Berichte
zur Polar-
und Meeresforschung

620
2010

Reports
on Polar and Marine Research

Cool Libraries in a Melting World

Proceedings of the 23rd Polar Libraries Colloquy 2010
June 13-18, 2010, Bremerhaven, Germany

With an Overview by David W. H. Walton

Edited by
Marcel Brannemann and Daria O. Carle

HELMHOLTZ GEMEINSCHAFT

ALFRED-WEGENER-INSTITUT FÜR
POLAR- UND MEERESFORSCHUNG
in der Helmholtz-Gemeinschaft
D-27570 BREMERHAVEN
Bundesrepublik Deutschland

ISSN 1866-3192

Hinweis

Die Berichte zur Polar- und Meeresforschung werden vom Alfred-Wegener-Institut für Polar-und Meeresforschung in Bremerhaven* in unregelmäßiger Abfolge herausgegeben.

Sie enthalten Beschreibungen und Ergebnisse der vom Institut (AWI) oder mit seiner Unterstützung durchgeführten Forschungsarbeiten in den Polargebieten und in den Meeren.

Es werden veröffentlicht:

- Expeditionsberichte (inkl. Stationslisten und Routenkarten)
- Expeditionsergebnisse (inkl. Dissertationen)
- wissenschaftliche Ergebnisse der Antarktis-Stationen und anderer Forschungs-Stationen des AWI
- Berichte wissenschaftlicher Tagungen

Die Beiträge geben nicht notwendigerweise die Auffassung des Instituts wieder.

Notice

The Reports on Polar and Marine Research are issued by the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven*, Federal Republic of Germany. They appear in irregular intervals.

They contain descriptions and results of investigations in polar regions and in the seas either conducted by the Institute (AWI) or with its support.

The following items are published:

- expedition reports (incl. station lists and route maps)
- expedition results (incl. Ph.D. theses)
- scientific results of the Antarctic stations and of other AWI research stations
- reports on scientific meetings

The papers contained in the Reports do not necessarily reflect the opinion of the Institute.

The „Berichte zur Polar- und Meeresforschung”
continue the former „Berichte zur Polarforschung”

* Anschrift / Address
Alfred-Wegener-Institut
für Polar- und Meeresforschung
D-27570 Bremerhaven
Germany
www.awi.de

Editor in charge:
Dr. Horst Bornemann

Assistant editor:
Birgit Chiaventone

Die "Berichte zur Polar- und Meeresforschung" (ISSN 1866-3192) werden ab 2008 ausschließlich als Open-Access-Publikation herausgegeben (URL: http://epic.awi.de).

Since 2008 the "Reports on Polar and Marine Research" (ISSN 1866-3192) are only available as web based open-access-publications (URL: http://epic.awi.de)

Cool Libraries in a Melting World

Proceedings of the 23rd Polar Libraries Colloquy 2010
June 13-18, 2010, Bremerhaven, Germany

With an Overview by David W. H. Walton

Edited by
Marcel Brannemann and Daria O. Carle

Revised edition, March 2011

Please cite or link this publication using the identifier
hdl:10013/epic.36296 or http://hdl.handle.net/10013/epic.36296

ISSN 1866-3192

Participants of the 23rd Polar Libraries Colloquy 2010 "Cool Libraries in a Melting World"
June 13-18, 2010, Bremerhaven, Germany

Marcel Brannemann
Stiftung Alfred-Wegener-Institut für Polar- und Meeresforschung in der Helmholtz-Gemeinschaft
Postfach 120161
27515 Bremerhaven
Germany

Daria O. Carle
UAA / APU Consortium Library, University of Alaska Anchorage
3211 Providence Drive
Anchorage, Alaska 99508
USA

Contents

23rd Polar Libraries Colloquy 2010

„Cool Libraries in a Melting World“

Bremerhaven, June 13 – 18, 2010

AGENDA

Sunday, June 13 – AWI : Building D

19:00-19:30	Registration
19:00-21:30	**Ice Breaker**

Monday, June 14 – Klimahaus : Room Kyoto

08:30-09:30	Registration
09:30-10:15	**Opening** *Moderator*: *Marcel Brannemann, Alfred Wegener Institute, Bremerhaven, Germany* Karin Lochte, Director, Alfred Wegener Institute, Bremerhaven, Germany Rainer Paulenz, City Councillor for Education and Culture, Bremerhaven, Germany Heather Lane, Chair of the PLC, Scott Polar Research Institute, Cambridge, U.K.
10:15-12:30	**Keynotes**
10:15-11:15	Permafrost and Climate Change *Bernhard Diekmann, Alfred Wegener Institute, Potsdam, Germany*
11:15-11:30	Coffee
11:30-12:30	Airborne research in cool regions *Daniel Steinhage, Alfred Wegener Institute, Bremerhaven, Germany*
12:30-14:00	Lunch
14:00-15:30	**Session 1** – Open Doors to Polar Knowledge – Examples of Tools & Projects *Moderator: Laura Kissel, Byrd Polar Research Center, Ohio State Univ., Columbus, U.S.A*
14:00-14:30	Antarctic bibliographies – listing the literature of a continent *David Walton, British Antarctic Survey, Cambridge, U.K.*

Monday, June 14 – Klimahaus : Room Kyoto (continued)

14:30-15:00	The Breitfuss Polar Archive at SPRI: its acquisition and integration into the SPRI collection *Isabella Warren, Scott Polar Research Institute, Cambridge, U.K.*
15:00-15:30	A digitizing project Norwegian Polar Institute *Fred Inge Presteng, Norwegian Polar Institute, Norway*
15:30-16:00	Coffee
16:00-17:00	**William Mills Book Prize**
19:00-22:00	**I2B Presentation & Reception, Conference Room, SailCity Hotel**

Tuesday, June 15 – Klimahaus : Room Kyoto

08:30-09:00	Registration
09:00-09:15	**Klimahaus 8° East – Introduction** *Susanne Nawrath, Klimahaus 8° Ost GmbH, Bremerhaven, Germany*
09:15-10:45	**Klimahaus 8° East – Guided Tour**
10:45-11:00	Coffee
11:00-12:30	**Panel I:** The Melting and Disappearance of Circumpolar Born Digital Grey Literature *Lindsay Johnston, Univ. of Alberta, Edmonton, Canada*
12:30-14:00	Lunch
14:00-15:30	**Session 2** – From Behind the Camera: Polar Expeditions *Moderator: Marcel Brannemann, Alfred Wegener Institute, Bremerhaven, Germany*
14:00-15:00	Silent Films from Expeditions to the North and the South Pole *Jan-Anders Diesen, Lillehammer Univ. College, Lillehammer, Norway*
15:00-15:30	Polar Exploration Filmclips
15:30-16:00	Coffee

Tuesday, June 15 – Klimahaus : Room Kyoto (continued)

16:00-17:00	**Session 3** – Information Use – Impact on Polar Libraries *Moderator: Daria O. Carle, Univ. of Alaska, Anchorage, U.S.A.*
16:00-16:30	Patterns of information use by polar scientists. Will information professionals and resources be affected? *Jo Milton, British Antarctic Survey, Cambridge, U.K.*
16:30-17:00	Information transformation: How will large-scale trends affect polar libraries? *Shelly Sommer, Institute of Arctic and Alpine Research, Univ. of Colorado, Boulder, U.S.A.*
19:00-22:00	**PLC Steering Committee Meeting**

Wednesday, June 16 – Klimahaus : Room Kyoto

08:30-09:00	Registration
09:00-10:00	**Session 4** – Polar Research in Historical Context *Moderator: Elaine Maloney, Canadian Circumpolar Institute, Edmonton, Canada*
09:00-09:30	Data versus headlines – the history of the IPY-idea *Reinhard Krause, Alfred Wegener Institute, Bremerhaven, Germany*
09:30-10:00	Research of AWI in Greenland following the legacy of Alfred Wegener *Hans Oerter, Alfred Wegener Institute, Bremerhaven, Germany*
10:00-10:30	Coffee
10:30-12:00	**Session 5** – Polar History – Examples and Methods *Moderator: Sharon Tahirkheli, American Geological Institute, Alexandria, U.S.A.*
10:30-11:00	Significance of Academic Science in Industrial Development of the Barents Region: Historical Reconstruction in the Special Edition of the Archival Documents of the First Polar Conference of 1932 in Khibinogorsk *Valentin P. Petrov, Elena I. Makarova, Tatiana A. Fridman, Kola Science Center RAS, Apatity, Russia*
11:00-11:30	Translating a legend : Lt. Shirase and the 1910-12 Japanese Antarctic Expedition. The other historic dash for the South Pole *Hilary Shibata, Scott Polar Research Institute, Cambridge, U.K.*

Wednesday, June 16 – Klimahaus : Room Kyoto
(continued)

11:30-12:00	Cold Cases: Lessons in Historical Skills and Methods *Laura Kissel, Byrd Polar Research Center, Ohio State Univ., Columbus, U.S.A.*
12:00-12:15	Group Photo
12:15-17:00	**Field Trip**
12:15-13:45	Lunch at German Emigration Center
13:45-15:15	German Emigration Center – Guided Tour
15:30-17:30	Bremerhaven Harbour Tour

Thursday, June 17 – Klimahaus : Room Kyoto

09:00-10:00	**Session 6** – Preserving & Distributing Polar Research – Polar Libraries Ahead *Moderator: Sandy Campbell, Univ. of Alberta, Edmonton, Canada*
09:00-09:30	The International Polar Year Publications Database: The First 4000 *Ross Goodwin, Arctic Institute of North America, Univ. of Calgary, Calgary, Canada*
09:30-10:00	Polar Libraries Collaborating Through E-science Distribution and Communication *Gloria Hicks, National Snow and Ice Data Center, Univ. at Boulder, Colorado, U.S.A.*
10:00-10:30	Coffee
10:30-11:30	**Session 7**- Giving (Open) Access to Research Data Moderator: Marcel Brannemann, Alfred Wegener Institute, Bremerhaven, Germany
10:30-11:00	PANGAEA Data Library for the Earth System *Hannes Grobe, Alfred Wegener Institute, Bremerhaven, Germany*
11:00-11:30	DataCite – International consortium for data citation *Jan Brase, Technische Informationsbibliothek, Hannover, Germany*
11:30-13:00	**Panel II:** Possible roles for the future library in digital curation - How archives, libraries and data centres can interact more effectively *Moderator: David Walton, British Antarctic Survey, Cambridge, U.K*

Thursday, June 17 – Klimahaus : Room Kyoto (continued)

	• *Heather Lane, Scott Polar Research Institute* • *Shelly Sommer, Institute of Arctic and Alpine Research* • *Jan Brase, Technische Informationsbibliothek* • *Hans Pfeiffenberger, Alfred Wegener Institute*
13:00-14:00	Lunch
14:00-15:30	**Session 8** – ePublications – Availability & Access *Moderator: Sandy Campbell, Univ. of Alberta, Edmonton, Canada*
14:00-14:30	Impact of Changes in the Publishing Industry on the Cold Regions Bibliography Project: Are We Really More Efficient? *Sharon Tahirkheli, American Geological Institute, Alexandria, U.S.A.*
14:30-15:00	How to access to journals of the National Institute for Polar Research Japan *Yoriko Hayakawa, National Institute of Polar Research, Tokyo, Japan*
15:00-15:30	Improving Access to Gray Literature in Polar Libraries *Daria O. Carle, Univ. of Alaska, Anchorage, U.S.A.*
15:30-16:00	Coffee
16:00-17:30	**PLC Business Meeting**
19:00-	**Conference Dinner & Outcry Auction at the Captain's Lounge, SailCity Hotel**

Friday, June 18 – AWI : Building D

09:00-11:00	**Session 9** – Polar Libraries : Cooperation & Collaboration *Moderator: Daria O. Carle, Univ. of Alaska, Anchorage, U.S.A.*
09:00-09:30	Capturing Conversations about Climate Change: How successful external collaboration might model better internal collaboration among units of the Alaska & Polar Region Collection, University of Alaska-Fairbanks *Bridget Burke, Univ. of Alaska, Fairbanks, U.S.A*

Friday, June 18 – AWI : Building D (continued)

09:30-10:00	New cooperation between Arctic Centre Library, Science Centre, the Provincial Museum of Lapland and Metsähallitus to produce tuition for local schools *Liisa Hallikainen, Arctic Center, Rovaniemi, Finland*
10:00-10:30	Coffee
10:30-11:00	University of the Arctic Digital Library: Progress and Update *Sandy Campbell, Univ. of Alberta, Edmonton, Canada*
11:00-12:00	**Closing Session** Conference Summary *David Walton* Formal Closure *Heather Lane* Introduction of the site for 2012
12:00-12:30	Boxed Lunch
12:30-14:00	Film Session
14:15-16:00	Visit to the German Maritime Museum

POLAR LIBRARIES COLLOQUY 23 - OVERVIEW

David W H Walton
British Antarctic Survey, High Cross, Madingley Road,
Cambridge CB3 0ET, UK

Each Colloquy has something memorable about it and that isn't just the various places we meet in. The local organiser has always made a great effort with the Steering Committee to come up with elements that will afterwards typify the particular meeting in our minds. Marcel has managed that admirably here in Bremerhaven, selecting not only a week with exceptional weather but also subjects that have stretched our minds.

I would like to begin by picking out as major features the two opening plenary talks by Bernhard Diekmann on permafrost and its relationship to climate change and Daniel Steinhage on German polar aviation. The development of substantive international programmes on the melting of Arctic permafrost is allowing us for the first time to start estimating the size of the methane addition this will bring to the atmosphere as well as the accelerating infrastructure destruction to be seen throughout Arctic communities. This paper lead on to the presentation on AWI's polar airplanes, how they had changed over the past 30 years and their present scientific and logistic capabilities for research in both the Arctic and Antarctic. Indeed, for some this meeting in a research institute (with a programme containing scientific papers) rather than on a university campus gave a very different flavour to the colloquy.

Other memorable features were the talk on film history by Jan-Anders Diesen, whose remarkable collection of film clips was later supplemented by other films that Marcel had organised (including "The Quest for the Golden Roll" made by BAS at Rothera Station which won the Antarctic 48 hour film competition in 2009), the excursions to the Klimahaus and the German Emigration Centre, as well as the fascinating tour of the docks which has provided all of us with a new supply of trivia (how many Mercedes Benz can you get into one ship? Who sends a car to Bremerhaven to be fitted with a swimming pool? How much does a container lifter cost?!). Some of us attended the I2B meeting of the local business group and learnt much about how AWI scientists have commercialised some of their ideas. And to cap it all there was

the banquet at the top of the Atlantic Sail Hotel, a memorable evening as the sun slowly set, the pace of the jazz trio picked up and hilarious bidding ensued for such choice items as Japanese handkerchiefs, an amazing silk scarf and an ulu from the North Slope!

But what of the business of the Colloquy itself? This time there were fewer papers on historic subjects than we have had before but we still managed to hear from Isabella Warren about how the Leonard Breitfuss collection was bought from Germany at the end of the war and taken to SPRI under what some now regard as controversial circumstances, from Reinhard Krause about the origins of the IPY and the recent rescuing of the data from the first IPY, the early history of research and colonisation of the Kola Peninsula from Tatiana Fridman who had discovered some fascinating papers in the Kola archives, from Hilary Shibata about the problems and perils of translating the account of the first Japanese Antarctic Expedition lead by Nobu Shirase from the Japanese, how the early work of Alfred Wegener in Greenland laid the foundations for the present studies on the ice cap and how archival documents from Byrd's expeditions had been woven into a new educational unit for Ohio schools. It seems sad that such a useful new tool seems unlikely to be more widely used because of the structure of the American educational system.

Since the meeting is about libraries there was a paper on the positive and negative features of Antarctic bibliographies by David Walton who roundly condemned some as inadequate whilst seeing the continuing value of ones created for niche markets, whilst Ross Goodwin could report on the apparent success so far of the IPY database (with over 4000 entries) and took the opportunity to urge others to get their scientists to send in details as soon as they had something published. He estimated that there were going to be tens of thousands of items to capture over the next five years or so. The Cold Regions Bibliography report by Sharon Tahirkheli not only showed how the number of items captured exceeded the original estimates but also described how savings in one area (staff) were balanced out by increases in another (programming). It was at this point that the recent changes in the commercial provider for the bibliography from NISC to EBSCO came up and the problems that was causing, a theme taken up again by Ross Goodwin on the distribution of the IPY Database and again in the PLC Business Meeting. A long-term solution needs to be found to what seems to have become an untenable situation threatening the global distribution of our most important databases.

Many papers throughout the week emphasised the importance of collaboration, for example in e-science initiatives, but perhaps the most persistent theme was that of change. Change in library management, change in links to data management, change in data publishing, change in the library as a base for teaching, etc. The several years of effort that the PLC has put into liaison with the University of the Arctic seems to be paying off and Sandy Campbell was able to report that real progress has been made towards the creation of their new digital library, although there are still potential problems in the choice of some of the texts. Electronic

developments such as RSS feeds, Web 2.0 and even podcasts were described by Gloria Hicks as the new e-tools for collaboration and she introduced to an exciting new development from NOAA – “Science on a Sphere” – a new way of projecting data and graphics onto a huge globe. Attending for the first time the new British Antarctic Survey librarian Jo Milton told us about change in the form of library reviews and re-organisation whilst describing the sometimes surprising results of a user questionnaire on the future of the BAS library. It was good to hear for the first time from Yoriko Hyakawa about activities at the library of the National Institute for Polar Research in Tokyo, including the extent of their digitisation of publications and the move to open access for their journals, whilst Daria Carle’s comparative research on gray literature holdings at AAD in Kingston and SPRI in Cambridge showed not only an unexpectedly low overlap of material but also pointed up the problems in dealing efficiently with this sort of material.

The mix of contributed papers brought out some new ideas for this forum on data and its management. Hannes Grobe described the remarkable success of the Pangea Data Library, whilst Hans Pfeiffenberger told us about the new data journal Earth System Science Data published by Copernicus in Germany but attracting submissions from all over the world, and Jan Brase described the growing success shown by DataCite, an international consortium established by the German National Library for Science and Technology to provide DOIs for data sets, and now with nine countries involved and over 800,000 DOIs issued. All of this stimulated discussion on the present and future value of the World Data Centres, some of which are closely associated with libraries. Many of these themes on data management were taken up again in the Thursday panel on the role of the library in digital curation - an area where discussion apparently abounds but for most libraries the development of policy and its implementation seems a long way off. One area of interest was Another interesting approach, described by Bridget Burke was using oral history to document climate change in Alaska, whilst Liisa Hallikainen detailed an interesting co-operative approach between five institutions in Rovanemi to delivering integrated teaching on wood and forests to high school students. Both the panel discussions on grey literature and digital curation gave everyone the chance to contribute and it is clear that these should be a normal part of the programme of every Colloquy.

After all these stimulating discussions, punctuated by plenty of good German food, what can we say about the future for polar libraries? Certainly change is a driving factor for all librarians and since the rate seems to be speeding up libraries need to grasp this as an opportunity and try to be pro-active to ensure that their value is obvious to management. There are lots of new ideas around but too often the emphasis is on only what is invented at home. Look across borders and steal the best ideas from wherever you find them, recognising that governance systems and structures are diverse so that direct importation of new initiatives may not be simple. The emphasis on digital systems and data at this Colloquy points up the need for continuing training in order to deliver to users across the widest range of needs – for example in data management planning or in new bibliometric tools – but it seems

essential to keep asking users what they actually want in order to plan strategically and counter sometimes ill-informed senior management opinions. Everyone needs to raise the profile of their libraries – they are just as important to science as the logistics supporting field operations but are never as well funded or defended. Think of the libraries as the logistic infrastructure for knowledge! And everyone agreed that the title of librarian was an important indication of brand – knowledge purveyor simply was not adequate!

This Colloquy was, as usual, a delightful mix of people, ideas and contributions in an informal and friendly atmosphere. It was sad to have to record the death of one of the founders of the Colloquy – Nita Cooke – but we were reminded of just how much has been done since those early days in 1971. This time our special thanks go to Marcel for all his efforts and especially for dispelling the rumour that it always rains in Bremerhaven!

PERMAFROST AND CLIMATE CHANGE

Bernhard Diekmann
Alfred Wegener Institute for Polar and Marine Research

In the course of ongoing global warming, environmental changes in the Arctic realm are most dramatic worldwide, comprising the shrinking of sea ice, the retreat of ice sheets and glaciers, sea-level rise, and the migration of vegetation belts. All these processes have strong impacts on living conditions for both animals and human beings. A serious problem, which often is underrated in the context of Arctic climate change, is the enhanced warming and degradation of permanently frozen ground (permfrost), which occupies about a fourth of Earth's land surface. In particular, permafrost is widespread in the northern-hemispheric polar and subpolar regions. The modification of permafrost affects the landscape in manifold ways, as it changes the extent of wetlands, deepens the active surficial thaw layer during summer, increases river runoff to the ocean, and destabilizes the Arctic coasts and unglaciated land surfaces. Though such changes pose inconvenience on infrastructure in regard to the stability of buildings, pipelines, railway tracks, and road constructions, these problems can be overcome by innovative technologies. An enduring and alarming side-effect of permafrost degradation, however, is the associated release of trace gases, contributing to the accelerated greenhouse warming of the atmosphere. With their widespread organic-rich soils and subbottom methane hydrates, the permafrost regions represent a huge carbon reservoir in a frozen state. At present, the incipient demise of permafrost leads to prolonged venting of methane and carbon dioxide through enhanced microbial metabolism in soils, strong coastal and fluvial erosion of carbon-bearing soils and sediments, and the thermal destabilization of frozen gas hydrates. The consequence of these processes for the climate system could be harsh but are not fully understood so far.

AIRBORNE RESEARCH IN COOL REGIONS

Daniel Steinhage
Alfred Wegener Institute for Polar and Marine Research

The Alfred Wegener Institute uses ski-equipped aircraft to support and to conduct its research activities in both polar regions since 1983 and provides access to the aircraft to the German scientific community. Beside logistic support of field groups, the aircraft were utilized in glaciology, geophysics, meteorology, and physics of the atmosphere. At the beginning Dornier aircraft, first POLAR 1, a Do128, and POLAR 2, a Do228, followed by two Dornier aircraft of typ Do228 were used. While one aircraft, POLAR 3, was shot down on the ferry back home above Morocco in 1985, POLAR 4 was damaged beyond repair in 2005 by a hard landing on wheels at Rothera, Antarctic Peninsula, and replaced in 2007 by POLAR 5, a Basler BT-67, which is converted DC-3T.

The instrumentation of the research aircraft is under constant development and comprises standard airborne instruments as well as systems especially designed for use in polar regions. Among the available systems are for instance various standard laser altimeter and radiation sensors but also especially for use in polar regions developed ice thickness radar systems and a towed EM-bird for measuring sea thickness. Because the polar aircraft are quite often involved in international projects, there are also third party instruments certified for use on the aircraft of the Alfred Wegener Institute, for example ESA’ radar altimeter ASIRAS or the methane sensor of the Geoforschungszentrum Potsdam.

Since the first austral season with airborne support 1983/84 nearly more than 20 airborne missions were conducted in Antarctica and about 40 in the Arctic. While most surveys in Antarctica were flown for projects with a glaciological-geophysical focus, those in the Arctic are focused on atmospheric research. In the course of time, the aircraft are more and more involved in international collaborations, for example the CryoSat calibration and validation experiments CryoVEx with ESA’s ASIRAS altimeter and laser scanner or the PAM-ARCMIP survey focused on sea ice thickness measurements and measurements of trace gases in the western Arctic region between Svalbard and Alaska. Highlights from these and other projects will be presented in the talk.

To download the powerpoint presentation of this talk please refer to the identifier hdl:10013/epic.36221 or http://hdl.handle.net/10013/epic.36221.

ANTARCTIC BIBLIOGRAPHIES – LISTING THE LITERATURE OF A CONTINENT

David WH Walton
British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET,UK

ABSTRACT

Whilst there is a general reliance these days on digital databases to locate publications even in Antarctica none of the databases are complete. Bibliographies have always been seen as important tools for researchers and a key output of specialist librarians. Antarctica is unusual in that a single bibliography covers much of the literature from 1951. There are however a range of other bibliographies and catalogues which provide for specific interests and users. All bibliographies are limited in what they list, often constrained in ways that are not obvious to the user. The paper will consider various bibliographies produced over the past 100 years and comment on their value as finding aids, examine their relevance today and their usage. In addition it will consider how bibliographies now have a new importance as management tools for assessing science output and performance of groups and of nations, and how this might develop in a digital world.

