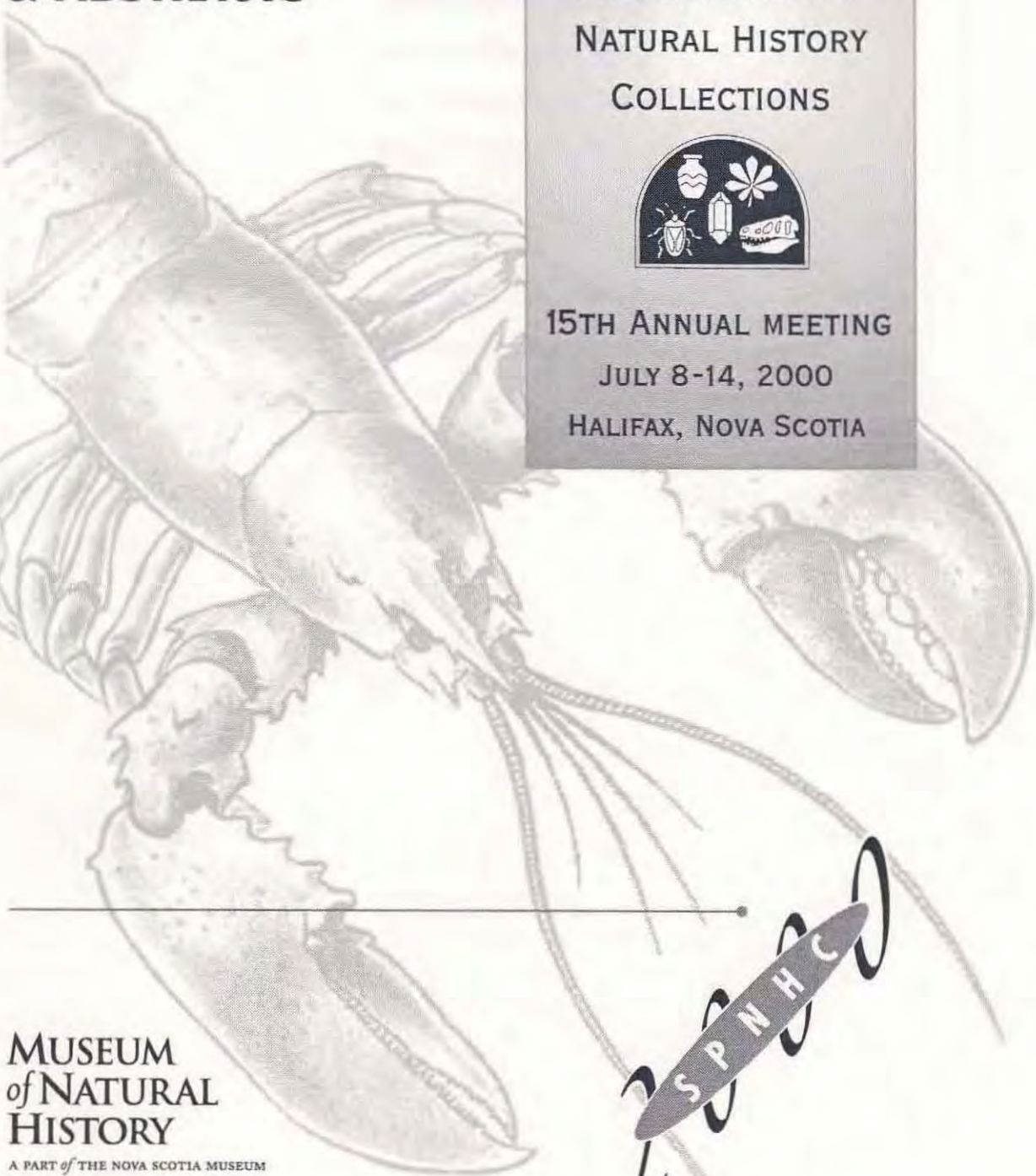
PROGRAM & ABSTRACTS

SOCIETY FOR THE PRESERVATION OF NATURAL HISTORY COLLECTIONS

15TH ANNUAL MEETING

JULY 8-14, 2000

HALIFAX, NOVA SCOTIA



MUSEUM *of* NATURAL HISTORY

A PART *of* THE NOVA SCOTIA MUSEUM

NOVA SCOTIA
Tourism and Culture

CANADA 1842 GEOLOGICAL SURVEY - COMMISSION GÉOLOGIQUE

TABLE OF CONTENTS

DELEGATES

WELCOME TO HALIFAX, NOVA SCOTIA.

BOTH THE NOVA SCOTIA MUSEUM OF NATURAL HISTORY AND THE GEOLOGICAL SURVEY OF CANADA (ATLANTIC) ARE PLEASED TO JOINTLY HOST THE 15TH ANNUAL MEETING OF THE SOCIETY FOR THE PRESERVATION OF NATURAL HISTORY COLLECTIONS, JULY 8 - 14, 2000.

NOVA SCOTIA
MUSEUM *of* NATURAL HISTORY

The Nova Scotia Museum of Natural History . . . .
is responsible for a collection of some 500,000 specimens of rocks, minerals, fossils, animals, plants and related illustrations. Approximately 140,000 specimens or lots are recorded in our own unique electronic data base, Museum Information Management System (MIMS). Some elements of the collection date back to the Mechanics Institute founded in 1831 and the Nova Scotia Institute of Science founded in 1862. The Museum of Natural History is one of twenty-six sites, located throughout the province, which make up the Nova Scotia Museum established in 1868 and, today, the most decentralized museum in Canada.

With an annual budget of $1.3 million, the Museum of Natural History has a permanent staff of eighteen, several casual workers involved in front end operations or grant-supported projects, about seventy-five volunteers and fifteen research associates. Each year, we play host to more than 100,000 visitors including 14,000 students in organized groups and 30 special interest societies (NS Bird Society, Photographic Guild of Nova Scotia, etc.)

The public galleries feature permanent displays of marine life including a life size Sei Whale model, dioramas showing moose and deer, American Eagles, sea birds, deep sea and littoral habitats, exhibits about rare species, native plants, and the geology of the province. Although archaeology and ethnology are managed by a different museum, the galleries devoted to these subjects are also in the Museum of Natural History. We have temporary exhibition space which, this summer, features the REAL Millennium Bugs, an exhibit on insects and their relatives both native and exotic. Included with this is our live tropical butterfly display and several other living arthropods.

In addition to the research done by staff and associates, we support projects in palaeontology, systematics, rare species and marine life with museum board grants awarded in an annual competition.

The Geological Survey of Canada (Atlantic) . . . .
is a division of the Geological Survey of Canada housed at the Bedford Institute of Oceanography (Canada's principle oceanographic facility) in Dartmouth, Nova Scotia. GSC Atlantic is the major source of marine geoscience information for Canada. Their programs deliver scientific concepts, databases and state of the art interpretive maps of Canada's coast and sea floor.

A diverse internationally recognized research program of geological, geochemical, geophysical and geotechnical studies is undertaken at GSC Atlantic. These studies permit the GSC Atlantic to provide expert information on the coastal zone, the seabed and offshore sedimentary basins, as well as the related processes. They contribute to assessments of resources, hazards and environmental quality.

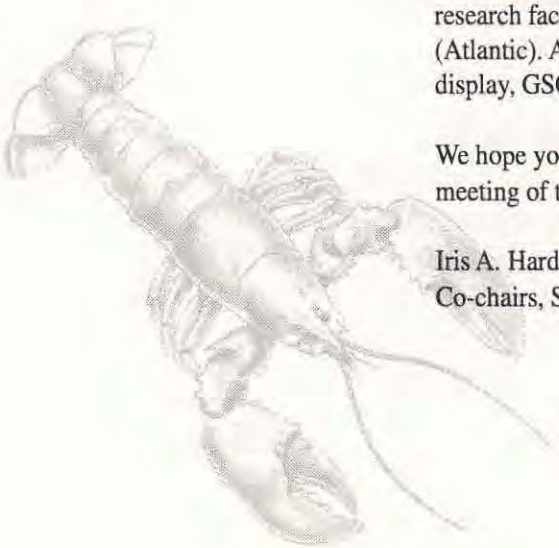
Field programs are conducted in the coastal and offshore regions of Eastern Canada and the Arctic stretching from the Gulf of Maine to the Beaufort Sea, and including the Great Lakes.

GSC Atlantic works closely with universities, private companies and other government agencies, and participates in international projects.

Welcome from the local organizing committee . . .

Its hard to believe that almost three years have elapsed since we made our pitch to you, to host SPNHC 2000 in Halifax, Nova Scotia. And here you are in our beautiful "City of Trees" founded by the British in 1749 to counterbalance the great French Fortress at Louisbourg a few hundred kilometers to the north on Cape Breton Island.

We sincerely hope that you will have the opportunity to visit some of our museums, galleries, historic sites, fine restaurants and our unique Public Gardens. Our busy conference itinerary should let you experience a sample of these sites vis-a-vis our magical mystery bus tours, where you will be provided with some commentary about our local natural history, geology and culture. Our cruise aboard the Harbour Queen with local historian David Flemming will be followed by our lobster banquet. Many of you will participate in one of the field trips and our behind the scenes collection tours at the Nova Scotia Museum of Natural History. The conference sessions will wrap up at the Bedford Institute of Oceanography, BIO, considered one of the most respected ocean science research facilities in the world and the home of the Geological Survey of Canada (Atlantic). A variety of tours have been arranged to view the fish labs, SeaMap display, GSC National Marine Geoscience Core Repository and otolith lab.



We hope you have a very stimulating and rewarding time at the 15th annual meeting of the Society for the Preservation of Natural History Collections.

