossils. Approximately 10,000 drawers of invertebrate fossils were inventoried for 24 different curatorial attributes. Using the Collection Profiles developed at the 1996 National Science Foundation workshop for invertebrate paleontology, it was determined that five levels of curation exist in the YPM collection. The results of the Collection Assessment Survey and the NSF Collection Profiles were used to determine strategies for cataloging and curation, monitoring progress on our curatorial initiatives and for the development of a plan for moving our collections to a new facility.

Oral Presentation

Session Four 3:30 pm, Friday 29 May

WHERE DO I GO FROM HERE?

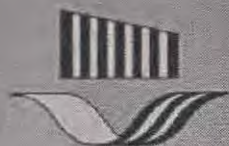
We'd be flattered if you would inquire. . .



Call our sales office or
inquire on our website



Call 800-776-7767 For More Information
(Viking's Museum Storage Cabinets Are Identical To The Interior Steel Discontinued Product Line)



**VIKING METAL
CABINET COMPANY INC.**

5321 W. 65th St., Chicago, IL 60638

PHONE: 708-594-1111 FAX: 708-594-1028 WEBSITE: www.vikingmetal.com

History of Science on microfiche

For more than 40 years now IDC has been a leader in academic publishing by preserving rare archival materials and primary source documents for the benefit of scholars and research institutions worldwide. To give you an impression we have listed some of the IDC collections. If you would like to receive free catalogues or brochures don't hesitate to contact us at one of the addresses below.

Botany

Editor: Prof. Dr. F.A. Stafleu †

The largest collection of herbaria, serials, monographs and seed lists on systematic botany in a microfiche edition. Most of the titles filmed have been selected by the late Professor F.A. Stafleu from his famous bibliography *Taxonomic Literature, Ed. 2.* (with Dr. R.S. Cowan as co-editor).

- 6,795 titles

Fritsch Collection of Algal Illustrations

Freshwater Biological Association, Ambleside, Cumbria, England

A collection of more than 500,000 illustrations of algae, brought together from many sources by Prof. F.E. Fritsch between 1912 and 1955, and later by his successors at the Windermere laboratory of the Freshwater Biological Association. The project is an on-going one to which six supplements have been added since the collection was first filmed in 1964. A major source for phycologists.

- 2,785 microfiche
- Including guide on microfiche and in printed form (77 pp.)

Academies of Science publications

This list offers a rich collection of early Academies of Science Publications from Berlin, Budapest, Goettingen, Halle, Leningrad, London, Munich, Paris, Philadelphia, San Francisco, Stockholm and Vienna in microfiche form.

- 71 titles

Zoology

This completely revised and updated catalogue lists serials and monographs dealing mainly with systematic zoology; early sources which today are either very rare or unobtainable. All titles are arranged thematically and alphabetically.

The complete catalogue is made easily accessible by an extensive alphabetic author index.

- 1,720 monographs and 211 serials

Geology

This catalogue covers the fields of geology, palaeobotany, palaeozoology, and mineralogy. An important part of the collection is formed by the publications of the Palaeontographical Society in London and by the series of the United States Geological Survey of 1890-1929.

- 339 monographs and 56 serials

Herbaria (including electronic guide!)

This catalogue contains microfiche editions of 36 herbaria and 5 special collections (drawings, illustrations and photographs). These collections will be of significant assistance to botanists working on the systematics, floristics and morphology of higher plants in many different parts of the world. Most of the herbaria collections come with an index, either in printed form or on microfiche.

- 36 herbaria and 5 special collections
- In August 1998 an **electronic guide** to these herbaria will be available

Brochures and catalogues on these and other IDC collections are available free of charge!



For more information please contact any of the following addresses

For North American customers only

✠ **The Netherlands**
IDC Publishers
P.O. Box 11205
2301 EE Leiden

Phone +31 (0)71 514 27 00
Fax +31 (0)71 513 17 21
E-mail info@idc.nl
Internet <http://www.idc.nl>

✠ **North America**
IDC Publishers Inc.
3265 Johnson Avenue
Riverdale, NY 10463

Phone 718 432 1400
Toll free 800 757 7441
Fax 718 432 0020
E-mail idc-us@mindspring.com

NEW!