Introduction

Bibliographies are routine tools of librarians, to be found on the shelves of any serious library and with a history going back over many centuries. The general accepted definition is a description of books or articles in a particular field.

In some respects it can be quite difficult to distinguish between a library catalogue and a bibliography where the library is specialised in a particular field. The most important distinguishing feature is normally that the items in the catalogue are normally all present in the institution making the catalogue but where the institution aspires to a complete collection in a field the catalogue and bibliography can become the same thing.

It is worth also attempting to differentiate between enumerative bibliographies, analytical bibliographies and annotated bibliographies. The Enumerative approach is the most common and aims to provide a list of writings with sufficient details to locate each item but not necessarily any further details on content. The minimum required for a book is normally author, title, publisher, date and possibly ISBN whilst for a journal article there needs also to be details of the volume and page numbers. It may or may not be provided with its abstract or be otherwise annotated with respect to a particular topic. The Analytical approach is one much more familiar to librarians

dealing with the older literature where the detailed physical description of the book is paramount and editions, variations in size, illustrations and bindings are all described according to a standard format. Many of course fall somewhere in between.

Antarctica is unusual in being one of only two continents (the other being Australia) for which there has been an attempt to bring all the literature together in a single bibliography, whatever language it was published in and wherever it was published. In part this has been simpler than elsewhere in the world as the bulk of the literature has been published in the last fifty years, much of it is scientific and therefore easily traceable and the total of publications each year is quantitatively small. The continuing use of the back literature by an international scientific community has also justified the considerable expenditure necessary to provide this synthesis and keep it up to date. With specialist libraries dedicated to research in the polar regions there has also been a network of interested librarians who have co-operated in various ways. There have been brief articles before comparing some Antarctic bibliographies (eg Walton 2007) but no detailed account of the principal bibliographies in a single paper.

In this paper I intend to look at the principal bibliographies/catalogues and comment on their contents, their users and their value. Even in a regionally limited field like the Antarctic there are a very large number of specialist listings and I will simply examine a sample of these to illustrate their importance. Finally, I will comment on how I see the bibliography as a tool in the immediate future.

Types of users

Librarians from polar libraries will be familiar with the wide range of users who express an interest in the polar literature. For present purposes they can be broken down into those whose primary interest is in the content of the entries and those (principally bibliophiles) who are at least equally interested in the object itself (the book). The collecting of polar literature as a section of travel or adventure literature has been established for over a century and the inclusion of polar narratives in a variety of non-polar bibliographies is well established.

Earliest Bibliographies

There are a few early bibliographies from the 19th century incorporating Antarctic literature. The earliest is Chavanne et al (1878). At the request of Clements Markham Mill (1901) compiled an Antarctic bibliography, including books and journal articles, based mainly on the Royal Geographical Society Library with some additions from Chavanne et al(1878) and other European geographical listings. His listing of 878 references is organised alphabetically by year and has an index to authors and explorers and, whilst of historical interest, has no practical value these days.

Enumerative bibliographies

[ROSCOE,J.] ANTARCTIC BIBLIOGRAPHY

Washington DC : US Naval Photographic Interpretation Center, Department of the Navy. 1951.
147 pp. NAVAER 10-35-591 (Reprinted by Greenwood Press in 1968.)

Although John Roscoe's name is not on the cover or in the prelims he prepared this bibliography. He became interested in Antarctica as the expedition photogrammetrist on Operation Highjump and whilst working on his PhD thesis on photographic interpretation in the late 1940s. The bibliography of over 5500 references was originally compiled on 3x5 cards. Roscoe worked in a security controlled area of Naval Intelligence and when increasing numbers of people wanted access to the cards, threatening security, he was able to persuade the Navy that it should be published. The approval did not allow Roscoe time to tidy up the material or even revise the order and, although the original draft had his name on the cover, it was moved successively inwards until, on the pretext of security, it was removed altogether just before publication! He had the forethought however to insert a citation to it under his own name in the Bibliography section under 28.25!

Roscoe organised the bibliography in several major divisions - biological sciences, geophysical sciences,geographical sciences, geographical exploration and a miscellaneous section at the end. Every reference has a numeric code and within divisions the references are arranged chronologically. The largest division is the one on geographical exploration in which the references are organised by 132 expeditions from 1738 to 1949. The final division includes sections on bibliographies, biography, sovereignty, economy, whaling, photography and a listing of polar societies and periodicals. Each entry is extremely brief with no abstract or indication of contents, journal titles are abbreviated, little information is given on books other than year and place of publication, but there is a whole section devoted to maps and charts. The listings are strong in non-English material and there are some errors in it where he had copied material from earlier publications without checking the original. However, it is a good source for many of the lesser items associated with individual expeditions, especially those in languages other than English.

ANTARCTIC BIBLIOGRAPHY

Washington DC: Library of Congress. 1951-1995. 23 volumes.
On-line at http://www.coldregions.org/antinfo.htm

This is the major bibliography for the continent and has been funded from its inception by a grant from the National Science Foundation (NSF). Having decided that the Roscoe bibliography provided an adequate coverage up to 1951 NSF offered the provision of Antarctic bibliographic services to tender in 1962 and selected the Library of Congress (LoC)in 1963 as the provider (Guthridge 1992). Initially headed by George Doumani, then by Geza Thuronyi, LoC established a Cold Regions Bibliography Section in the Science and Technology Division and it was there, in discussions with Office of Antarctic Programs, that the principal features of the bibliography were decided. First it was to be inclusive of all languages, a full standard LoC citation was to be provided as well as an abstract in English, references were to be divided into 13 categories, and there was to be an annual published volume with initially four indices – author, subject, geographic and grantee. Maps, news material, education material, meeting abstracts, fiction and much gray material were excluded (Tahirkheli 2004). Every reference was given a unique number beginning with the category letter and then sequential in terms of time of receipt by LoC. One special feature of this contract was that LoC had to provide NSF with multiple microfiche copies of all the literature cited and these were sent to the libraries on the American Antarctic stations. Interestingly, the legality of copying so much copyright material without the permission of authors and publishers was never challenged. The first volume was published in 1965 dealing with literature since 1962. To bridge the gap back to Roscoe LoC worked with SPRI to cover literature from the period 1951-1961 in a single volume that was published in 1970 but many of those citations are without abstracts.

Publication of the bibliography as hard copy continued for years. The original production methods were automated in 1969 using the LoC mainframe computer and this was again upgraded in the early 1990s with new software and work stations (Hibben 1992). It was clear by early 1970 that users were not happy having to wait for the cumulative volume and LoC therefore introduced a monthly Current Antarctic Literature mailed to libraries and users around the world. This continued until mid-1998 when LoC ended their part in the project. In 1980 LoC provided on-line access to the database COLD via SDC in California (Thuronyi 1980) The project was again put out to tender and this time the American Geological Institute (AGI)was successful (Tahirkheli 2002). There were problems in transferring the original records from the LoC STAR format to the GeoRef format, analyses showed that the controlled vocabulary had changed several times at the LoC and it took some years for AGI to catch up with the two year period of the transfer. NSF had also decided that it needed to recover some of the costs of the service and so it was distributed via a subscription CD-ROM produced by NISC and a web-based service now run by EBSCO. A formal arrangement with SPRI also allowed external cataloguing of material for incorporation.

At present the Antarctic Bibliography contains 87,871 references (May 2010) and material is added continuously when received. AGI has thus added almost 27,000 references in ten years to what is undoubtedly the most important bibliographic resource for the Antarctic researcher. However, despite the extent of the material the lack of particular fields means that certain types of search cannot be carried out on the LoC data. For example there are no address fields in the LoC records so you cannot search by country or institution. For some classes like fiction or poetry there are virtually no entries although there are selected entries for academic papers on prose or poetry. The same applies to art with a small number of citations to exhibitions or particular artists.

LIBRARY CATALOGUE OF THE SCOTT POLAR RESEARCH INSTITUTE

Boston: G.K.Hall 1976. 19 volumes. Royal quarto.
Supplement of 5 further volumes published in 1981.
On-line at www.spri.cam.ac.uk/resources/sprilib/antarctica/

The Scott Polar Research institute was founded in 1920 as a memorial to Captain Scott and his four companions who perished on their return journey from the South Pole in 1912. The Institute moved into the present building in 1934. The SPRI library began with donations and these have been a major source of new material throughout its life (for example the 500+ volumes from the library of HR Mill (Wordie 1946)). The catalogue began as a card listing of the collection and it was not until 1955 that SPRI could afford a professional librarian to properly catalogue and arrange the collections. That person was Harry King. It was SPRI that found the normal UDC classification system inadequate to deal with the detail in a specialist library and therefore devised the extended UDC polar listing now used by many other libraries.

In 1976 the entire card catalogue of around 303,000 cards was published in 19 large format volumes as card images, organised in three series – alphabetically by author, by subject and numerically by UDC class for region. The cards provide a UDC listing (which locates it within the SPRI library), a brief description of page extent, if illustrated and actual size as well as a short comment on content. For foreign language references there is no English translation of the title. This is both a catalogue and a bibliography as the SPRI library is the largest polar library in the world and aims as far as possible for completeness.
Since the print publication the library has transferred to a digital catalogue - SPRILIB Antarctica database is now on-line at
www.spri.cam.ac.uk/resources/sprilib/antarctica/
with over 120,000 records searchable. The records now contain video and CD-ROM material as well, which is often missing from other bibliographies. With over 43,000 references it is a major bibliographic tool covering publications from 1602 to the

present. However, material is not automatically entered as soon as received and whilst the in-house catalogue is normally only a few months behind publication the public data site can be several years. Checked on 8 June 2010 SPRILIB contained only 1 document from 2009, 13 documents for 2008 yet 378 from 2007. It is clear that this is useless as a source of recent literature.

[LEANE,E & PFENNIGWERTH,S.] REPRESENTATIONS OF ANTARCTICA

on-line bibliography at
www.utas.edu.au/english/Representations_of_Antarctica/home.htm

Compiled by Elizabeth Leane and Stephanie Pfennigwerth at University of Tasmania, the primary aim of this listing is as a research resource for the humanities guiding scholars interested in representations of Antarctica, (especially literary representations) to texts written in English or translated into English. These texts have been largely ignored by the major bibliographies and catalogues. The bibliography has seven themes – adult fiction, juvenile fiction, poetry, short stories, drama, film & television programmes, literary and cultural criticism. Some of the items have annotations explaining the details of when a play was first performed, where a poem has been reprinted or a story adapted for the radio. All themes are arranged alphabetically by author with no abstracts and minimal bibliographic description. There is no general search facility.

CORDES,F.L. "Tekeli-li" or Hollow Earth Lives: A Bibliography of Antarctic Fiction

on-line bibliography at www.antarctic-circle.org/fauno.htm#An%20Annotated%20Bibliography%20of%20Antarctic%20Fiction

Compiled by Fuano Lancaster Cordes as part of her thesis for San Francisco State University in 1991 this listing is based on only on books and articles she had read. It includes the subantarctic islands but excludes “historical novels,autobiographical poetry and children’s penguin stories”. Every entry is briefly annotated and it has an index of place names. The book descriptions are minimal.

Analytical bibliographies

DENUCÉ,J. BIBLIOGRAPHIE ANTARCTIQUE

Academie Royale, Bruxelles. 1913. 271pp.

This early work has 3225 numbered but unannotated references arranged chronologically in each of 28 subject classes but with an author index at the end. There is no declared time period covered but the earliest reference is a map of 1597 and there are many references from 1913. The listings mix books, articles and maps/charts altogether, sometimes with incomplete citations. There are specific headings for most of the major expeditions but the citations there are only the historical accounts with all the science published being split across the various science sections. This was an important document when first produced and much more comprehensive in terms of European publications than anything produced to that date in the UK. The author had previously produced a list of polar expeditions to 1800 and clearly saw the bibliography as a complement to the earlier publication and as something useful to the Commission Polaire Internationale. It was based primarily on the library of the polar institute in Brussels supplemented with extra material that Denuce was able to obtain. There are no illustrations in the bibliography.

SPENCE, S.A. ANTARCTIC MISCELLANY: BOOKS, PERIODICALS AND MAPS RELATING TO THE DISCOVERY AND EXPLORATION OF ANTARCTICA

S.A.Spence. 1st ed 1966. 82 pp. Card covers. 130 copies of which 100 were for sale**.**
Simper, London. 2nd ed 1978. 220pp. Cloth bound. 1000 copies.

Sydney Spence self-published the first edition of his bibliography in 1966 but in very small numbers. Printed on toned paper, with card covers, appallingly laid out with truly dreadful annotations it is neither easy to use nor very helpful. He clearly had no understanding of what constituted a bibliography. The second edition was considerably larger, much better laid out with a great deal more material added by the publishers, and produced in a hardback edition. The 3072 numbered entries are a curious collection with the bulk of them (1295) being books, including listings of foreign language titles and of some translations of important works, arranged alphabetically by author. He provides a paper size, page length, comment on illustrations, publisher, place and date. There are occasional notes which are generally of little use. The second section labelled “Newspapers and Periodicals” are 490 fairly random items, almost all in English and arranged alphabetically by author, on exploration, science and history. There are no abstracts or even notes on content. The journal references use standard abbreviations. The final section of 72 map entries is even worse with maps described in a variety of different ways in a chronological sequence. Overall this is a dreadful bibliography with errors in some of the details, no clear rationale for what is included and what excluded (for example why are only some Antarctic whaling titles included), no notes to show how books

with different titles from different publishers have the same contents, citation of later editions with no indication of when a title was originally published etc. There are a range of illustrations of title pages of major works throughout the volume. The lack of an author index is not really a problem as there are only three sections to consult to find any specific author.

CONRAD, L.J. BIBLIOGRAPHY OF ANTARCTIC EXPLORATION: EXPEDITION ACCOUNTS FROM 1768 TO 1960

Conrad, Washougal, Washington. 1999. 424pp.

Another very partial bibliography, again compiled by a person with no bibliographic training although this time with personal experience of working at McMurdo Sound. The purpose of the volume is to provide material on the 68 Antarctic expeditions (Cook 1768-71 through to TAE 1956-57) he thought were most important, with lengthy descriptions of each and bibliographies of various lengths which incorporate personal comments from Conrad. The bibliographies are mixtures of books, articles, reviews etc chosen as interesting by him! He often omits citing the original language edition if a narrative has been translated into English but does provide indexes to authors and expedition leaders. An unsatisfactory volume in so many ways!

ROSOVE,M. H. ANTARCTICA 1772-1922: FREESTANDING PUBLICATIONS THROUGH 1999

Santa Monica: Adelie Books. 2001. 537 pp. 500 numbered copies.

ROSOVE, M. H. ADDITIONS AND CORRECTIONS TO THE ROSOVE ANTARCTIC BIBLIOGRAPHY

Santa Monica: Adelie Books. 2008. 49pp. 300? Numbered copies.

The most authoritative guide yet to the classic Antarctic exploration literature and unlikely to be superseded. Interestingly, this detailed bibliography was not constructed by a professional bibliographer but by a medical doctor with an interest in Antarctica who followed best practice with great care. Its strength lies in his extensive use of existing catalogues and booksellers lists to compile the original list of titles which were then each checked in several libraries around the world. This allows him to list all know printings and editions as well as describing in bibliographic detail the exact makeup of each version of a title. The primary accounts are listed in the original language of publication. He provides locations where every title can be consulted and for all principal titles provides description of contents etc. There are 720 entries – 365 primary and 355 secondary (less detailed secondary sources including biographies, later accounts of specific expeditions etc) which are gathered at the end of the volume. The book itself is a fine example of production and binding with great care

having been taken both in the page layout and the physical makeup. The additions volume is bound exactly like the primary volume and contains a wealth of corrections and additions sent to him by collectors and booksellers around the world. Whilst this provides the best guide to the major books of this period for the journal and news articles Roscoe is still needed.

MACKENZIE, J. & KOSSOW, R. THE TAURUS COLLECTION

London: Travellers' Bookshop. 2001. 197pp. 500 copies.

This is a profusely illustrated bibliography of what are described as 150 key Antarctic volumes, all in one private collection and all in exceptional and complete condition. In most cases the colour illustrations show details of rare dust jackets or original decorated boards. Every entry has a complete bibliographical description and notes on the rarity and condition of the book as well as on the author and expedition. This is very much a bibliography for the collector although few collectors will ever be able to aspire to own such remarkable copies.

PIMENTEL, J. BIBLIOGRAPHIE ANTARCTIQUE EN LANGUE FRANÇAISE

Paris: Éditions Paulsen. 2009. 285pp. 200 numbered copies.

Spanning the period 1772 to 1959 this is the most extensive bibliography so far of Antarctic publications in French. As well as those published in France it also lists those published in Belgium. Its limits are clearly described geographically as being only the Antarctic continent (ie no subantarctic islands included) and temporally from James Cook in 1772 to the signing of the Antarctic Treaty in 1959. Exceptions to this are made for the listings for Paul-Emile Victor and for the fiction material which extends up to 2008.

It has five major parts dealing with bibliographies, general polar history, expeditions arranged chronologically, philately, and fiction. The author provides a list of acronyms at the start as well as explanations for all the bibliographical terms used. Every entry has a reasonably detailed bibliographic description which includes the actual size of the paper as well as a simple breakdown of the number and type of illustrations, and a subjective assessment of the rarity of the title. Almost all entries have a descriptive note. There is an author index and an index of ships at the end. Whilst the intention is to provide a guide to the French literature a limited listing of contributions in English and German is included where these were part of the scientific results of a French expedition or they count as key bibliographies. Illustrated throughout with small pictures of title pages of important volumes it also has an 8-page colour section illustrating the covers of eight classic volumes, both non-fiction and fiction.

Specialised polar bibliographies

HAYTON, R.D. NATIONAL INTERESTS IN ANTARCTICA: AN ANNOTATED BIBLIOGRAPHY.

Washington DC: U.S.Government Printing Office. 1959. 137pp.

Hayton was an Assistant professor of Political Science at Hunter College and was contracted by the US Antarctic Projects Officer at NSF to produce this bibliography, whose publication occurred shortly before the meeting in Washington DC to agree and sign the Antarctic Treaty. The bibliography is organised by country (27) plus the UN and Other International sections. Each section is subdivided into Official Publications, Books and Pamphlets, Signed Articles and Miscellaneous. It focuses on material concerned with intergovernmental problems and list 1168 entries mainly published in English. What is interesting and unusual are the parts listing newspapers (eg New York Times, magazines (Life, Newsweek, Time) and those listing original legal documents. Not all the entries are annotated but many of those on legal or political issues have very extensive comments. There is an index.

F. ORREGO VICUNA. ANTARCTIC BIBLIOGRAPHY WITH PARTICULAR REFERENCE TO THE LEGAL AND POLITICAL ISSUES OF CO-OPERATION AND THE REGIME ON MINERAL RESOURCES.

Santiago: University of Chile. 1987. 155pp.

Compiled whilst the author was working on his PhD this focuses on politics and governance including the Antarctic treaty, UN and European papers, government and parliamentary documents, books and these, articles, statutes and laws. It is, as expected, especially strong on South American material. There are no annotations and the citations are not especially adequate often lacking the place of publication and omitting the publisher.

BLOCK, W. AN ANNOTATED BIBLIOGRAPHY OF ANTARCTIC INVERTEBRATES (TERRESTRIAL AND FRESHWATER)

Cambridge: British Antarctic Survey. 1992. 263pp.

Some researchers collect bibliographic data throughout their research careers. This volume is the culmination of Bill Block’s research on Antarctic invertebrates over a period of twenty years. The bibliography contains 1430 numbered items of which 1321 are alphabetical in the main volume, Appendix 1 contains a further 100 late entries, Appendix 2 contains four unpublished items that are available in BAS library and Appendix 3 specifically lists those items Block did not personally examine. For each entry there is a full citation normally followed by taxonomic information and then ecological or systematic notes. There are several indices covering taxonomy, species, author and subject. The advantage of this type of bibliography is that many

of these items cannot be identified as possessing data on invertebrates from their titles so that normal searching will not find them.

WILLIAMS,A.J., COOPER,J., NEWTON,I.P., HILLIPS,C.M. & WATKINS,B.P.
PENGUINS OF THE WORLD: A BIBLIOGRAPHY

Cambridge: British Antarctic Survey, 1985. 255pp.

Contains almost 2000 references from books, journals and theses and although it excludes early anecdotal references, book reviews and some early taxonomic papers it is considered largely complete up to 1984. It covers all sixteen species with numbered citations arranged alphabetically. Journal titles are abbreviated, there is minimal information describing books and theses (both Masters and Doctoral) and although there are no abstracts each references has a code listing both the species that it covers and the subject areas (from a 17 class listing in the prelims). Only titles in Russian are translated. There are both species and subject indexes. Again the value here is that all of the references have been physically checked and the coding provides access to a much wider literature than titles alone would suggest.

Discussion

The value of any bibliography or catalogue can only be determined by the user. In specialist fields there are often well known guides to key literature, originally published as books or papers but now likely to be found as web databases. The Antarctic is lucky that it has a range of very valuable and extensive bibliographies already available to supplement to the more specialised ones.

The intention to cover Antarctic material in all languages and the provision of long-term funding undoubtedly makes the Antarctic Bibliography the premier source for any initial searches, not least because the reader can then order and purchase copies of the documents found. For scientific research its value is paramount, especially as it has abstracts for much of the material. Its limitations lie in its lack of sophistication compared to the major science bibliography “Web of Science” and that it only begins in 1951, which is a serious drawback for some areas of science. Whilst the listings in Web of Science are not bibliographically any more complete the ability to search immediately for other papers by an author or for papers which cite the one that you are interested in are of particular relevance. In addition new material is listed on the site very rapidly after publication. Its primary problem is that its principal coverage is post 1985, unlike the Antarctic Bibliography, and it covers only a chosen set of primary journals almost all in English.

For those interested in exploration or history the Antarctic Bibliography has only the post 1951 accounts, and the reader must search either SPRI catalogue, Roscoe or Rosove, recognising that the last covers only books. Conrad does provide a useful overview of each expedition to link to the publications but again the listing is very incomplete. In the light of what else is available Spence cannot really be

recommended for anything as the material in it is treated more comprehensively and in a more organised fashion in other bibliographies. If SPRILIB were more actively updated its value, especially for more obscure publications including grey literature, would increase significantly.

The two bibliographies on fiction and non-scientific literature show the increasing growth in these areas which, although present in SPRILIB is specifically excluded from the Antarctic Bibliography. The fact that these are web-based only suggests that they will be easier to keep current and likely to be of increasing value.

It has been suggested that the future of specialist bibliographies as such must be in doubt for at least two reasons. Firstly, the modern Antarctic scientist is much less likely to consult a specialist bibliography than he would have been 20 years ago. In part this is because of the ability to search for material directly on the web (using for example Google Scholar) and familiarity with the more generic sources of data such as Web of Science or PubMed. Secondly, it is also because modern young scientists are often unwilling to go back more than a decade in consulting the literature, negating the value of bibliographies in showing the full extent of earlier work. As an editor I can attest to the fact that their papers often show a woeful ignorance of what has already been discovered! However, the examples of subject specific bibliographies chosen here shows that their value for the specialist researcher and librarian is very considerable as they provide access to many elements - like book chapters and theses - which are not easy to trace by other means. The annotations provided by experts in the fields can also help greatly in focussing on just that published material which is most relevant. I believe that a more extensive knowledge of what is available in this format would be very helpful for libraries. In this respect it is interesting that the Australian Antarctic Data Centre currently maintain a web listing of specialist Antarctic subject bibliographies (http://data.aad.gov.au/aadc/bib/) and if they can expand this to cover a wider range of topics it could prove a useful start for any librarian searching for specialist Antarctic information.

A growth field in recent years has been bibliometrics, not least because funders have wanted to compare the outputs of various groups whilst governments have been interested in the way in which particular papers affect research directions. In addition, with publications now being the primary metric for researcher promotion and increasingly in some countries like the UK for classification and grading of university research departments (with all that means for funding allocations) those databases that allow bibliometric analyses have assumed an even greater importance. Web of Knowledge does just that and is widely used for citation assessment, h factor analyses etc. The lack of appropriate record structures in, for example the SPRI database or of appropriate fields (like address, or full authorship) in all but the most recent entries to the Antarctic Bibliography, currently preclude all the major polar databases from any simple bibliometric analyses.

References

Chavanne J, Karpf A & Le Monnier F (1878) Die Literatur über die Polar-Regionen der erde. The Literature of the Polar Regions of the Earth. Vienna.