Iris A. Hardy and Alex Wilson
Co-chairs, SPNHC 2000

ACKNOWLEDGEMENTS

SPNHC 2000 Local Organizing Committee

Co-chairs: Iris Hardy, Geological Survey of Canada (Atlantic)
Alex Wilson, Nova Scotia Museum of Natural History

Secretary: Graham Williams, GSC (Atlantic)

Treasurer: Nelly Koziel, GSC (Atlantic)

Registrar: Calum Ewing, Nova Scotia Museum, Heritage Resource Services

Program: Andrew Hebda, NSMNH; Graham Williams;
Leslie Pezzack, NSMNH

Social Events: Brenda Boutilier, NSMNH

Field Trips: Ruth Newell, Acadia University-Biology

Logo Products: Christine Sykora, Maritime Museum of the Atlantic;
Steve Beakhouse, NSMNH

Dalhousie Facilities: Steve Frye, Dalhousie University-Biology

Logistics: Tim Fedak, Fundy Geological Museum

Fund Raising: Iris Hardy; Graham Williams; Leslie Pezzack; Calum Ewing;
Marian Zinck, NSMNH; Tim Fedak; Alex Wilson

Field Trip Assistants: Rob Fensome, GSC; Chris Jauer, GSC;
Andrew MacRae, GSC; Bill MacMillan, GSC

Tours: Ian Mobbs, Dalhousie- Anatomy and Neurobiology; Dan Conlin, MMA;
Drake Petersen, Kings University Library; Lori Chisholm, Bedford Institute
Oceanography; Jasmine Marshall, Fisheries and Oceans Canada; David
Christianson, Nova Scotia Museum; Howard Donohoe, Nova Scotia Dept.
of Natural Resources; Derek Davis, NSMNH; Barry Wright, NSMNH;
Fred Scott, NSMNH; John Gilhen, NSMNH; Alfonso Rojo, NSMNH;
Derek Bridgehouse, NSMNH; Nancy Muzzatti, NSMNH;
Martha Devanney, NSMNH; Bonnie Julien, NSMNH; Elizabeth Kilvert, NSMNH

Graphic Design: David Carter, NSMNH; Etta Moffat, NSM HRS (illustration)

Web site: Calum Ewing, Michael Graham, NSM HRS

Audio Visual: David Butler, NSMNH

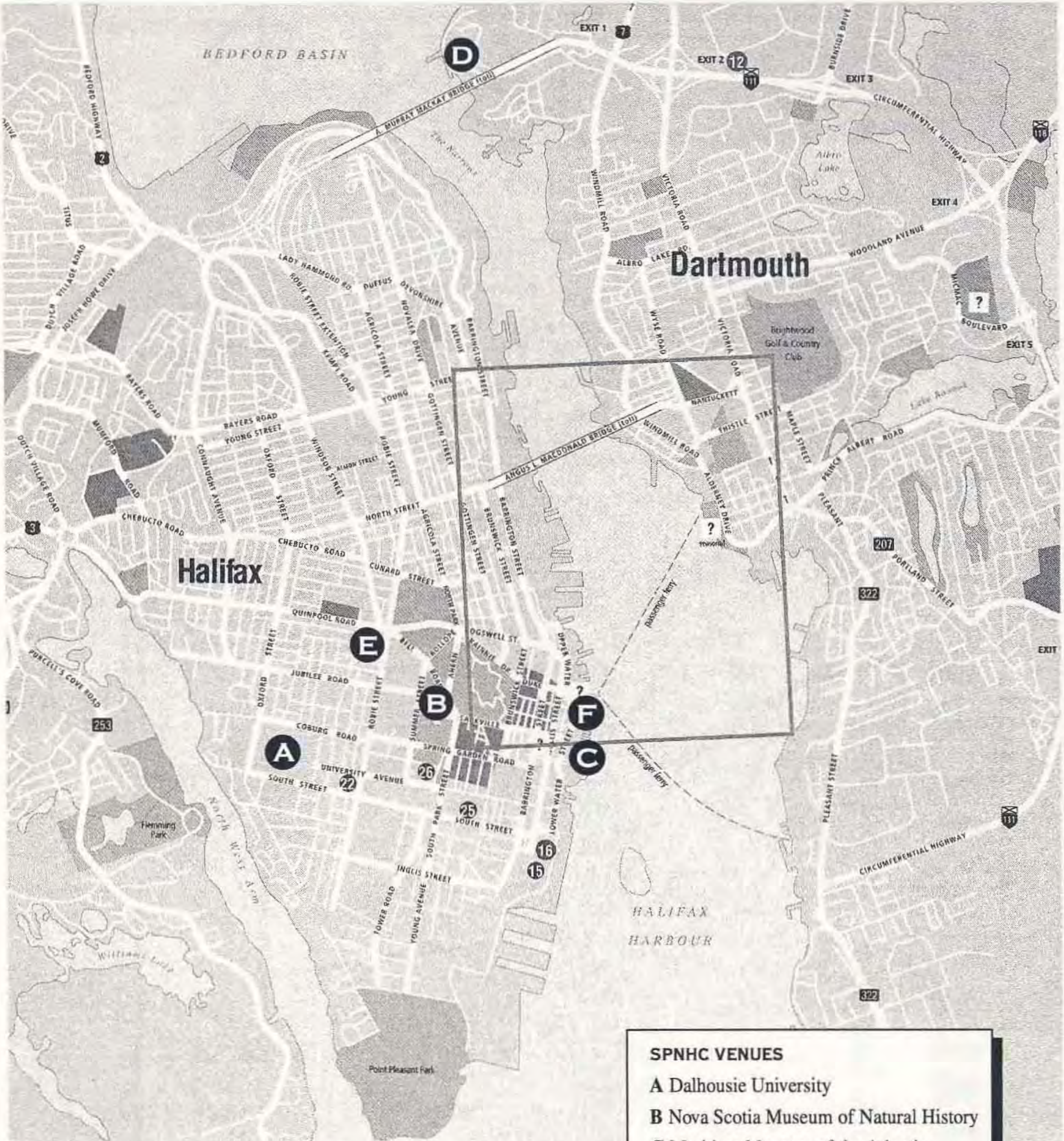
Permits Workshop: David Hayes, GSC

Logistics: Bonnie Julien; Claudia Currie, GSC; Jean Dougherty, GSC

Registration: Karen Gilhen, NSMNH; Leslie Pezzack; Marian Zinck;
Darlene Garrison, NSM HRS; Earl Buffett, NSM HRS; Nancy Muzzatti,
Janet O'Brien; Heather Johnson; Val Holleman; Elizabeth Kilvert,
Betty Zwicker; Karen Casselman, NSMNH

Session Chairs: Robert Huxley; The Natural History Museum, London;
James Bryant, Riverside Municipal Museum, California; Gerry Fitzgerald,
Canadian Museum of Nature; James Cosgrove, Royal British Columbia
Museum; Iris Hardy; Derek Davis

Special Interest Group Chairs: Chris Lavergne, NSM HRS; Robert Grantham,
NSMNH; Deborah Skilliter, NSMNH; Susan Woodward, Royal Ontario
Museum; Marian Zinck; David Christianson



SPNHC VENUES

A Dalhousie University

B Nova Scotia Museum of Natural History

C Maritime Museum of the Atlantic

D Bedford Institute of Oceanography

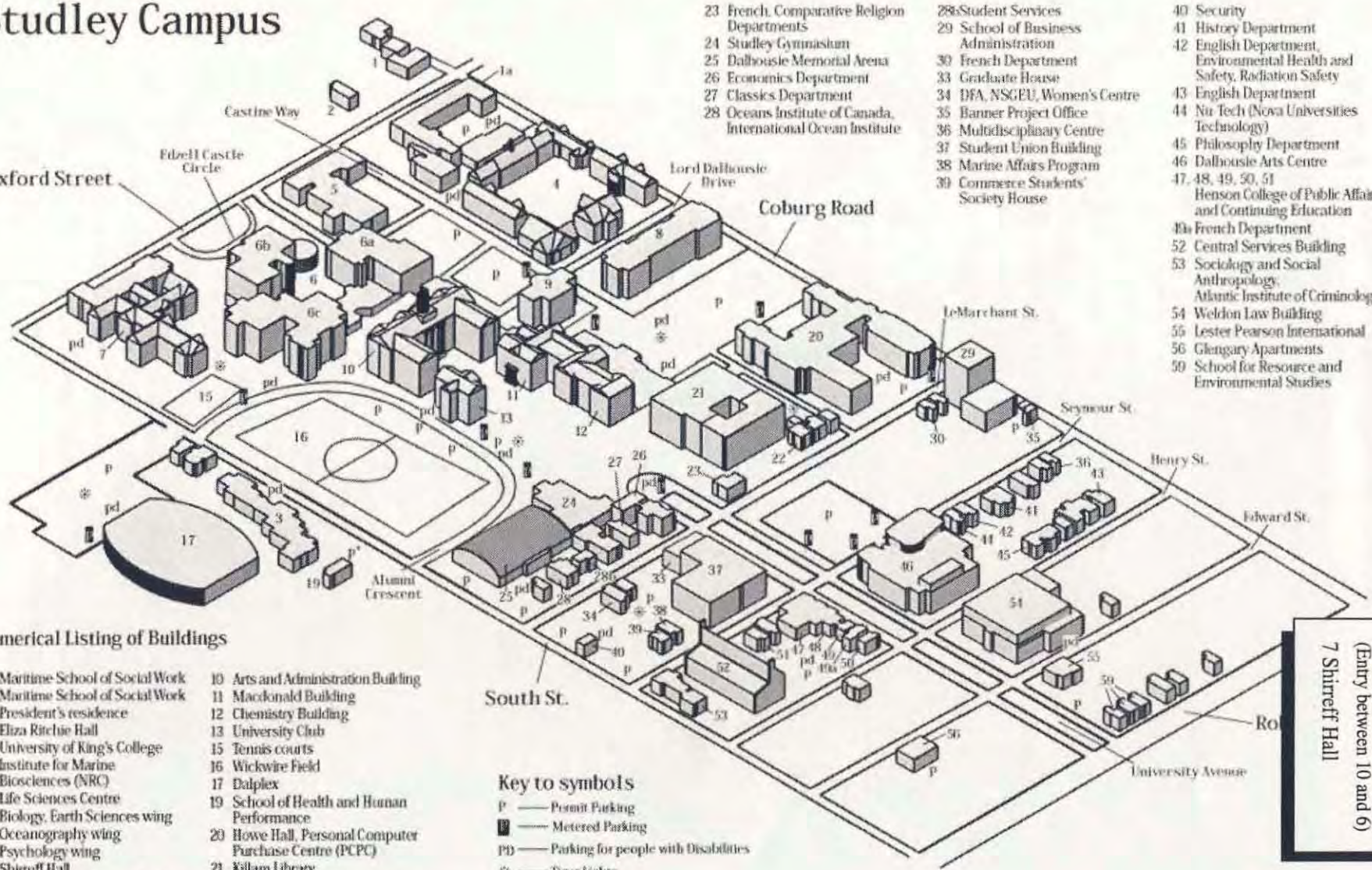
E Holiday Inn

F Murphy's On The Water

DALHOUSIE UNIVERSITY CAMPUS

STUDLEY • CARLETON • SEXTON

Studley Campus



Numerical Listing of Buildings

1 Maritime School of Social Work
1a Maritime School of Social Work
2 President's residence
3 Eliza Ritchie Hall
4 University of King's College
5 Institute for Marine Biosciences (NRC)
6 Life Sciences Centre
6a Biology, Earth Sciences wing
6b Oceanography wing
6c Psychology wing
7 Shirreff Hall
8 Sir James Dunn Science Building
9 Chase Building
10 Arts and Administration Building
11 Macdonald Building
12 Chemistry Building
13 University Club
15 Tennis courts
16 Wickwire Field
17 Dalplex
19 School of Health and Human Performance
20 Howe Hall, Personal Computer Purchase Centre (PCPC)
21 Killam Library
22 Spanish, Russian departments
23 French, Comparative Religion Departments
24 Studley Gymnasium
25 Dalhousie Memorial Arena
26 Economics Department
27 Classics Department
28 Oceans Institute of Canada, International Ocean Institute
28b Student Services
29 School of Business Administration
30 French Department
33 Graduate House
34 DFA, NSGEU, Women's Centre
35 Banner Project Office
36 Multidisciplinary Centre
37 Student Union Building
38 Marine Affairs Program
39 Commerce Students' Society House
40 Security
41 History Department
42 English Department, Environmental Health and Safety, Radiation Safety
43 English Department
44 Nu Tech (Nova Universities Technology)
45 Philosophy Department
46 Dalhousie Arts Centre
47, 48, 49, 50, 51 Henson College of Public Affairs and Continuing Education
48a French Department
52 Central Services Building
53 Sociology and Social Anthropology, Atlantic Institute of Criminology
54 Weldon Law Building
55 Lester Pearson International
56 Glengary Apartments
59 School for Resource and Environmental Studies

