Archival Elements

Newsletter of the Science, Technology, and Healthcare Roundtable of the Society of American Archivists
Summer 2002

Contents

Message from the Co-Chairs

All folks attending SAA (Society of American Archivists) in Birmingham, AL are invited to the Science, Technology, and Healthcare (STHC) Roundtable meeting on Saturday, 24 August 2002, 8:00-9:30 a.m. The STHC roundtable provides a forum for archivists with similar interests or holdings in the natural, physical and social sciences, technology, and health care (including medicine), and provides an opportunity to exchange information, solve problems and share successes. We especially welcome STHC archivists from the Birmingham. area, as well as archivists who do not have a primary focus in these fields but may have questions to ask or collection news to share.

Agenda

1. Welcome and introductions

2. Council Representative - Megan Sniffin-Marinoff

3. Program Committee Representative

4. Invitation to SAA 2003, Los Angeles – Charlotte Brown (UCLA), Local Arrangements Committee

5. Program

"History of Medicine and Science Projects on the Web: Untangling Complex Strands to Make Primary Resources Accessible"

Joan Echtenkamp Klein
University of Virginia Health Sciences Library
University of Virginia Health System
"Two Years and Over 5,000 Documents Later: The Philip S. Hench Walter Reed Yellow Fever Collection Digitization Project"

Gregory A. Pike and Jennifer Sullivan
History Associates Incorporated
[working at] National Library of Medicine
"Building a Digital Archives: The Makings of Profiles in Science"

This session will discuss two large, innovative digitization projects of primary resources in the history of medicine and science. "Profiles in Science", created by the National Library of Medicine (NLM), and "The Philip S. Hench Walter Reed Yellow Fever Collection", created by the University of Virginia (UVa) Health Sciences Library with funding from the Institute of Museum and Library Services, were both undertaken to make archival collections of prominent physicians and biomedical scientists available on the Web - to use new technologies to bring primary resources to the homes or offices of researchers, historians, students, and the general public. "Profiles in Science", launched by NLM in 1998, features multiple archival collections of Nobel Laureates. "The Philip S. Hench Walter Reed Yellow Fever Collection", opened in December 2001, features selections from Philip S. Hench's massive collection on Walter Reed, an 1869 graduate of the UVa School of Medicine, and the members of the U.S. Army Yellow Fever Commission.

Both projects grappled with a number of critical digitization issues. Both sought to present not only the original materials in a searchable format, but also to provide context for the primary documents through exhibit text; endeavored to provide a model for the integration of state-of-the-art standards compliant information technology and scholarly resources to make unique library materials more widely available; and made extensive use of metadata to enable researchers to tailor their searches and approach the digitized materials to best suit their personal interests and needs.

Participants in the NLM and UVa projects will talk about the similarity and differences of questions and solutions developed while working on these two complex, multi-faceted plans, both of which make primary resources available to a world-wide audience and enhance research and teaching in the history of medicine and biomedical science.

6. Business

-Review agenda
-Report on 2001 meeting and 2001-2002 activities
-Archival Elements Newsletter (Ewa Basinska and Tanya Zanish-Belcher)
-Election of officers--new co-chair
-Introduce continuing and new Steering Committee members
-Brainstorming program ideas for SAA 2003
-Roundtable Round Robin: "Hot Topics" from Membership
-Other new business

7. Adjournment

Our chief concern is to ensure that the STHC Roundtable reflects the interests of its participants. We welcome all suggestions relating to the above topics or concerning any other issues members might like to see addressed at our meetings. Please don't hesitate to get in touch with either of us:

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Around and About Archives

LAUREEN KATA has been appointed the Society of Women Engineers (SWE) Archivist, Wayne State University. She is also presenting at the Archival Graduate Student Poster Session, "From Archives to Records Management: My Experience with a Nonprofit professional Association." SWE's records are on deposit at the Walter P. Reuther Library, Wayne State University, in Detroit, MI. Currently, the "Women in Engineering Documentation Project" focuses on processing the organizational records of SWE (approximately 200 linear feet, 1918-1993), outreach to women engineers, and the development of a travelling exhibit. The collection has a substantial biographical-subject series on SWE members, photographs, a full historical run of SWE's publication (now *SWE Magazine*), and over fifty years of organizational records that document SWE's strategy to promote diversity in the science, engineering, and technological communities.

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As of February 1, 2002, LISA MIX has accepted the position of Manager of Archives and Special Collections at the University of California in San Francisco.

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We are pleased to announce that JULIET DEMETER has been hired as a processing archivist for the History of Science and Technology Collections at the Bancroft Library, University of California, Berkeley. Juliet received her BA in History and Politics from Mount Holyoke College and her MLIS from Simmons College. Juliet joins supervising archivist Jane Bassett Rosario and curator David Farrell as part of the History of Science and Technology Program at Bancroft.

The University of Virginia Claude Moore Health Sciences Library opens The Philip S. Hench Walter Reed Yellow Fever Collection Website (http://yellowfever.lib.virginia.edu). Joan Echtenkamp Klein will be talking about the trials, tribulations, and benefits of creating this massive website, at the Science, Technology, and Health Care Roundtable session of the upcoming Society of American Archivists annual meeting (Birmingham, Alabama, August 19-25, 2002): http://www.neurosciencearchives.org/sthc/sth02020.htm

Charlottesville, VA -- The opening of The Philip S. Hench Walter Reed Yellow Fever Collection Website marks the completion of a two-year project at the University of Virginia Claude Moore Health Sciences Library funded in part by a $250,041 National Leadership Grant by the federal Institute for Museum and Library Services. The project identified, digitized, transcribed, preserved, created enhanced searching options, and now provides worldwide access via the Web to 5,500 original documents, photographs, and artifacts in the Health Sciences Library's archive on Walter Reed and yellow fever. The library project team, led by Joan Echtenkamp Klein, worked closely with David Seaman, Director of the Electronic Text Center at the University of Virginia Library. "Significant collaboration among all team members was instrumental in the project's success", according to Linda Watson, Health Sciences Library Director.

Like the contemporary AIDS epidemic, yellow fever was a deadly scourge that had devastating effect on lives and economies throughout the eighteenth and nineteenth centuries. In 1900, Walter Reed, M.D., and his fellow members of the United States Army Yellow Fever Commission made the discovery that a mosquito was responsible for the transmission of yellow fever. "The prayer that has been mine for twenty or more years that I might be permitted in some way or sometime to do something to alleviate human suffering has been answered," wrote Walter Reed, an 1869 graduate of the University of Virginia School of Medicine, to his wife Ellen on December 31, 1900. The Yellow Fever Commission's experiments in Cuba were a great breakthrough in medicine for which Walter Reed was awarded the Congressional Medal of Honor and elevated to the status of American medical hero.