Guthridge GG (1992) NSF's role in polar information. In LB Lay & LT Everett eds International sharing of polar information resources. Proceedings of the 14th Polar Libraries Colloquy. Columbus: Byrd Polar Research Centre. Pp243-249.

Hibben S (1992) Modernization of the Antarctic Bibliography production. In LB Lay & LT Everett eds International sharing of polar information resources. Proceedings of the 14th Polar Libraries Colloquy. Columbus: Byrd Polar Research Centre. Pp 81-87.

Mill HR (1901) A bibliography of Antarctic exploration and research. In The Antarctic Manual for the use of the Expedition of 1901. London: Royal Geographical Society.Pp 515-586.

Tahirkheli S (2002) The evolution of the Cold Regions Bibliography Project through migration and co-operation. In K Caning & VS Jakobsen eds Poles apart-poles on-line. Proceedings of the 19th Polar Libraries Colloquy. Copenhagen: Danish Polar Center. Pp 62-67.

Tahirkheli S (2004) Distribution of source materials for the *Antarctic Bibliography* and the *Bibliography on Cold Regions and* Technology. In BE Kelcey ed Polar Research: Let us Share – Amiqqaaluta. Proceedings of the 20th Polar Libraries Colloquy. Ottawa: Indian and Northern Affairs. Pp 160-164.

Thuronyi G (1980) Antarctic Bibliography available on-line. Antarctic Journal of the US, 15(5), 223.

Walton DWH (2007) Antarctic accounts and bibliographic materials. In B Riffenburgh *ed* Encyclopedia of the Antarctic. New York: Routledge Taylor & Francis. Pp 40-41.

Wordie JM (1946) Dr H R Mill's Antarctic Library. Polar Record 4 (31), 324-325.

THE BREITFUSS POLAR ARCHIVE AT SPRI: ITS ACQUISITION AND INTEGRATION INTO THE SPRI COLLECTION

Isabella Warren
Scott Polar Research Institute
Cambridge CB2 1ER
Isabella.warren@spri.cam.ac.uk

In 1951 Scott Polar Research Institute purchased from Professor Leonid Breitfuss his unique Polar Library (Polar Archiv). This important acquisition filled many gaps in SPRI's Russian and German publications.

In this paper I outline the background to SPRI's acquisition of the Breitfuss collection, its scope and historical importance. I describe its integration into the existing library collection and how duplicates were dealt with. I discuss how, with hindsight, disposal of duplicates now appears regrettable.

I also consider problems of conservation of some of its more fragile items and the recording of provenance and inscriptions.

A DIGITIZING PROJECT: SCANNING THE NORWEGIAN POLAR INSTITUTE'S PRINTED PUBLICATIONS

Fred Inge Presteng
Norwegian Polar Institute
Tromsø, Norway

ABSTRACT

In 2008, the Norwegian Polar Institute established an institutional repository because we had no existing system to organize our digital publications, which were increasing in number. One of the objectives of the repository was to make all of the Institute's publications available online. Only a few of the most recent publications were digitally produced, so the vast majority of documents produced in the Institute's nearly 100 year long history had to be digitized. We decided to outsource this project, and located a small company that offered a very good price and appeared capable of doing the job. The company's references from earlier jobs were satisfactory. As the project started and test scans were produced, everything seemed straight forward; however, problems and challenges soon occurred. As both parties, especially the librarian, learned more about the process,, we realized that most of the problems could have easily been avoided. The problems were based on misunderstandings and a lack of knowledge of technical issues. The purpose of this paper is to share our little story with other librarians, and maybe help them avoid some of the frustrations we experienced. Even if your institution is outsourcing a digitizing project, the most important thing is to have the same basic understanding of technical issues as the company doing the job.

INTRODUCTION

In the fall of 2008, the Norwegian Polar Institute established our institutional repository called Brage. We had no existing system to organize our digital publications, which were increasing in number. Brage is hosted by the Norwegian library system Bibsys, and the files are stored on their very safe server. One of the objectives of the repository was to make all of the Institute's publications available online. Only a few of the latest publications were digitally produced, so the vast majority of documents produced in the Institute's nearly 100 year long history had to be digitized. After using Brage for a year, it had become a very useful tool for us and we decided that digitizing all older publications would be worth the effort. Several long sold out publications are still in demand, and being able to supply a digital version would be a great service. We also thought of it as a realistic job with a relatively limited number of publications.

The Norwegian Polar Institute has been publishing scientific reports since 1922. The main series from the beginning and until it was terminated in 1999 was the series *Skrifter;* 201 issues of this series were published, about 17,000 pages in total. Only the final issue, which was delayed for several years, was published digitally. From 1926 -2000,160 issues of *Meddelelser* were published, a total of 10,000 pages. The early *Meddelelser* were often just reprints from other journals, but over the years it evolved to be more similar to *Skrifter.* In 1979, the *Report* series appeared. Many of the early *Reports* had an unpolished layout and the series was used mainly for publishing cruise reports and research data. *Reports* evolved and got more streamlined, and since 1999, has taken over as the main publishing channel for the Institute since both *Skrifter* and *Meddelelser* had ceased. The first 120 issues of the *Report* series were published before the digital era, in total about 11,000 pages. The number of issues from these three titles totals 480 items needing digitization. So far, 14 issues of *Skrifter,* 34 issues of *Meddelelser,* and 36 issues of *Reports* are finished. With 84 of the 480 issues completed, we are still in an early stage of this digitizing project.

THE PROCESS

Early on we decided not to do the digitizing ourselves, in part because we had no free capacity, proper equipment, or real technical knowledge. We got in touch with a small company that offered to do the job for a very good price. The fact that it is a low budget project made it possible to start up fast, but also caused some challenges.

Because we decided to outsource the scanning, I did not think it would be necessary to have deep knowledge of the technical issues involved. We have all seen our share of badly performed scanning. Even big publishers have had their back catalogues digitized with mixed results; poor quality and huge files are not that unusual. When Blackwell took over the publishing of the Institute's journal *Polar Research* a few years ago, all older issues were digitized. The result is acceptable, but leaves a few things lacking for what should have been an easy project with standardized journal articles.

The National Library in Norway has a massive and somewhat controversial digitizing project going that seems to be focusing more on quantity than quality. As an example, I downloaded Fridtjof Nansen's book *Paa ski over Grønland* from 1890. This is quite a thick book with 700 pages, but the PDF they have produced is an amazing 231 megabytes. With a file of that size, it is not unreasonable to expect the best quality.

With examples like that in mind we knew what we wanted from our project. With limited resources and knowledge we managed to produce a result that, in my humble opinion, has turned out quite well. It appears to be a waste of time and resources to digitize in an inferior way.

CHALLENGES

This is not going to be a very technical paper that describes in detail how to scan a document, but more some thoughts and hard learned experiences of what to think about in the initial phase of a scanning project. The most typical errors that occurred were:

- Grey characters. On the same page, some of the characters could be grey or blurry while the rest of the text was fine. We suspect that the OCR process is mostly to blame for this.
- Random missing characters have also been observed, especially in tables. The reason for this is uncertain, but again the OCR process is the main suspect. It is easy to fix with a new scan of the page.
- Many tables, figures, and complex maps have incredibly small characters and numbers. The result can be unreadable text and place names on maps. Scanning in higher resolution combined with adjusting the contrast seems to solve most of these problems.

All the above problems are also related to the fact that the scanning is done semi-automatically, i.e., the spines of the publications are cut away and the single sheets are fed into the scanner.

Quality checks have proven to be very time consuming and an extensive quality control has been necessary. Every publication is thoroughly checked for any kind of error that can occur, most commonly areas with weak or blurry text. Because of the extensive proof reading and re-scanning required, the progress of the project has been a lot slower than anticipated.

In the initial stage of the project we ran into challenges of a slightly different nature. The company we chose for the job is situated in Oslo, 1700 kilometers to the south of Tromsø where the Norwegian Polar Institute is located, so all communication had to be based on emails and telephone. This is quite a normal situation, but in our case this fact caused some problems. It is fair to say that we had our share of discussions with emails and files sent back and forth before we settled on a quality product that was satisfactory to both parties. We also realized at last the reason behind some of the strange problems we were seeing.

The test scans were sent as e-mail attachments, from a server that allowed me to download the files, or as documents to open in a web browser. I did all three:. opened some, downloaded some, and received some as attachments. It took me quite some time to realize that this wasn’t such a great idea. The scanning company and I had a few very strange conversations, seen in the light of history. The problem was that we did not see the same thing on our respective screens, so when I made a comment on some issue, it was impossible for the company to understand what I was talking about.

One example: We had an issue with periodically disappearing words. When I opened a report from the server, words were missing, often when scrolling. After some of the

previously mentioned strange conversations, it turned out to be a very slow server that caused the problems. When I downloaded the files and stored them locally, the problem was solved. The fact that it was necessary to download and save the files locally was too obvious for them to even consider telling me. But for a librarian like me who normally opens PDFs with a click on a web page, I had no idea that different browsers would show the files in different ways.

Before starting to check test files, the customer should always set up a designated computer that has been calibrated and installed with the same software version as the company doing the scanning. It is important to remember to download and save all test files locally, otherwise you risk not seeing the same thing at both ends of the line, and the resulting conversations start to get interesting. Be aware of the fact that an average librarian and a computer technician with special interest in scanning do not necessarily share the same language or have the same perception of reality. It is a good idea to learn a little about basic scanning and digitizing and maybe ask the people doing the scanning to give you a crash course very early in the project.

1. SELECTION OF MATERIALS

It sounds very straight forward to point out the best test sample of a given lot. But what to look for and give highest priority to, when you are evaluating quality? It can be easy to get lost in all the alternatives. What to compare ? The best one from a group of samples can still be a long way from optimal. One suggestion: look for samples that are good from an objective standpoint. Use these as benchmarks, or something to compare one to one instead of comparing a lot of different samples with each other. You will need benchmarks for different types of pages: text only, text and figures, text and pictures, text and maps, color pages, and so on.

Tell the scanning company to be restrictive when sending samples and only send you a selection of the best ones. At times I was drowning in alternatives, and it was almost impossible to know which one to choose.

2. FILE SIZE

The next important matter to agree on was file size and resolution. What is the perfect compromise between size and quality? The technical person who was doing the scanning had different priorities than I did; he was not very concerned with the file size, but wanted to make a good technical product. Some of the first samples would have created massive files. We had more than one round on this issue, and we ended up with scanning everything with 300 dpi. This has proven to give an all over good result. Some difficult figures and maps have been necessary to scan with 600 dpi, but these have been exceptions. I later understood that, in addition to the dpi setting, it is possible to set the scanner in high or low mode which gets the file size down to a very acceptable level.

Most files can be compressed after scanning without a noticeable loss of quality. There are apparently different ways of compressing a file, but the standard optimizing option in Adobe Acrobat gives a good result. But can everything be compressed? Can everything be compressed without noticeable loss of quality? I still do not have

the answer to that question, but it seems like pictures and figures compress more than text. A compressing process like the Acrobat optimizing feature often has little effect on a large report with text only.

3. OCR

Optical Character Recognition makes the whole text searchable. This process very much affects the finished file, both in size and appearance. There is more than one program that can do the job, and each has numerous settings. I think we used almost the same amount of time to get the OCR correct as finding the best settings on the scanner in the first place. The files that looked the best before OCR treatment were not necessarily the best after OCR, and vice versa. We ended up using a program called Clearscan. This program made larger files than the other program tested, Exact, but was so much better that it was a good compromise.

4. HARD COPIES

Obviously, it is important that the digitized documents produce high quality printouts. Printing the results did not create too much trouble, except for the fact that different printers can produce a different result from the same file. We used four different printers, two black and white and two color printers, to make sure the quality was acceptable.

In the early phase of the project we wasted quite some time printing out too many samples. There is no point in making a lot of printouts before you have found a setting that makes the documents look decent on the screen. It seems that all samples that look good on screen also creates a good print result.

SUMMARY

This project has been quite successful so far, in spite of a few challenges along the way. Quality checks have proven to be quite time consuming and have delayed the project somewhat. It still is a work in progress and new problems do occur. Despite this, it appears that most problems are under control, and it is anticipated that the project will run more smoothly in the future. We are very satisfied with the end result, i.e., the digitized publications, so the effort has been worth all of the difficulties.

COOL TOPIC DISCUSSION REPORT: THE MELTING AND DISAPPEARANCE OF CIRCUMPOLAR BORN DIGITAL GREY LITERATURE

All PLC 2010 attendees contributed to this discussion

The collection of grey literature has always been of concern to librarians who manage circumpolar collections, as is clearly demonstrated by Daria Carle in her research into historical grey literature collections (Carle, 2010). Polar Librarians excel at collecting and indexing the broad interdisciplinary range of literature that is relevant to research and study on all aspects of the Circumpolar world. Grey literature in hard-copy formats can be found in the library collections we manage, and is described in the major indices of the discipline. However, grey literature that is hosted on the websites of international organizations, think tanks, non-governmental organizations, and government agencies is in danger of disappearing without a plan for its long-term preservation and stewardship.

I define born-digital grey literature as any publication that is not published through traditional means, and that has no institution taking responsibility for its long-term existence, including:

- government publications of Circumpolar countries and regions, particularly “fugitive” documents that are missed by government depository programs; and
- publications of aboriginal organizations such as the Inuit Circumpolar Council, international organizations such as the Arctic Council, research groups such as the International Arctic Science Committee, and research collaboration projects such as IPY.

I proposed this discussion session for the 2010 Colloquy so that the participants would have an opportunity to discuss issues around the stewardship of circumpolar grey literature, government information, and data that is disseminated solely online. I wanted us to find out approaches that institutions are already taking to successfully identify, capture, e-archive, and disseminate circumpolar grey literature, and to investigate possibilities for international collaboration.

Canada lags on e-archiving at the federal and provincial levels. However, Library & Archives Canada, along with some federal, provincial, and territorial agencies do include the preservation of government publications in their workloads. The Canadian national Inuit organization, Inuit Tapiriit Kanatami, has just launched the Inuit Knowledge Centre. Their plans include the creation of a digital library that will include

preservation infrastructure for born digital publications. They are in the planning process, and are interested in the possibility of partnering with Canadian research libraries in their efforts.

During “Cool Topic” discussion, I hoped to find out similar information regarding e-archiving efforts in the countries and regions represented by my colleagues.

At the University of Alberta Libraries, our practice is similar to that of many libraries. We catalogue online publications and we try to use persistent urls, but these are not always available. Documents from indigenous organisations, think tanks, research institutes, and government agencies are disappearing. My colleagues in our library IT department are making strides in figuring out the infrastructure, IT and staff support, workflow, and ongoing maintenance issues that are required to capture and archive born digital publications. I am working with them to include Circumpolar grey literature in our new digital preservation plans.

One of the tools that the U of Alberta Libraries is using in its early born digital preservation efforts is called Archive It! This software is created and licensed by Internet Archive and is used to preserve websites in the Wayback Machine. Prior to our discussion session, I demonstrated how Archive It! can be used to capture documents that are hosted on website, and even preserve a snapshot-in-time of the entire website. I wanted to give a concrete example to explain what I meant by “capturing” born-digital publications that are hosted on websites of NGOs, think tanks, and government agencies. These documents are made accessible in the short term by the agencies that produce them. However, memory organizations such as libraries are going to need to partner with these agencies if many of these publications are to last into the future.

For our discussion, I asked the group of fifty participants to divide into four smaller groups. I asked them to respond to and discuss the several guiding questions, and present their conclusions to the group at large:

1. Are you working on or planning an e-archiving project involving Circumpolar grey literature of any kind? If “yes”… Who are your partners? What is the subject focus? What type of information is included?

2. How should Polar Libraries Colloquy members proceed to collaborate on e-archiving?[1]

Several of the groups recorded activities that are going on at their institutions during the discussion, and four of my colleagues also completed the printed survey on e-archiving projects that I handed out after the discussion. Here is a summary of the comments:

1 Please see the Discussion Questions in Appendix A.

- The Alfred Wegener Institute submits research data to Pangaea (Grobe, Sieger, Diepenbroek, & Schindler, 2011) and is in the progress of working on a polar archive, which could include grey literature in the future.
- The Arctic Centre at Lapland University, the Italian Antarctic Programme, the Norwegian Polar Institute, and the National Institute for Polar Research Japan (Hayakawa, 2010) are all running projects to preserve and provide access to the publications of their own scientists, and journals that they host. National Institute for Polar Research Japan also has a Data Centre that is a separate entity from the library.
- British Antarctic Survey is research directed. Research outputs are published through traditional means, and BAS hosts an open access repository for scientific papers. The physical collection includes a grey literature collection. The BAS Polar Data Centre is part of a network of data centres, and is responsible for data curation (*Polar Data Centre* http://www.antarctica.ac.uk/about_bas/our_organisation/eid/pdc/index.php). They are digitizing sound data on the Antarctic.
- The Cold Regions Bibliography Project at the American Geological Institute is digitizing public domain publications on a local server. This includes mostly agency material and narrative publications, not data or audio files. They partner with the National Science Foundation and receive funding from NSF. Challenges include version control and dynamic documents.
- The Kola Science Centre of the Russian Academy of Sciences provides internal access to data, due to copyright concerns. The budget does not currently allow for the preservation of born digital collections.
- The Norwegian National Library is working towards capturing and storing unpublished materials
- The Scott Polar Research Institute works with Dspace@Cambridge and IPY-DITRL to build and manage the IPY Planning Archive, in order to archive all of the IPY Planning Committee Papers. The physical collection includes a grey literature collection.
- The Library of Congress is formally collecting digital documents
- Ohio State University has a Digital Repository called “Knowledge Bank” for born digital and digitized documents

- Global Change Master Directory (NASA) provides a home for ocean and earth science data
- Links to digital reports, etc.
- No plans

Projects such as these lead the way in our efforts to preserve born digital circumpolar literature.

Research data are more challenging to describe and archive than text-based publications, however, the value of research data has not been overlooked. Existing data portals were mentioned in several instances. I am now on a team funded by the Canadian federal Department of Indian and Northern Affairs, led by the Canadian International Polar Year Program Office, that is working on creating the Canadian IPY Data Centre Archive. Participation in this project has given me the opportunity to learn about the level of support and commitment that is required for data curation. Our aim is that the Canadian IPY Data Network will become a preservation centre for all types of polar research data, and that these data will be able to feed into search tools such as Pangaea.

Though my initial guiding questions were simplistic and led to some confusion about the focus of the discussion, the groups talked about the issues and revealed the complexities involved in proceeding. Some members did not see e-archiving as a role that could or should be provided by their institutions. This was common to institutions from both Europe and North America. Questions and comments included:

- This is the responsibility of National Libraries / What do National Libraries deem preservable?
- Data is managed by my institution’s data centre
- Antarctic science already has a consortial model for data
- Copyright is a big issue
- Why the Polar Libraries Colloquy? PLC has no funding. Collections are harvested and stored at institutions. Solutions tend to be local. Approach will vary by country/locality.
- Could such a project be run as a collaboration with the Cold Regions Bibliography Project?
- The Aquatic Commons provides space for some relevant subject areas, and provides an example solution

- We need to know more about Arctic Portal[2]
- Using a software such as Archive It! is a good idea
- We need a definition of grey literature so that we can focus on what to archive
- We need to know who is already doing what / is duplication an issue?
- An inventory should include digitization and born-digital projects
- It is most important that e-archived documents are *discoverable*
- The European Polar Board is a possible source of funding

Before our discussion, Elaine Maloney, Executive Assistant to the Director Canadian Circumpolar Institute (CCI) and Managing Editor of the CCI Press, presented her take on e-archiving from the point of view of a publisher. Publishers like herself that work in an academic environment can use the infrastructure provided by her library's institutional repository and/or digital library services.

The above question, "Why the Polar Libraries Colloquy?," makes an important point. Digital preservation projects do need to be built on the foundation of an institutional commitment in order to ensure long-term sustainability. One layer of planning for any preservation project will be the issue of access. How will the preserved content be *discovered* by researchers who need to find it? Since we already have excellent search tools like the Cold Regions Bibliography Project and ASTIS, polar librarians are well-placed to make the connection between preservation and indexing projects. In her description of a local e-archiving project, Sharon Tahirkheli described content that is indexed by the Cold Regions Bibliography Project, and that is preserved locally by American Geological Institute.

The discussion brought to light as many questions as it did answers, but it does sound like we are collectively moving in the right direction. While the prospect of international collaboration provides significant challenges, international *communication* on existing projects will help us to keep track of our colleague's efforts, to direct researchers to their collections, and to reduce duplication. By the time PLC meets in Denver, I hope to have some progress to report on my own e-archiving efforts. I look forward to hearing about developments in the creation of a European Arctic Information Centre (*European Arctic Information Centre* http://www.arcticcentre.org/InEnglish/ABOUT_US/EU_Arctic_Information_Centre.iw3), the growth of the Arctic Portal Publication Archive, the progress of the Polar Information

2 The Arctic Portal does have a searchable Publication Archive, and some of the publications are saved on the Arctic Portal server, while others are linked. Authors or institutions can contact info@arcticportal.org to find out about publishing through the Archive. The Arctic Portal Publication Archive is hosted by University of Akureyri, Iceland (*Arctic Portal* http://archive.arcticportal.org/).

Commons (*PIC* http://piccloud.arcs.org.au/piccloud/), and other projects that seek to preserve circumpolar grey literature and research data.

Lindsay Johnston is the Circumpolar Librarian and Public Service Manger at the U of Alberta Cameron Science & Technology Library. She would like to thank her PLC 2010 Colleagues for indulging her attempt at a discussion session, and for their useful contributions and questions.

References

Arctic Portal - Welcome to the Arctic Portal publications. Retrieved 1/31/2011 from http://archive.arcticportal.org/.

Carle, D. O. (2010). Improving access to gray literature in polar libraries. Paper presented at Cool Libraries in a Melting World: Proceedings of the 23rd Polar Libraries Colloquy 2010, June 13-18, 2010, Bremerhaven, Germany. 99. Retrieved from http://hdl.handle.net/10013/epic.36296.

European Arctic Information Centre. Retrieved 1/31/2011 from http://www.arcticcentre.org/InEnglish/ABOUT_US/EU_Arctic_Information_Centre.iw3.

Grobe, H., Sieger, R., Diepenbroek, U., & Schindler, M. (2010). PANGAEA Data Library for the Earth System. Paper presented at Cool Libraries in a Melting World: Proceedings of the 23rd Polar Libraries Colloquy 2010, June 13-18, 2010, Bremerhaven, Germany. 85. Retrieved from http://hdl.handle.net/10013/epic.36296

Hayakawa, Y. (2010). The National Institute of Polar Research, Japan: A brief history and how to access the journals. Paper presented at Cool Libraries in a Melting World: Proceedings of the 23rd Polar Libraries Colloquy 2010, June 13-18, 2010, Bremerhaven, Germany. 88. Retrieved from http://hdl.handle.net/10013/epic.36296.

Polar Information Commons. Retrieved 1/31/2011, 2011, from http://piccloud.arcs.org.au/piccloud/.

Polar Data Centre - British Antarctic Survey. Retrieved 1/31/2011, from http://www.antarctica.ac.uk/about_bas/our_organisation/eid/pdc/index.php.

Appendix A: Discussion Questions

Fact finding discussion: Who is e-archiving?

- What is the focus of the Circumpolar collection at your institution?
- Are you **working on** or **planning** an e-archiving project involving Circumpolar grey literature of any kind?
- If Yes:
  - Who are your partners?
  - What is the subject focus?
  - What type of information is included?
    - publications, audio files, research data, etc.
- What e-archiving infrastructure does your institution have?
- Could you institution contribute to a collaborative effort?

How is it to be done? Options:

- Maintain a discussion group and inventory to reduce duplication, and rely on the existing architecture in our own institutions
  - work distributed by subject focus and maintained in each library
- Start and maintain a PLC e-archive
  - ie: Archive It! Subscription for publications
  - work distributed by subject focus and maintained by a steering team
  - Archive Centres and mirror sites (IPY data model)
  - LOCKSS solution
- Build on Arctic Portal Infrastructure
- ?

SILENT FILMS FROM EXPEDITIONS TO THE NORTH AND THE SOUTH POLE

Jan Anders Diesen
Lillehammer University College
Lillehammer
Norway
Jan-Anders.Diesen@hil.no

The Heroic Era in Polar Exploration happened at the same time as the silent film developed from actuality films to documentary films. A few years after we got the first film cameras, Carsten Borchgrevink brought one along on his expedition in 1898 to Antarctica, but the techniques were not developed enough to able him to get any living images from the polar region. We only got one scene from when the expedition was leaving London. A few years later William Bruce on the Scotia-expedition was the first to managed to film scenes from Antarctica.