Key to symbols

P — Permit Parking
M — Metered Parking
PD — Parking for people with Disabilities
※ — Tiger Lights

SPNHC VENUES

6 Life Sciences Centre (Entry between 10 and 6)

7 Shirreff Hall

SPNHC VENUES

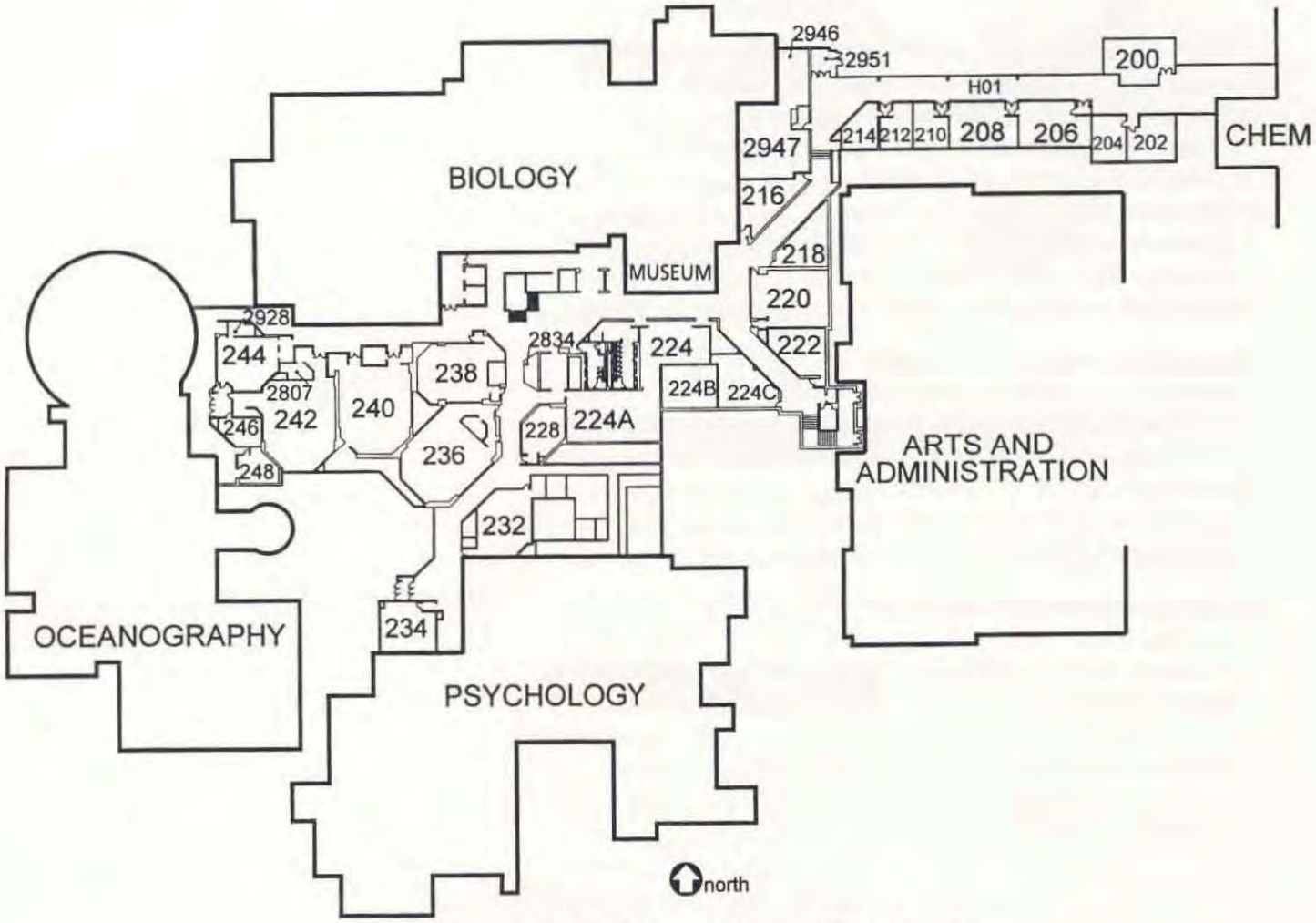
Life Sciences Centre

Posters & Vendors - Rm 220 & 216

Coffee - Museum

Sessions - Rm 240

Registration - LSC Level 3, near entrance (opposite Arts and Administration)



LSC COMMON (C20 04) LEVEL: C2

PROGRAM SYNOPSIS

Sunday, July 9, 2000 Pre Conference Trips

- Whale watching on the Bay of Fundy off Brier Island
- South Shore: Peggys Cove, Mahone Bay, Lunenburg (natural and cultural history)
- Joggins, Parrsboro: Fossils and the Fundy Geological Museum

Monday, July 10, 2000 Registration at Dalhousie University

- Committee meetings at Nova Scotia Museum of Natural History
  Conservation; Documentation; Finance; Conference; Election; By-Laws; Membership; Education; Sessional Committee on Professionalism; Sessional Committee on Long range Planning
- First Council Meeting

Tuesday, July 11, 2000 Registration continues

- Opening Remarks and Announcements at Dalhousie University
- Keynote Address - Steve Blasco - ***Exploring the wreck of the Titanic...***
- Vendor Displays and Posters: 2:45pm until Thursday at noon
- Paper Session #1 ***Building a Better Environment***
- Special Interest Group Meetings at the Nova Scotia Museum of Natural History:
  Geology, Zoology, Botany, Anthropology, Conservation and Paleontology
- Tours of Nova Scotia Museum collections
- Icebreaker reception at the Museum of Natural History

Wednesday, July 12, 2000 Registration continues, Family Activity Day

- Paper Session #2 ***Cast in Stone***
- Panel Discussion: ***After the Millennium???***
- Paper Session #3 ***A Moving Experience***
- Paper Session #4 ***Learning, Knowledge and Collections***
- Harbour Cruise, Lobster Feast and after dinner entertainment

Thursday, July 13, 2000 Registration continues until noon

- Paper Session #5 ***Humans and Nature***
- Annual General Meeting
- Travel to the Bedford Institute of Oceanography for lunch and afternoon program
- Paper session #6 ***Marine Heritage***
- Bedford Institute of Oceanography Tours

Bus tours on return trip to Dalhousie will explore local geology; natural history; cultural history and archaeology. (Choose one of three tours)

- Second Council Meeting

Friday, July 14, 2000

- Permits workshop – This full day workshop will explore issues relating to agriculture, health and safety, rare and endangered species (CITES) and cultural property.

PROGRAM

Saturday, July 8, 2000

9:30 - 5:30
SPNHC Long Range Planning Committee
Nova Scotia Museum of Natural History, Boardroom

Sunday, July 9, 2000

Field Trips

7:45am departure from Shirreff Hall,
Whale Watching on the Bay of Fundy

Our whale-watching trip will be a unique lifetime experience. We will leave Shirreff Hall, our Dalhousie residence, and travel in comfort by bus to the small fishing village of Westport located on picturesque Brier Island. Our trip leaders, Iris Hardy and Ruth Newell will provide some commentary en route about the Annapolis Valley, Digby Neck and the Bay of Fundy. After our picnic lunch we will board our boat and spend 3.5 to 4 hours on the Bay of Fundy with long time whale observer and fisherman, Carl Haycock. He will provide commentary and respond to questions. We will have the experience of seeing, at close range, a variety of marine life including seabirds, seals, whales, dolphins, and porpoises.

Brier Island is one of the prime whale-watching areas in eastern North America and has become an extremely popular destination for tourists from all over the world. Species of whale which are commonly observed off Brier Island are the Humpback, the Minke, the Finback and the rare North Atlantic Right. White-sided Dolphins and Harbour Porpoise are regularly seen as well as a number of seabirds including puffins, shearwaters, gannets, phalaropes, petrels, gulls and terns. We will stop for dinner on the return trip (at the participants expense).

Whale-watching is weather dependent and the trips must sometimes be canceled at the last minute. Should we be so unfortunate, we are still planning for a full and stimulating day in the southwestern part of the province. Our alternative itinerary will remain flexible but may include the town of Annapolis Royal with its Historic Garden, Fort Anne, the Habitation (first new world French settlement established in 1605), the experimental tidal power plant and wild life park. We could also spend some time on the trails of Kejimkujik National Park in the center of the province. We expect to return to Halifax around 10:00 PM.

8:00am departure from Shirreff Hall,
Joggins and Parrsboro Geology Tour

The coastal cliffs at Joggins represent one of the most important geological sites in North America. This day trip in a small bus travels through some of the most dramatic scenery in Nova Scotia. At Joggins the rocks are about 310 million years old and contain coal seams that were mined for several decades. This site is most famous for fossils which include some spectacular plants like *Lepidodendron* and some of the earliest reptiles. At Kirkhill, outside Parrsboro, we will climb the scarp slope on the Cobequid- Chedabucto Fault Zone. This is an ancient transform fault, similar in origin to that of today's San Andreas Fault. We will also make time for a brief visit to the Fundy Geological Museum. Mineral and fossil specimens can be purchased at local shops. This trip will be

escorted by Graham Williams of the Geological Survey of Canada (Atlantic) with assistance from Andrew MacRae and Chris Jauer. The GSC will provide a printed field trip guide and the Nova Scotia Museum will give each participant a complimentary copy of the Nova Scotia Geology Map. A picnic lunch is included and participants will return to Halifax in time for dinner.

9:00am departure from Shirreff Hall,
Nova Scotia's South Shore
The coastline south of Halifax offers numerous scenic features from the famous lighthouse at Peggys Cove, amid the bolder strewn, barren landscape, to the historic town of Mahone Bay with its distinctive, harbour-front shops and eateries. In 1995, Lunenburg was designated a World Heritage Site by the United Nations largely on the basis of its unique 18th and 19th century architecture. Participants on this van tour will have plenty of time for a visit to the Fisheries Museum of the Atlantic with its vessels and other artifacts related to harvesting the ocean. Some may find the aquarium, displaying native species, of particular interest. Alex Wilson, Manager of Collections at the Nova Scotia Museum of Natural History, will lead this tour. A picnic lunch will be provided and we will return to Halifax in the late afternoon.

Monday, July 10, 2000

8:30am - 7:00pm Registration, 3rd floor Life Science Building, Common Area

Committee Meetings, Nova Scotia Museum of Natural History

8:30-10:00 Publications Committee, Piers Room

8:30-10:00 Elections Committee, Honeyman Room

9:45 Coffee, Boardroom

10:00 - 12:00 Conservation Committee, Auditorium

Lunch on your own. Suggestions: The Spring Garden Road area two blocks south and one block east of the Museum or the Quinpool Road area northwest of Museum. There you will find a great selection of eateries.
Also, across the street is the hospital cafeteria.