Philip S. Hench, M.D., awarded the Nobel Prize for his discovery of cortisone, was fascinated by the story of Walter Reed and the Yellow Fever Commission and made it his life's work to collect everything available relevant to this public health story. He met and befriended all the people associated with the story or their relatives, most of whom gave him original family documents and photographs. The extensive archive that Hench compiled was given to the University of Virginia after his untimely death - he did not live to write his definitive book on Walter Reed and yellow fever -- and is the cornerstone collection in the Claude Moore Health Sciences Library's archive.

Writing about the new Website, Paul Lombardo, Ph.D., J.D., Director of the Program in Law and Medicine in the Center for Biomedical Ethics at the University of Virginia School of Medicine, observed, "This is truly an incredible piece of work... it is spectacular, and a model for making documents available to scholars on the Web." Luke Demaitre, Ph.D., Visiting Professor of Medical Education in the Humanities in Medicine Program of the University of Virginia School of Medicine and former Professor of History at Pace University, stated: "Congratulations with the IMLS Walter Reed Site: magnificent! I have just begun to explore it, and my only reactions so far are awe and excitement."

Melvin Shaffer, a member of the University of Virginia's Eighth Evacuation Hospital in World War II and a visitor to the newly opened Website wrote: "What a pleasant surprise to have the materials from the Reed website. I immediately called it up and have hardly taken my eyes off. Such a beautiful presentation. Especially nice is the typed "translation" of each letter."

The New York New Jersey Chapter of the Medical Library Association awarded the new Website their highest rating for sites reviewed in their newsletter. Patricia E. Gallagher, the reviewer and a medical librarian at the New York Academy of Medicine Library, wrote, "The University of Virginia has mounted this magnificent website about their Yellow Fever Collection. More than just a list of their own resources, this beautiful website details as well the people and events that contributed to the discovery of the cause of Yellow Fever."

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Digitized Linus Pauling Research Notebooks

Digitized versions of the forty six research notebooks of two-time Nobel laureate Linus Pauling (1901-1994) were released on line to the public February 28, 2002. The notebooks are available via Oregon State University Valley Library Special Collections website at:
http://osulibrary.orst.edu/specialcollections/rnb/index.html

As with many scientists, Dr. Pauling utilized bound notebooks to record and manipulate the details of his research as it unfolded. A testament to the remarkable length and diversity of Dr. Pauling's career, the Pauling Papers holdings include forty-six research notebooks spanning the years 1922 to 1994 and covering any number of the myriad scientific fields in which Dr. Pauling involved himself. In this regard, the notebooks 7,500 pages contain many of Pauling's laboratory calculations and experimental data, as well as scientific conclusions, ideas for further research and numerous autobiographical musings.

Pauling biographer Tom Hager, author of *Force of Nature: The Life of Linus Pauling*, is enthusiastic in his praise for the digitized notebooks website. AOSU Special Collections has created a unique window on scientific history in the making, says Hager. The online publication of Linus Pauling's research notebooks, a vast array of primary and uncensored material from one of the world's great researchers, represents a milestone in archival accessibility and a great boon for scientists, historians, teachers and students.

The digitization effort, carried out by the OSU Special Collections staff, were revealed to the public on what would have been Dr. Pauling's 101st birthday. By proclamation of Gov. John Kitzhaber, February 28th is, in perpetuity, "Linus Pauling

Day" in the state of Oregon. Each year, in celebration of Linus Pauling Day, OSU's Pauling Heritage Committee coordinates a series of events meant to focus attention upon the remarkable life and career of the university's most famous graduate.

In addition to the OSU initiative, the National Library of Medicine observed this anniversary with a new Profiles in Science digital exhibit dedicated to Linus Pauling. The exhibit, available at http://profiles.nlm.nih.gov/ , is comprised of over 200 scanned letters, manuscripts and photographs outlining Pauling's biomedically-related work.

Dr. Pauling, an internationally-recognized humanitarian and one of the greatest scientists of the twentieth century, was born in Portland, Oregon, where he attended high school. Pauling later received his undergraduate education at Oregon Agricultural College, now known as Oregon State University. He remains the only person to have won two unshared Nobel Prizes, the first for Chemistry in 1954 and the second for Peace in 1962.

The Pauling legacy is represented at OSU by the Ava Helen and Linus Pauling Papers in the Valley Library's Special Collections, a vast archive of over 500,000 items donated by Dr. Pauling in 1986; the Linus Pauling Institute and its two endowed chairs; the Pauling Chemistry Lecture in the College of Science; the Linus and Ava Helen Pauling Lecture on World Peace in the College of Liberal Arts; and an endowed chair in the Department of Chemical Engineering.

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The first edition of the Newsletter of the Office of NIH History at the National Institutes of Health is now available! Here is the link: http://www.nih.gov/od/museum/about/newsletter_summer_2002.pdf

Inside this issue:
- Updates on our archival and photography collections
- A new hydrometer for the Stetten Museum
- Research into the National Collaborative Perinatal Project
- A Documentary film on NIH's historic Building 3
- Mystery photos

If you would like to receive further editions of our newsletter addressed to you personally, please send an email with "subscribe" in the subject line to: history.newsletter@nih.gov

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MIT Renovations and Revelations

The MIT Institute Archives and Special Collections has just completed renovations of work and office space as part of larger renovations which are underway at the MIT Libraries.

Space was redesigned to improve the retrieval and return of records from off-site storage, accessioning and processing areas, and security in the reading room. New lockers for researchers, security mirrors, and a buzzer system for the reading room door and new delivery door allow staff to better monitor access to the reading room and improve measures to deter potential theft.

A new HVAC system has greatly improved the air circulation to the benefit of staff, researchers and collections. New filters over air reduce the amount of grit endangering the collections as well as staff.

In tandem with the renovations the Institute Archives and Special Collections began a year-long processing project to begin to address a large processing backlog. Reference Services have been reduced so that all staff can participate in the project. The reading room is open only two days a week (except during the month of June 2002 when the room is open all weekdays). Only members of the MIT community are guaranteed assistance with their research.

Since late March, staff have been working on revising the processing manual. A number of small collections of MIT records with long-standing “loose ends" have been tidied up. The ongoing project to process the records of the MIT Planning Office (the largest administrative collection in the Archives) has been completed. In addition, the personal papers of Dr. Peter Glaser, an authority on solar power satellites, have been processed courtesy of a special donation.

Once the reading room hours are reduced in July, staff will again process in earnest, tackling several high visibility and heavily used collections long overdue for processing. These include the official papers from the tenure of MIT President Jerome Bert Wiesner (1971-1980) as well as the records of the MIT Corporation.

During the project the Archives staff is coming across many documents which have not seen the light of day in many years. These will be shared in an on-line exhibit entitled “Object of the Project.” The current Object is an 1867 fire insurance policy for MIT when the campus was located in Boston.