I have studied the films made on expeditions lead by Fiala, Wellman, Wilkins, Amundsen, Scott, Mawson, Shirase and Shackleton from the heroic era. These are films made by both amateurs and professionals. Mostly the films were made to illustrate landscapes and animal life for the explorers to use on their lecture tours, but some of the expedition films also turned up in cinema theatres in ordinary film programmes.

After WW1 things changed; in the Technical Era airships, aeroplanes, telegraph and modern equipment made expedition to the poles more safe. The film making also changed. Professional photographers played a more important role on the expeditions, and the films could tell about the expedition without a lecturer explaining what people saw. Newsreel photographers also fought to get polar stories to the film theatres. Amundsen, Byrd, Wilkins and Nobile financed parts of their expeditions by selling film rights and brought along the best film photographers they could find. My presentation ends with admiral Byrd´s memorable documentary film about the first flight to the South Pole in 1929. Byrd brought along two Hollywood photographers and a film script showing how to make a dramatic story. When the expedition left the US the silent film era was at the end, and the last part of the film was made into a talkie when it was released at the cinemas.

PATTERNS OF INFORMATION USE BY POLAR SCIENTISTS: WILL INFORMATION PROFESSIONALS AND RESOURCES BE AFFECTED?

Jo Milton,
British Antarctic Survey,
Cambridge,
UK
jolt@bas.ac.uk

Scientists from different science specialities use library and information services in distinctive ways. Understanding these distinctions will ensure that services are targeted and remain relevant for the rest of the 21st century and beyond. Polar science is becoming increasingly collaborative and multidisciplinary.

This paper will consider the challenges that this creates and the impact that it might have on the ways in which scientists use information. It will consider the challenges and opportunities created by developments including open access and Web 2.0 technologies. These developments may result in scientists sharing information with their peers at an earlier stage. This will be examined across the various components of polar science. The distinction between formal and informal information sources is becoming increasingly less clear cut as a result.

The impact on the future role of and opportunities for library and information professional will be discussed. The question of whether librarians will become less relevant or whether developments pose an exciting opportunity for a vital but different role will be considered.

INFORMATION TRANSFORMATION: HOW WILL LARGE-SCALE TRENDS AFFECT POLAR LIBRARIES?

Shelly Sommer
Institute of Arctic and Alpine Research
University of Colorado, Boulder
shelly.sommer@colorado.edu

Decades after the internet and digital publishing promised an “Information Age,” we are beginning to see real transformations in the nature of information, of libraries, and of human interactions. This paper will outline a number of patterns beginning to be felt in the broader context of library science:

- Social and ubiquitous computing.
- The decoupling of data from publication.
- The decoupling of librarians from libraries.
- Changing value of libraries to users; challenges posed by economic and social forces.

I argue that the internet and digital publishing changed how we handle information but left the nature of that information fundamentally untouched. These new trends are more disruptive and transformative, because they change the very nature of information and of how people work with it. After a 15-minute introduction, I would like to lead a discussion about how these trends might work themselves out in our more specialized context of polar libraries. Are we seeing pressures to change or redefine ourselves and our value? Are we working with data in new ways? Are we suffering from information overload, like everyone else? Most importantly, how can we anticipate and take advantage of these transformations?

DATA VERSUS HEADLINES – THE WAY TO THE FIRST INTERNATIONAL POLAR YEAR 1882/83

Reinhard A. Krause
Alfred Wegener Institute for Polar and Marine Research

Introduction

It goes without saying that the first phase of polar research is also to be seen as a part of the general history of global exploration. It is well-known that in the Middle Ages commodities were transported to Europe from India and the Far East. These transactions were often processed through Arabian middlemen. As early as the end of the 15th century, direct trading became the political and commercial objective of the European seafaring nations.
Travelling to higher latitudes became a necessity because of the north to south extend of the continents. At the end of the 16th century, Dutch seafarers attempted a circumnavigation of Eurasia. This marked the beginning of polar exploration.
There are two geographical visions which had a major influence on the history of world exploration. Both of these can be attributed to polar research. The first is the search for passages north of Asia and America including the localisation of a strait separating the two continents; and secondly, the quest for a proof of the existence of a southern continent. This explains why polar expeditions, with few exceptions, were always supported by ships.
The peculiarities of shipping expeditions in higher latitudes demand the integration of nautical skills such as astronomy, oceanography, meteorology and geo-magnetics. Voyages of discovery to the polar regions can thus be seen as leading up to today's more abstract background for polar expeditions and research.
Great geographical discoveries, voyages leading to great geographical successes, are in themselves of a sensational nature. As a rule, the publications resulting from successful voyages were invariably bestsellers.
The newspaper as a medium accessible to all social strata does not begin to take shape until the 19th century. Thanks to the growth of major population centers as well as technological improvements such as telegraphy, printing methods and transportation, modern journalism was able to develop as from the 1850s. From then on, sensations became a marketable commodity which also required investment.

Polar research in the 18th century

Two of the most important developments in the political history of Europe in the 18th century were the emergence of Russia as a major power and the wars between Great Britain and France. Both of these factors had a major influence on polar exploration. The great Northern Expedition of 1734 to 1743 under Vitus Bering (1681-

1741) is a story of legend. Even by modern standards, it was a formidable enterprise, and Breitfuß' appraisal of 1939 still holds true today. It demonstrated a feature which was not to be practised by the French and British until much later - the combination of exploration and scientific research.

The Northern Expedition, also known as the Kamchatka Expedition, had two major goals. The first, the surveying and charting of the Siberian coast, was a classical feature of polar exploration centered on verifying the existence of a Northeast Passage. In contrast with the Northwest Passage, this was never really doubted. The second aim was the geographical, natural-historical and ethnographic mapping of north-eastern Siberia. It should be noted that many aspects of these questions were dealt with by German explorers. Strangely enough, the geographical findings of the great Northern Expedition were questioned and the resulting bickering led to the creation of the first major British polar expedition, which was conceived as an unarguably scientific voyage of discovery. This expedition set out in 1773 with the vessels RACE HORSE and CARCASSE under the command of Constantine J. Phipps (1744-1792). Also a navigation specialist from the Board of Longitude took part in the expedition. It is obvious that a lot of effort was put into equipping the vessels appropriately for the special needs of the voyage. A Kendall (the famous K 2) and an Arnold chronometer (as well as an Arnold pocket watch) were part of the scientific equipment. Unfortunately the Phipps-Expedition was not able to achieve its demanding geographical goals. The vessels became trapped in the ice north of Spitsbergen.

There was a close research-based relationship between the Phipps-Expedition and the legendary voyages of the RESOLUTION and the ADVENTURE which took place between 1772 and 1775 under the command of James Cook (1728-1779). The Germans Reinhold (1729-1798) and Georg Forster (1754-1794) participated in this undertaking as natural scientists. The plan was for the two expeditions to meet in the Pacific. It is well-known that Cook completed his circumnavigation of the Antarctic calotte reaching latitudes over 71°S without sighting land. The existence of an extended southern continent as proposed by several geographers was thus definitively placed in the realm of fantasy.
The question remained if there was any land at all in the vicinity of the Pole or if there was only an Antarctic ocean.

A Russian Expedition and the exceptional role of British scientific undertakings – Sir John Barrow

Towards the end of the 18th century, conflicts arose again between France and Great Britain over supremacy in Europe and around the globe. After decades of war and the reorganisation of Europe after the Congress of Vienna in 1815, Great Britain emerged as the dominant world power.

However, the British were confronted with the problem of adapting their navy to the reduced demands of peacetime while at the same time maintaining an effective strike force. The man charged with solving this dilemma was Sir John Barrow (1764-1848). For 30 years, he was to become the promoter and driving force behind British voyages of scientific discovery. He initially favoured the idea of a navigable Arctic Ocean and hoped for the discovery of a practical Northwest Passage.

The pioneering voyages of James Clarke Ross (1800-1862) and Francis Crozier (1796-1848) to the Antarctic between 1839-1843 also took place under the aegis of Barrow. Before a Russian expedition led by Fabian G. von Bellingshausen (1778-1852) and Michail Lazarev (1788-1851) had succeeded in completely circumnavigating the Antarctic in their vessels VOSTOCK and MIRNY between 1819-1821, paying close attention thereby to filling the gaps left by Cook. Ross and Crozier had pushed ahead into the interior of the Ross Sea as far as 78°S after overcoming a huge strip of drifting ice. Here they were confronted with a barrier - the Ross Ice Shelf. The expedition turned out to be a major scientific sensation.

However, Ross and Crozier were not the only ones in the Antarctic at that time. French and American explorers were also active in the region. The French expedition in the ASTROLABE and ZÉLÉE was under the command of J.-S.-C Dumont d'Urville (1790-1842), who had twice circumnavigated the globe, and his companion of many years C.H. Jacquinot (1796-1879).

The American expedition was led more or less adequately by Charles Wilkes (1797-1877) in the VINCENNES. In January 1840, both expeditions reported land sightings several times between 100°-160° E; this represented an important enlargement of the geography of the Antarctic. The term Antarctic Continent is found for the first time on a map used by the Wilkes expedition.[3] However, such nomenclatures remained controversial for quite some time.

The question arises if this number of simultaneous expeditions was purely by chance. It can be considered a coincidence in as much as no agreements were made between the three participating nations. But at the same time there was a trend to carry out large-scale multidisciplinary research expeditions. Even although scurvy was still a problem, the quality of the ships, sailing technology, navigation techniques (the problem of determining longitude accurately had been solved by the introduction of the chronometer and lunar almanacs) and the knowledge of prevailing winds and currents, was so good that relatively safe and predictable voyages were possible. The entire world had been roughly mapped and scientists were becoming aware of the important gaps in their knowledge. In other words, they were now able to ask the right questions.

3 Robert K. Headland: Chronological list of Antarctic expeditions and related events, Cambridge 1989, S. 149.

The need of geomagnetic measurements in high latitudes; search for the magnetic poles – Halley, Humboldt, Gauß and Sabine

The earth's magnetic field is a phenomenon of which we are seldom aware. Nevertheless, it was dealt with by scientists from a relatively early period.[4] The reason for this was that the magnetic needle of the compass had made it possible for mariners to navigate independently of celestial objects and events. This made it the traveller's most important navigation instrument. The first volume devoted to geomagnetics was published as early as 1600.[5] The works of Edmond Halley (1656-1742) were exceptionally important at the time. In his General Chart of the Variation of the Compass, he created the first maps using isogonic lines (1701). Geomagnetism was also the subject of intense scientific research in the 19th century. Until James Clerk Maxwell (1831-1879) had published his famous equations on electrodynamics around 1864, Newton's law of gravity was the only universally valid law governing interaction known at the time. More than a few scientists believed that geomagnetism could be presented in a similarly fundamental form, that is to say, they were hoping for a Newton of geomagnetism. And so it was hardly surprising when a mathematician of the calibre of Carl Friedrich Gauß (1777-1855) decided to examine the subject.[6] He stated that he had been prompted by the latest findings of the British geophysicist Edward Sabine (1788-1883). The most significant conclusion for further research was probably the emphasis on the importance of data from high latitudes and the detection of the magnetic poles itself. This was Gauß' challenge to polar research!

Alexander v. Humboldt (1769-1859) can also be regarded as one of the main promoters of research on geomagnetism. He wrote a historical introduction to the subject as well as a treatise on the latest developments of the time[7]. What was being practised here already on a considerable international scale at the beginning of the 19th century was, irrespective of the many applications for shipping, first and foremost "science for science's sake".

The Franklin disaster produces a comeback of reaching the North Pole as a target for expeditions

In 1845 an Arctic expedition with three ships under the command of Sir John Franklin set off from Great Britain. The primary aim of this state-of-the-art expedition sponsored by the Royal Navy was to find the Northwest Passage. However the hopes of finding a navigable channel were slim and it was certainly not expected to find anything of military or geostrategic significance. The instructions issued to the

4 see Heinz Balmer: Beiträge zur Geschichte der Erkenntnis des Erdmagnetismus (Contributions to the history of the development of earth magnetism) , Aarau 1956, an indispensable work on the subject.
5 William Gilbert: De Magnete, London 1600/1893.
6 Carl F. Gauß: Allgemeine Theorie des Erdmagnetismus (General theory of earth magnetism), Göttingen 1838.
7 Alexander v. Humboldt: Kosmos 1845/62 vol. II, pp. 372-376 and vol. VI, pp. 48-209

expedition focused much more on scientific work, especially in the field of geomagnetism.

In spite of its excellent technical standards, the expedition failed to return and 129 men were lost. Hitherto unheard of measures were taken to find out what had happened to the expedition. In the course of more than 40 Franklin search expeditions, the Northwest Passage was finally found and great expanses of the Canadian Arctic Archipelago were mapped. Nevertheless, the whole affair was a disaster for the Royal Navy and the English people. And so it was not until 1865 that the polar veteran Sherard Osborn (1822-1875) approached the British public with plans for a polar expedition. The target was to push into the central polar region. The Royal Navy focused on reaching the North Pole! The German geographer August Petermann (1822-1878), publisher of the leading geographic journal of the time, "Petermanns Geographische Mittheilungen" (PGM), and a member of the Royal Geographic Society, had worked in England for seven years and was keen to take up this cause. His initial purpose was to support Osborn's plans.

In general Petermann was interested in supporting voyages of discovery of preferably sensational nature. This meant a tool to enlarge the print run of his journal. This idea was soon adopted by other newspapers and magazines and finally led to a financial support of polar voyages by publishing houses.[8]

Petermanns geographic visions according the polar regions - the first German polar-expeditions

Before long, however, Petermann's ideas diverged from those of the planned British expedition. This mainly concerned the approach route to the central polar region. Osborn preferred access via Baffin Bay and Kennedy Channel. Petermann on the other hand favoured using the Gulfstream and approaching the North Pole through the waters around Spitsbergen.

In 1868, Petermann finally managed to commission a first German expedition in the ship GRÖNLAND under the command of Carl Koldewey (1837-1908). In the meantime, Petermann had altered his opinion concerning pushing through the central Arctic to the North Pole and beyond. He now favoured the coastal water theory, by which an ice free strip of water was said to be navigable along the eastern coast of Greenland. This assumption could be supported by physical facts and historical observations. However, in order to reach the Greenland coast, one had to traverse the East Greenland Current, an ice stream which could easily reach the width of 100 miles and, depending on the winds and temperature, could quickly turn into a blanket of pack ice from which there was no escape for the ships of that time. Koldewey was not able to cross the East Greenland Current in his "nutshell" of a vessel, the GRÖNLAND, which is still in service.

8 For details see Beau Riffenburgh: The Myth of the Explorer – The Press, Sensationalism, and Geographical Discovery, London and New York 1993.

As early as 1869, a second German expedition to the Arctic was launched using the vessels HANSA and GERMANIA. The expedition was financed in great parts by public donations and the support of Bremen merchants. The main organizer was the technology writer Moritz Lindeman (1823-1908). The expedition set off from Bremerhaven and was once again led by Koldewey.[9] In summary, the GERMANIA was able to push forward as far as the coast of East Greenland. On sledges the record latitude 77°N was reached and in the summer of 1870 the expedition discovered a magnificent system of fjords and mountains.

There were five scientists on board the GERMANIA, two on board HANSA. HANSA could not withstand the ice-pressure in the East Greenland Current and was crushed in October 1869, while the GERMANIA returned to Bremerhaven in September 1870. The expedition was followed by a considerable scientific publication.

After the GERMANIA had returned in 1870, Petermann dropped the idea of the Greenland coastal route and changed his opinion once more. His preferred access to the central Arctic was now through the Barents Sea.

Carl Weyprecht and the Tegetthoff-adventure

In early 1871 Petermann succeeded in recruiting Carl Weyprecht (1838-1881) as well as the mountaineer and geodesist Julius Payer (1841-1915) for a journey whose aim it was to find the so-called Gillis Land which was said to exist west of Spitsbergen. Payer had already taken part in the German expedition to East Greenland. At a longitude of 42°E, they did in fact come close to a latitude of 79°N.[10] Petermann rejoiced - the open polar sea appeared to have been discovered – a freeway to the North Pole. As a result of this success, it was now possible to launch the Austro-Hungarian polar expedition. This left Bremerhaven in the ice-proof vessel Tegetthoff in June of 1872 under the command of Weyprecht. During the course of the expedition, the Franz Josef Archipelago was discovered. However, they did not achieve their aim of finding a North East passage. After two winters in the Arctic, the ship had to be abandoned. The crew managed to reach safety after a heroic escape journey which lasted 95 days.[11] Against this background, one must understand Weyprecht's rejection of any kind of sensational voyages of discovery and his preference for the establishment of permanent observation stations - the idea which led to the polar year.

9 For more details on this expedition cf. Verein für die Nordpolarfahrt: Die Zweite deutsche Nordpolarfahrt (The second German north-polar-expedition), Bremen 1874, vol. 1

10 An account of this journey can be found in Payer: Die Oesterreich-Ungarische Nordpol-Expedition, Wien 1876, pp. 659-696.

11 Weyprechts complete diary of the retreat see Berger, Besser, Krause: Carl Weyprecht (1838-1881), Seeheld, Polarforscher, Geophysiker (naval hero, polar researcher, geo physicist) Wien 2008 p. S. 370-418.

The activities of the "Bremen Polarclub" (Verein für die deutsche Nordpolarfahrt) - Moritz Lindeman

The German Greenland expedition of 1869/70 was an international success. The Verein für die deutsche Nordpolarfahrt in Bremen Polarverein ("Bremen Polarclub")[12], as it was popularly known, in the past had benefited from donations and guaranteed credits of its members. But it was understandable that the organiser of the "Polarclub" attempted to get state funding, to become more movable and independent for future undertakings.

They also realised that a continuation of their work in the scientific field would not be possible without a solid foundation in academic institutions and societies. In this respect, all roads led to Berlin. But neither the prominent scientific groups in Berlin nor the navy were prepared to act quickly. Delaying tactics were employed and the seemingly concrete plans for the establishment of a German polar society slowly disappeared.

At the end of 1874 Moritz Lindeman the "Polarclubs" secretary applied to the German government for immediate funding of a polar expedition. The draft for a new expedition to East Greenland was submitted additionally.

This mentioned specifically a close co-operation with the British Arctic expedition, which – a success of Osbornes agitation - was to be launched in 1875 under the leadership of G. S. Nares (1831-1915). The application was based on the understanding that only through simultaneous measurements reliable observations could be made, especially in the fields of meteorology and geomagnetism.

Eventually in October 1875, a meeting of a commission took place in Berlin. This was attended by 13 prominent scientists. The commission's report reads like a first German national policy on polar research and, with a few small alterations, the Bremen plan would have corresponded with the logistical principles which that policy had arrived at.
Nevertheless, the application was officially turned down by the German government (March 16, 1876). The approval commission had stressed that, in polar research, co-operation between nations was desirable (this remark was doubtlessly a result of Weyprecht's agitation).
It is very important to notice that as a result of the statement given by the approval commission the German foreign office made formal enquiries to the governments of Russia, Sweden, Norway, Great Britain and the United States concerning their willingness to take part in an international polar exploration campaign (April 22, 1876).

12 In 1876 the Polarclub converted to the Geographical Society in Bremen.

Weyprechts principles for an International Polar Year - IPY[13]

The part played by Weyprecht in the creation of the IPY has become more apparent in recent years.[14] Weyprecht drew the attention of prominent scientists at home and abroad to his approach to Arctic exploration, which he summarised in six principles:
1. Polar research is of the greatest importance for our understanding of the laws of nature.
2. Geographical exploration in these regions is only of high value if it leads to scientific research in a purer sense.
3. Topographical details in the Arctic regions are not of major importance.
4. The geographical pole is not of any more importance for science than any other point at high latitudes.
5. Regardless of the latitude at which they are located, the value of the observation stations is proportional to the degree to which the targeted phenomena can be observed.
6. Isolated observation records are only of relative value.
In order to implement the IPY plan, it was first of all necessary to convince enough nations to become involved. The effective propagation of the IPY idea was helped by the fact that Weyprecht was simultaneously founder, promoter and director of a virtual Austrian polar station.
In the first half of 1876, he was extremely active in promoting the IPY Organisation. This work included correspondence with scientists and institutions in the USA, Brazil, England, France, Norway, Sweden, Russia, Holland, Belgium, Denmark and Italy.

Georg v. Neumayer, Heinrich Wild – the realisation and execution of the IPY

Since the middle of the 1870s, the geophysicist Georg v. Neumayer (1826-1909) had been an important figure in marine research in Germany.

Independently of Weyprecht, also Neumayer had developed the idea of the IPY and repeatedly stressed the importance of simultaneous observations from a sufficient number of observatories located around the poles. For him observations taken at both poles were a prerequisite for scientific advance. Finally it was Neumayer who managed a first meeting of scientist of 8 Nations in the Hydrographic office (Deutsche Seewarte) in Hamburg on October 5, 1879. The so called International Polar Commission was founded and Neumayer was elected as its first chairman.

A maximum number of sunspots were predicted for 1881, and so it made sense to choose that year to begin the IPY. It soon became clear that the 1881 deadline could not be kept and so the starting year had to be postponed until 1882. This meant that stations at high latitudes in the southern hemisphere would be able to observe the

13 The Term International Polar Year was not used before 1902 see Krause: Daten statt Sensationen – der Weg zur internationalen Polarforschung aus seiner deutschen Perspektive, Bremerhaven 2010, p. 122 (Endnote 1).
14 see Berger, Besser, Krause: Carl Weyprecht (1838-1881), Seeheld, Polarforscher, Geophysiker (naval hero, polar researcher, geo physicist) Wien 2008

second Transit of Venus of the 19th century on December 06, 1882. And in actual fact, these observations were later made at the French and German stations at Cape Horn and South Georgia. Because Neumayer was not able to present a guarantee for a German IPY participation he had to give up his presidency of the International Polar Commission. His successor was the geophysicist Heinrich Wild (1833-1903), who was working at that time for the Russian government, and it was only natural that he should act as host for the last session of the commission before the campaign started. This session was planned in St Petersburg from August 1-6, 1881. Carl Weyprecht had already died in March of that year.

The final breakthrough leading to the realisation of the IPY was hastened not only by the fact that the Russian government was considering setting up an additional station to close the gaps in the observation network, but also by the decision of the USA to man "one or more stations" (Circular 12, 13 of February 6 and April 6, 1881). Finally, on May 15 (Circular 16), statements of intent were also received from France and Holland. In Germany, however, the situation was still unsettled. It was not until December 1881 that Neumayer could write to Wild to confirm the participation of the German government.[15.]

A total of 14 main stations were opened by 11 nations (America, Austria, Denmark, Finland, France, Germany, Great Britain, Holland, Norway, Russia and Sweden. 12 main stations were situated in the Arctic. In the southern hemisphere two stations were established.

The Germans finally were able to run two main-stations and some auxiliary stations as well. The main stations were located in the Arctic and on South Georgia. This reflected Neumayers intention that bipolar observation should be of extraordinary importance.

The fourth IPY Conference in Vienna, 1884 - on the results of the expeditions

A fourth IPY conference took place in Vienna in spring 1884. This congress was attended by 20 participants. Besides Graf Hans Wilczek (1827-1922) - the friend of Carl Weyprecht who had done so much for the execution of the IPY - some institute directors and eight IPY researchers were present. One major topic of the meeting was the publication of their findings.

By spring of 1886, the assessment of the meteorological and geophysical data had been more or less completed by most nations. This had taken about three years. In view of the volume of the material to be evaluated, this seems like a reasonable time. The data from the German observations were published in two volumes in

15 The very exciting story behind the German participation see Krause: Das Das erste Internationale Polarjahr(IPY) 1882/1883: Die Entwicklung der Beteiligung Deutschlands (The First International Polar Year (IPY): The evolution of Germanys participation), Polarforschung 77 (1) Bremerhaven 2008, p. 17-36.

September 1886. But it was not until 1890/91 that beside additional scientific papers a commentary on the scientific results and a historical assessment appeared.

The first IPY brought to light a whole series of interesting scientific findings, ranging from the Transit of Venus observed by the French and the Germans to the comprehensive geographical discoveries of the ill-fated American expedition. Of particular significance are the Aurora observations carried out by the Scandinavians and the Austrians including their attempts to photograph this phenomenon and to determine its elevation.