Lane Science cabinets now feature durable neoprene door seals and powder paint finishes.

Visit our Web Page at www.lanescience.com

**PERMANENT
AIR TIGHT
SPECIMEN
PRESERVATION**

with

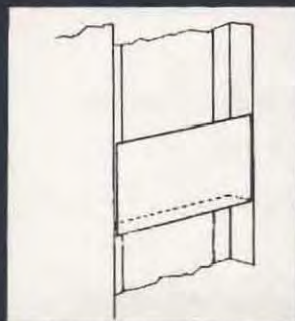
Lane
SCIENCE CABINETS



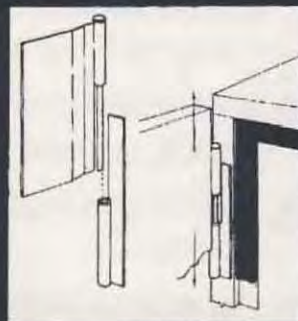
DOUBLE WALL CONSTRUCTION



PEST PROOF AND AIR TIGHT SEAL



FUMIGANT COMPARTMENT



LIFT-OFF SAFE TYPE HINGE



**BOTANY
SPECIMEN
CABINETS**



**ENTOMOLOGY
SPECIMEN CABINETS**



**ZOOLOGY-ORNITHOLOGY
SPECIMEN CABINETS**



**GEOLOGY-PALEONTOLOGY
SPECIMEN CABINETS**

Lane

SCIENCE EQUIPMENT CORP.
225 West 34th Street New York, N.Y. 10122

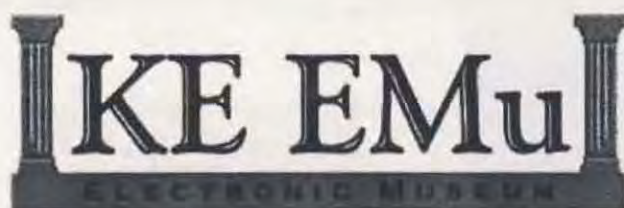
Lane Science Equipment Corp. Dept. 1 TEL: 212-563-0663
225 West 34th Street, New York, N.Y. 10122 FAX: 212-465-9440

Please send complete details on

- Botany Cabinets Zoology and Ornithology Cabinets
 Entomology Cabinets Geology & Paleontology Cabinets






Name _____ Title _____

Address _____



KE EMu manages **all** aspects of your museum's collection




Features

-  Internet/intranet interface allows browser-based access to all museum object data and multimedia information.
-  A full suite of reports meets the needs of all stakeholders including executive, management and users.
-  Multilingual support for data, on-screen prompts, messages and help.
-  Scalable from small to massive collections.
-  The database engine underlying KE EMu is KE Texpress; a non-proprietary object oriented database management system, widely regarded as the world's fastest database engine.

Functionality

-  Hierarchically structured object catalogue incorporates specific support for all museum disciplines across cultural history and natural sciences.
-  Management functions include program and exhibition development, loans, movements, locations, conservation and condition checks, insurance, indemnity, valuation, accessioning and deaccessioning.
-  Global terminology with pop-up lists of allowable values, hierarchies for related fields, and multiple Thesauri with support for local additions and modifications.
-  The Multimedia Repository supports any type of binary object. Text retrieval is available from all document types. Attach multimedia to any object or management process.

Natural History Collections

-  Comprehensive taxa descriptions support, including complete taxonomic hierarchy
-  Support for hybrid descriptions
-  Sophisticated management of Type specimens



KE Software
303 - 601 West Broadway Vancouver
BC V5Z 4B3
Canada

Tel: (604)877-1960
Fax: (604)877-1961
Email: info@kesoftware.com
WWW: <http://www.kesoftware.com>

INTERMUSE

YOU KNOW WHERE YOU WANT TO GO.
WE KNOW HOW TO GET YOU THERE.

Web Sites

Resource Centers

Knowledge Navigation Systems

Public Access Kiosks

Intranets



INTERMUSE™

Northwestern University Research Park, 1840 Oak Avenue, Evanston, Illinois 60201 (847) 866-1860
A Division of Willoughby Associates, Limited