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Dr. LOUISE MARSHALL was the first recipient of the *Women in Neuroscience (WIN) Special Recognition Award* for a lifetime of distinguished service and outstanding contributions to the field of Neuroscience. She received the honor at WIN's awards reception in San Diego at the annual meeting of the Society for Neuroscience in November of last year. The tribute's text may be read at:
http://www.womeninneuroscience.org/media/Newsletter_January2002.PDF

Louise co-founded the Neuroscience History Resource Program (now Neuroscience History Archives, NHA) at UCLA's Brain Research Institute with Horace W. Magoun in 1980. Upon the appointment of historian-psychiatrist Joel Braslow as NHA Director in February 2001, Dr. Marshall became Director Emerita and Neuroscience Historian in Residence.

The WIN honor was echoed in June of this year by the International Society for the History of the Neurosciences (ISHN), which met at UCLA and The Getty. In recognition of her work as an archivist, historian and author (*Discoveries in the human brain: neuroscience prehistory, brain structure, and function*, Humana Press, 1998, among other publications), Louise received the 2nd ISHN Award for Lifetime Contribution to the History of the Neurosciences. Photographs and a description of the presentation will soon be available at the ISHN's website, http://www.ishn.org.

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Notable Naval Architect

The MIT Institute Archives & Special Collections recently acquired through a donation from the family, a small collection of the personal papers of Lydia Gould Weld, who was the first woman to receive a degree in the Department of Naval Architecture and Marine Engineering at MIT. Her 1903 B.S. thesis was titled “Progressive speed trial of the tug boat, Juno.” After graduation from MIT she began her professional career at the Newport News Shipbuilding and Dry Dock Company where she worked for fourteen years, resigning to move to California to manage her brother’s ranch outside Los Angeles. She retired from that in 1933 to move to Carmel. She was active in community affairs during her years in California and during World War II used her engineering background to take a position as senior draftsman at Moore’s Dry Dock Company, in Oakland, California.

The papers consist of correspondence to and from Weld and various family members largely from the 1890s through the beginning of World War I. It also includes a small amount of correspondence from the 1950s in which she reflects on her experience as a student and engineer. There are also condolence letters and newspaper clippings that describe her interesting and varied life—she was a long-term member of both the American Society of Mechanical Engineers and the California Wool-Growers Association. The collection (MC 570) is one manuscript box in size and is currently being processed.

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Conference, Meetings, and Workshops

SAA Birmingham, August 2002

The Science, Technology, and Healthcare Roundtable will be meeting on Saturday, August 24, 2002 from 8:00 a.m. - 9:30 a.m.

For the full SAA program, please see the following:
http://www.archivists.org/conference/birm2002prog.asp

Tour: Historic Alabama Ironworks Tour

Wednesday, August 21, 2002, 9:30 a.m. - 4:30 p.m.

Come and explore Alabama's iron-making past! The tour will start with Tannehill Ironworks Historical State Park and continue, after lunch at the Bright Star restaurant in Bessemer, AL, with a visit at the Sloss Furnaces National Hitoric Landmark. Please see the SAA program for additional information about attending, and visit http://www.tannehill.org and http://www.slossfurnaces.com for more information about the sites.

The STHC Roundtable co-sponsored five sessions at the SAA 2002 annual meeting:

12. Assisting Researchers and Protecting Privacy: Managing Access to Patient Information Under the Health Insurance Portability and Accountability Act (HIPAA)

3:30-5:00 p.m., Thursday, August 22, 2002
(co-sponsored by STHC and the Privacy and Confidentiality Roundtable)

Lisa A. Mix, Chair
University of California, San Francisco

Joanne E. Pollack
John Hopkins Medicine
"The Health Insurance Portability and Accountability Act: Implications for Archivists"

Aimee M. Felker
International Monetary Fund
"Privacy vs. Need-to-Know: Issues in Medical Records Access from Two Perspectives"

Jonathan Schmitz
College of Physicians and Surgeons of Ontario
"The Seven Watchmen: Providing Protection and Access to Health Archives in Canada"

The changing medical industry, new technological capabilities, and a shifting regulatory environment are altering the balance between research and privacy/confidentiality issues. The Health Insurance Portability and Accountability Act (HIPAA) has led to new privacy regulations that have profound implications for archivists whose collections include patient health information. Speakers in this session will present different perspectives on the various competing rights, obligations, and legal regulations archivists must consider when handling access to health care information.

16. Oral History and the Art of Acquisition

3:30-5:00 p.m., Thursday, August 22, 2002
(co-sponsored by STHC and the Oral History Section)

Tanya Zanish-Belcher, Chair and commentator
Iowa State University

Diane Rabson
National Center for Atmospheric Research
"Which Way is the Wind Blowing?: The Role of Oral history in the Collection of Meteorological Instruments"

Mark Cave
The Historic New Orleans Collection
"Incorporating Oral History into the Acquisition Process of a Manuscript Depository"

Michele Christian
Iowa State University
"Documenting Student Life: The Impact of Oral Histories on Collection Development in University Archives"

Oral history provides a critical dimension to the acquisition of archival records. In the collection of meteorological instruments, oral histories provide context for the use of the instruments in scientific collaborations. The use of oral history by a manuscript repository can impact the collecting process, including documentation of provenance and improved donor relations. Finally, in the setting of a university, oral history has linked the archives and student groups, promoting student consciousness of university history.

34. Early Black and Female Physicians: Researching from the Bottom Up

3:00-4:30 p.m., Friday, August 23, 2002
(co-sponsored by STHC and the Oral History Section)

Valerie Gerrard Browne, Chair
Loyola University of Chicago

Karen Jean Hunt
California State University, Dominguez Hills
"Sarah Parker Remond: An Early Black American Physician"

A. J. Wright
University of Alabama at Birmingham
"Early Black and Early Female Physicians in Alabama"

Susan Rishworth
American College of Surgeons
"My Search for Verina Morton Jones, M.D.: A Travelogue through Archival and Other Repositories to Discover Hidden Treasures"

More than nine hundred African American physicians were practicing in the United States in 1890, but little is known of these early medical pioneers. The presenters in this session will explore the ordeals black women faced as they struggled to find their place in the medical community. The panel will also address its own trials while conductiong research in archival repositories and offer suggestions to archivists and special collections librarians on some unique access points.

37. Introduction to METS: The Metadata Encoding Transmission Standard

3:00-4:30 p.m., Friday, August 23, 2002
(co-sponsored by STHC and the EAD Roundtable)

Merrilee Proffitt, Chair and Commentator
Research Libraries Group

Bernie Hurley
University of California, Berkeley
"METS: From Concept to Implementation"

Carl Fleischhauer
Library of Congress
"Packaging Reformatted Content in the Audio-Visual Project: METS for its Own Sake and for OAIS Repository"

Robin Chandler
California Digital Library
"Online Archive of California Digital Object Discovery and Use"

METS (htpp://www.loc.gov/standards/mets/) is a generalized metadata framework, developed to encode the descriptive, administrative, and structural metadata for objects within a digital library. This panel will give an overview of the schema and will provide insight into current usage, tools for creation and display, the relationship between EAD and METS, the importance of structural and administrative metadata, and how METS relates to other schemas. There will be plenty of time for questions and discussion.