However, as far as its main target was concerned, the IPY could only record a limited success. The core objectives of the meteorological and geophysical elements, for example, were never reflected in a synopsis of the circumpolar data or in a summing up publication.

Independent of the publications of IPY data, several so called "Atlanten" were released in Germany about this time.[16] These volumes can be considered as global synopses. Some of them include references which we can assume are based on IPY data.

Neumayer published an Atlas des Erdmagnetismus - atlas of geomagnetism. In the preface to this book, he included a detailed critique of the data used. However, we find here only a few brief comments on the IPY data although the volume itself met the standard of a synoptical presentation.[17]

The well-known Polish scientist Henryk Arctowski (1871-1958) hit a nerve in 1931 when he stated that - it is surprising that no monograph on the international Polar expeditions has been written, that no discovery or general scientific fact has become known universally as a fruit of the work carried out by these expeditions ... [18.] Other articles on this subject agree that the findings recorded are presented as scientifically significant.

Some of the IPY data were used later. For example Sydney Chapman (1888-1970) carried out a systematic evaluation of the magnetic data (until 1925 according to his statement) as well as publishing several papers.[19] The famous Norwegian physicist

16 Julius Hann: Atlas der Meteorologie, Gotha 1887. Georg v. Neumayer: Atlas des Erdmagnetismus, Gotha 1891. Hermann Berghaus: Atlas der Hydrographie, Gotha 1891. Hermann Berghaus, Karl A. V. Zittel: Atlas der Geologie, Gotha 1892.
17 Georg v. Neumayer: Atlas des Erdmagnetismus, Gotha 1891 pp. 4, 5, 16.
18 F.W.G. Baker, The First International Polar Year, in Polar Record, Vol. 21, No 132, 1982, p. 282.
19 Sydney Chapman: From Polar Year to the Geophysical Year, in Studia geophysica et geodaetica, 1960, Vol. 4, p. 314.

Kristian Birkeland (1867-1917) also made extensive use of data from the first Polar Year[20].

Weyprecht and Neumayer's commitment to the IPY-idea led to two further important general aspects being created and becoming understandable to a wider public - the academic and scientific consolidation of polar research as well as the closely linked growth of international activities. The term "polar research" thus stood for the acquisition of data from the inaccessible polar regions as part of a holistic understanding of our planet. As such, it was a useful contribution to the human cultural heritage.

20 Ernst Harry Vestine and Takesi Nagata: Ionospheric electrical current systems derived using International Polar Year data in Annals of the Geophysical Year, London, New York, Paris 1959, Vol. I, p. 344.

RESEARCH OF AWI IN GREENLAND FOLLOWING THE LEGACY OF ALFRED WEGENER

Hans Oerter
Alfred Wegener Institute for Polar and Marine Research

The research of Alfred Wegener (1880-1930) was closely linked to Greenland, since he had participated in the Danmarks expedition in the years 1906-08 including wintering over at Danmarks Havn, Northeast Greenland. Mass change, movement and ice thickness of the Greenland ice sheet and especially the meteorological and atmospheric conditions over the Greenland ice sheet were in the focus of his work.

The Alfred Wegener Institute has been performed research at some of the historic sites and elsewhere in Greenland, however, with today's techniques and has been contributing to our knowledge about ice-sheet mass balance, ice thickness and movement as well as climate history.

SIGNIFICANCE OF ACADEMIC SCIENCE IN INDUSTRIAL DEVELOPMENT OF THE BARENTS REGION: HISTORICAL RECONSTRUCTION IN THE SPECIAL EDITION OF THE ARCHIVAL DOCUMENTS OF THE FIRST POLAR CONFERENCE OF 1932 IN KHIBINOGORSK

Valentin P. Petrov, Elena I. Makarova, Tatiana A. Fridman
Kola Science Centre of the Russian Academy of Sciences

ABSTRACT

According to a great Russian scientist V. I. Vernadsky, knowing the history of national science is vital for understanding the cultural heritage of humanity; it is “our duty that is not yet met to the necessary degree” [1]. Today, as the humanity, having entered the new millennium needs to work together to find a solution for the world economic and ecological challenges, we cannot but admit that these words of the great Russian scientist have more than kept their topicality.

Regional science with its unique history and experience is an important part of Russian science as a whole. As far as the industrial development of the Barents Region is concerned, studying the beginning of complex scientific research carried out by the Russian Academy of Sciences (RAS) that constituted a solid base for regional science in the Soviet time, is very important. It allows not only to preserve the scientific heritage of the previous generations, but also enables us to “compare the economy progress rate, the scope of scientific research, the development of scientific potential in the Kola Region in the Soviet period and today, and to consider positive and negative aspects of each of these periods”, as well as to “analyze the cooperation dynamics among science, industry and government at various levels at the time when the country was successfully solving challenging economic problems. This cooperation experience can once again become topical due to the society’s increasing interest in science; it will allow to take into account positive and negative sides of both Soviet and current development of science in this region” [2].

Today, the Kola Science Centre RAS is known both in Russia and abroad as one of the most important centres of Russian science in the Barents Region. The almost 80-year-long history of the Centre is closely connected to the history of Russia, with its revolutions and wars, followed by a succession of five-year plans for reconstruction that led to a fast economic growth unique in the world history. These events, now long past, hold important lessons on Polar resource development; they are at times

connected to dramatic events in the country's history, but are also filled with Kola scientists' significant discoveries.

The Khibinskaya Mountain Research Station (KMRS), the "favourite brainchild" of the academician Alexander Yevgenyevich Fersman, was the first institution of the Academy of Sciences of the USSR (AS USSR) in the province. In 1920, following the decision of the General assembly of the Academy, some of the leading scientists of the country, such as the president of the Academy A. P. Karpinsky, academician A.Ye.Fersman, academician Yu. M. Shokalsky and others took a field trip by a refurnished boxcar along a singles-line track Murman railroad. This trip was the beginning of the Academy's policy of close collaboration with the Soviet government and finding successful solutions to topical practical problems [3]. The policy was supported by the Soviet government headed by V. I. Lenin at the time. From the start, V. I. Lenin believed that the "partnership of science and the proletarian state" can be organized without dismantling the old scientific institutions and introducing new ones, by using the existing science organization in the country. He considered it possible to avoid a fundamental reorganization of the existing traditions and forms of work, while also marking the durability of academic traditions established before the Russian Revolution [4].

As soon as expeditions started to be organized in the Kola Peninsula, academician A. Ye. Fersman put forward an idea to establish a permanent centre for scientific research in the Kola Peninsula. This was later acknowledged as an "urgent task for the Academy of Sciences". Supported both by senior officials of the Academy and by the government, this idea led to creating a system of research stations in all remote regions of the country. Due to "a rapid economic development and an increasing demand for scientific interpretation of various problems in different regions of the Soviet Union," academician A. Ye. Fersman believed that studying productive forces and natural resources of Russia should be based on the Academy of Sciences establishing a system of institutions in distant or insufficiently known regions of the country, to serve as bases for regular field research [5].

The Khibinskaya Mountain Station established in 1930 and later named the Kola Base AS USSR was the centre for virtually all field research in the Kola Peninsula before the World War II. Academician A. Ye. Fersman named the station Tietta, which means "science", "knowledge" or "school" in Sami, the language of the indigenous people of the region. The first building to accommodate the station was a quickly built two-room house. One of these rooms was the world's first field chemical laboratory beyond the Arctic Circle, and the second one, with its long wooden table and benches, served as a study, a dining room or a conference hall, as need arose. Initially, the staff of the Tietta included five people headed by the academician A. Ye. Fersman. Later, the number of the staff increased to a dozen people, some of whom worked on a rotational basis, and some stayed at the station all year round, except for the vacation that was longer than usual due to the harsh working conditions in the North. These scientists were highly qualified specialists in various fields of knowledge

who devoted all their time to studying natural resources of the Kola North. Due to their enthusiasm and hard work, expeditions of 1920s and 1930s led to numerous discoveries of phosphate ore (apatite), non-ferrous metals (copper, nickel), rare metals (niobium, tantalum, zirconium, caesium), light metals (aluminium, lithium), ferrous metals (iron, titanium, chrome), micas (muscovite, phlogopite), refractories (cyanite, olivenites, chromite) and other minerals that constituted the base of a most significant raw material source in our country. This epic chain of discovering large mineral deposits was made possible by A. Ye. Fersman and his colleagues, and by their selfless work.

To academician A. Ye. Fersman, complex approach was the most important part of the strategy for using natural resources of the Kola Peninsula. “The idea of complex approach is in essence an economic idea that creates the greatest possible amount of assets using the least possible amount of resources; however, this idea is not only concerned with today’s issues. It is concerned with protecting our natural resources from wasteful exploitation, with using raw materials in full, as well as with preserving our resources for the future” [6]

This was the reason why just in two years after the founding of the Tietta, the First Polar Conference was held there. In his opening address of April 9, 1932, to the scientists and production workers assembled at the conference, academician A. Ye. Fersman said, “The conference that we are opening today is probably the first one of its kind in the world. It is the first Polar Conference that brought together employees of research institutions and local workers. Our conference is held at a place which had nothing but forest only two years ago. This is the first conference to be concerned with planning the development of the Polar North, and we hope that our conference will help to develop the necessary connections of local organizations with the central ones and to create new motivations for further expansion of our work together. This will also further increase and strengthen the enthusiasm of the builders that are now busy working at the new construction sites in the polar tundra.” [7].

The conference coincided with another important event, the opening of a new beautiful and comfortable building for the Tietta, custom designed by architect engineer M. V. Krestin in accordance with a sketch by A. Ye. Fersman himself. This two-storey building, with a partial third storey, had not only individual rooms for scientific research and a conference hall, but also a modern chemical analytical laboratory that allowed to study newly found minerals on site, as well as the first mineralogical museum with unique samples of minerals from the Khibiny Mountains, and a scientific library given to the Tietta by A. Ye. Fersman. Additionally, the Tietta had living quarters, utility rooms and a dining room. The building was encircled by a spacious veranda where the inhabitants of the station took their walks in winters when at times natural disasters cut them off from civilization for several weeks in a row. The small third storey housed a meteorological station. Tietta was home both to its permanent workers and to the staff of seasonal expeditions throughout the pre-war period.

The First Polar Conference took place from April 9 to 11, 1932, in the town of Khibinogorsk (Kirovsk at present), at the Kola Mountain Research Station AS USSR, in the settlement of Nivastroy and in the town of Kandalaksha. Considering the events of those days from today's point of view, we can positively say that both the problems in the agenda of the First Polar Conference and the decisions taken there were important not only for the development of the region, but also for that of the country, and that its experience of industrial development of northern regions was of universal importance.

Elaborating the idea of complex approach in his speech at the conference, A. Ye. Fersman identified the three main stages of work by the Academy of Sciences in the Kola Peninsula. "The first stage is scientific development of the Khibiny Mountains, the second one is helping their industrial development and promoting technological use of their resources. The objective of the Khibinskaya Station is not only to gradually join in the large construction work that is now going in Khibinogorsk, but also to get involved in researching the complex interweaving of chemical and technological processes that must result from properties of natural matter." This leads us to the third stage, "a school of sorts, an institution both for research and education, not only a centre for interpreting scientific problems and setting scientific tasks, but also a home for researchers that will come here to learn." This idea was very serious and important to academician A. Ye. Fersman; he saw the Station as a "complex academic institution that is concerned both with classical complex research and with solving practical tasks for the industry." [8]

Strategically, the First Polar Conference of 1932 was a most important event for the Murmansk Region, as it had a great impact upon its following industrial, social and economic development. The conference set new tactical objectives for studying and developing the natural resources of the region and ensured the transition from irregular familiarization and exploratory expeditions to systematic large-scale geological surveys and prospecting.

Furthermore, the conference was an important milestone in research development both in the Academy of Sciences and other research institutions, whose work was informally joined by a common program for complex interconnected usage of various mineral, biological, energy and other resources of the Kola Peninsula and the adjoining northern regions. In the future years, this informal joining furthered a significant change of style and arrangement in cooperation of science and work in practice, as well as of state, party and economic institutions, both locally and nation-wide. This conference first outlined the future development not only of mining and chemical industry, but also of other economic sectors, such as industrial and civil engineering, power engineering, communications, polar farming and many others.

Later, the outlined program for industrial development of the Kola Region was changed according to the demands of the day, so not all projects were implemented, and some of them were implemented only in part. For example, due to various

reasons best left to be analyzed in future special research, nepheline processing industry in Kandalaksha, on-site facilities for producing rare metals from the ores of mineral deposits in the Khibiny Mountains and Lovozero, as well as those for mining and processing certain ores were never created.

However, even from today's point of view we can say that the initial ideas stated at the conference are still current. These ideas were concerned with importance of developing a closely connected system of mining and metallurgical works that would facilitate efficient using and processing of the unique mineral resources of the region, while also taking into account the current state of the market and environmental issues. These plans, which modern scientists consider important, are yet to be fully implemented in the future.

The Polar Conference of 1932 was more than the first theoretical and practical conference of its kind in the world, as far as both its goals and the issues it raised were concerned. It was also the first effective cooperation experience of scientists of the Academy of Sciences, employees of the numerous industry science institutions, and economic managers of the Kola Region, Karelia and other regions of the country, whose goal was solving a most challenging problem of developing a high-capacity mining and chemical complex that was to process minerals that had never before been used in the world, in the undeveloped North. Consequently, the intensive agenda of the conference included plenary meetings and discussions, work of special committees, familiarization with the working mines and manufacturing plants in the Khibiny Mountains, as well as visits to promising geological sites in the Monchetundra and new construction sites in the Kandalaksha Region.

Transcripts of the First Polar Conference have been a part of the collection of the Scientific Archive of the Kola Science Centre for almost 80 years. Today, they once again attract attention of the public due to a number of reasons. Firstly, 2009 was the year of the eightieth anniversary of the Apatit Joint Stock Co., (originally the Apatit Trust), the first industrial enterprise in the region. The year 2010 is the anniversary of founding the town of Kirovsk (former Khibinogorsk), as well as the anniversary of the Kola Science Centre RAS. It was due to these regionally important events that the Presidium of the Kola Science Centre RAS decided to publish some of the most significant archival documents on history of development of the Kola Peninsula. The list of documents to be published included materials of historically important conferences held in the region by the Academy of Sciences in the first half of the 20th century. The staff of the Scientific Archive KSC RAS reconstructed the available sources, which resulted in finding a valuable archival document, the transcript of the First Polar Conference of 1932. The historical significance and information value of this document were the main reasons for publishing it as a special edition. Thus the decision of the conference itself to publish its papers was ultimately fulfilled.

Publishing the transcript was also largely due to its present relevancy, the following aspects making it topical and valuable today.1. The beginning of the epic scope of

work in the Khibiny Mountains that academician A. Ye. Fersman rightfully called heroic, is covered only in the few published memoirs of its participants and in books on regional studies, while also being one of the most remarkable subjects in mass media. The first half of the 20th century saw almost no audio or video materials that are so common today, so only its unadapted and uncensored documents can vividly describe that period of time. The transcript of the First Polar Conference is such a document; it holds not only the authentic words of the participants of the conference, but also the ideological and moral climate of the period, from its ardent ideas and intensive emotions to various approaches to solving practical and scientific problems discussed at the conference.

2. Notable scientists, production specialists, economic managers and party executives of the region took part in the First Polar Conference, both by presenting their papers and participating in the discussion. Today, some of these participants are famous both in the region and in Russia on the whole, as well as abroad. These include the people that organized and inspired this conference: academician A. Ye. Fersman, an outstanding scientist that helped organize research in this country, as well as V. I. Kondrikov, the chief executive of the Apatit Trust, who headed the development of the South of the Kola Peninsula. Conversely, today little data is available on some of the active participants of the Conference, so besides being a historical reconstruction of a regionally important event, publishing the materials of the Conference is a tribute to the memory of the scientists, production specialists and economic and party managers that contributed their knowledge, experience, and at times even their lives to developing the Kola Region.

3. The rapidly developing the 21st century sees not only a major reorganization of a once socialistic socio-economic system of Russia, but also a further introduction of capitalistic principles into this system, which makes the problem of finding new ways for developing the North very topical today. Practice-oriented solutions of the 1930s were initially based on a complex approach to development of the Northern regions, which included building large industrial cities that would have all the necessary industrial, social, cultural and educational infrastructure. Today, this approach is often unduly criticized without taking into account the harsh conditions of the time. However, A. Ye. Fersman believed that “building and development in the Kola Peninsula teaches important lessons of development methods for remote northern regions. What is the essence of these methods? Their essence is their fundamental principle, the complex approach. This economic principle is also an organizational principle; it introduces new ideas into our project, combines all our productive forces, it unites individual industries and helps them cooperate…” [9]

The First Polar Conference was concerned with a wide variety of problems, such as those of geology, mineral resources, farming, technology, energy, transportation, building, personnel, education and many other fields. Today, the globalized economy altered the paradigm for the development of northern regions from the principle of “mastering the Polar North” that ethically coincided with the revolutionary spirit of the

period, to the principle of “stable development of the North” based on the humanity’s balanced interaction with nature. This new paradigm makes the ideas and concepts for a complex usage of mineral and other natural resources of the North topical once again, and it is with implementing these ideas that the First Polar Conference was concerned. Therefore, the materials of the Conference allow for a better comprehension of the challenges that the practical implementation of these principles faced in the very beginning of the development of the Khibiny Mountains, as well as of the new challenges that arise due to the today’s economic, ecologic and political demands and limitations.

4. The transcript of the First Polar Conference contain valuable materials for studying history of science in the Soviet time, since it allows to see the part that science played in the socio-economic development of the country. The Conference took place in mere ten years after the Russian Civil War, when the country just began to get back to normal after a devastating economic dislocation. Moreover, it was much more than just a conference in the province; it brought together participants from more than 15 research institutions that were first founded or reborn in the Soviet time. In the future years, some of these institutions stepped in the lead of academic and industry science in the USSR. That period of development of science is very different from the current situation in this field, when many research institutions, especially the industry ones, experience difficulties. Another noteworthy aspect already characteristic of that period is a healthy competition among research institutions; it gave the researchers additional motivation to find optimal solutions to the current problems in prospecting, technology, energy and other fields.

5. The materials of the First Polar Conference are of special interest to the scientists of the Kola Science Centre RAS, since this conference was an important milestone in the development of science in the Kola North. Correspondingly, opening of the Khibinskaya Research Station that took place on the second day of the conference, April 10, 1932, was of national importance. It was the first step in developing a network of permanent research institutions in remote or undeveloped regions of the country within the Academy of Sciences; these later became complex regional science centres. In his address to the Presidium AS USSR of 1927, A. Ye. Fersman put forward the idea of founding a base for mostly summertime field research and for its logistic support. In 1930, the first building for the base was erected, and construction of a new building for the Tietta was begun almost at once. These years also saw the beginning of an effective long-lasting cooperation between science and industry, i.e. the Apatit Trust (today, Apatit Joint Stock Co.), in scientific, technical and economic field.

6. The transcript of the Conference contains several reports and speeches concerned with highly specialized technological issues. Although these could be left out or abridged, we decided to publish them in full, since “everything old is new again”. This is practical because these reports can help specialists of today, and maybe also of the future, in their research. Equally, researchers may decide to further develop some

of the presented ideas in geology and geochemistry, various approaches to grothine and nepheline technology, or methods for extraction and usage of rare elements.

7. The materials of the Conference help us adequately understand the sociopolitical climate of the early 1930s, which reflected the relations of state and party institutions, as well as of science and industry in the country. This conference took place at the time when open discussion was still possible in this respect: it could contain not only alleged self-criticism, but also true keen criticism directed not only at coworkers, but also at soviet party leaders; it was the time when Stalin's personality cult had only been recently introduced to the socio-political life of the country. Thus, in his thank-you address for help in building the Khibinskaya Mountain Research Station, A. Ye. Fersman mentioned the local executive institutions and the Apatit Trust, but, intentionally or otherwise, did not mention any party institutions. In this respect, it is also significant that we only see praises to central party institutions and their leaders in official and welcoming speeches of labour collectives. Conversely, later years saw a very different practice of public acknowledgement of the part that the party institutions played in the economic and scientific development of the country.

Overall, the importance of the Khibinskaya Mountain Research Station that later became the Kola Base AS USSR, can hardly be overestimated. In the pre-WWII years, the Station contributed much to the development of the European North of Russia: it helped establish a base for the research infrastructure for decades to come, as well as to promote future development of the Kola academic science on the whole and the future Kola Science Centre in particular.

Thus, publishing the transcript of the First Polar Conference is not only topical, it also allows the general reading publics to see and understand the past of the Russian North as a unique historical period with its peculiar characteristic features.

References

1] Вернадский В.И. Труды по истории науки в России. - М.:Наука, 1988. С.259
2] Оранжиреева А.М. Работа Академии наук СССР и социалистическое строительство на Кольском полуострове. - Апатиты: Изд-во Кольского научного центра РАН. 2008. С.5
3] Комков Г.Д., Левшин Б.В., Семенов Л.К. «Академия наук СССР. Краткий очерк истории и деятельности. Изд-во «Наука». М., 1974. С.257
4] Ibid. С.260
5] А.Е.Ферсман. Неотложная задача Академии наук / К вопросу о научных станциях на местах. «Вестник Академии наук СССР». 1931. № 5. С.8-12
6] Научный архив КНЦ РАН. Ф.1.Оп.40.Д.№ 174.Л.8
7] Научный архив КНЦ РАН. Ф.1. Оп.6. Д. № 9. Л. 2
8] Ibid.. Л. 195-198
9] Научный архив КНЦ РАН. Ф.1. Оп. 5. Д. № 52. Л.60

TRANSLATING A LEGEND: LT. NOBU SHIRASE AND THE JAPANESE ANTARCTIC EXPEDITION OF 1910-12

Hilary Shibata
Antarctic Bibliographer
Scott Polar Research Institute
University of Cambridge
jhs1001@cam.ac.uk

Introduction

Almost everyone has heard about two of the expeditions which set out for the South Pole in 1910. Roald Amundsen became a legend as the first to reach the Geographic South Pole in December 1911. Robert Falcon Scott became a legend after having reached the Pole in January 1912, when he and his four companions died on their way back to their base. But the third expedition which, like Amundsen's and Scott's, crossed the Ross Ice Shelf, is hardly known at all outside Japan – it was inspired and led by Nobu Shirase, a 51 year old Lieutenant in the Japanese Army.

The news of the Japanese Antarctic Expedition was announced in Tokyo in July 1910. It was met with great popular interest, the man in the street was enthusiastic and in fact the expedition was largely financed through a public subscription campaign run by the national newspapers. Count Shigenobu Okuma, an elder statesman and very popular member of the political establishment, became the official Patron of the Antarctic Expedition Supporters' Association.

The first voyage

By the end of November 1910, the expedition was ready to sail. Though it has been said that the expedition slipped out of Tokyo Bay with just one or two people waving goodbye, nothing could be further from the truth. They had a huge send-off with a band playing, speeches, flags and a crowd of about 50,000 to wish them a successful voyage.

Their ship, *Kainan-maru*, which translates roughly as *Southern Pioneer*, was a 204 ton wooden schooner strengthened for use in ice and fitted with an 18 hp engine for the Antarctic expedition. She was about half the size Amundsen's *Fram* and Scott's *Discovery*, and absolutely tiny compared to Scott's *Terra Nova*. The Captain was Naokichi Nomura, and the full complement of expedition members, ship's officers and crew was 27 men. This number included two Ainu dog-drivers, Yamabe and Hanamori, who brought with them 30 sledge dogs from Sakhalin.

During the long voyage south, they kept themselves fit with *sumo* wrestling matches on deck, stretched their intellect with games of *shogi* (Japanese chess) and indulged their senses with music on the *shakuhachi* flute – and because they were also a thoroughly modern expedition, they listened to gramophone records to alleviate the tedium of the long hot nights. However, tragedy struck as one by one the dogs were taken ill and died. By the time they reached Wellington in New Zealand on 8th February 1911, there were only 12 dogs left alive out of the 30 they had started with. Though this was a serious setback they had vowed to reach Antarctica or die and they sailed from Wellington on 11th February.

They caught their first penguin on 17th February, saw their first iceberg on 28th February, and on 6th March they at last sighted Antarctica. Their reaction to their first sight of the white continent was very moving:
“The sight of the setting sun lighting up the Antarctic mountains was wondrous to behold. Anyone can read about paradise in story books. Now before our very eyes lay beauty to rival the abode of the immortals”.