Committee Meetings, Nova Scotia Museum of Natural History

1:00-2:00 Membership Committee, Honeyman Room

1:00-2:00 Documentation Committee, Auditorium

2:00-3:00 Conference Committee, Library

2:00-3:00 Finance Committee, Auditorium

3:00 - 3:30 Coffee, Boardroom

3:30-4:30 By-laws Committee, Honeyman Room

3:30-5:00 Education Committee, Library

3:30-5:00 Sessional Committee on Professionalism, Piers Room

3:30-5:00 Sessional Committee on Long Range Planning, Auditorium

5:00-6:00 SPNHC Canada Meeting, Boardroom

5:30 ... Informal drop-in at Dalhousie University Club

7:00-10:00 First Council Meeting,
Nova Scotia Museum of Natural History, Boardroom

Tuesday, July 11, 2000

8:00 - 5:00 Registration, Life Science Building, 3rd floor Common Area

9:00 -2:45 Poster and Vendor Set-up, Life Science Building Rooms 216 and 220

9:00 - 10:00 Opening, Welcoming Remarks and Announcements,
Life Science Building Room 240

Iris Hardy and Alex Wilson, Local Organizing Committee Chairs

Sally Shelton, SPNHC President

Candace Stevenson, Executive Director, Nova Scotia Museum

Richard Haworth, Acting Assistant Deputy Minister, Minerals and Metal Sector, Natural Resources Canada

Jacob Verhoef, Director, Geological Survey of Canada (Atlantic)

9:45 - 10:30 Coffee Break

10:30 - 1130 Keynote Address

Exploring the wreck of the TITANIC at 3800 metres water depth in the North Atlantic or Why didn't the TITANIC disappear into the primordial ooze of the North Atlantic?
Steve Blasco

11:30 - 1:30 Lunch on your own. Suggestions: Howe Hall, The SUB or shops east along Coburg/Spring Garden Road.

12:00 - 1:30 Council Members Lunch at Dalhousie University Club

Session One:
Building a Better Environment, Life Science Building Room 240

1:30 - 1:50
Building a safer environment for collections: bringing the specimens back into focus.
Robert Huxley, William Lindsay and Kevin Rellis

1:50 - 2:10
Conserving and documenting Victorian-era collections of sea & shore bird specimens.
James M. Bryant and Patricia E. Bailey

2:10 - 2:30
Risk Assessment and conservation planning at the Canadian Museum of Nature.
R. Robert Waller

2:30 2:50
Staying in shape: A comparative study of collagen and keratin stability in museum storage fluids.
David W. Von Endt

2:50 Coffee Break

3:00 - 5:00 Poster Session and Vendor Trade Show, Life Science Building Rooms 216 and 220

4:00 - 5:00 Special Interest Group Meetings,
Nova Scotia Museum of Natural History

Zoology, Botany, Geology, Anthropology, Conservation and Paleontology

5:30 Group Photo, Nova Scotia Museum of Natural History, front steps

5:45 - 7:00 Collections Tours, Nova Scotia Museum of Natural History

7:00 - 10:00 Icebreaker Reception, Nova Scotia Museum of Natural History foyer

Entertainment by The Harbour Trio

Wednesday, July 12, 2000

8:30 - 4:30 Registration, Life Science Building, 3rd floor Common Area

9:00 - 5:00 Vendor Trade Show and Posters, Room 216 and 220

Family Day Activities - check at Registration Desk

10:00-12:00 "Learning the Ropes", Maritime Museum of the Atlantic.
Working with ropes is in a sailor's blood and it is a tradition which will continue well into the new millennium. You will make your own miniature replica of the decorative turk's head knot and a monkey's fist commonly used for heaving lines. Afterwards take a stroll through the Days of Sail Gallery to see just how fancy knotwork can be. Space limited to 15 children and their guardians.

1:30 - 3:30 "Rocky Shore Maritime Keepsake"
Nova Scotia Museum of Natural History
Seaweeds provide wonderful materials for producing beautiful mementos of your visit to the East Coast. Today, a museum naturalist will help you to discover the wonderful world of seaweeds. Your salty creation may be something you will want to send to grandparents or have framed for your very own. Afterwards, visit the Marine Gallery and enjoy our touch-tanks filled with living tidepool treasures...you will even meet some of the stars of the sea...that's starfish of course. *Space is limited to 15 children plus their guardians.*

Session Two: Cast in Stone, Life Science Building Room 240

9:00 - 9:20
Molding and casting techniques employed in the trace fossil exhibit.
Deborah M. Skilliter and Robert G. Grantham

9:20 - 9:40
Techniques used in recovery and conservation of the Milford mastodons.
Robert G. Grantham and Kelley A. Gittis

9:40 - 10:00
Salted dinosaurs of Nova Scotia, conservation problems.
Tim Fedak

10:00 - 10:20
Nothing to hide: A public preparation of a Right Whale specimen.
Andrew Hebda

10:20 - 11:00 Coffee Break and Poster Session (Presenters present)

11:00 - 12:00 Panel Discussion: After the Millenium ???
(SPNHC presidents, past, present and future)

12:00 - 1:30 Lunch on your own

Session Three: A Moving Experience, Life Science Building Room 240

1:30 - 1:50
You've got to move, before you move: Methods for packing, transport and storage of an anatomy collection.
Oskar Brandenburg and Andries J. van Dam

1:50 - 2:10
Battered and bruised: did we (Collections and Conservation Staff) really survive the move?
Lori Benson, Debbie Schoenholz , Jackie Hoff, Rose Kubiatowicz, Lynn Ross, Gretchen Anderson and Rebecca Newberry

2:10 - 2:30
Avoiding common mistakes in large scale collections relocation.
James R. Cordeiro

2:30 - 3:00 Coffee Break, Poster Session (Presenters present).
Life Science Building Rooms 216 and 220

Session Four: Learning, Knowledge and Collections, Life Science Building Room 240

3:00 - 3:20
Sustaining the biodiversity collections infrastructure with the Specify Database Management System.
Jennifer Leopold, Kathy Coggins, and James Beach

3:20 - 3:40
Meaningful learning - finding evidence at a university natural history museum.
Ingrid Birker

3:40 - 4:00
A packing method for an historic lichen collection.
James M. Bryant

4:00 - 4:20
University natural history collections as resources for education:
a progress report of the 1999 Faber Award.
Jennifer Pestovi

5:00 Buses leave Shirreff Hall for harbour front (Cruise and banquet)

5:30 - 6:45 Harbour Cruise *with commentary by David Flemming, former Director of Maritime Museum of the Atlantic*

7:00 - 8:45 Dinner and Presentation

9:00 ... Entertainment by Johnny and the Escorts

Thursday, July 13, 2000

7:30 - 8:30 Executive Meeting (Breakfast), T.B.A.

8:30 - 12:00 Final Registration, Life Science Building, 3rd floor Common Area

9:00 - 12:00 Vendor Trade Show and Posters, Room 216 and 220

Session Five: Humans and Nature, Life Science Building Room 240

9:00 - 9:20
Restoration of a human fetal teaching collection with subsequent examination using Magnetic Resonance Imaging (MRI).
G. W. Lyons, C. W. Reifel, R. Smith, R. Temkin, D. Situ and S.C. Pang

9:20 - 9:40
Frozen human remains - challenges and solutions.
James A. Cosgrove

9:40 - 10:00
A prehistoric stone tool recovered from a deeply drowned delta flood plain on the continental shelf of British Columbia, Canada.
Daryl W. Fedje and Heiner Josenhans

10:00 - 10:30 Coffee Break

10:30 - 12:00 Annual General Meeting

12:05 - 12:20 Buses leave Shirreff Hall for Bedford Institute of Oceanography

12:30 - 1:30 Barbeque, Bedford Institute of Oceanography, Courtyard

Session Six: Marine Heritage, Bedford Institute of Oceanography Auditorium

1:30 - 2:10
Mouse click for whale clicks: building an interactive CD-ROM for the Sable Gully.
Paul A. Macnab

2:10 - 2:30
The mystique of sunken ships: the example of HMS Hood.
John Shaw and Robert C. Courtney

2:30 - 2:50
Discovery of a new shipwreck heritage in Halifax Harbour and adjacent areas: technology, conflict and implications.
Gordon B. J. Fader

2:50 - 3:30 Coffee Break

3:30 - 5:00 BIO Tours

5:15 - 6:30 Marvelous Halifax Mystery Tours
Geology, commentary by Howard Donohue
Natural History, commentary by Alex Wilson
Cultural History and Archeology, commentary by David Christianson

Dinner on your own.

7:30 - 10:00 Second Council Meeting,
Nova Scotia Museum of Natural History, Auditorium

Friday, July 14, 2000

Permits Workshops, Nova Scotia Museum of Natural History, Auditorium

9:00 - 10:00 Session One, Agriculture

10:00 - 10:30 Coffee Break

10:30 - 11:30 Session Two, Health and Safety

11:30 - 12:00 Open Discussion

12:00 - 1:30 Lunch provided, Nova Scotia Museum of Natural History, outdoors (weather permitting)

1:30 - 2:30 Session Three, CITES

2:30 - 3:00 Coffee Break

3:00 - 4:00 Session Four, Cultural Properties

4:00 - 5:00 Open Discussion

5:00 -5:30 Wrap-Up

6:00 ... Dinner and informal get-together

POSTERS

Visible Labs Revisited: The new and improved lab
Gretchen Anderson, Rebecca Newberry, Lori Benson and Debbie Schoenholz

Upper Midwest Bryophyte Communities
Lori Benson, Joannes A. Janssens, Richard Oehlenschlager and Debbie Schoenholz

The Museum Move Manual: How to Get Collections from Here to There
Lori Benson, Debbie Schoenholz, Jackie Hoff, Rose Kubiatowicz, Lynn Ross, Gretchen Anderson and Rebecca Newberry

Priorities For Natural History Collections Conservation Research: Results of a Survey of the SPNHC Membership.
Paisley S. Cato, Diana H. Dicus and David VonEndt

Cleaning fossil material with Lasers
Lorraine Cornish

Managing a barrier film 'microclimate' enclosure
Adrian Doyle

Design, Creation and Long-term Maintenance of Black and White Natural History Digital Images
Daniel J. Faber and Darin Jay Faber

Incorporation of Bar Code Capabilities to Existing Museum Databases
Susan E. Fishman-Armstrong, Heath J. Garner, R. Richard Monk, Jeff Indeck, Gary Edson, Nicola Ladkin and Robert J. Baker

One solution to producing a replica of a large specimen on display in the Natural History Museum
David Gray

United States Naval Exploring Expeditions and their Botanical Legacy
Linda Hollenberg

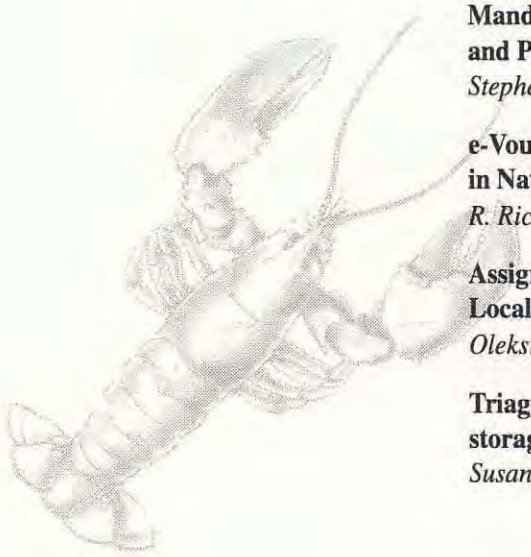
Electronic Field Data Capture Using WildCat III
Raegan D. King, R. Richard Monk, and Robert J. Baker

Mandatory Registering and Monitoring of Institutional and Privately Owned Natural History Objects
Stephen LeMay

e-Vouchers and Some Applications of Digital Imagery in Natural History Collections
R. Richard Monk and Robert J. Baker

Assignment of Global Information System Coordinates to Classical Museum Localities for Relational Database Analyses
Oleksiy V. Knyazhnitskiy, R. Richard Monk, Nick C. Parker, and Robert J. Baker

Triage work to deal with a Webbing Clothes Moth infestation in an open storage area housing taxidermic mounts
Susan M. Woodward



ABSTRACTS

POSTER

Visible Labs Revisited: The new and improved lab.