47. Mold: The Fuzzy Reality

1:00-2:30 p.m., Saturday, August 24, 2002
(co-sponsored by STHC and the Preservation Section)

Julie Graham, Chair and commentator
University of California, Los Angeles

Robert B. Simmons
Georgia State University
"Mycology for Archivists"

Mike Trinkley
Chicora Foundation, Inc.
"Attack of the Giant Mold Spore"

Hilary A. Kaplan
Georgia Department of Archives and History
"Don't Blow this One Off: Mitigation Minus Malaise"

Although everyone is exposed to mold, usually without harmful effects, archivists shouldn't underestimate the potential destructive and unhealthy consequences of mold. The risks associated with mold contamination are issues of increasing concern that can lead to misconceptions. This session will examine the identification of mold; the effects of mold on human health; safety precautions for the handling of or exposure to mold; clean up and/or treatment; sick building syndrome; and resources for finding additional information.

Please plan to attend the (ECURE) Preservation and Access for Electronic College and University Records Conference to be held in Tempe, AZ, October 9-11, 2002.
http://ww.asu.edu/it/events/ecure/

What is the Science, Technology, and Health Care (STHC) Roundtable?

? STHC is a forum for archivists working at institutions in the natural and social sciences, technology, and the health sciences. STHC provides a means for its members to share problems, projects, and products that they have in common.

? STHC is a roundtable within the Society of American Archivists (SAA). As such, STHC serves as an advocate for its members interests, provides avenues of communication, and engages in special projects.

? Like all SAA roundtables, STHC is informally governed. STHC has two co-chairs and a Steering Committee, all of whom are listed below.

? STHC membership is easy: just notify one of the co-chairs of your interest. Involvement is at the level you feel comfortable. Membership in SAA is not a requirement.

? STHC holds its annual two-hour meeting at the annual SAA meeting. These meetings consist of a brief business meeting, presentations on new and ongoing topics of interest, and an open forum for discussing relevant issues.

? In addition to its own program, STHC also proposes sessions for the overall SAA meeting. This helps assure STHC members that there will be sessions of interest to them.

? STHC also semiannually produces its newsletter *Archival Elements*, with sections on projects, institutions, special topics, and roundtable business.

If you are interested in becoming a member of STHC or increasing your level of involvement, please contact one of the co-chairs listed below.

SAA Science, Technology Health Care Roundtable: Steering Committee Members (2001-2002)		
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Science, Technology, and Healthcare Listserv
STHC-L

PURPOSE: STHC-L provides a forum for archivists working at institutions in the natural, physical, and social sciences, technology, and the health sciences. It includes announcements, inquiries, and discussion on access to historical sources and their use and interpretation.

AUDIENCE: Membership is open to archivists and users of archives in the history of science, technology, and health care. The listserv is maintained for the benefit of the Science, Technology and Health Care Roundtable (STHC) of the Society of American Archivists (SAA), but it is open to all (anyone with an e-mail account can subscribe without restriction).

HOW TO SUBSCRIBE: To join the list (even though the term "subscribe" is used, there is not and will not be a fee), send a message to LISTPROC@library.ucla.edu with the following in the message area:

SUBSCRIBE STHC-L [yourfirstname yourlastname, institution]
example: SUBSCRIBE STHC-L Philip Hench, University of Virginia
Be sure the message is contained in a single line in the message area; the subject line should be blank. You need not include the comma and the institutional affiliation, but the latter is helpful to the list moderator and other subscribers. Note that you do not include your e-mail address, only your full name. This is because ListProc, the listserv software, automatically reads the return address on your subscription message and uses that as your e-mail address. Because of this, be sure to be logged on and to send the subscription request from the account or address to which you want STHC-L messages sent!

TO POST MESSAGES: Once you are subscribed, send messages to:

STHC-L@library.ucla.edu

For more information (or if you have problems subscribing), please contact the list administrator:
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Russell reports, " Now in its 6th year, STHC-L (Science, Technology and Health Care Forum) continues to grow. Its 199 subscribers hail from Australia, Belgium, Canada, Germany, Ireland, New Zealand, Spain, Turkey, the United Kingdom, and the United States, with email domains ranging from individual country codes to .com, .edu, .gov, .mil, .net, and .org. Past messages, indexed by year, are available on the Web at:
http://www.neurosciencearchives.org/sthc/msgsthc.htm "

The International Union of History and Philosophy of Science is Working to Preserve the Records of Modern Science

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The Division of History of Science of the International Union of History and Philosophy of Science (IUHPS), a member of the International Council of Scientific Unions, is in some respects the historical consciousness of the world scientific community, and it is working actively to raise the consciousness of scientists and science organizations about preserving their records. The Division's Commission on Bibliography and Documentation, organized in its present form in 1993, has led the charge by sponsoring archives sessions at Division assemblies, organizing special meetings on archival issues, and most recently proposing resolutions that address science records generally.

At a meeting in Brussels in December 2000 the Commission appointed a committee to draft resolutions for preserving the historically valuable paper and electronic records of modern science and making them accessible to researchers. The committee was composed of Joe Anderson, American Institute of Physics (chair); Fabienne Meyers, International Union for Pure and Applied Chemistry ; and Giovanni Paoloni, Scuola Speciale per Archivisti e Bibliotecari, Rome; and it was assisted by the Commission president, Rod Home, University of Melbourne; and in-coming president, Peter Harper, National Cataloging Unit for the Archives of Contemporary Scientists, UK.

The committee's resolutions provide a basic framework for preserving the records of scientific organizations and the papers of leading scientists internationally. They have since been approved by the General Assembly of the Division of History of Science of the IUHPS at the XXI International Congress of History of Science at its meeting in Mexico City in July 2001, and they have been forwarded to the International Council of Scientific Unions (ICSU) for action. The resolutions were endorsed by the SAA Roundtable on Science, Technology and Health Care in September and subsequently by the SAA Council, and IUHPS Secretary General Juan Jose Saldana reports that they're being incorporated in the Union's new strategic plan. The resolutions are as follows:

PRESERVING THE RECORDS OF MODERN SCIENCE

INTRODUCTION:

I. THE RECORDS OF ICSU/MEMBER UNIONS:

Resolved that ICSU and each of the member organizations formally recognize its responsibility for maintaining its records and take the following steps to insure that they are appropriately cared for:
1. Identify and assess the current condition of the organization's inactive records, including official materials that may be in the possession of individual officers and former officers.
2. Prepare a brief report on the findings of the assessment.
3. Send a copy of the report to the IUHPS Commission on Bibliography and Documentation.
4. If not already provided for, develop plans to preserve the records by 1) establishing its own professionally-run archives, 2) transferring them to an independent archival repository, or 3) taking other measures to insure that the records are preserved and made accessible to scholars.