They continued south down the coast of Victoria Land, but it was becoming increasingly difficult to find a way through the ice. At midday on 12th March at 74°16'S, Captain Nomura decided to turn back. Though they were extremely disappointed at having failed to land, it must be remember that by 12th March the Antarctic autumn was well advanced. Scott had commented that it was wise to leave McMurdo Sound by the 12th February, and Shackleton had only just escaped from the pack in the region north-west of Cape Adare on the 9th March 1909 in Nimrod, a much sturdier vessel with a larger engine capacity.

Wintering in Sydney

The plan had always been for Captain Nomura to take *Kainan-maru* north for the winter, having left the expedition members in King Edward VII Land. Now they all sailed to Sydney where they erected the wooden hut, intended for overwintering in Antarctica, at a camp in the suburb of Parsley Bay. At first the Australians were suspicious, but Professor Edgeworth David spoke up for them as genuine explorers and gave them the benefit of his experience on Shackleton’s *Nimrod* expedition. Captain Nomura returned to Japan where he helped to secure funds for another attempt at landing in Antarctica; the ship was refitted at a dockyard in Sydney; and 30 dogs were brought from Sakhalin to replace those which had died during the first voyage.

The second voyage

They sailed from Sydney on 19th November 1911, and the story of their second and successful voyage is too long to recount in full. However, a few incidents will serve to give a flavour of their experience of Antarctica.

Like all Antarctic expeditions of the Heroic Era, they hunted seals – to feed both themselves and the dogs. The following extract is taken from the account of their voyage through the Ross Sea.

“*At 9:40 a.m. we heard the crack of a gun being fired on the deck. Wondering what was up, we rushed out on deck to find that Hanamori had taken a shot at a seal which had come close on the starboard side.*
“The youngest sailor, Shibata, happened to be passing by. The seal was in agony from the wound it had received from Hanamori, and lay dying in the water, unable to move and bathed in its own fresh blood. Seeing this, Shibata hurriedly threw off his clothes and tied a life-line round his waist. Shouting to Hanamori to hold onto the line, he jumped straight into the sea. By then quite a crowd of spectators had gathered at the gunwhale, cheering him on and urging him to finish it off. Shibata, now only in his shirt-sleeves, was doing battle with a seal that must have been at least six shaku [2 m] long.
“*Though the huge seal was injured, it was fighting on its own ground and was as fierce as any lion. However, even such a weighty opponent as this could not overwhelm Shibata, who expertly dodged its angry fangs. The battle lasted several rounds, but the temperature of the sea was –0.5°C. After battling for a full three minutes, and just as he was on the point of capturing the seal our hero lost the use of his limbs, and was forced to retire from the fray. We hauled him back on deck with the life line. In spite of having fought so hard he was not injured in any way.*
“Seeing that his foe was about to dive beneath the waves, the brave man gnashed his teeth in frustration. ‘Such a pity!’ he exclaimed as his shipmates took him below to his berth to warm up.
“Shibata had already shown himself to be a brave man and always game for anything, and now that he had covered
*himself in glory in the battle with the seal, Lt. Shirase gave him a tin of fruit as a special reward.”*1

Another seal hunting incident, when a group of four men was landed on the Ross Ice Shelf to see if it would be possible to set up a base camp there, shows either how they perceived the wildlife of Antarctica as wild and threatening, or how determined they were to be perceived as wild and threatening themselves:

“Just at that moment we spotted a large seal lying on the ice at the entrance to a cave. We called out to the men and they went for the seal, full of courage and shouting with excitement now that they had at last found a worthy opponent. Their four poles came down on the seal again and again, but the enemy bared its fangs and fought back. Its mouth opened wide and it stuck out its blood-red tongue like some huge serpent. The four men finally subdued their foe by a concerted attack from all sides during which it was surrounded and beaten down in a veritable frenzy of blows. This battle lasted a full thirty minutes, and all the combatants were showered with blood and drenched with sweat.”

When a short while later they see the seal drag itself across the ice and vanish beneath the waves, they see it as endowed with almost supernatural powers:

“*It seems that seals recover completely the moment they are back in the sea,*

however badly injured they may have seemed when out of the water. The creatures would appear to enjoy some kind of divine protection.”

The next extract describes an incident that those who have read Amundsen’s ‘The South Pole’ will have experienced from another point of view:

“During the afternoon the sky gradually clouded over. The wind blew mournfully, the temperature dropped, and snow squalls drove sporadically across the deck. Then suddenly we realised that the dark shape we could just make out about twenty miles [40 km] ahead was a ship. ‘Look! Pirates!’ said one of the sailors to Yoshino, who happened to be on deck.

“Total panic ensued! Yoshino was so astonished he went round telling the whole ship, and everyone crowded on deck in disbelief. As we drew nearer, we could see that it was a lone sailing ship, but we were still uncertain where she was from. Just as the Japanese flag flew from the mast of Kainan-maru*, this vessel was also flying a flag, but because of the distance and poor visibility we were unable to see it properly. “Eventually when only about five miles [10 km] remained between the two ships, we managed to identify their flag. It was a blue cross on a red ground, and we were now in no doubt that she was* Fram*, the ship of the Norwegian Polar Expedition.”*

Later the two members of the Japanese expedition who were manning their base camp at the Bay of Whales met Prestrud, who seems to have told them that Amundsen had just returned from the attainment of the South Pole. Thus the Japanese were probably the first to hear the news – the problem was that they didn’t quite understand Prestrud’s English, and the significance of the message was lost.

Some achievements of Lt. Shirase’s Expedition

Although the Japanese Antarctic Expedition spent only a few weeks in Antarctica, it managed some remarkable achievements in the short time it was there.

Their furthest south

From the Bay of Whales a dog sledging party referred to as the *Dash Patrol* set off towards the south-east on 20th January, and achieved their furthest south of 80º05’S on 28th January 1912.

Dog sledging records set

The dog drivers were Sakhalin Ainu, with years of sledging experience. The Japanese account of this overland journey emphasises the harshness of the conditions, and the distances, times, and hence speed of travel, have to be put together from the narrative and the meteorological log. Although it is extremely difficult to compare sledging journeys in Antarctica due to the effects of terrain and weather, Michael Pearson gives an excellent outline of sledging performances in an article which appeared in *Polar Record* in 1995.2 The average speed of Antarctic dog-sledging journeys pre-World War II was 23.3 km per day for journeys of more

than five days duration. For many years the American Laurence Gould's party was thought to have achieved the fastest sustained journey on a twenty-one day crossing of the Ross Ice Shelf during Byrd's 1928-1930 expedition with 38.6 km per day. However, the *Dash Patrol* sledged 549 km over the Ross Ice Shelf in just over eleven days, giving an average of 49.9 km daily. Likewise, Amundsen achieved 99.8 km in 14 hours on his return to Framheim from his 1911 depot-laying journey, but Lt. Shirase's team achieved over 111 km in under 10 hours in similar circumstances.

The landing in Edward VII Land and the eastern voyage

The expedition's other great achievements were the first ever landing in Edward VII Land, where two of the men walked from the ice edge to just below the Scott Nunataks, covering an estimated 60 km in just under 30 hrs with nothing more that the clothes they stood up in and what they could carry in their pockets; and Captain Nomura's furthest east in Antarctic waters, which bettered Scott's record set by *Discovery* in February 1902 by 17.3 km – and the Japanese ship was half the size of Discovery with no engine to speak of, making this a remarkable feat of seamanship.

The return to Japan

Lt Shirase's Antarctic Expedition returned to Tokyo Bay to a hero's welcome. To have succeeded in landing in Antarctica was quite sufficient to demonstrate that Japan was the equal of any western nation, and in reaching the final frontier they had achieved something akin to going to the moon - and everyone was over the moon about it.
However, for various reasons news of their expedition was eclipsed by history, certainly as far as the western world was concerned.

Translating *Nankyokuki* – A Record of Antarctica

The official account of the expedition, *Nankyokuki*, was published in Tokyo in December 1913. No complete translation into any language has yet been published, and the present work, translated from the Japanese by my daughter Lara Dagnell and edited and annotated by myself, is a result of the splendid serendipity, which often occurs in and around the Scott Polar Research Institute in Cambridge.
Lt Shirase's Antarctic Expedition took place at the end of the Meiji Era, a period of rapid modernisation and westernisation as Japan strove to 'catch up' with the West and so avoid the colonial fate of its once-great neighbour, China. The Japanese language was undergoing a corresponding period of rapid change which could be compared with the development of the English language from Chaucer to Dickens. However, as this change took place over a period of approximately 50 years rather than several centuries, the results were, at least to the translator, sometimes somewhat chaotic. The examples which follow illustrate problems at various levels, from individual words to the complete text.

Words

The first examples are words relating to ice. There is a stage in the formation of sea ice when very small platelets of ice come together to form slightly larger platelets,

and as they float about and bump together their edges become a little higher than their centres.

Fig. 1 Lotus leaves or pancakes? The sea ice around Kainan-maru on 10th March 1911

In English and many European languages this is known as *pancake ice*. When the Japanese saw the sea freezing over in this way, they thought not of pancakes, but of something appropriate to their own traditions and culture, and gave it the more poetic name of *lotus leaf ice*, which is what it's called in Japanese to this day.

Another ice feature which they encountered in Antarctica for the first time was *sastrugi*, the hard ridges of wind-blown frozen snow which make sledge travel so difficult. There was no ready-made word to describe these, and so Lt Shirase and his companions described them as *fish bones* – a term which has not passed into modern Japanese.

Some of the most challenging word problems we faced, however, were caused more by accents and the passage of time, and were in the chapter that recounts their experiences in Sydney. They write that the expedition ship *Kainan-maru* was repaired and refitted in the *Chiburi* dockyard. As this was not a familiar name, we checked, and there was no such place in the whole of the Sydney Harbour area. We then tried several possible misspellings which produced slightly more familiar names – Chibury, Jibury, Chibbury, Jibbury, Jibbley, Shipley, Tilbury, – but still could find no such place in Sydney. Then in 2004, I visited Japan to research some outstanding points about the translation and to look for more illustrations and photographs. I visited a small town near Toyota City, not far from the place where Lt Shirase died in 1946, and was presented with the catalogue for an exhibition which had been held the year before. And there on page 48 was an illustration showing an invoice, in English, from a company in Sydney called the Mort's Dock and Engineering Company, and in rather blurred letters could be seen the words *Jubilee Dock*. It seems that the combination of a strong Australian accent and less-than-fluent English on the part of the Japanese was the cause of this misunderstanding.

Another similar problem was a reference in the book to a place in Sydney called *Saakiyuraakii wharf* which we guessed was *Sir Clarkey wharf* – named perhaps after a famous person whose surname was Clarkey. This conundrum was only solved when I actually visited Sydney on my way to the Polar Libraries Colloquy which was held in conjunction with the 30th IAMSLIC Conference in Hobart, Tasmania, again in 2004. I took a ferry from the suburbs to Sydney city centre, and when we arrived at the main terminus, the ferry conductor called out in a strong Australian accent *Circular Quay!* and another mystery was solved.

Written Japanese

At the time the account of the Japanese Antarctic Expedition was written, the Japanese writing system was comparable to English spelling in the 16th century – very creative and almost freestyle, with several different ways of writing the same word. However, it was and still is possible to read English texts from the early modern period quite easily, because English is written using an alphabet that reflects the sound of the spoken word. Japanese on the other hand is written using a non-phonetic system of ideograms, each of which carries a core meaning but can be pronounced in several different ways. Without a truly encyclopaedic knowledge of the written language, even educated Japanese had difficulty reading the almost unlimited ideograms of the time, and in order to make reading easier, the pronunciation of the ideogram was written beside it using the *hiragana* syllabary. Here is the very simple example of these symbols meaning *Kainan-maru*, which is the name of the ship.

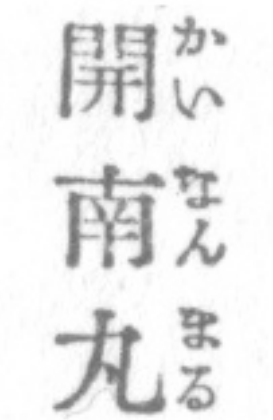


Fig.2 Ideograms on the left, phonetic syllabary on the right

Until the post-war standardisation of the written language in 1946 there were an estimated 50,000 of these ideograms in use, and following standardisation there are now about 2,000. Thus 48,000 ideograms are considered obsolete, and many of them were used in *Nankyokuki.*.Without this contemporary *furikana* pronunciation guide, the translation would have been even more difficult.

Priorities, or what comes first

The differences between Japanese and English go far beyond mere words. A very

simple and well-known example of the difference is that traditionally Japanese books start at what for a European would be the end, and the language is written from top to bottom and from right to left. What is less widely recognised is that to some extent the Japanese also think and express their thoughts in a different order. An English narrative starts at the beginning and continues in a basically chronological and linear progression till it reaches the end.

In Japanese, and certainly at the time of the expedition, a narrative didn't necessarily start at the beginning. What was considered to be the most important events would often come first. In the original account of the Japanese Antarctic Expedition, the first chapter describes how they set sail not from Tokyo, but from Sydney, for the simple reason that it was during their second voyage that they succeeded in landing in Antarctica. The final chapter of the book describes their experiences in Sydney in the months immediately preceding the start of the first chapter. In the English translation we have changed the order of the chapters so that the narrative now starts at the beginning as the expedition sets sail from Tokyo on their first voyage, and ends at the end, back in Tokyo again. Their experiences in Sydney are somewhere in the middle.

However, it was more difficult to identify this inversion of the narrative when it happened on a smaller time scale. The following example from an early draft of the translation describes how they sailed south through the ice of the Ross Sea.

"At around midday the ship sailed into a place where the ice was at its thickest. This was a point 74°16'S, the southernmost final latitude that our ship was able to reach on its first voyage. Though the sea was frozen over, the ice was not so thick and we used the bow of the ship to break through it and slowly advance. We carried on and soon the ice was about 30 cm thick.

For about another page the description of how they sailed south continues - after they just said that they'd reached as far south as they could go. However, the confusion is a result of the most important information being given first, rather that following a chronological sequence. Again and again we were bewildered about what was happening to the ship, to the men and to the whole expedition until we came to terms with this different approach to narrative.
Needless to say, the English translation ensures that the reader know exactly what is happening, and when.

Style and styles

The modernisation of Japan started with the Meiji Restoration of 1868, which was followed by very rapid changes in all areas of Japanese life, including the written language. Traditionally very formal and stylised, written expression now started to approximate to ordinary forms of speech. However, the traditional formal styles of written Japanese were still very much in use. There was, for example, one style for reporting official events; another style for describing a battle between warring

samurai; several different styles of poetry; styles of popular story telling; and the high drama of *Kabuki* theatre. As the official report of the expedition, *Nankyokuki* was written by a committee using contributions from Lt Shirase and Captain Nomura, and from other expedition members with their own personal styles of writing, and it also ranged through all the possible styles of traditional and modern Japanese. The transitions from one style to another were very abrupt and very frequent, with the result that it was difficult to read more than a few pages without becoming mentally exhausted.

In order to produce an account which would be accessible to the Western reader, something had to be done. Overall, to the Japanese reader of the time, the original book was an easily readable and exciting account of a group of courageous men setting out to reach the final frontier. Though nothing has been taken out and nothing added, we have sometimes rearranged sentences so that the transitions from one style to another are not so abrupt. We hope that the result is a very readable account of a very exciting expedition, which has kept its different and very Japanese flavour and is a distinctly oriental experience.

As you may have guessed from my name, I lived in Japan for many years, and translating *Nankyokuki* gave me an opportunity to go back to do some research. Among other things, it meant I could meet Dr. Kou Kusunoki, who spent many years in Antarctica doing scientific research with the new Japanese Antarctic Expeditions, and has very kindly helped us to sort out all sorts of obscure Japanese cultural references. I visited the Shirase Memorial Museum in the northern prefecture of Akita and everyone was very helpful and opened up their archives for me. They have a wonderful exhibition in a very exciting building. Another person I met was Mr Zenya Taniguchi, probably the only person still alive who knew Lt. Shirase, and the author of the first biography of Shirase, first published in a very limited edition in 1940.

First-hand accounts of Lt. Shirase's 1910-12 Japanese Antarctic Expedition (in Japanese)

There have been several first-hand accounts published in Japanese, and these are listed in order of publication, with translated titles in square brackets. I have given details of first editions, and also of more modern editions where available as the first editions are all now extremely rare collectors' items. Please note that this list is not exhaustive – I am sure that with the centenary of the expedition other accounts published many years ago in very limited editions will emerge from the shadows.

- Tada, Keiichi 1912. *Nankyoku Tanken Shiroku* [The authentic account of the Antarctic expedition]. Tokyo: Keiseisha. 2nd ed., 1993. Tokyo: Yumani Shobo ISBN 4896687051

- Tada, Keiichi 1912. *Nankyoku Tanken Nikki* [Antarctic expedition diary]. Tokyo: Maekawa Bunshoeikaku.
  2nd ed., 1993. Tokyo: Yumani Shobo ISBN 4896687078

Keiichi Tada started out as official secretary to the expedition, but seems to have quarrelled with the leader and left the ship as soon as they arrived back in Japan so as to miss the official celebrations in Tokyo. These were the first books about the expedition to be published, and though Tada was openly critical of Shirase's leadership it seems he was a rather difficult character, and after many years and a rather chequered career he admitted that he had caused most of the problems himself.

- Shirase, Nobu 1913. *Nankyoku Tanken* [Antarctic expedition]. Tokyo: Hakubunkan.
  2nd ed., 1942 published as *Watashi no Nankyoku tanken-ki* [Account of my expedition to the South Pole]. Tokyo: Kotoku Seinen Kyoiku Kyokai.
  3rd ed., 1998 published as *Shirase Nobu : watashi no nankyoku tanken-ki* [Nobu Shirase : account of my expedition to the South Pole]. Tokyo: Nihon Tosho Senta.

  These are personal accounts of the expedition by the leader. There were many outstanding debts when the expedition returned to Japan, and Shirase took it upon himself to pay them off, partly through sales of the book and also by travelling the country giving public lectures. The last of the expedition's debts were finally cleared in 1935.

- Yasunosuke, Yamabe 1913. *Ainu monogatari* [The Ainu story]. Tokyo: Hakubunkan.

  This is a very interesting and unusual book, written by one of the two Ainu dog drivers. He was a very important figure in Karafuto/Sakhalin, headman of several villages and unusually for the Ainu at the time he was literate in Japanese. This is his life story, and about a third of the book describes the expedition from the Ainu's point of view. His story has recently been re-written for children in a wonderful picture book by Sekiya Toshitaka called *Yamato Yukihara : Shirase Nankyoku Tanken-tai* [Yamato Snow Plain : the story of Shirase's Antarctic expedition]. 2002, Tokyo: Fukuinkan Shoten. ISBN 4834018873

- Shirase, Nobu and the Japanese Antarctic Expedition Supporters' Association 1913. Nankyoku-ki [Records of Antarctica]. Tokyo: Seiko Zasshisha.
  2nd ed., 1984. Tokyo: Hakubunkan.

  Nankyokuki is the official account of the expedition and the second Japanese edition is a facsimile. This is the first substantial account to be translated into English, and will (we hope) be published in 2011 by Bluntisham Books.

- Shima, Yoshitake 1930. *Nankyoku tanken to Kotaijingu no hosai* [The South

Pole expedition and the enshrinement of Kotaijingu]. Tokyo: Shiso Zendo Tosho Kankokai.

- Shima was purser aboard the expedition's ship *Kainan-maru*, and after the expedition he became a Shinto priest. His book combines an account of the expedition with the history of the Ise Grand Shrine.

Publications in English

None of the main accounts of Lt. Shirase's Japanese Antarctic Expedition have been published in English, though the English translation of *Nankyokuki* will be coming out in 2011 under the (provisional) title of *Records of Antarctica : the Japanese South Polar Expedition of 1910-12.* The following are the main English-language sources of information on which many short accounts in journals and histories of polar exploration have been based.

- Shirase, Nobu. 1912. The First Japanese Polar Expedition. *The Independent (New York)*, 73(3331) :769-773.
  Published on 3 October 1912, this was the first account to appear in English, and is probably a translation of one of the interviews which appeared in the Japanese press.

- Hamre, Ivar. 1933. The Japanese South Polar Expedition of 1911-1912 : a little-known episode in Antarctic exploration. *Geographical Journal*, 82(5) :411-423.
  Ivar Hamre was a Norwegian who had been on whaling voyages to the Ross Sea in the 1920s and had also spent some time in Japan and studied the language. He wrote the first substantial account of the expedition in English, published in 1933 in the *Geographical Journal*. Unfortunately *Nankyokuki* had been out of print for many years and Hamre based his account on entries in a multi-volume collection on the history of exploration, which contained a number of inaccuracies. Most non-Japanese accounts of Shirase's expedition published since the 1930s have been based on Hamre's account, thus perpetuating some minor misconceptions. However, were it not for Hamre's efforts virtually nothing would have been known about the expedition outside Japan.

- Shirase, Nobu and Nankyoku Tanken Kōenkai (compilers and editors) and Uyeda, Seiya (translator). 1957-1958. Appendix to *Nankyokuki*, the report of the Japanese Antarctic expedition, 1910-12. *Antarctic Record*, 1 :38-44; 2 :51-56; 3 :41-51; 4 :57-63; 5 :74-83.
  In the mid-1950s preparations started for Japan to participate in the International Geophysical Year. Professor Seiya Uyeda, then a young geophysicist working with the Japanese Antarctic Research Expedition team, was asked to translate the Appendices to Nankyokuki into English. As well as the scientific results and meteorological observations, these include sections

on supplies and equipment, sledging, the medical report, details of the building and ice-strengthening of the expedition's ship *Kainan-maru*, Captain Nomura's account of the voyage, and the fund raising and other activities of the Antarctic Expedition Supporters' Association.

- Asahina, K. 1973. Japanese Antarctic expedition of 1911-12. In: Edholm, O.G. and Gunderson, E.K.E., eds. *Polar Human Biology*. London: William Heinemann Medical Books :8-14.
  Although this article concentrates on Shirase's Antarctic expedition, it was probably the first to also provide biographical details in English.
  Kusunoki, Kou 1977. Newspaper articles on the Japanese Antarctic expedition with the *Kainan-maru* during her calls at Wellington and Sydney in 1910-1912. *Antarctic Record*, 59 : 177-211.

- Kusunoki, Kou 1993. Australian newspaper articles on the Japanese Antarctic expedition in 1910-1912. *Antarctic Record*, 37(3) : 364-371.
  Dr Kou Kusunoki of the Japan Polar Research Association was himself a prominent member of several Japanese Antarctic Research Expeditions from the 1950s onwards. His collections of contemporary newspaper articles from the Australian and New Zealand press give a lively and informative picture both of the expedition in port, and of the local reaction to the unexpected visitors.

I wrote earlier of the splendid serendipity that there can be around the Scott Polar Research Institute in Cambridge. It was on a coach from Cambridge to London in 1994, on the way to visit the National Maritime Museum in Greenwich during the 15th Polar Libraries Colloquy, that I happened to sit next to David Walton, who at the time was with the British Antarctic Survey. We had never met before, and when he heard my Japanese surname of course he had to tell me about the Shirase expedition. I was thoroughly intrigued, and decided that this was a story that had to be told to the rest of the world as an important but lost chapter in the history of polar exploration.

Notes

1. All quotations from the Japanese account of the Antarctic expedition are taken from:
   Shirase, Nobu and the Japanese Antarctic Expedition Supporters' Association, compilers and editors; Dagnell, Lara and Shibata, Hilary, translators. *Records of Antarctica : the Japanese South Polar Expedition of 1910-12.* In press

2. Pearson, Michael (1995). Sledges and sledging in polar regions. *Polar Record*, 31(176), 3-24.

COLD CASES: LESSONS IN HISTORICAL SKILLS AND METHODS

By Laura J. Kissel/Polar Curator
The Ohio State University
Byrd Polar Research Center Archival Program

ABSTRACT

Special collections -- those unique items held by only a few libraries, or perhaps only by one library in the world -- are valuable resources. In fact, with the proliferation of online journals and e-books that can be accessed from nearly any computer anywhere, special collections are often considered the “jewels” of a particular library’s collection. However, the very nature of special collections makes them challenging to use. They are typically non-circulating, meaning that patrons must visit the repository to gain access. This can involve an expensive research trip across the country, or even across the world. Though experienced scholars and historians are accustomed to this style of research, this can make access difficult, if not impossible, for certain patron groups, such as high school students. While teachers recognize the value in using primary resource materials in the classroom, in practice it can be too difficult to accomplish.