Gretchen Anderson
Rebecca Newberry
Lori Benson
Debbie Schoenholz
Science Museum of Minnesota
120 West Kellogg Blvd.
St. Paul, MN 55102, USA

The Science Museum of Minnesota has used visible labs to promote the understanding of collections based science since 1982. We have found this a very successful interface between the public and the scientist, raising the awareness of what scientists do at the museum and why museums make collections. In 1995 we presented a paper examining development of program for the lab, analysis of positive and negative aspects of the lab and the success of this form of outreach.

With the grand opening of our new facility in December 1999, and funding through the IMLS CP Educational Component, came the opportunity to expand and improve the program. The home for the Collections Visible is the Collections Gallery, a new exhibition hall describing why museums collect. It serves as the public face or "front door" to the behind the scenes activities of Research and Collections.

The aim of program in the lab is to make collections based science, conservation activities and current research more accessible to the public. The poster shows some of the ways of achieving this goal.

POSTER

Upper Midwest Bryophyte Communities.

Lori Benson,
Joannes A. Janssens
Richard Oehlenschlager
Debbie Schoenholz
Science Museum of Minnesota
Research and Collections Division
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The Science Museum of Minnesota is currently accessioning a new and valuable collection of bryophytes (mosses and liverworts) donated by Dr. Joannes A. Janssens, Lambda-Max Ecological Research. The Janssens collection is the most unique collection of mosses in Minnesota, comprised of thousands of specimens carefully documented for their location throughout the area. Such a collection will be invaluable as a benchmark for climate and environmental change, for description of the bryophyte component of Minnesota's native plant communities, for conservation of unique wetland habitat, and for detailed floristic and phytogeographic data adding greatly to the existing literature.

POSTER

The Museum Move Manual: How to Get Collections from Here to There.

Lori Benson
Debbie Schoenholz
Jackie Hoff
Rose Kubiatowicz
Lynn Ross
Gretchen Anderson
Rebecca Newberry

Science Museum of Minnesota
Research and Collections Division
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The Science Museum of Minnesota is making the hard-won lessons of its recent moving experience available to other museums in an illustrated publication. This is the soup-to- nuts version of packing, managing, and transporting 1.75 million natural history and anthropology collections from an aging and cramped location across town to a brand- spanking-new, state-of-the-art facility. Topics include packing techniques, time-management for staff, coordination and training of volunteer packing crews, project definition and management, interdepartmental communication, scheduling, storage and transport issues, and everything else we could think of that we wish we had known when we started. The publication will be available by order from this session.

ORAL PRESENTATION

Battered and Bruised: Did We (Collections and Conservation Staff) Really Survive the Move?

Gretchen Anderson
and Lori Benson
Debbie Schoenholz
Jackie Hoff
Rose Kubiatowicz
Lynn Ross
Rebecca Newberry

Science Museum of Minnesota
Research and Collections Division,
120 West Kellogg Boulevard, St.
Paul, Minnesota 55102, USA

The Science Museum of Minnesota has almost completed the move of collections into its new facility. This slide show documents the ups-and-downs or trials and tribulations of packing and moving 1.75 million natural history and anthropology collections a mere eight blocks. Listen for the ten important lessons we learned and the things we wish we had known when we started.

ORAL

Meaningful learning-finding evidence at a university natural history museum.

Ingrid Birker

Redpath Museum,
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Without question, museums are places of learning. The sense that museums make a major contribution to education, broadly understood, is widespread. Visitor research and the historical record of museum education all testify to the novel experiences, new insights, and professional impact that museum visits can offer. Yet despite all the evidence, the nature of museum learning has long proved difficult to measure and lacks coherent theory. Education and learning in museums has been studied from a wide variety of viewpoints including ethnographic description of visitor behaviour, careful testing of exhibit parameters, evaluations to measure the visitor experience and tracking results from before and after the visit in order to measure the acquisition of various kinds of knowledge and understanding. The literature is replete with examples of museum learning as a continuous, active process of assimilating and accommodating information within social, phsycial and psychological contexts. The talk provides examples from the literature and attempts to correlate specific day to day findings at the Redpath, a university natural history museum servicing approximately 17,000 visitors annually, 60% of whom are school age children.

ORAL

Exploring the Wreck of the TITANIC at 3800 metres water depth in the North Atlantic or Why didn't the TITANIC disappear into the primordial ooze of the North Atlantic?

Steve Blasco

Geological Survey of Canada Atlantic
Bedford Institute of Oceanography
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The history of the TITANIC during its sojourn at the bottom of the North Atlantic is as fascinating as its maiden voyage and subsequent sinking. In 1991, Steve Blasco had the opportunity as chief scientist on a joint Canada, United States and Russian scientific/commercial expedition to film the TITANIC wreck site at some 3800 metres with two manned Russian submersibles.

Steve will provide the audience with a mini sub tour of this imposing wreck and her final resting place, while presenting some intriguing aspects of the science: state of wreck preservation; marine colonization by the benthic community and its associated diversity and abundance; why the shipwreck hasn't disappeared into the primordial oozes at such great water depths; and the unknown brittleness properties of the hull plating which accounted for the eventual rapid sinking of the ship. The photographic tour of the wreck illustrates a comparison of the original TITANIC under construction in 1912 with what she looked like almost 80 years later at the bottom of the North Atlantic.

ORAL

You've got to move, before you move

Methods for packing, transport and storage of an anatomy collection

Oskar Brandenburg

Andries J. van Dam

Leiden Museum of Anatomy
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The Leiden Museum of Anatomy houses the largest anatomy collection in the Netherlands, comprised of 20.000 macroscopic specimens and 1.3 million microscopic specimens representing medical education and research during the last four centuries. The collections have always been stored without environmental control on scattered locations of the old academic hospital complex.

The Museum of Anatomy is now planning to move to a new accommodation, which is expected to be operational within a period of 5 to 10 years. This moving will be a unique opportunity to improve the collection management and care. Besides pre-move activities such as registration, valuation, disposition, and conservation, one of the important phases is the actual move of the collection. For this reason, the Leiden Museum of Anatomy has developed standardized methods for packing, transport, and storage. While developing these methods the following aims were kept in mind:

- Minimization of transit risks
- Improvement of the storage conditions
- Improvement of the accessibility

In addition, there was a demand to economize the use of the amount of square meters. In the last place the museum has considered further cost 20saving solutions, as long as these did not interfere with the above-mentioned. This resulted for instance in an integrated packing and storage solution for our large microscope slide collection and bone collection.

ORAL

Conserving and Documenting Victorian-era Collections of Sea & Shore Bird Specimens

*James M. Bryant**

*Patricia E. Bailey***

*Curator of Natural History
Riverside Municipal Museum
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**Director, Pember Museum
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Specimens of marine bird species were popular with Victorian-era natural history collectors. Over time, many of these specimens came to reside in major natural history institutions, yet others remained in small museums and private collections, some only now coming to light.

Franklin Tanner Pember developed widespread connections with the 19th century network of museums and professional collectors. Between 1870 and 1910, Pember collected in the field and purchased additional specimens for his Granville, New York museum. The more than 250 marine bird skins and egg sets have been the subject of packing, cleaning and condition assessment projects. Analyses of hazards inherent in working with old taxidermy and appropriate safety measures were employed. Many cleaned specimens were placed in original display cabinetry, which had undergone minor retrofitting to control changes in relative humidity, mitigate off-gassing, and improve lighting and visibility.

In 1999, yet another Victorian-era egg collection emerged from a basement, this time in Riverside, California. This collection represents the work of a Riverside-based commercial collector who had also traded with Pember. Still enclosed in its 19th century shipping boxes and packing materials, the marine bird eggs that made up the bulk of this collection were carefully unpacked, and the vintage packing methods documented for future reference. This Riverside Municipal Museum acquisition was then given proper storage, and the resultant data shared with the Pember Museum in order to shed additional light on the activities of Victorian-era bird collectors.

ORAL

A Packing Method for an Historic Lichen Collection.

James M. Bryant

Curator of Natural History
Riverside Municipal Museum
3580 Mission Inn Avenue
Riverside, California
92501

World-renowned naturalist Edmund Carroll Jaeger called the community of Riverside, California home for much of his life, from 1906 until his death in 1983. His accomplishments spanned a variety of disciplines, focussing primarily on the natural history of North American deserts. Jaeger collected thousands of specimens of vascular plants for noted herbaria, some of new taxa, but his work on lichens (primarily during the early 1930s) represents a personal collecting project that was never completed or properly curated.

When Jaeger served as Curator of Plants for the Riverside museum, his lichen collection was brought into what eventually came to be known as the Clark Herbarium. During 1999, museum staff were finally able to address the long-term storage needs of the lichen collection. Stable and acid free packing materials were employed in a fashion that makes the collection more accessible than ever before, while at the same time affording it much greater protection. This packing effort was supplemented by a cataloging project, through which the specimens were each described and images stored on the museums ARGUS data base software.

POSTER

Priorities For Natural History Collections Conservation Research: Results of a Survey of the SPNHC Membership.

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The Society for the Preservation of Natural History Collections, with funding from the National Center for Preservation Technology and Training of the National Park Service surveyed its membership to develop an updated list of priorities for natural history collections conservation research. The survey instrument was developed with input from a core group of professionals. The results from a previous multidisciplinary project on the conservation of natural science collections, as well as projects on conservation research needs conducted by the American Institute for Conservation were used as guides for the development of topics for research and/or transfer of information.

The survey was mailed to 548 individual and institutional SPNHC members in September, 1999. Responses representing 42% of the membership were analysed and tables developed to show percentages and weighted averages for research priorities. Sixteen topics were rated with an above average priority rating. Ten of these topics were selected by at least half of the respondents as the highest two ratings. This poster summarizes background information, development and implementation of the survey instrument, results and data analysis of this project.