The Council is pleased to note that three international scientific unions have made formal agreements with major science archives to preserve their records on an ongoing basis and have already transferred material to the archives (see below for

a list of the unions and the archives). Placing historically valuable Council and member organization records in major archival institutions, where they will be maintained according to modern conservation standards and made accessible to the scholarly community, is an appropriate and cost-effective way to insure that the records are available in the future to the organizations themselves and to others and that their history will be permanently preserved.

The Commission is willing to provide advice in conducting records assessments, helping to identify independent archives which may be willing to act as the official repositories, and other related activities. In negotiating with independent archives, the unions need to consider providing financial support to help cover the costs of maintaining their records. The following international scientific unions have transferred inactive records to independent archives:

International Union of Pure and Applied Chemistry: records are held by the Beckman Center of the Chemical Heritage Foundation, Philadelphia, PA, USA

International Union of Pure and Applied Physics: records are held by the Center for History of Science, Royal Swedish Academy of Sciences, Stockholm, Sweden

International Union of Geodesy and Geophysics: records are held by the Center for History of Physics, American Institute of Physics, College Park, MD, USA

II. OTHER PAPERS AND RECORDS:

Resolved that ICSU alert the international scientific community to the importance, for the sake of both present accountability and future historical research, of preserving proper archival records of scientific work; and recommend that the budgets of all significant scientific projects should include a small margin to cover the cost of such archiving.

The unpublished papers of scientists who have made significant contributions to modern science should be preserved at the institution with which they were most closely associated. It is here that scholars will first seek a scientist's papers, and here that they will find administrative records of the institution, papers of colleagues, and related materials which will provide a well-rounded view of the scientist's work and the atmosphere in which it was effected. If the home institution does not have an archives program, scientists should contact their national history of science organization, national library, local or national archives, or other similar organization for advice and referrals on how to preserve their papers. Science organizations are responsible for their organizational records, and they should support professional archival programs to insure that historically valuable records are permanently preserved. Organizations that are unable to maintain their own archival programs should negotiate with existing public or private archives to care for their records.

A SPECIAL NOTE ON ELECTRONIC RECORDS:

In the past two decades electronic records in a variety of formats — e-mail, World Wide Web pages, data files, etc. — have become a very important means of creating, storing and exchanging information, especially in science. Electronic records are as important as traditional paper files in documenting modern science, and historically valuable electronic records should be saved permanently. Several national archives and international bodies are currently working to develop solutions to the preservation problems that these records present, and it seems likely that effective long-term systems will be available within the next few years. In the meantime, electronic records along with their accompanying metadata should be preserved on the server or, if storage space is a problem, downloaded to optical disk or magnetic tape. Saving only paper printouts of electronic records destroys contextual information and is not adequate for the historical record.

ADDITIONAL INFORMATION:

Additional information on preserving the papers of scientists and the records of science organizations, along with links to many international history of science programs and resources, is available on the Web sites of the American Institute of

Physics Center for History of Physics (http://www.aip.org/history) and CASE - Cooperation on Archives and Science in Europe (http://www.bath.ac.uk/ncuacs/case.htm).

Whenever Called Upon:
The Archival and Records Programs at the National Academies

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This paper was originally presented at the Science, Technology and Health Care Roundtable meeting on September 1, 2001.

When Suzie and Russell asked me to participate today, my immediate fleeting thought of declining was not so much dictated by the hour, but by exposing our idiosyncratic program to the eyes of our professional colleagues. But after enough MARAC and SAA sessions, I realize that what might be our programs' nonconformity in matters of description and finding aids is outweighed by our common professional concerns for the preservation of our essential documentation and the problems – internal, financial, historic—in achieving this.

Today I am going to respond to the initial topic Suzie presented me – what the archives is trying to do to identify and preserve the current records with historical importance and what problems it faces in achieving its goals. I will only peripherally mention other activities -- reference, analysis, and outreach --but will be glad to answer any questions about these you have.

To begin with, for those not familiar with the National Academy of Sciences and its affiliated groups -- the National Research Council, National Academy of Engineering, and the Institute of Medicine -- the NAS was established in 1863 by a Congressional Act of Incorporation, signed by President Lincoln on March 3. This act, also referred to as the NAS charter, consists of three brief paragraphs. The first specifies the founding fifty members by name and US State, the second empowers the Academy to "make its own organization, including its constitution, bylaws, and rules and regulations, elect members, and "and all other matters needful or usual in such institution, and to report the same to Congress." In the final third paragraph we have the mission statement that governs us still:

And be it further enacted, That the National Academy of Sciences…. Shall whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States.

The NAS chartered during the Civil War has seen its programs and visibility as well as its national role and importance most affected at times of war. Other momentous dates are 1916 when the National Research Council was created under the NAS charter to coordinate US scientific research during World War I, and the exponential growth of programs, budgets, and policy studies which began in the 1939-1945 period.

The archival and records programs, like the institution, have been shaped by these dates and events, as well as by those other archival forces: anniversaries and moves. To begin with anniversaries, the NAS-NRC Archives was founded in 1966 to support an institutional centennial history. The first archivist had been the records supervisor, in the Executive Records Office, which I will now discuss:

From NRC's 1916 creation we have had a current records program, a.k.a., an executive filing system. These high level files are the key executives' correspondence, primarily that of the NAS President (the NAS president is, ex officio, the Chair of the NRC) and the Executive Officers of the NAS and NRC. Known as the "central files" these files continue to today. They are maintained on a daily basis and are the basis of the archival collections.

Other key sets of records are the unit deposits, referred to as “accessions”. These are the working files of our study units, maintained primarily by study administrative staff, and are theoretically deposited with the institutional Records office once a study is complete. I say “theoretically”, because records screening and deposit is often the last thing on study staff minds as they scramble to finish contracts, publish reports, and find new jobs and or funding if the contract governing their completed study is not a continuing one.

In addition to executive records and study deposits we also receive records from our administrative units including business and personnel records, blueprints and facility materials, fraternal records for the NAS, NAE, and IOM membership side, and we maintain a large series of retired legal records for our Office of General Counsel.

As of August 28, 2001 the institution has approximately 1000 activities underway, including parent and continuing divisions and boards, as well as the committee and panels that fall under the larger groups. The institution issues 200 to 250 reports yearly. We have a staff of 1,200 that serves 10,000 committee members, all volunteers, the majority of which are program staff: scientists, editors, researchers, support staff, and so on.