The *Cold Cases* lesson plans were designed as a way to bridge this gap. In conjunction with OSU’s History Teaching Institute, five lesson plans were developed based on the primary resource materials contained within the collections of the Byrd Polar Research Center Archival Program. During an intense one-week workshop, the Polar Archives hosted 7 teachers. Using the state of Ohio curriculum standards, the teachers designed lesson plans based on the materials. All of the original items, including documents and images, were scanned and uploaded to a website, along with step by step lesson plans for teachers to use in the classroom.

Introduction

In 2007, I attended a workshop on campus that featured the various ways that OSU faculty and teaching assistants were utilizing the collections of the libraries, and specifically, special collections, in their courses. Since the history of polar exploration, per se, is not taught here at OSU most users of the Polar Archives are not OSU students at all, but rather scholars and researchers from around the country and indeed, around the world. My motivation in attending this workshop was to investigate the idea of engaging OSU students in using the collections of the Polar Archival Program. I wanted to meet the professors who were already utilizing primary resources in some capacity, and let them know about the possibilities that exist within

the polar archives. A presentation by Dr. David Staley, Director of the Harvey Goldberg Center for Excellence in Teaching, OSU History Department featured *The Opper Project.*[21] Original editorial cartoons from OSU's Cartoon Research Library were digitized and used to create online lesson plans for high school students. I thought this was a fascinating idea – what a great way to teach our future college students about research using primary resources. Thinking about all of the interesting documents, images and artifacts in the Polar Archives, I realized that something similar could be done on the subject of the history of polar exploration. And so, the idea for *Cold Cases* was born. This paper will address the steps taken to accomplish the project, in the hopes that other libraries and repositories may undertake similar projects. To view the Cold Cases lesson plans in their entirety, please visit: http://hti.osu.edu/byrd.

About the Harvey Goldberg Center for Excellence in Teaching

"The *Harvey Goldberg Center for Excellence in Teaching* is at the heart of the OSU Department of History's effort to promote innovative and effective teaching strategies. The Goldberg Center is committed to advancing cutting edge research, engaged teaching, and substantive community outreach to prepare our students and other citizens to become life-long learners and responsible leaders in all walks of life. The Goldberg Center has a three-fold mission:

- To provide professional development, focused especially on pursuing the best strategies for teaching with technology
- To produce a series of publications designed to provide quality teaching and learning materials
- To engage in significant public outreach, especially aimed at teachers and students of history.
-

Consistent with the University's legacy as a land grant institution, the outreach efforts of the Goldberg Center seek to connect the History department with the citizens of Ohio and the world beyond. *The History Teaching Institute* is the primary outreach unit of the Goldberg Center, sharing the History Department's expertise and enthusiasm for teaching history with Ohio's K-12 teachers. The staff of the History Teaching Institute works with teachers to develop standards-based social studies curricula, to incorporate primary sources into classroom instruction, and to employ technology to improve teaching and learning in schools across the state. The HTI has been the recipient of several Teaching American History grants from the U.S. Department of Education, through which the staff offers seminars and summer institutes with content presentations by History Department faculty."[22]

[21] Visit the *Opper Project* at http://hti.osu.edu/opper.

[22] Visit the website for OSU's History Teaching Institute at: http://hti.osu.edu/. The HTI is one component of the Harvey Goldberg Center for Excellence in Teaching, http://goldbergcenter.osu.edu/. Both websites accessed on 26 May 2010.

Given the mission of the Goldberg Center, and specifically, the History Teaching Institute, the idea for creating lesson plans based on the primary resources of the polar archival program was fitting and appropriate. Though my original intent in attending the workshop was to encourage use of the Polar Archives by OSU professors and students, the chance to further engage a different constituency in using the resources of the Polar Archives was a great opportunity in educational outreach.

Project overview

The ultimate goal of the project was to create a web accessible unit on the history of polar exploration to be utilized by high school teachers. We would host a one-week workshop in the Archives whereby a small group of teachers would get the opportunity to work with the original documents and write the lesson plans. Of course, this would have to be scheduled during the summer, as classroom commitments would prohibit the teachers from participating during the school year. I was advised that the time right after school is out (June) or right before school starts (August) would be best in most teachers' schedules. We held our workshop in August. The teachers were paid $100 per day for their time, were provided with lunch daily in our campus Faculty Club, and received free parking passes. Finally, they received continuing education credits. A grant from the Kane Lodge Foundation covered the majority of the expenses for *Cold Cases.* Please see Appendix A for a budget breakdown of the project.

The History Teaching Institute advertised the workshop, and teachers were asked to complete a simple application form in order to participate. Seven teachers from seven different school districts in the state of Ohio participated in the week-long workshop. Their hard work resulted in five lesson plans based on the materials in the polar archives. After the workshop was over, all of the original documents selected by the teachers for each lesson were digitized. Though this process took several months, we were able to complete the scan work in house, so there were no additional costs for the digitization. Finally, all of the relevant materials were posted online with the lesson plans.

All lessons were designed to stand alone, so teachers may elect to teach all 5 lessons if they wish, or they may pick and choose from the lessons. Additionally, teachers may adapt the actual design of the lessons as they see fit. For example, one of the teachers that participated in our workshop was a special needs teacher and some of the activities were too complex for her students. However, she had ideas for ways she could modify the lesson plans to teach appropriately to her students. The main feature of each lesson plan is that primary source documents are used to advance the teaching standards.

Preparing for the workshop

The first step was to identify those items in the polar archival collections that would interest students and make good candidates for creating lessons. Since all materials

would be digitized, no items were considered “off limits” due to condition, value, or any other preservation concerns. Given that Dr. Staley was relatively unfamiliar with the specific holdings of the polar archives, and I was unfamiliar with the teaching standards, it was clear that we would need to work collaboratively. While I worked to identify (broadly) those items in the polar collection that I thought would be interesting to students, Dr. Staley combed through the social studies skills and methods standards to find areas in which we might utilize the collections. We were very cognizant of the need to tie the lesson plans to the state of Ohio teaching standards. Dr. Staley pointed out that no matter how interesting the topic, unless the lesson addressed the standards, teachers would not teach it. The following areas in the social studies curriculum were identified as possible linkages:

Grade Nine social studies skills and methods standards:

Thinking and Organizing

1. Detect bias and propaganda in primary and secondary sources of information
2. Evaluate the credibility of sources for:
    a. Logical fallacies
    b. Consistency of arguments
    c. Unstated assumptions
    d. Bias
3. Analyze the reliability of sources for:
    a. Accurate use of facts
    b. Adequate support of statements
    c. Date of publication

Communicating Information

1. Develop and present a research project including
    a. Collection of data
    b. Narrowing and refining the topic
    c. Construction and support of the thesis

Grade Ten social studies skills and methods standards:

Thinking and Organizing

1. Determine the credibility of sources by considering the following:
    a. The qualifications of the writer
    b. Agreement with other credible sources
    c. Recognition of stereotypes
    d. Accuracy and consistency of sources
    e. The circumstances in which the author prepared the source

2. Critique evidence used to support a thesis.

Dr. Stuart Hobbs, director of the History Teaching Institute, joined our project team at this time. Between the three of us, we refined and came up with 5 research topics that addressed specific social studies standards using the polar archival collections here at OSU. They are:

Birds of a Feather

In 1928, Richard E. Byrd led his first exploration of Antarctica. At the time, the expedition was the best equipped journey to Antarctica to date, and included a total of 42 men who stayed through the winter on the southern continent. All members of the expedition were important and served specific roles. The Richard E. Byrd Papers contain many files of information about those who applied and were ultimately selected to serve. Using selections from those papers, students will analyze the characteristics, skills and traits of the men who accompanied Byrd to Antarctica.

Boy Scout with Byrd

In 1928, Richard E. Byrd led his first exploration of Antarctica. At the time, the expedition was the best equipped journey to Antarctica to date, and included a total of 42 men who stayed through the winter on the southern continent. One of the members of the expedition was Paul Siple, a Boy Scout who was chosen in a national search to accompany the Byrd expedition. Here, students will examine documentation that was used to evaluate the scouts who applied to go, and assess the reasons why Siple was ultimately chosen.

Daily Life in Antarctica

Richard E. Byrd led his second expedition to Antarctica in 1933, with the primary goal of advancing scientific research. Though this expedition was organized and carried out during the Great Depression, it was even larger than his first trip in 1928. The Richard E. Byrd Papers are rich with evidence about this expedition, including thousands of photographs that document the day to day experiences of those who participated. Using those photographs, students will describe—visually and textually—daily life in Antarctica.

Did Byrd Fly over the North Pole in 1926?

On May 9, 1926, Richard E. Byrd announced that he and copilot Floyd Bennett were the first to fly an airplane over the North Pole. Though Byrd's claim was questioned by some during the time, doubters became more vocal after Byrd's death in 1957. The Richard E. Byrd Papers contain many documents including diaries, letters, and reports pertaining to this controversy. Students will analyze, synthesize and evaluate primary source documents to determine whether or not Byrd flew over the North Pole in 1926.

Who Won the Race to the North Pole: Cook or Peary?

The question—Who was first to the North Pole?—has been hotly debated, and still is to this day. Dr. Frederick A. Cook claimed that he reached the Pole on April 21, 1908. Cook claimed that drifting ice prevented him and his party from returning to civilization until 1909, when he made his announcement on May 21. In the meantime, Robert E. Peary claimed that he was the first to the North Pole on April 6, 1909. The Frederick A. Cook Society collection contains a wide range of materials on both sides of this controversy.

Note, that four of the five lesson plans are based on materials from the Richard E. Byrd Papers; the fifth lesson is taken from the Frederick A. Cook Society collection. Given the sheer size of the collections – more than 500 cubic feet of material in the Byrd Collection and about 75 cubic feet of materials in the Cook Society Collection – I “pre-researched” the collections, as it would be logistically impossible for the teachers to do all of the research for these topics during a one-week workshop. I pulled any and all documents that I thought could be used to address the research questions. I invited Dr. Staley and Dr. Hobbs back to review the materials I had located, and we refined the selection of primary resources somewhat at this time. The final step was for the teachers to review the materials I had pre-selected and then choose those documents and images that would work best to address each particular research question.

Conducting the workshop

Our goals for the week were ambitious – we had five days to produce five workable lesson plans. We spent the first half of day one in orientation activities, so this reduced our productive work time as well. We decided that it made sense for all of the teachers to work together on the first day, as a way to become familiar with each other, with us, and with the work at hand. However, given the time constraints, we divided them into two groups to work on the remaining questions. See Appendix B for a copy of the daily agenda.

We provided several laptop computers so that the teachers could key in the information as they worked. By the end of day five, the team had indeed created five lesson plans. It was an intense week of research and creativity, but we felt that five very engaging lesson plans had been created. Eventually, all of the selected documents and images were scanned and delivered to Dr. Staley, whose staff created the website. It took a long time between workshop to workable web site – actually a year. This was due to a number of factors – one, the scan work was time consuming and, since we did this in-house, it had to be incorporated into our existing work routines. Two, the creation of the website required many decisions that had to be made about the best way to exhibit various components of each lesson plan. Also during this time, the website hosting the lessons was hacked and a security breach had to be remedied before we could proceed.

Conclusion

The *Cold Cases* web site has been live since the beginning of the 2009 academic year. Given the web-based format, it is not possible to know whether high school teachers are actually using the lesson plans. We do know that as of January, 2010, the *Cold Cases* website was averaging about 50 hits per month. The *History Teaching Institute* has developed some ways to drive use of this type of website, but has not had the resources to apply these techniques to *Cold Cases*. This is a priority for their newly appointed graduate assistant, who begins working for the HTI soon. Additional advertising of the site to the appropriate constituents would certainly make it more successful. I have also found that the materials can be adapted to the college level. Here at OSU, History 398 is a historical methods course emphasizing the use of primary resource materials and historical thinking. Some professors are now requiring research in the archival collections as a major component of the coursework. Last fall I worked closely with seven students that did polar projects based in part on the *Cold Cases* lesson plans.

Discussing the relative success with my colleagues, Dr. Hobbs remarked, “*Cold Cases* brought together a group of teachers to work with primary sources. Teachers rarely get to work with original sources in an archival setting, so that is beneficial to them. It gave them some first-hand experience “doing” history. They had a chance to think about historical questions and practice using sources to answer those questions….and this should help make them better teachers. Through the web format, students will encounter quality reproductions of the original documents that will give them an experience closer to doing archival research than they would get from reading a published source.“ [23]

Our newly appointed Director of the University Libraries, Carol Diedrichs, recently blogged “today’s library collections are print, digital, and multimedia. Libraries must manage the evolution of our information resources to match the needs and behaviors of users, and to reflect changing technologies and practices in publishing, research and teaching. We will accelerate the transition to a digital collection where appropriate, place an emphasis on making content accessible and discoverable, facilitate the discovery of and access to locally owned collections of distinction, expand projects to digitize library collections, and identify strategies to collect born digital collections of relevancy to library special collections. “ She states further that the Libraries will, “…move from a collections-centered model for library liaisons to an engagement-centered model including campus engagement, content/collection development and management, teaching and learning with particular emphasis on information literacy, scholarly communication, e-scholarship and digital tools, reference and help services, and outreach to the community.”[24] *Cold Cases* is one initiative that meets these goals.

[23] Hobbs, Stuart. “Your opinions please.” E-mail to the author. 21 May 2010.
[24] Diedrichs, C. “From the Director” blog [intranet]. Columbus, The Ohio State University Libraries. 21 May 2010 [cited 26 May 2010].

Appendix A.

Budget for *Cold Cases*

7 teachers for one week @ $100 per day = $3500
Lunches for one week @ ~$140 per day = $700
Parking passes for 7 @ $5.00 per day = $175
Scanning = done in house
Web design = $2125
TOTAL = $6500

Appendix B.

Daily Agenda

Monday, August 4 – a.m.

- Meet at University Archives/Book Depository Conference Room
- Distribute parking passes, nametags
- Introductions – who you are, where and what do you teach and who we are
- Tour of the University Archives/Book Depository
- Overview of the Polar Archival Program and collections
- How to mark documents in an Archival collection - Laura
- Social Studies Skills and Methods: The Art of Historical Investigation – Dave
- Lesson Plan Template – Stuart

Lunch at the Faculty Club at noon

Monday, August 4 – p.m.

Boy Scout with Byrd

For this unit, sources will be collected that will enable students to write the story of Paul Siple, a boy Scout with traveled with Byrd to Antarctica. Sources will include photographs, letters, press releases and other documents. All teachers will work together on this unit.

Tuesday, August 5 and Wednesday, August 6

Teachers will be divided into two groups. Each group will work on *one* of the following questions for two days:

- **Birds of a Feather**

This unit will let students examine the lives of the men who served on Byrd's expeditions. Job applications, correspondence, diaries and other documentation of six members of Byrd's first expedition to Antarctica will be selected to answer such questions as: What motivated them? What was their background? What appeared to be Byrd's criteria for whom he selected?

- **Daily Life in Antarctica: the images of Byrd's Second Expedition to Antarctica**

How can images be used to tell the story of the past? To answer that question, we will look at the photographic record of Byrd's 1933-35 Antarctic Expedition and see what it can tell us about the daily life of the participants. A goal of this unit will be to teach students visual literacy—how to look closely at images and see what is there. Traditional primary source analysis questions will also be applied to these sources: What was Byrd's purpose in documenting the expedition so extensively through photographic imagery? What story was Byrd trying to tell?

Thursday, August 7 and Friday, August 8 – Polar Controversy

Teachers will be divided into two groups. Each group will work on *one* of the following questions for two days:

- **Who won the race to the North Pole: Cook or Peary?**

This unit will marshal a variety of sources on both sides of the controversy to help students answer such questions as: Why has this been so difficult to prove? By what means would we solve a similar problem today?

- **Did Byrd fly over the North Pole in 1926?**

This unit will include a variety of sources presenting all sides of this dispute, including diaries, letters, reports and other documents, to give students the opportunity to weigh evidential bias, credibility, context, etc.

THE INTERNATIONAL POLAR YEAR PUBLICATIONS DATABASE: THE FIRST 4000

Ross Goodwin
Arctic Science and Technology Information System, Arctic Institute of North America, University of Calgary
Sharon Tahirkheli
Cold Regions Bibliography Project, American Geological Institute
Heather Lane
Library, Scott Polar Research Institute, University of Cambridge
Ruth Duerr
National Snow and Ice Data Center, University of Colorado
Allaina Wallace
National Snow and Ice Data Center, University of Colorado
P.T. Dheerendra
NISC Export Services Pvt. Ltd.

ABSTRACT

The International Polar Year Publications Database (IPYPD) is attempting to identify and describe all publications that result from, or that are about, IPY 2007-2008 and the three previous IPYs. The IPYPD is produced by an informal consortium of the Arctic Science and Technology Information System (ASTIS), the Cold Regions Bibliography Project (CRBP), the Scott Polar Research Institute (SPRI) Library, the Discovery and Access of Historic Literature of the IPYs (DAHLI) project at NSIDC, and NISC Export Services Pvt. Ltd. (NES). The IPYPD was made public on March 1, 2007, the first day of IPY 2007-2008, at http://www.nisc.com/ipy. It is updated four times per year, and described 3992 publications as of May 2010. The records in the IPYPD contain citations, abstracts, detailed subject and geographic indexing terms, and DOI or URL links to online publications.

The IPYPD makes use of existing polar bibliographic information systems, so that reporting a publication to the IPYPD ensures that, where appropriate, it is also cited in the Bibliography on Cold Regions Science and Technology, the Antarctic Bibliography, the SPRILIB databases and the ASTIS databases. The purchase of National Information Services Corporation (NISC) by EBSCO Publishing has complicated the flow of information, and at this writing we do not yet know whether new IPYPD records will continue to be added to the Arctic & Antarctic Regions database.

The IPYPD has so far encountered two significant problems: many IPY researchers are not yet aware that they should report their publications to the IPYPD, and it has been difficult to find funding for comprehensive coverage of the publications of the

first three IPYs. In spite of these difficulties, the database is growing rapidly as the results of IPY 2007-2008 start to appear in the literature. Work on the IPYPD will continue for at least the next ten years.

Introduction

The International Polar Year (IPY) 2007-2008 was an intensive burst of interdisciplinary internationally coordinated observations and scientific research focused on the Earth's polar regions. The IPY observational period extended from March 1, 2007, to March 1, 2009, to allow researchers to conduct two annual observing cycles in each polar region. The data gathered during this observational period will be used to conduct research and publish results for many years to come.
It is difficult to estimate how many publications will result from the IPY. The most recent similar research program was the 1957-58 International Geophysical Year (IGY). The final IGY bibliography (Beynon, 1970) contained almost 6000 references and was completed twelve years after the end of the IGY. It is probably reasonable to assume that the IPY will result in about 20,000 publications.

A bibliographic database of the publications that result from the IPY will be of great benefit to polar researchers, to the managers of polar research programs, and to those working on future polar education, outreach and communication activities. Many IPY publications will be cited in discipline-oriented databases, but such databases are often unknown to researchers in other disciplines. Social science publications and grey literature are often not cited in any database. Without an IPY bibliographic database, obtaining an inter-disciplinary view of IPY results, or a view of results by geographic region, would require searching many databases and would miss many publications. An IPY bibliographic database will be of even greater value if its design ensures that IPY publications are also included in all appropriate ongoing polar bibliographic databases, so that IPY publications remain accessible in the distant future when users no longer think to search the IPY database itself.

Building the IPY Publications Database

In the spring of 2005, four organizations agreed to work together to create an IPY Publications Database (IPYPD). This database would attempt to identify and describe all publications resulting from, or about, IPY 2007-2008 and the three previous IPYs. The Cold Regions Bibliography Project (CRBP) at the American Geological Institute produces the Bibliography on Cold Regions Science and Technology and the Antarctic Bibliography. The Scott Polar Research Institute (SPRI) Library at the University of Cambridge produces the SPRILIB databases and assists the CRBP with the Antarctic Bibliography. The Arctic Science and Technology Information System (ASTIS) at the Arctic Institute of North America, University of Calgary, produces the ASTIS database. National Information Services Corporation (NISC) was, at that time, combining these databases and others to produce the Arctic & Antarctic Regions (AAR) database describing more than one million polar publications.

These four organizations formed an informal consortium and prepared a proposal to create an IPYPD as part of the IPY Data and Information Service, which is led by the National Snow and Ice Data Center at the University of Colorado. The IPY 2007-2008 Joint Committee endorsed the proposal in August 2005. During 2006 the members of the consortium began creating new records for IPY publications, as well as identifying existing IPY publication records in their databases. Beginning in September 2006, programmers at NISC's related company, NISC Export Services Pvt. Ltd. (NES), used ideas and feedback from the other members of the consortium to create the IPYPD database and website. In early 2007 the Discovery and Access of Historic Literature of the IPYs (DAHLI) project at the National Snow and Ice Data Center joined the IPYPD consortium to provide coverage of publications from the first three IPYs (IPY 1882-1883, IPY 1932-1933 and IGY 1957-1958).

The IPYPD was made available online at http://www.nisc.com/ipy on March 1, 2007, the first day of IPY 2007-2008.

Aspects of the Database Design

As described at the two previous Polar Libraries Colloquies (Goodwin, et al, 2007, Goodwin, et al, 2010), the IPYPD makes use of the existing system for indexing polar literature, and, until last year, made use of NISC's AAR database to aggregate the resulting bibliographic records. Depending on their subject and geographic scope, IPY 2007-2008 publications are reported to ASTIS, CRBP or the SPRI Library. Simplified somewhat, the rule that researchers are requested to follow is that publications about northern Canada are reported to ASTIS, about the Antarctic and about non-living things to CRBP, and about living things to SPRI. The number of indexing organizations was limited to three in order to avoid making this reporting rule more complicated. The three organizations prepare records in their usual ways for use in their existing databases, but tag IPY records so that they can be identified. NES included all records from the three organizations in AAR as usual, but then copied the tagged IPY records to create the separate IPY Publications Database.

Publications from the first three IPYs are identified, indexed and digitized by the DAHLI project, as that project's resources allow. In addition, the other three indexing organizations are identifying publications from previous IPYs that are already in their databases, and doing some new indexing of publications from previous IPYs. Records from the first three IPYs are tagged for inclusion in the IPYPD in the same manner as records for IPY 2007-2008 publications. The IPYPD Basic Search page allows users to restrict their searches to any of the four IPYs by using the "IPY" menu.

Using NES's BiblioLine software and the existing infrastructure for the AAR database allowed the IPYPD consortium to create its database at a very low cost. Because of NES's automatic duplicate detection there is no problem if more than one of the indexing organizations indexes the same IPY publication. NES's COMPARE technology identifies duplicate bibliographic records, no matter in which format or

publication type they arrive. This technology merges similar records provided by more than one contributor into a composite record that binds index terms and abstracts from all the merged records.

The records in the IPYPD include citations, detailed subject and geographic indexing terms, and, in most cases, abstracts. Most IPY 2007-2008 publications are available online, and the records describing these publications contain DOIs or URLs linking to PDF files of the publications. Some of the publications from the previous IPYs were also already available online, and others are being digitized by the DAHLI project.

The IPYPD considers IPY publications prepared for education, outreach and communication (EOC) purposes to be equal in importance to research publications, and provides a method to search for just EOC publications using the "Audience" menu. Most EOC publications that describe IPY 2007-2008 activities are being created by IPY projects, but it was decided to also include in the IPYPD those publications about IPY 2007-2008 activities that are being created by non-IPY organizations such as general-interest magazines.

The Reporting Your Publications page of the IPYPD website tells researchers how to determine to which organization an IPY publication should be reported, describes what information researchers should send when reporting a publication, and defines what is meant by IPY publications. The original IPYPD website also had a Contributing Records page that described how other polar libraries and databases could contribute to the IPYPD by using special subject terms to tag records, and by contributing those records to NISC's AAR database.

One of the objectives of the IPYPD project was to index a publication once and then to use the resulting bibliographic record in many ways. The IPYPD database will describe all, and only, IPY publications. All IPYPD records were also made available in the AAR database, which is widely used by polar research organizations. The IPY records prepared by each of the indexing organizations also appear in those organizations' main databases: the Bibliography on Cold Regions Science and Technology, the Antarctic Bibliography, the SPRILIB database and the ASTIS database. Some of the indexing organizations also make their IPY records available in other databases, as described in a later section of this paper. Users of all of these databases will learn of IPY publications that are relevant to their needs, even if they are unaware of the IPYPD or of the IPYs. The IPYPD will leave a legacy of records in many databases describing IPY publications, thus ensuring that the results of the IPYs are always available and accessible.