ORAL

Avoiding Common Mistakes in Large Scale Collections Relocation.

James R. Cordeiro

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Written protocols for large-scale relocation of natural history collections, when available, have been beneficial to institutions seeking to rehouse their own collections into larger, more secure, or better protected storage areas. Like many other institutions, the American Museum of Natural History (AMNH) Division of Invertebrate Zoology is currently in the midst of relocating a large portion of its invertebrates collections to a newly constructed Natural Sciences Infill Storage facility. Specimens from 26 phyla currently stored in fluid (EtOH and formalin) and dried in open top boxes, as well as the divisions type collection are to be moved to the new facility. The facility accommodates approximately 650 single door units, most of which are attached to a mobile compact storage system. The fine details of this relocation have been left to the AMNH staff and moving crew as they struggle with this operation. Because the details of large-scale relocation of collections vary with each institution and have been adequately described in prior published works, what best can be passed on to other institutions are suggestions on how to avoid the obstacles and pitfalls that inevitably arise with such an undertaking. It is in the form of some general recommendations that the AMNH Invertebrates Division hopes to impart some guidance to other institutions preparing to undertake their own collections relocations. Examples of actual hardships encountered along the way and the methods in which they were (or were not) overcome are illustrated.

POSTER

Cleaning fossil material with Lasers.

Lorraine Cornish

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The Natural History Museum
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Laser cleaning in conservation is a relatively recent technological advance. The selective and highly controlled removal of surface contaminants is generally accepted as a major advantage over conventional cleaning methods. The Palaeontology Conservation Unit of the Natural History Museum in London is currently evaluating the use of a Q-switched Nd:YAG laser on fossil material. Preliminary results are shown for the effect of the laser cleaning system on a number of fossil materials, suggesting advantages and disadvantages of this technology in palaeontological conservation. Surprisingly useful destructive effects are highlighted. Comparisons with more conventional techniques, including chemical and mechanical cleaning, are illustrated.

ORAL

Frozen Human Remains - Challenges and Solutions

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The discovery of a human body, frozen in a glacier of British Columbia posed many challenges for the Royal British Columbia Museum (RBCM). From artifacts discovered with the remains it was concluded that the individual was of First Nations cultural background. A committee involving the Champagne and Aishihik First Nations (the nearest First Nations people), the government Archaeology Branch and the RBCM was established. The committee agreed to jointly manage the process of conservation and research for the human remains under the guidance of Dr. Owen Beattie from the University of Alberta.

The transfer of the remains to the RBCM required the dedication of a walk-in freezer for this single purpose and the installation of new security equipment and procedures. The Conservation Section provided sensors for the continuous monitoring of temperature and relative humidity for both the remains and the freezer environment. A process was developed to examine, document and wrap the body parts using sterile hospital technique. The objective was to prevent the contamination of the remains by the modern environment, to protect the workers from any possible contamination on the remains and to maintain the remains at the same temperature and relative humidity as the glacier environment. Full documentation included video with audio, 35 mm slides, prints and written accounts by each person involved in the rewrapping process.

Monthly physical reexamination and documentation has allowed visual confirmation that the remains are not deteriorating or becoming infected. Reweighing confirms that water loss or gain has not occurred.

POSTER

Managing a barrier film 'microclimate' enclosure.

Adrian Doyle

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Significant numbers of specimens in the palaeontology collections of the Natural History Museum are sensitive to relative humidity, particularly those from the British Lower Carboniferous and the London Clay horizons. These specimens contain iron pyrite and current storage conditions within the Palaeontology Building are inadequate to prevent their deterioration. In these circumstances remedial treatment takes on a secondary role as localised preventive measures are pursued. Polypropylene and polyethylene food storage containers, 'Stewarts' boxes, are used to provide microclimate enclosures for individual specimens but large numbers of specimens present practical and organisational problems to overcome. An existing, collections cabinet - standard in the Palaeontology collections - has been converted to provide environmentally suitable conditions for 300 specimens at particular risk. This in-house, experimental solution has been adopted as an alternative to expensive, purpose built cabinets in response to the scale and inflexibility ofcurrent collections organisation.

Three stages in this work are detailed: i. improved construction with closer fitting doors and improved seals, ii. tests to establish the suitability of telemetric relative humidity monitors and their effect on the design of the finished cabinet, and iii. enclosure of the cabinet in a moisture resistant barrier film (Marvelsealr 470), sealed with a 'Crossweld' heat sealer, and door covers held in place with Velcror. Desiccant Art-Sorbr cassettes' were placed on a shelf in the cabinet centre to provide the desired humidity. After installation of specimens, continual monitoring of the cabinet as part of the Conservation Unit's environmental monitoring programme shows an acceptable degree of humidity control.

POSTER

Design, Creation and Long-term Maintenance of Black and White Natural History Digital Images.

*Daniel J. Faber**

*Darin Jay Faber***

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The Groundfish Section of the St. Andrews Biological Station conducted an icthyoplankton sampling program in the Southern Gulf of St. Lawrence from 1965-1975. Many specimens of larval fish collected were sorted and identified, resulting in 5 published reports. Several stages of forty species were illustrated by Sally Gadd under the guidance of Daniel J. Faber. The collection of ink drawings of larval fishes from the Gulf of St. Lawrence which Sally Gadd completed on drawing paper were scanned utilizing a computer (LC630 Macintosh), a flatbed scanner (Avec Colour, model VM3520), scanning software (Art-Scan Pro v.3.26), and image editing software (Adobe Photoshop , v.3). After the digital images were organized alphabetically by families, the computer was attached to a video cassette recorder (VCR) through a video output device (video card or video mirroring card) which allowed for RJ cable hookup. The digital images along with their associated metatexts were recorded to a VHS-format video tape. The VHS master tape was then stored for unlimited longevity, according to established archival procedures. This system, utilizing VHS video tapes, was used for long-term storage of b & w illustrations, but could be adapted for photos and many other valuable natural history documents. The documents can be easily retrieved on any present or any future computers with appropriate software.

ORAL

Salted Dinosaurs of Nova Scotia, Conservation Problems.

Tim Fedak

Fundy Geological Museum
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The Jurassic aged McCoy Brook Formation has yielded many exciting vertebrate fossil specimens in the past several years; including six Prosauropod dinosaurs, a complete and articulated sphenodontian, *Clevosaurus bairdi*, and most recently an excellent skull of the early crocodylomorph, *Protosuchus micmac*. A significant factor that has allowed the discovery of so many excellent specimens is the accelerated erosion of the Jurassic sandstoneby the tremendous tides of the Bay of Fundy. Although this seaside location is beneficial for productive specimen recovery, some fossil specimens have become desiccated and suffer integrity problems that seem attributable to the presence of the salty ocean water at the collection site. Currently, attempts are being made to prevent fossil desiccation during field collecting by changing collecting techniques. Fossil specimens that suffer integrity problems have required special treatment during preparation in the lab at the Fundy Geological Museum.

ORAL

A prehistoric stone tool recovered from a deeply drowned delta flood plain on the continental shelf of British Columbia, Canada.

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The timing and mode of entry of humans into the Americas during late Wisconsin time remains contentious (1,2,3). At present, the favoured models include a 'Coastal Corridor' (1,4) and an interior 'Ice-Free Corridor' (5). Late deglaciation appears to preclude movement through the 'Ice-Free Corridor' between the Laurentide and Cordilleran ice-sheets prior to ca. 11,500 radiocarbon years before present (BP)(6). The 'Coastal Corridor' appears to have been passable by 14,000 to 13,000 BP (1,7,8) but a history of rapidly changing sea-levels constrains the location of coastal human occupation sites older than ca. 9,000 BP (9,10,11). We have used high resolution digital terrain imaging to reveal drowned late-glacial to early post-glacial terrestrial landscapes at water depth as great as 150m. Sampling these landscapes has produced evidence of human occupation dating prior to 10,100 BP. A barnacle-and bryozoa-encrusted stone tool was recovered from a drowned delta floodplain now 53 metres below mean sea-level. This is the first tangible evidence that the formerly subaerial broad banks of the western North American Continental Shelf were occupied by humans in earliest Holocene and possibly late-Glacial times.

POSTER

Incorporation of Bar Code Capabilities to Existing Museum Databases.

*Susan E. Fishman-Armstrong**

*Heath J. Garner**

*R. Richard Monk**

*Jeff Indeck***

*Gary Edson**

*Nicola Ladkin**

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*Museum of Texas Tech University
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**PanHandle Plains Historical
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An effective data management program saves time, money, and effort by increasing the accuracy, speed, and usefulness of the database. A bar code system is part of an effective data management system. Bar code capabilities were added at the Archeology department at the Panhandle-Plains Historical Museum (P-PHM), in Canyon, Texas (a PC environment), and the Paleontology collection at the Museum of Texas Tech University (MoTTU), in Lubbock, Texas (a Macintosh environment). A bar code generation utility was installed in the current databases and then used to print specimen labels. Before labels are printed, however, the collections data must be proofread for erroneous data. The project consists of five phases: (1) Database Correlation, (2) Upgrading the Database Management System, (3) Installing the Bar Code Utility, (4) Designing Views and Reports, and (5) Printing. The lasting effects of the project are increased control of collections management operations, expanded research capabilities, updated labels on archival paper, standardized labels and data, and automated generation of information cards.

ORAL

Techniques used in recovery and conservation of the Milford Mastodons.

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In October of 1991 a mastodon was unearthed by mining activity at National Gypsum Canadas quarry at Milford, Nova Scotia. The Nova Scotia Museum of Natural History took on the task of recovering the suspected 80,000 year old bone material. A second discovery at the quarry in July of 1993 was of a very rare juvenile mastodon located in similar age deposits but in a differing taphonomy. The style of preservation of the first mastodon was a wet bone condition. This presented challenges in collecting and conserving. When the bones were returned to the museum for further work, the process of decay was well underway. This was a challenge to retard. The second was a relatively dry bone site. It presented fewer difficulties in collecting, stabilizing and conserving. This paper will present a description of collecting techniques employed, stabilization procedures, and conservation techniques planned and used. A preliminary evaluation of the effectiveness of the techniques verses original bone condition will be presented.

POSTER

One solution to producing a replica of a large specimen on display in the Natural History Museum.

David Gray

Palaeontology Conservation Unit
The Natural History Museum Cromwell Road, London SW7 5BD, U.K.

The "Maidstone" iguanodon, an important assemblage of Iguanodon bones is displayed in the dinosaur gallery of the Natural History Museum, London. A cast was required for Maidstone Museum to exhibit, but a very short timescale was imposed by the need to produce a mould in situ and with little disruption to visiting public, and without creating health hazards. The situation was further complicated by the fact that the slab was mounted vertically.

The solution to this problem was to produce a one piece silicone mould and make the supporting jacket with "Jesmonite" (an acrylic based resin) and glass fibre. This gave a very strong jacket which could be made very quickly and without the need for any fume extraction or special safety requirements. It was also relatively easy to apply vertically. The cast was also made with the same material for similar reasons and gave a good result which was easy to paint with acrylics. After more than 150 years, Maidstone got its Iguanodon back - or at least the first replica produced.