I don’t want to mislead you that there are no records prior to 1916. Although the first fifty years of the Academy were not a hotbed of activity, we have approximately five linear feet of records. They are augmented by nineteenth century ledger books, minutes, reports, and memoirs that complement the rather thin records. The fifty-year period only saw fifty requests from the federal government, so the scant records represent a moribund period of activity as well as the losses created by the moves from NRC temporary space in leased buildings, and the Academy offices loaned by the Smithsonian and the Library of Congress.

Finally, records often come our way because of moves – in my working life here there has been one massive and one less significant move. In 1987 the NRC study units moved from one large Foggy Bottom building into two uptown buildings. To accomplish this move into much smaller storage areas and less office space, therefore less filing rooms for units, the then archives and records staff directed a concerted staff outreach program with training, schedules, and a floating records officer who assisted staff with the organization, boxing, and description of records.

Problems we encountered then and now are that government contracts do not allow records costs to be charged against the sponsor once the study is completed. The funding we had in 1987 for the floating record assistant was a one-time occurrence.

In June 2002 the largest part of the staff who has now outgrown the 1987 buildings plus two outlying rentals in Georgetown are moving into a new building downtown. Again, we will direct a concerted effort to obtain deposits so that records will be screened and deposited prior to the move. Much of this can be accomplished via our internal databases and by sharing information, guidelines, and policies and procedures by email, a timesaving luxury we didn’t have in 1987.

I’ve laid out the origins of the NAS and its mission, as well as that of the Archives and its associated offices, the Executive Records Office and the Records Management Office. Once the records are in our hands, protecting the integrity of the NRC process as evidenced in the records, is a very important, if not the most important, part of our role as custodians of the institutional documentation. That said, I’d like to discuss institutional policies governing access to public information. These policies have changed over the years depending on our circumstances.

Referring back to our 1863 charter, the NAS -- a private corporation -- can “make its own organization, including its constitution, bylaws, and rules and regulations”. The question of access to NAS-NRC records was not an issue until the late 1960’s when historians of science, journalists, and public interest groups began focusing on the NAS-NRC as a policy maker. Prior to that time, the archives received few access requests from external sources. To address this attention, the Council of the passed a resolution in April 1968, RULES IN REGULATION OF ACCESS TO FILES AND RECORDS OF THE NATIONAL ACADEMY OF SCIENCES AND ITS CONSTITUENT ACTIVITIES. Although the policies and procedures have been amended since 1968, the philosophy that the Council adopted still dictates our treatment of records and our assertion of our private status. Committee members are guaranteed a free and open environment in which to work, and the

institution considers its records privileged and private and not necessarily open to the sponsoring agency or the public except for certain categories of material:

> In considering its advisory relationship with the Congress and with agencies and department of the Executive branch of the Federal Government, the Council of the Academy affirms that in order for the Academy to maintain frank and full access to sources of advice and information in both the private and public sectors and thereby render properly informed judgments on scientific and technical matters, all files, correspondence, minutes, records and reports pertaining to advisory and other activities of the Academy shall be considered privileged and private to the Academy.

The policy excepted certain categories of records, including approved interim and final report(s), reports of expenditures of public funds, documentation that the contract or grant required be provided to the sponsor in support of the activity, and public access to such documents as committee membership, published reports, and the Annual and Treasurer Reports of the corporation. Finally, for our purposes:

> Access to the Archives of the Academy by scholars shall not be permitted until after the lapse of a fifty-year period from the date of the requested material. Exceptions to the fifty-year rule may be granted by the Council.

The fifty-year rule was adopted because our much elder sister, the Royal Society, had such a rule. In 1982 the fifty-year rule was changed to twenty-five years. That closed period still exists for records of studies completed before 1997. The actual machinery to approve requests is handled the archivists with the concurrence of the NRC Executive Officer.

In 1973 the NAS status was the topic of a legal case brought by a Ralph Nader affiliated group, the Center for Auto Safety. This group wanted access to the records of the Committee on Motor Vehicle Emission Standards. They sued for access stating that the NRC's committees fell under the Federal Advisory Committee Act (FACA) and were thereby not protected by NAS-NRC rules but were publicly available. The case was judged in our favor and again on appeal.

At the same time reporter Philip Boffey, now at the New York Times, was working on his study of the NAS-NRC that was published in 1975: *The Brain Bank of America: An Inquiry into the Politics of Science*. It was sponsored by the Center for the Study of Responsive Law; Ralph Nader wrote the introduction. Boffey received cooperation and entrée in the form of interviews with a large group of officers, members, and staff. His access to records did not extend outside of governing policies.

In 1975, for a variety of reasons, including the Freedom of Information Act, sunshine laws, and that the essential protection of our records had been recognized, the institution created its own guidelines for public access. These reiterated our independence yet granted access to more of our documents, including creating a category of public access files and the initiation of public meetings where the interested public could address a study committee in its earliest stages. These public access activities were mostly for policy studies, especially in the areas of public health and environmental issues. Public access files were not created for every study, only for those identified as such by their Chairs, or by key internal staff. In some cases, such as a recent series of reports on health effects of Agent Orange, the sponsor mandated that follow-ups be conducted every two years and that each study have a public access component.

We continued in this status – records closed for twenty-five years, public access files for certain studies, when the ivory tower came under siege. First, there was a Supreme Court decision that footnoted the ABA, when evaluating judicial nominations, is acting as a federal advisory committee. The footnote referred the NAS as serving in the same capacity. Finally, in the 1990's an animal rights group, the Animal Legal Defense Fund in their case against the HHS (Animal Legal Defense Fund (ALDF) Inc vs. Shalala) demanded access to the records of our long standing Institute for Laboratory Animal Resources. Without going into the intricacies of the efforts and the documentation, resolution was the January 1997 legislation "Federal Advisory Committee Act Amendments of 1997" which clarified "public disclosure requirements that are applicable to the National Academy of Sciences and the National Academy of Public Administration".

The resulting recognition of our private status also obliges us to open our process to the public by sharing information and documentation along the life of a study. This has been accomplished by:

a. Policies: "Guidelines for Creation and Maintenance of Public Access Files";
b. Organization to implement policies: creation and staffing of a Public Access Record Office or PARO;
c. Technology infrastructure to support the implementation: the Current Projects Database accessed through the NAS website;
d. Procedures for carrying out the obligation: "Checklist for Responsible Staff Officers for Compliance with Section 15 of the Federal Advisory Committee Act";
e. Aggressive internal outreach by the Office of Institutional Research and PARO and via guidelines.

Where the deposit of inactive study records prior to FACA compliance might have been dictated by varying reasons such as unit space needs, sense of responsibility, or legal counsel's mandate, Study Directors now must comply with the PARO process throughout the study's process to maintain institutional compliance.

PARO is not under our purview but is placed under the Office of News and Public Information and also works closely with the Office of Institutional Research. Public access files, however, can only be used in the archival reading room under our supervision.

FACA, while creating new problems and issues for program staff and archivists alike, such as an unwieldy set of instructions (the two documents I mentioned, the Guidelines and the Checklist, print out at 53 pages in contrast to the two page legislation) and ongoing reevaluation and redrafting of archival, records, public meetings and many other institutional policies and procedures to incorporate FACA language, compliance has had positive impact upon our records deposit procedures and unit records keeping. Study staff must maintain records of studies underway at January 1997 or begun after that date in compliance with Section 15. The public access files are deposited with the Records office along with the privileged part of the files, those materials exempted by the legislation. The regular attention to the study documentation that compliance procedures dictate has the added bonus (one expects and hopes) of committee records being maintained at every step of the process.

Implementation of compliance, as well as regular deposits of records not subject to the FACA amendment, is accomplished primarily by internal databases and email. Our staff can access forms, rules, guidelines, and quick guides. They can send their requests for storage via email as well as their box lists.

Today our unit --- Archives, Records, and Executive Records – is part of the IT group, specifically the Information Services and Strategies Group (ISSG). The NRC Library and an outreach office are also part of ISSG.

We find ourselves in an exciting period – our research room has recently been renovated, we have had staff changes that have presented new opportunities for work methods, and we have been involved in a wide range of institutional activities.

New directions include increased preservation efforts. Preservation until the last six years had been spotty. Our efforts were focused on arranging and describing and serving researchers, within and without the NAS. We had identified preservation projects by their national importance such as the IGY or the ABCC records, or in recognition of historical use or impending anniversaries. In the 1990's we did a large volume of preservation filming, but for space reasons as much as preservation.

My manager introduced a simplified records system to the Executive Records Office last year. This has also helped blur the distinctions between the executive records program and the archival program. How this new relationship will continue is under review; executive record files are being processed more like archival materials and being entered directly into archival databases; we are in a transitional period with a smaller staff handling increased work via the new records system and a wider range of technological tools.

Danger at Sea: Documentation of Oceanographic Expeditions

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This is a revised version of the paper presented as part of a session called "Extreme Science: Pushing the Envelope on Land, on Sea, and in the Air" at SAA on September 1, 2001.

In 1872, the British ship H.M.S. CHALLENGER returned from a four-year circumnavigating oceanographic expedition. Twelve men died on the cruise. This represented a loss of five percent of the ship's company, if you don't count two additional men murdered in ports of call. At the time, those losses were considered negligible.

Oceanography was life-threatening in 1872. Today, OSHA rules and seaman's unions have made life at sea safer, but field expeditions continue to have an element of danger. The Scripps Institution of Oceanography at the University of California San Diego maintains a casualty file of staff members who died doing science. This paper discusses the element of danger in science and the effort of my archives to document field expeditions in oceanography.

Does the element of danger impact the creation, appraisal and selection of records? The records generated by oceanographers differ in several ways from the scientific records in less hazardous fields. For instance, they include a lot of seemingly routine records such as field manuals, safety checklists, vessel maintenance records, equipment lists. These records were created to communicate standards, standardize practice and promote safety, but they have an important secondary cultural value and a symbolic significance beyond their primary functional value which is very unique to oceanography. These may be subtle record values, but they are important. James O'Toole has written about the symbolic significance of archives, and warns us that:

> Appraisal decisions… must be founded on a reasonably complete understanding of the nature of records and the roles they have played; if some of those roles are ignored, the appraisal will necessarily be flawed. This is a warning that archivists working with scientific field records should hear. Some of the records generated by oceanography are created to document danger, to promote safety, and to commemorate feats of bravery. These materials can be found routinely in field records, and they represent some of the cultural values of the oceanographic community.

Is the appraisal of field records different from the appraisal of other scientific records?

Let's consider collection policies first. Would the collection policy for a repository which collects records in dangerous fields differ from that other that of another repository that collects scientific records? Institutional collection policies are based on the functions of the institution and the research needs of the user community. The difference between disciplines that incur danger and those that don't would not affect these. The characteristic of danger does not affect institutional collection policies.

Are appraisal principles for scientific records affected by the element of danger?

Basic appraisal principles for scientific records apply equally to records generated in the field and in the laboratory. The primary and secondary values of records in the collection:

– the administrative, scientific, legal and fiscal value of the record
– its evidential and information values
are not affected by the risk that might have been incurred by the scientist who created the record.

However, there is a difference when you look at cultural values of the records. Danger, Safety and Bravery are culture values in oceanography, and appraisal in this field should be sensitive to cultural values documented in records.

Are the documentation standards for scientific field work any different for dangerous disciplines than other sciences?

No. Oceanography is a field science, and so standards for field records described in both the archival and scientific literature will influence the acquisition decision. These are standards that address the veracity, comprehensiveness and utility of field records. While it is more difficult to achieve these standards in a hostile environment than it might be in a controlled environment, the standards remain the same. The field records of an expedition to the North Pole or a botanical expedition to the much less hazardous Cucamonga Valley may have equal scientific value. Documentation of a trip to the Arctic is not more important to science simply because it is more hazardous. Risk alone is not and should not be selection criteria.

However, the selection of records documenting dangerous scientific endeavors can be quite different. Normally, the archivist would select field records in ocean science on the basis of their primary and secondary values as scientific and historical records. I believe that selection criteria should be broadened for field records in ocean science in order to capture historical and cultural values. Here are some examples of selection criteria that apply to oceanography.

Some sites are so inaccessible, remote, or so expensive to reach that the number of data gathering opportunities there are small. Any records, even incomplete or flawed records of expeditions to very remote areas may be worthy of retention.

First contacts are also worthy of special archival attention. The first scientific expedition to a place may have a very great cultural significance even if the science done on that expedition is insignificant and the documentation is weak.

The first field expeditions in a discipline will be important for the history of that discipline.

Some expeditions capture the public imagination and may be worthy of retention for that reason alone. Some expedition sites have a symbolic value and may be worthy of retention for that reason. For instance, the Galapagos Islands have a great symbolic value for biologists because of Charles Darwin's work.

Some expeditions have political significance. For example, oceanographers participated in several expeditions organized around the mid-twentieth century Pacific Atomic Tests. These expeditions are important because of their political significance in addition to their scientific value.

COLLECTION STRATEGIES FOR FIELD RECORDS IN "EXTREME SCIENCE"

Unique collection strategies may be necessary to document "Extreme Science." The American Institute of Physics Center for the History of Physics has researched collection strategies for collaborations in space science and geophysics that are relevant to many disciplines. The depth of documentation an archivist might undertake for a collection in "Extreme Science" may be greater than the depth of documentation required for laboratory science.

COLLECTION STRATEGIES

Passive collecting of field records is ineffective. Archivists must take an early and active role in identifying important field expeditions and the records that document them. Once the archivist identifies significant expeditions, there are a number of things that can be done to ensure that the documentation of the expeditions is robust. Archival literature urges archivists to work directly with records creators to insure the quality of the documentation and see to the timely and orderly transfer of collections from record creators to the archives.