ORAL

Nothing to Hide - A public preparation of a right whale specimen.

Andrew J Hebda

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Skeletal elements of a specimen of a right whale, obtained on Long Island in Nova Scotia in 1996 are being cleaned, using natural methods in a public setting. The disarticulated elements were removed from the necropsy site on Long Island Nova Scotia, overwintered in a secluded site on the mainland. They were then transported to a specially-constructed enclosure at Uniacke Estate Museum Park, \one of the Nova Scotia Museum Sites. The majority of the tissues were removed, manually at this site, but the balance, including connective tissues and fat are being removed by a combination of weathering and invertebrate cleaning. These elements are in full view (and scent) of the public in close proximity to the historic house. Although the rostral components of the specimen were severely damage at time of death, the processing of the whale has, and will serve a valuable interpretive function to Museum visitors.

POSTER

United States Naval Exploring Expeditions and their Botanical Legacy.

Linda Hollenberg

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In the mid 19th century, the United States of America launched two major naval exploring expeditions. The first, the U.S. South Seas Exploring Expedition (1838-1842), was composed of six ships under the command of Lieutenant Charles Wilkes. The second, the U.S. North Pacific Exploring Expedition (1853-1856), consisted of five ships under the leadership of Commander Cadwalader Ringgold (replaced during the trip by John Rodgers).

"Scientifics" were taken along on both expeditions to collect natural history specimens, although this was not the major purpose of the expeditions. The botanical specimens were the largest collections acquired by the two expeditions. The U.S. South Seas Exploring Expedition brought back an estimated fifty thousand dried plant specimens representing ten thousand species. These specimens were originally under the care of the National Institute, housed in the Patent Office building. After the Smithsonian Institution (SI) was founded in 1846, the botanical collections were eventually transferred to SI to form the basis for the U.S. National Herbarium. In their original packages, the plants brought back by the U.S. North Pacific Exploring Expedition occupied a bulk of over 100 cubic feet. These specimens were another important,addition to the early collections of the U.S. National Herbarium.

ORAL

Building a safer environment for collections: bringing the specimens back into focus.

*Robert Huxley**
*William Lindsay***
*Kevin Rellis****
*Departments of Botany
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Since 1995 there has been a huge increase in the number of building projects in museums and galleries in the United Kingdom. Funded by the National Lottery, the Heritage Lottery Fund has made many millions of pounds available for capital building projects. The scale and rate of construction is unprecedented in the United Kingdom and museum workers have had to respond to the impact major building projects have had on museum buildings, the collections housed there, and a change in their pattern of work. The hazards which construction work brings to collections management, has introduced particular practical and organisational risks on many occasions. This paper advocates the use of a form of risk assessment for such projects which takes a holistic approach to hazards to collections. This qualitative risk assessment takes an approach similar to and runs in parallel with Health and Safety law. It is most valuable when embraced early by all parties with an interest in the efficient progress and successful conclusion of major building projects which have the potential to impact adversely on museum and gallery collections.

POSTER

Electronic Field Data Capture Using WildCat III.

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WildCat is a relational database management system developed in 1997 to facilitate data management in the Recent mammal collection of Texas Tech University. WildCat consists of four distinct parts, the third of which, WildCat III, is a data entry application for use by researchers in the field and by museum staff members in-house. WildCat III allows a new approach to data management by introducing computerized data entry into the first stages of the data gathering process rather than at the more traditional final stage. During the summer of 1999, a continuation of an earlier field test of WildCat III was performed to capture data resulting from Texas Tech Universitys mammalogy Field Methods class led by Dr. Robert Bradley. The primary objective of this study is to determine the effectiveness of WildCat III in the electronic capture of field-generated data. This study also provides valuable information concerning the use of computers and other hardware in field situations. Careful integration of computer technology into museum collections management can reduce the effort associated with multiple transcriptions of data, increase the accuracy and consistency of data, and result in a more useful electronic database which allows immediate access to such data.

POSTER

Mandatory Registering and Monitoring of Institutional and Privately Owned Natural History Objects.

Stephen LeMay

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This need came from the fact that most private collections and museums don't have accurate paperwork or none at all . Even the archives are in a sad state. Having realized this while still in training under Dr. Eugene Richardson and his colleagues Dr. Rainer Zangerl and Dr. Ralph Johnson while studying the off shore marine environment of the Mazon Creek Area Biota. This problem needed answers and by 1975 a working plan was in place with myself and Dr. Richardson being in charge of the data base. The plan was working well and by 1977 we got Dr. Gordon Baird involved in only one part of the plan. Dr. Richard Leary of the Illinois State Museum joined the plan the same year and was in charge of another part of the project. By 1982 we had many scientists in many disciplines all helping to solve the problems of "missing" specimens in our collections both private and museum. Our plan was to be able to confirm a theft of a specimen within hours or days instead of weeks or even years! To present our plan has helped to expose large scale fossil scams, income tax evasion, fraudulent fossil donations. This itself is a law being broken. The public needs to be protected from crooked people in control of our national treasures. The sale of a natural history object by anyone without a detailed paper trail is covering their tracks and should be investigated and even arrested if need be until they can prove how they got their unprofessional hands on it and to whom it is going. Our national treasures should not leave the United States for any reason without even more paper work involved. For example all Mazon Creek Area Biota material must stay in our country! This one law would stop or at least slow down the crookedness in the sale of natural history objects worldwide.

ORAL

Sustaining the Biodiversity Collections Infrastructure with the Specify Database Management System.

Jennifer Leopold

Kathy Coggins

James Beach

University of Kansas
Natural History Museum and
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Worldwide, biological museums contain an estimated three billion specimens of animals and plants. This enormous information store, the result of over 300 years of biological exploration, documents the life of the planet. As natural communities diminish, specimen data documenting life's diversity have become increasingly valuable for research, education, and resource management. However, these historical data are often inaccessible and poorly supported on locally-developed database systems. For example, generic database management tools (e.g., Paradox, Access, etc.) limit the scope of data that the application can manage, and diminish data quality by not enforcing consistency. In-house collections software applications (e.g., SMNH, FMNH, Berkeley MVZ, etc.) are not intended to serve as a community solution; they are independent and not interoperable, and offer no user support. The few biological collection management systems that have been commercially developed (e.g., Biota) are expensive and are very limited in scope in terms of data managed, functionality, and security.

One solution to all of the above problems is Specify, a robust, multi-taxon database application for the management of specimen information. Specify features: (1) a configurable interface, (2) visual query and report tools, (3) access to taxonomic and geographic authority file information, (4) field-level read and write security, (5) documentation and tutorials, and (6) helpdesk user support. This talk will give an overview of these features, explain how Specify can provide a consistent community computing platform for biological collections, and discuss future directions of the Specify project including Internet access to specimen data.

ORAL

Restoration of a Human Fetal Teaching Collection with Subsequent Examination Using Magnetic Resonance Imaging (MRI).

*G. W. Lyons**

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Between the 1940's and 1960's Queens Universitys medical school acquired several normal and abnormal fetal specimens. With the changing medical curriculum of the late 1960's the collection was relocated to storage. Recently this collection was retrieved as part of our museum collection and a MRI investigation of morphological defects in the specimens was undertaken. After prolonged storage in formalin some specimens showed signs of dehydration. To facilitate rehydration the specimens were placed under running tap water for 24-48 hours and transferred to 10% NBF. After one month, specimens with major defects (sirenomelia, dicephalic iliothoracopagus, etc.) were prepared for scanning. The specimens were washed overnight in tap water, surface dried, mounted on plexiglass, sealed in 6 ml. plastic cocoons and scanned with a GE Signa, 1.5 Tesla magnetic resonance imager using 5.4.2 software. T2 weighted, 2D FSE images were obtained, and evaluated. Following scanning, specimens were mounted and displayed in plexiglass jars containing 5.0% NBF. The revamping of this collection and the non-invasive nature of MRI scanning allowed us to reconstruct a teaching asset and afforded us with an excellent method of investigating these specimens for defects of internal organs and structures.

ORAL

Mouse Click for Whale Clicks: Building an Interactive CD-ROM for the Sable Gully.

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The Sable Gully is the largest submarine canyon in eastern North America. Incising the continental shelf southeast of Nova Scotia some 200 kilometres from Halifax, the Gully is a unique marine environment that is home to a diversity of plant and animal species including a vulnerable population of northern bottlenose whales. In December of 1998, the Gully was announced as an "Area of Interest" in the Marine Protected Areas Program of Canada's Department of Fisheries and Oceans (DFO). Having recognized that few would ever visit this offshore site, and confronted by the challenges associated with bringing a representative collection ashore, DFO staff started working with the Multimedia Lab at Environment Canada to develop a virtual tour. Over the course of eight months, the production team collected materials from a wide range of scientific authorities. Imagery, sound, video, line drawings, photographs, biological descriptions and animations were assembled for presentation on an interactive CD-ROM. Entitled "A Virtual Tour of the Sable Gully," the package profiles the diversity of habitats found in the canyon and on the adjacent continental shelf. The CD-ROM includes depictions of currents and ocean temperatures, bottom imagery and descriptions of resident bird, coral, fish and mammal species. Relative to print media, CD-ROM technology delivers a huge volume of material in a low-cost, accessible format. This has proven especially useful for making the Gully's natural history available to schools, libraries, museums, naturalists and researchers.

POSTER

e-Vouchers and Some Applications of Digital Imagery in Natural History Collections.

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There are many circumstances under which access to a voucher specimen is limited or impossible. With the development of world-wide electronic communications, digital imagery, and widespread access electronic databases it is possible to better serve the scientific needs of researchers and to optimize the role and value of systematic collections. The application of electronic voucher images extends to zoo specimens, endangered species, mark and recapture studies, contaminated specimens (carcinogens, radioactive material), private holdings, and other situations. The development of molecular methods which exploit tiny amounts of tissue to address issues of systematics, biodiversity, genetics, ecotoxicology, and disease reinforce the need for maximum information to document the species under study. It is clear that museums should not lessen their demands for classical voucher specimens to serve the needs of the scientific community. Nonetheless, in situations where it is not possible to secure a classical voucher specimen, *e*-vouchers can partially fill that need. An *e*-voucher is defined as a digital image that is a component of a classical specimen (in the same way karyotypes, tissues, etc. are components of specimens). As with other components, the *e*-voucher can, when necessary, be the only part saved or it may be a part of a more complete set. The use of *e*-vouchers can strengthen the collection by allowing greater access by scientists and by reducing deterioration due to excessive handling. Such access may include providing access to images of specimens on-line, transmission of images to potential users and interactive collection browsing.

POSTER

Assignment of Global Information System Coordinates to Classical Museum Localities for Relational Database Analyses.

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Many decisions are made based on information concerning the flora and fauna of the world. Biological Informatics is a field that allows scientists and decision makers to combine a wide array of data sets to make meaningful analyses and sound decisions. One method of analysis utilizes Geographic Information Systems (GIS) software to combine and visualize data in a geographic context. GIS software requires that locality data be available in either latitude and longitude or UTM coordinates. In order to make Texas Tech Universitys collection of Recent mammals accessible to GIS, UTM coordinates needed to be assigned to the collections electronic database. *UTM Converter* was written for this purpose. It is capable of processing classical museum locations (reference points and modifiers) and calculating UTM coordinates. In a trial project consisting of 15,220 locality records for mammals collected in the state of Texas, 86% of the records were assigned without modification, 10.2% were assigned manually, and 3.8% could not be assigned. In addition, data dictionaries for each of the fifty United States were developed. *UTM Converter* and the data dictionaries are available at http://nsrlmap.musm.ttu.edu/utm/project.htm.

ORAL

University Natural History Collections as Resources for Education: A Progress Report of the 1999 Faber Award.

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This study identifies and characterizes the public education role of university natural history collections and establishes patterns of development of education programs. With changes in use of collection resources for research and teaching, and shortages in funding and space, some university museums find an expanded role as public interpretive centers. I developed a survey for university collections housing primarily zoological material to address these issues. Forty-two percent (110 of 262) of institutions surveyed returned completed questionnaires. The survey identifies the level of public education and research activity, public awareness of the collection, collection use for college teaching, faculty and staff involvement in public education, and training of students in museum type work. Case studies provide additional insight into the development of educational programs and serve as a model for collections seeking to enhance public awareness. Results will define the current state of educational programs in university collections.

ORAL

The mystique of sunken ships: the example of HMS Hood.

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Although they mostly consist of heaps of rotting wood and iron, sunken vessels continue to fascinate for several reasons, either because of the lure of treasure (e.g., HMS Edinburgh);) or because they are historical time capsules (e.g. the Mary Rose, Vasa). Ships that fall into neither of these categories, best exemplified by Titanic and Bismarck, continue to mesmerize because they achieve mythological status in the public imagination. The giant battlecruiser HMS Hood falls into this latter category. Launched in 1919 as the longest ship ever constructed for the Royal Navy, she toured the world as a symbol of the British Empire. However, by 1939 she was aging; her vulnerability to modern war - in the eyes of the public at least - was concealed by her heroic status. Her loss during the action with Bismarck in 1941 hit hard at the British psyche, and can be interpreted as symbolically heralding of the loss of empire that resulted directly from World War II. The ship continues to fascinate to this day, and the HMS Hood association remains a focus not only for the dwindling band of Hood shipmates (including Ted Briggs, the remaining survivor) but also for a diverse group of experts and enthusiasts. The continued fascination centres on the controversies surrounding her loss: Was the vessel destroyed by Prinze Eugen or by Bismarck? What role did the inventions of Churchill's favorite scientist - Professor Lindemann - play in the destruction? Why was the explosion silent? Why were there only three survivors from the crew of 1418? The subsequent Royal Navy boards of inquiry reveal how the catastrophic explosion, clearly seen by numerous observers, was perceived in deeply contradictory ways. The inquiry incidentally shed on the class structure of British society. The technologies required to locate and observe the wreck are discussed, together with the reasons why this will be done.

ORAL

Molding and Casting Techniques Employed In the Trace Fossil Exhibit.

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The Nova Scotia Museum of Natural History, with federal funding from the Department of Canadian Heritage, is currently preparing a travelling exhibit that will showcase trace fossils from Atlantic Canada. Trace fossils are any indirect evidence of ancient life on planet Earth that has been preserved in the rock record. This production, opening in June of 2001, will be the first-known travelling exhibit to concern itself exclusively with trace fossils. Atlantic Canada, in particular Nova Scotia, is endowed with a rich and significant palaeontological history. Among some of the exhibit specimens are trackways that represent the worlds earliest gregarious behaviour in vertebrates, traces of the largest insect to roam the Earth 315 million years ago, and traces of 310 million year old horseshoe crabs frolicking on a beach shore. Several different molding and casting materials have been utilized in the reproduction of the original fossils. The majority of molds were constructed using RTV silicone rubber. Although expensive, silicone rubber does not require a release agent, leaves very little residue, has the ability to pick up incredibly fine detail from the original material, is durable, and has relatively low toxicity. The majority of casts were constructed using Modified Gypsum, a relatively new casting medium consisting of powered gypsum, resins, and hardeners. Modified Gypsum is very durable, versatile, comparatively inexpensive, can be tinted various colours, and has low toxicity.

ORAL

Staying in Shape: A Comparative Study of Collagen and Keratin Stability in Museum Storage Fluids.

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It has been estimated that there are more than two billion specimens preserved in fluids in natural history museums throughout the world. These specimens form an irreplaceable resource for various taxonomic, environmental and other studies. An important number of these specimens are mammals (including marine mammals) whose structural components include bone, skin, and hair. The relative stability of collagen and keratin in these components has been compared by heating them in alcohol-based storage fluids commonly used to preserve museum specimens. The storage fluids were 70% ethanol, 70% ethanol + 1% formalin (to simulate residual fixative), and 50% 2-propanol. Changes were determined in the weight of the sample and concentration of the amino acids induced by the heating experiments. Experimental results indicated that the collagen of bone and skin and the keratin of hair differed in their relative stability in the storage fluids. The collagen of skin, was, in general, less stable than the keratin of hair, although the presence of formalin seemed to provide some stability to collagen that it did not confer on keratin. Because the different materials were differentially stable, compromises in preservation strategies may be required. In general, the use of 2-propanol as a long-term storage fluid, though requiring further study, is called into question.

ORAL

Risk Assessment and conservation planning at the Canadian Museum of Nature.

R. Robert Waller

Chief, Conservation Section
Collection Division
Canadian Museum of Nature

Comprehensive assessments of risks to the collections of the Canadian Museum of Nature (CMN) were completed in 1993 and 1998. During the five years between these assessments the CMN designed, constructed and moved into a purpose-built collection-holding building. In addition, numerous collection management and conservation projects were undertaken to mitigate risks to collections. These activities have resulted in a significant net reduction in total risk to collections. Comparison of the results of the two risk assessments indicates that differences result from: 1) changes in our perception of risks, 2) changes resulting from improved understanding of, or ability to quantify, risks, and 3) changes to magnitudes of specific risks as a result of specific projects. In addition to enabling us to set priorities for further collection care and conservation research activities, these repeated risk assessment have greatly increased our self-awareness of collection care issues and changes in risks to collections over time.

POSTER

Triage work to deal with a Webbing Clothes Moth infestation in an open storage area housing taxidermic mounts.

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In the spring of 1998 an infestation of Webbing Clothes Moths was discovered in an open storage area housing 199 small- to medium-sized and 24 large mammal taxidermic mounts. As there was no way to fumigate the entire space, an approach was developed to deal with specimens individually. Funding was obtained to inventory, access, label, and build proper bases (using ethafoam or birch veneer plywood) where needed. Over a seven month period the collection manager and a part-time assistant worked to digitally and photographically image, measure, isolate, fumigate, and rehouse each specimen. A database was designed to document all project-related data and to permit task completion to be tracked. Small to medium-sized mounts were bagged to isolate the specimens for transit. A mobile case was designed and built to transport large mammal mounts from the collection space to the fumigation chamber. All mounts were fumigated with Phostoxin. After treatment, smaller mounts were stored within bags on open shelving, while large mounts were tented in a room isolated from the collection space. Imaging has facilitated management of the specimens for loan purposes and ensured that catalogue numbers no longer become disassociated from specimens. Volumetric measurements will permit a meaningful analysis for long-term space and storage needs.

Discovery of a New Shipwreck Heritage in Halifax Harbour and Adjacent Areas: Technology, Conflict and Implications

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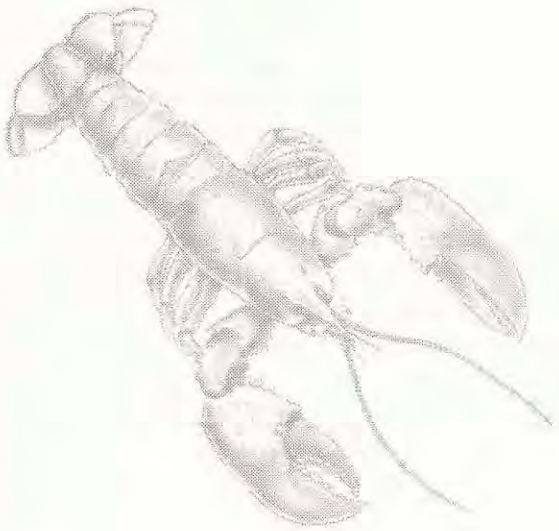
Recent seabed mapping by the Geological Survey of Canada in Halifax Harbour and on the adjacent inner Scotian Shelf with multibeam bathymetric systems, sidescan sonar and high resolution magnetics, has revealed the presence of over 80 shipwrecks. Known shipwrecks include the Governor Cornwallis, Acorn, Trongate, British Freedom, Tribune, Clayoquot, Otter, Athel Viking, Good Hope, Deliverance and the Havana. Of particular note is the Otter, built by the Astor family of New York in 1921, and launched as the world's largest diesel-powered luxury yacht. The Otter lies on the seabed virtually on top of another vessel, the Clayoquot, making recognition and discrimination of these two vessels a very difficult task. Only a few of these shipwrecks were previously known. Follow-up investigations with video, photography, submersible, ROV and diver observations have been conducted on some of these shipwrecks. Those that have been identified attest to a shipwreck heritage far greater than previously imagined. The ships are a variety of early exploration, military and commercial vessels that represent both hazards and opportunities for Halifax Harbour development. Some protrude high above the surrounding seabed and others contain unexploded ordnance. Older vessels may offer significant heritage and archaeological potential. More recent shipwrecks can be used for ecotourism as is presently the case. They also can serve the geological community as seabed time markers for study of erosional and depositional processes and the effects of storm-generated waves and currents. Present research on these and other shipwrecks off Halifax is largely an uncoordinated effort by a number of government and private agencies. The full benefits of these shipwrecks could be enhanced by greater cooperation and an effective overall management structure.



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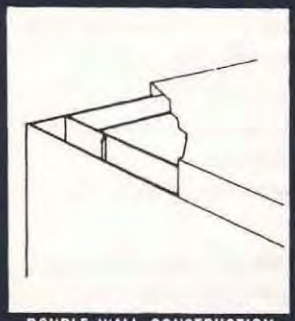

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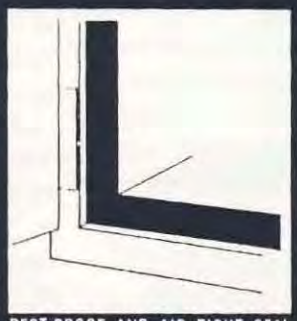

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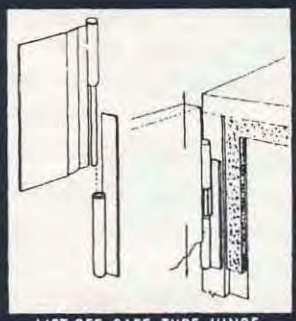

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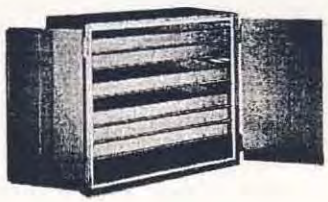

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