Field expeditions to dangerous places have some common characteristics. They are generally formed by an elite core group of highly skilled people. They are organized far in advance of the fieldwork itself. The site may be unique or challenging. Access to an extreme environment may be limited. Weather may be a critical factor in the success of the expedition.

Transport limitations may affect the size of the team, the timing of the expedition, the selection and even design of instruments and equipment.

So after the archivist has decided to acquire the records of a particular field expedition or series of expeditions, the archivist should take an active role to ensure that the expedition is fully documented. What documentation is important? Let me comment on seven areas for which documentation is needed.

1. Document the Team. The archivist should collect records that document every member of the team, not just the expedition leader. This will include support staff at headquarters as well as the team in the field.

The normal distinction between the professional life and the personal life that exists in most laboratories diminishes on hazardous field expeditions. Relationships among coworkers in the field are relevant to their work and consequently interpersonal communication is important. So records that seem personal or trivial, like personnel lists, bunk/tent/mess assignments, menus, newsletters, daily messages, can be important team documentation. These may reflect team cohesiveness, effectiveness, conflict and hierarchies.

2. Document the Goal. The archivist should document the purpose of the expedition. The purpose may or may not be clearly stated. Is the purpose data collection? Is the project a team building exercise? Is it testing instruments or applying a new technique? Is there a specific goal – to reach the North Pole or scale a mountain? Does the expedition serve national goals or have a political agenda?

The goal of an expedition can change, and oceanographers are adept at getting the maximum value to science out of expeditions that have failed to attain their primary goal. So it is important to document changes in expedition goals. The scientific value of an expedition is not determined alone by its success in attaining a particular goal.

3. Document the Plan. Oceanographic expeditions often begin with a formal project plan, but sometimes the planning process is itself as important as the data collected on the expedition. Improvisation is a cultural value in oceanography. So document the planning process in addition to collecting the final project plan.

4. Document the Site. The archivist will want detailed information on the site, including maps, track charts, station locations and/or precise coordinates of the site, not just a photo or two of the location.

5. Document the Danger. Field expeditions can be hazardous. Therefore documentation of the expedition will include documentation of its hazards.

Danger may generate a hero culture in some fields. This is certainly the case in oceanography, which is replete with commemorative tales of brave men, oral narratives about moments of great danger, and sailors' tales, both true and exaggerated. The hero sagas are important and should be collected. For this reason, the Scripps Archives collect obituaries and even some recordings of memorial services of prominent oceanographers.

It may be important to keep lists/descriptions of protective equipment and regulations for wearing it. Again, these lists were created as expedition planning and safety documents. They have a secondary value as documentation of danger.

Discipline is always important to groups working in hazardous circumstances. Chains of command are often established on field expeditions to ensure discipline and delegate responsibility. Expedition personnel may be required to sign special contracts, swear oaths, or sign away certain rights when joining an expedition. Discipline and chains of command becomes manifest in some expedition records. It is important to retain these records.

Injury and deaths may occur. It is important to document these, including records of search, rescue and recovery operations. An investigation and a review of all expedition planning and operations will always follow a death or

injury. Such an investigation may result in changes to expedition operations and new lifesaving procedures that can improve the odds for the next field expedition. It is important to document this entire process.

6. Document Daily Events. Archivists traditionally welcome narrative records such as ships logs, diaries, calendars, and field journals. These are valuable records for any science. They are particularly valuable documentation in the case of field work because the distinction between the personal and professional are blurred on hazardous expeditions, personal narratives reveal hierarchies and discipline and narratives offer excellent documentation of danger.

Daily events on field expeditions often have a definite structure. Observations may be made at distinct intervals. Watches may be set. Meals are served at specific times. Everything is deliberate and planned. This can reflect the military structure of some expeditions. There is also, however, a psychological dimension.

Careful and repetitive routine can prevent mistakes, it can provide reassurance to people in dangerous situations, and it can minimize contact among expedition participants. It can reduce the sort of interpersonal conflict that results when human beings share small spaces for long periods of time. It is consequently important to document the daily routine.

Archivists are likely to find records with symbolic values and record making as a symbolic activity on expeditions. James O'Toole describes religious records made as an act of worship and gives example where making the record is more important than the record itself. There are parallels in oceanography. Documentation of Crossing-the-Line ceremonies is one example. It is common to find expedition certificates or T-shirts among cruise files. These are often colorful, ornate, original art works. They have little value as records. The ships log is the official record of who was aboard. Expedition participants may retain their name tag, radiation badge, and other documents not for their evidentiary value but as symbols of their participation. These records document initiation ceremonies, build esprit de corps, and they are invested with deep cultural significance for seamen.

Improvements in transportation and communications have changed expeditions. During the twentieth century large ships and shipboard computers became commonplace in oceanography. Research vessels rotate scientific teams and crews, so that the time a single scientist spends at sea is much shorter now than it was a century ago. Field scientists travel with laptop computers. Instruments feed data via satellite directly to scientists at the laboratory, and in some cases display in real time on the web. Scientists aboard vessels at my institution can now communicate home via email, receive faxes, and telephone their spouses. The elements of danger, discipline and isolation are less apparent in modern field expeditions than those of earlier centuries, but those elements are still present.

7. Document Expedition Results. There tends to be a long lag between field expeditions and publication of results. This is so even today. It takes time to write up expedition results. This creates problems for archivists. Expeditions to inhospitable environments are costly, and teams may limit access to data while expedition results are being written up. Teams may resist transferring records to archives. The team may divide up field expedition files while they prepare publications/reports. The importance of a particular field expedition may not become evident to the archivist until the results of the expedition become public. The significance of scientific expeditions is often cumulative. The published results may not even mention field expeditions by name. So it can be difficult to connect a particular field expedition directly with the scientific discoveries that were made as a result of that expedition.

For this reason, archivists of institutions that conduct field expeditions should attempt to collect documentary records of all field expeditions to a certain level, rather than attempting to collect only records of expeditions that yielded significant results or landmark scientific papers. The archivist should accession archival record groups generated by central expedition planning organizations in order to acquire a minimum level of documentation for all field work. At my institution, the Ship Operations and Marine Technical Support group approves expeditions and designates what vessels and crews will be assigned to them. The records of this group include a rich series of expedition files. These central archival records document items 1-4 from the list above, and sometimes more. The records of specific expeditions and the personal papers of expedition participants supplement this archival record and provide documentation of items 5-7.

CONCLUSION

The archivist who wishes to document field expeditions should seek archival records and supplement these as needed with the personal papers of scientists in order to document the expedition team, the goal, the plan, the site, daily events, the danger, and expedition results. The archivist should analyze collections for documentation of cultural value as well as scientific and historical values.

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