A Complication: The Purchase of NISC by EBSCO

In October 2008, NISC was purchased by EBSCO Publishing, a large American database producer and online service. NISC's related company, NES, was not purchased by EBSCO, and retained the rights to the BiblioLine software and the servers that had been used by NISC. By early 2009 the AAR database was available

on EBSCO's widely-used EBSCOhost system, but was still being prepared by NES under contract. Soon after, AAR was removed from the BiblioLine website.

None of these changes affected the IPYPD. Because NES was still producing AAR for EBSCO they were able to continue to extract the IPYPD records from AAR and make them available from the usual website at http://www.nisc.com/ipy.

In September 2009 EBSCO ended their contract with NES and began producing AAR in-house. Because EBSCO did not have the ability to accept records from the many polar libraries and databases that were contributing records to AAR, no records from those sources have been added to AAR since the July 2009 update. EBSCO is considering developing the capability to accept external records, but as of this writing it is not known what their decision will be.

In October 2009 EBSCO gave NES permission to continue to make the IPYPD available from http://www.nisc.com/ipy. The four IPYPD indexing organizations now send only their IPYPD records to NES, and NES no longer has to extract IPYPD records from the much larger stream of AAR records. The IPYPD continues to be updated quarterly.

The purchase of NISC by EBSCO had two consequences for the IPYPD. First, we can no longer say that all IPYPD records are in AAR. That statement is true only for IPYPD records created up to June 2009. Second, it is no longer possible for libraries other than the four IPYPD indexing organizations to contribute records to the IPYPD by simply tagging them and including them in the files that they send to AAR. Libraries other than the four IPYPD indexing organizations may now report publications from IPY 2007-2008 to ASTIS, CRBP or SPRI as described on the IPYPD Reporting Your Publications page, and may report publications from the first three IPYs to DAHLI.

Current Database Contents

As of May, 2010, the IPYPD described 3992 publications. The distribution of publications by IPY is shown in Table 1. Because some publications are about more than one IPY the sum of the numbers of publications is greater than 3992. Note that at present there are more IGY 1957-1958 publications than IPY 2007-2008 publications described in the database.

Tab. 1: Distribution of publications by IPY

International Polar Year 1882-1883	444
International Polar Year 1932-1933	272
International Geophysical Year 1957-1958	1960
International Polar Year 2007-2008	1439

The distribution of IPYPD publications by year of publication is shown in Fig. 1. Publications produced to commemorate the 100th anniversary of the first IPY caused the small peak in publications during the 1980's. Since the database currently describes only one-third of IGY publications, if we are successful in identifying or creating records for almost all IGY publications the area under the IGY peak will eventually be three times as large as it is now. If our guess that IPY 2007-2008 will result in 20,000 publications is correct, and if we are successful in creating records for almost all of them, the area under the IPY 2007-2008 publications peak will eventually be fourteen times as large as it is now.

IGY publications peaked in 1958, the second observational year of that IPY. It will be interesting to see in which year IPY 2007-2008 publications peak. Our guess is that it will be in 2010 or 2011.

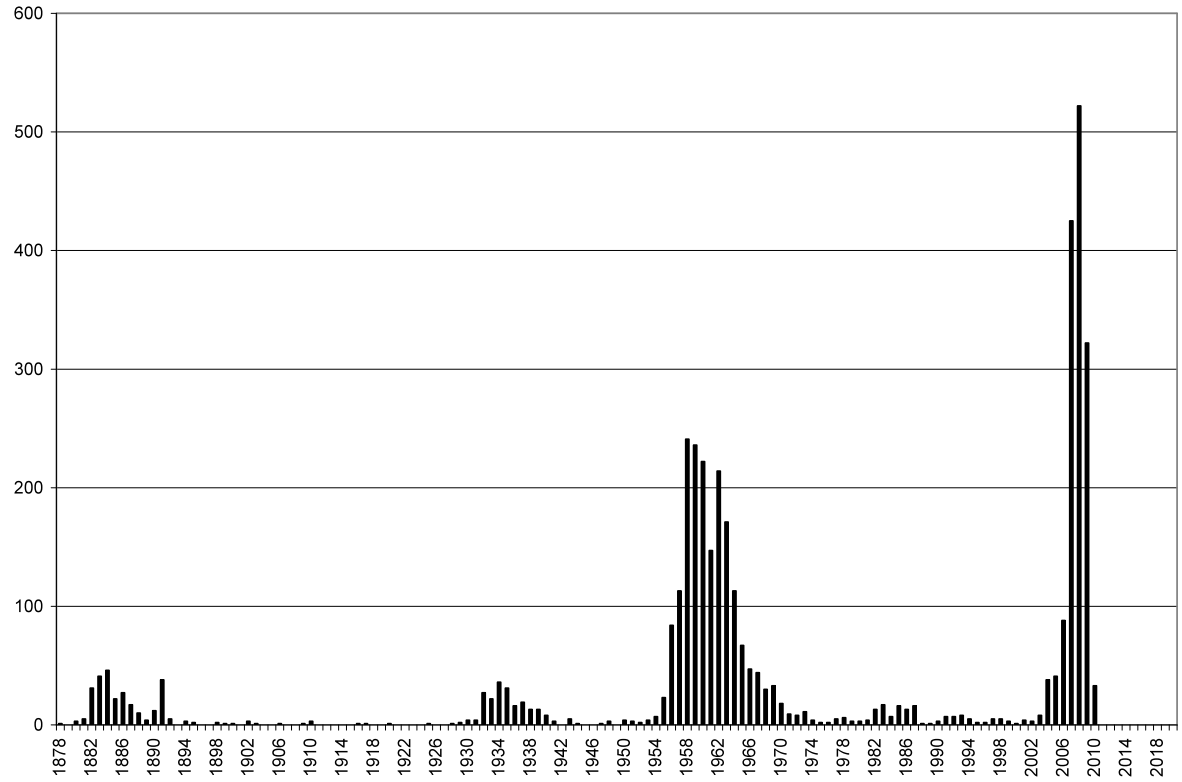


Fig. 1: IPYPD publications by publication year, 3992 publications, 2010-05-24

The distribution of IPYPD publications by audience is shown in Table 2. Education, outreach and communication (EOC) publications are those that were written for members of the public or for K-12 students. Surprisingly, the first IPY has the highest proportion of EOC publications. This is because of the many accounts of first IPY expeditions, especially the disastrous Greely expedition to Ellesmere Island, that have been written for the general reader. The proportion of fourth IPY EOC publications will decline over the coming years, because the production of EOC publications has almost ceased while the production of research publications has yet to peak.

Tab. 2: Distribution of publications by audience

Audience	**IPY 1**	**IPY 2**	**IGY**	**IPY 4**
Research	261	199	1519	915
EOC	251	98	537	591

IPY Bibliographic Activities by Individual IPYPD Participants

Arctic Science and Technology Information System (ASTIS)

ASTIS has created the bilingual Canadian IPY Publications Database at http://www.aina.ucalgary.ca/ipy, which describes publications from Canadian IPY projects, as well as publications from foreign IPY projects that have studied northern Canada. As of May, 2010, this database described 1926 publications, of which 1447 are from IPY 2007-2008 and the remainder are from the previous IPYs. ASTIS has examined the available bibliographies for the first three IPYs and has created records for all Canadian IPY publications that were found.

Because of their importance to Canadian IPY researchers and funding agencies, ASTIS has chosen to include published conference abstracts in the Canadian IPY Publications Database, even though conference abstracts are not included in the IPYPD. Of the 1447 IPY 2007-2008 publications in the Canadian database, 703 are conference abstracts. Another unique feature of the Canadian database is that in addition to tagging records by IPY, ASTIS is also tagging them by individual research project. A large menu currently lists about 140 projects, subprojects and expeditions, including 113 IPY 2007-2008 projects.

ASTIS uses Canadian IPY records in its many subset databases, all of which are accessible from http://arctic.ucalgary.ca/index.php?page=astis_database. These databases include the Yukon Biodiversity Database, the Inuvialuit Settlement Region Database, the Nunavut Environmental Database, the Nunavik Bibliography, the Circumpolar Health Bibliographic Database, the Kluane Lake Research Station Bibliography, etc.

Cold Regions Bibliography Project (CRBP)

The CRBP, produced by the American Geological Institute (AGI), is attempting to document IPY publications in the areas of physical science and engineering for the Arctic region and in all sciences for Antarctica. An online list of current IPY publications is maintained at http://www.coldregions.org/ipypubs.htm. These publication references are derived from either the Bibliography on Cold Regions Science and Technology or the Antarctic Bibliography. The list is arranged alphabetically by author surname and currently contains 346 references. The list is now long enough that the CRBP is considering revising the format to allow easier access. Initially, these references were primarily to publications about planning for the IPY. Scientific research results have been appearing slowly and, with the exception of lists provided by a few national programs, large numbers of publications have not yet been reported to the CRBP.

In addition to IPY 2007-2008 publications, the CRBP has begun to identify and mark references from the first three IPYs that are contained within the Bibliography on Cold Regions Science and Technology or the Antarctic Bibliography. As of May 2010, the CRBP had tagged 1224 references across all of the IPYs. The Arctic Bibliography, a collection of more than 114,000 references spanning the time periods of the first three IPYs, has also been examined by AGI. 341 records have been identified as of May 2010. To identify and tag these records, AGI has depended primarily on data contained within the references themselves. Comparison of the AGI databases to bibliographies for the various IPYs has not been attempted to any great degree and is not currently funded.

Scott Polar Research Institute (SPRI) Library

The broad remit of SPRI's collecting policy has meant a considerable overlap with that of the other IPYPD participants. SPRI is primarily responsible for recording publications from IPY projects concerned with the biological, medical, social and human sciences, and about the IPY in general (e.g., publications about the organization and operation of the entire IPY; education, outreach and communication publications that discuss the entire IPY rather than focusing on a particular subject or geographic region). Until the closure in 2010 of the International Programme Office of the IPY, also based in Cambridge, material was regularly deposited by the IPO. The IPO has been instrumental in ensuring the collection of much ephemeral material which might otherwise go unrecorded.

SPRI's IPY records also appear in the SPRILIB databases at http://www.spri.cam.ac.uk/resources/sprilib and monographic records in the University of Cambridge Newton catalogue at http://www.lib.cam.ac.uk/newton. They are also included in the Institute's serial publication, *Polar and Glaciological Abstracts*, issued three times per year. As an adjunct to the project, library staff have also begun to tag published material from the first three IPYs.

Discovery and Access of Historic Literature of the IPYs (DAHLI)
DAHLI's records currently appear on the DAHLI Bibliography page at http://nsidc.org/dahli/bibliography.html.

Potential Problems

Identifying IPY Publications

The *International Polar Year 2007-2008 Data Policy* and the *IPY 2007-2008 Scholarly Publications Policy* both require that all IPY 2007-2008 publications be reported to the IPYPD. When the consortium members began work on the IPYPD in 2005 we naively assumed that this requirement would make it relatively easy to identify IPY publications. Discussions with IPY researchers have taught us that while researchers are very attentive to the wishes of the organizations that fund their research, they are much less attentive to the wishes of the international IPY Joint Committee, which provides no funding. We suspect that many IPY researchers will never even visit the international IPY website, let alone read the policy documents that are available there.

This should not be a problem in the case of researchers funded by national programs established specifically to provide funding for IPY projects, since such programs will hopefully enforce the reporting requirements on the projects that they fund. For example, the Government of Canada Program for IPY has its own *Canadian IPY 2007-2008 Data Policy* which requires the reporting of publications to the IPYPD, and the Government of Canada Program for IPY forwards to ASTIS the lists of references from researchers' annual reports. It appears that, because of this, the IPYPD's coverage of Canadian IPY publications is currently more complete than its coverage of IPY publications from other countries. Of the 1439 IPY 2007-2008 publications in the IPYPD as of May 2010, 52% are Canadian IPY publications indexed by ASTIS.

The members of the IPYPD consortium have taken several actions over the past two years to encourage the reporting of IPY publications. Frequent announcements are made in polar research e-mail lists, newsletters and multidisciplinary journals, and on our organizations' websites. Conference presentations about the IPYPD are made as frequently as time and money allow. A new section entitled "The Short Version" has been added at the beginning of the IPYPD Reporting Your Publications page to provide very simple instructions for reporting. In April 2010 the Director of the IPY International Programme Office made a personal appeal to all of the IPY 2007-2008 Google Groups to report their publications, and asked national IPY contacts to forward his e-mail to all of the IPY researchers in their countries.

In spite of these measures, the rate of voluntary reporting by researchers seems fairly low. Perhaps it is just too early to expect large numbers of IPY publications.

Funding to Cover Publications from the First Three IPYs

Fundraising for the IPYPD has, for the most part, been very successful. The Acknowledgments section at the end of this paper lists the seven organizations that have provided funding so far.

As of May, 2010, the DAHLI project is still waiting for a decision from the National Science Foundation about a major part of its funding. Without that funding it will be difficult for the IPYPD to provide comprehensive coverage of the publications from the first three IPYs. Despite that problem, NOAA's Climate Data Modernization Program (CDMP) continues to fund DAHLI digitization activities. Materials in the Carnegie Institute's holdings have been digitized, in addition to materials at the University of Colorado library. Current digitization efforts include seven boxes of materials from the University Corporation for Atmospheric Research (UCAR).

Conclusion

The IPYPD has been very successful so far, but the work of identifying and indexing IPY publications has only begun. We look forward to reporting on our successes and problems at future Polar Libraries Colloquies.

To make the IPYPD easily available to potential users, and to remind IPY researchers that they should report their publications, the members of the IPYPD consortium would appreciate it very much if Colloquy members could put links to the IPYPD on their libraries' websites. Please don't hesitate to report IPY publications by the researchers in your organization or country.

Acknowledgments

The Cold Regions Bibliography Project's work on the IPYPD is supported by the U.S. National Science Foundation and the U.S. Army Cold Regions Research and Engineering Laboratory under NSF Grant No. OPP-0440772. Work by the Arctic Science and Technology Information System (ASTIS) on the IPYPD has been made possible by the generous support of the Government of Canada Program for International Polar Year and EnCana Corporation. The Royal Society supports the work of the World Data Centre for Glaciology at the Scott Polar Research Institute in its contribution to the IPYPD. SPRI is also supported by the Directorate of Naval Surveying, Oceanography & Meteorology. The Discovery and Access of Historic Literature of the IPYs (DAHLI) project would like to thank the NOAA Climate Data Modernization Program for digitization funding.

We would also like to thank David Carlson and Rhian Salmon of the IPY International Programme Office, and Mark Parsons of the IPY Data and Information Service, for their advice and for their help in publicizing the IPYPD.

Each of the IPYPD consortium members would also like to thank the many organizations and people, too numerous to mention individually, that have assisted their work on the IPYPD.

References

Beynon, W.J.G. 1970. Bibliography and index. Annals of the International Geophysical Year, volume XLVIII. Oxford: Pergamon Press.

Goodwin, R., S.N. Tahirkheli, H. Lane and F. Durr. 2007. The International Polar Year Publications Database. In: Building polar networks: A strategy for the future. Proceedings of the 21st Polar Libraries Colloquy, May 8-12, 2006 - Rome, Italy, Edited by S. Sarti and M. Cecconi. - Rome: PNRA S.C.r.l., p. 90-102.

Goodwin, R., S. Tahirkheli, H. Lane, R. Duerr, A. Wallace and F. Dürr. 2010. The International Polar Year Publications Database: A progress report. In: Proceedings of the 22nd Polar Libraries Colloquy. In press.

POLAR LIBRARIES USING E-SCIENCE COMMUNICATION DURING THE 4TH INTERNATIONAL POLAR YEAR 2007-2008

Gloria Hicks
Roger G. Barry Resource Office for Cryospheric Studies @ the National Snow and Ice Data Center, ROCS

Guten tag! Bon jour! Hello! God dag! Buongiorno! Bueno diaz! Konnichiwa! Ni Hao! Dobry den!

I am Gloria Hicks, and I am one of the two librarians at the Roger G. Barry Resource Office for Cryospheric Studies @ the National Snow and Ice Data Center, or simply, ROCS. This paper evolved from a poster presented at the American Library Association's annual conference in 2009.

Through the thoughts and ideas presented today, I hope to open a discussion among us as to how librarians and researchers communicate, and perhaps how they will communicate in the near future through all types of e-communication: from internet databases to tweets, from blogs to virtual reality.

Let's start with some definitions of e-science and e-communication. Of course, tracking down a dictionary definition of either term is at the very least, interesting, and I found that the way I am using one of the terms is a little different then the available definitions.
E-communication is the use of various internet tools for communicating information to large groups of people or private conversations between two individuals. The tools of e-communication include email, web sites, and electronic documents, plus the tools used to access the internet for e-communication. They provide the opportunity to combine numerous media - text, graphics, sound, video, etc. - into a single message, adding more clarity and impact to the message.

Libraries use e-communication in various ways to support their user-base and the global community:

- Internet pages provide both access to published material and a place to publish research results
- Digital copies of hard-to-find materials linked online to create easier and free access
- Online bibliographies help researchers find current and past data
- Email and instant messaging keeps field researchers in the loop

According to Wikepedia, the term, e-science, was created by John Taylor, the Director General of the United Kingdom's Office of Science and Technology in 1999 and was used to describe a large funding initiative starting in November 2000. In Mr. Taylor's words, "e-Science is about global collaboration in key areas of science, and the next generation of infrastructure that will enable it." And "e-Science will change the dynamic of the way science is undertaken." E-Science is computationally intensive science that is carried out in highly distributed network environments, or science that uses immense data sets that require grid computing; the term sometimes includes technologies that enable distributed collaboration, such as the Access Grid. Due to the complexity of the software and the backend infrastructural requirements, e-Science projects usually involve large teams managed and developed by research laboratories, large universities or governments. Currently there is a large focus in e-Science in the United Kingdom, where the UK e-Science programme provides significant funding. However, I am using the term e-science to cover all internet-based science research publications and reporting used by scientific organizations, universities, individual researchers, etc.

We find examples of e-science all over the internet:

- Data centers provide scientific data (such as from satellite feeds) and are accessible through the internet, an example is National Snow & Ice Data Center (http://nsidc.org)
- Science organizations' local offices and research centers provide science education in real life, such as NOAA's Science on a Sphere (http://sos.noaa.gov/)
- Professional and social networks and blogs provide a forum for the quick exchange of information and ideas, i.e. Science Library Pad (blog) http://scilib.typepad.com/

In this context, libraries and scientists have used e-communication and e-science for at least two decades, and the IPY 2007-08 is a perfect example of how it all comes together.

In 2006, scientific organizations, universities, and world governments began to plan for the 4th International Polar Year of 2007-2008 (March 2007-March 2009). The International Council for Science and the World Meteorological Organization organized this 4th IPY and over 60 nations and thousands of scientists developed over 200 projects focused on the Poles and Polar science. Just the thought of the millions of bytes of research data and the number of published and unpublished papers produced as a result of these projects threatened to overwhelm data stewards and information professionals around the globe. Those information professionals more closely associated with the Polar Regions and Polar science, such as members of the Polar Libraries Colloquy, stepped up and offered their services to parent

organizations and governmental entities, hoping to provide a structure and ease-of-access for these materials. Three of these projects,

- Discovery and Access of Historic Literature of the IPYs (DAHLI) http://nsidc.org/dahli/
- International Polar Year 2007-2008 Bibliography http://docs.lib.noaa.gov/rescue/Bibliographies/IPY2007.pdf
- International Polar Year Publications Database (IPYPD) http://nisc.com/ipy

represent how cooperation and imagination supports research and scientific endeavor using electronic storage and distribution methods. All three provide global access to bibliographic records, with some full-text files and digital documents. Although the IPY 2007-08 is now officially over, these projects continue to update their data and digital files with new publications and newly-found older ones.

Discovery and Access of Historic Literature of the IPYs (DAHLI)

http://nsidc.org/dahli

With the IPY 2007-08 call for project proposals, Ruth Duerr and Allaina Wallace of the National Snow and Ice Data Center began to develop a way to make the “grey” literature from previous IPYs available to researchers around the globe. Grey literature is often unpublished data and reports produced during any scientific endeavor, especially research conducted prior to the electronic technological era. Starting with NSIDC’s holdings, the DAHLI project is gathering materials from various libraries and science organizations whose holdings include past IPY data and information for digitization and an online bibliography. Once digitized, these items will have greater accessibility for scientists and educators who are working in the various polar-related disciplines. Materials may include scientific research, scientific observations and data, sociological data, and historical data. The project focuses on the discovery and preservation of these rare and uncatalogued items, estimated to be several thousand documents, in archives around the world.

Although funding for the various parts of the project have yet to appear, DAHLI has digitized 45 documents with over 9,000 pages, identified many more for future digitization, and started the online bibliography. Several universities and institutions have plans to contribute their records of the materials, adding to this ambitious project. As each institution discovers those unknown materials, they will add the titles to the catalogue, expanding the DAHLI bibliography. Some institutions may digitize materials for online access and will add a link to the online document. This project is ongoing, with hopes that discovery and online access will continue to grow, supporting researchers and educators in their efforts to understand the polar regions.

International Polar Year 2007-2008 Bibliography

http://docs.lib.noaa.gov/rescue/Bibliographies/IPY2007.pdf

As part of their support of NOAA and NOAA activities, the NOAA Central Library created the International Polar Year 2007-2008 Bibliography. The Bibliography is available online and contains the library's collection from the 18th century to the present. This collection has many unique resources on Polar exploration and research, and the bibliography provides access to both print and online resources. The citations are organized "by title" from NOAALINC, the library's online catalog, and from the library's historical collections in various formats, including print, CD-ROM, online full-text documents, digital videos, digital images, online cruise data and Web resources. This document provides full-text access, copyright permitting, to significant Polar documents in the NOAA Library collections.

By publishing the bibliography online, the NOAA Central Library provides links to vital information for those involved in IPY research, and all other types of Polar research, reaching out to their users and those beyond their service community through e-communications.
While the previous two projects focus on creating discovery tools and using digitization to promote access to hard-to-find or unpublished items from specific IPYs (DAHLI past IPYs and the Bibliography project for the current and past IPYs) the International Polar Year Publications Database pulls them and other institutions' IPY holdings together into one database, freely available to researchers and librarians around the globe.

International Polar Year Publications Database (IPYPD)

http://nisc.com/ipy

As part of the International Polar Year Data and Information Service, the IPYPD supports IPYDIS in its stewardship of IPY and related data, while the National Snow and Ice Data Center acts as a coordination office for the IPYDIS to ensure the long term preservation and broad, interdisciplinary, and non-expert access to IPY data. The goal of the IPYPD is to identify and describe all publications that result from, or that are about, the 2007-08 IPY and the three previous IPYs. To reach this goal, the IPYPD depends upon researchers, educators, and others to report their publications. This reporting is required by the IPY Data Policy and the IPY Scholarly Publications Policy. Over the next several years, approximately 20,000 publications will find their way into journals, web sites, theses and dissertations, and other publication methods, and the IPYPD hopes to have bibliographic records for a majority of them.

The IPYPD is freely available via the internet and provides bibliographic records from five main contributors:

1. Scott Polar Research Institute
2. Arctic Science and Technology Information System
3. Cold Regions Bibliography Project
4. ROCS @ NSIDC
5. Arctic Institute’s Arctic Bibliography

IPYPD is housed at the National Information Sources Cooperative (NISC) Export Services (NES) and uses NES’s conversion tools to create the various records from the contributors into a standard format and combine them into composite records. This online database is updated four times a year via email or ftp transfer of files. These records contain bibliographic references, detailed subject and geographic indexing terms, abstracts, and when full-text is available online, the links to those publications.
Whether science-specific research publications or those for education, outreach, and communication purposes, the IPYPD provides bibliographic access, acting as a storehouse for all IPY-related work.

The preceding examples focused on libraries using e-communications to support their users on a global scale, increasing not only availability to information and data but also expanding their impact around the world. However, science and research organizations and scientists are also using the tools of the internet and electronic media to do research, disseminate information and analyses, support education for K-12 and the general public, and even publish their results through their websites, via ftp transfers, and even in real-time settings.

Of course, data centers have used e-science in many forms and for many years to provide satellite data to their users. They provide great examples of the uses of e-science and e-communication in their web sites, their use of transfer protocols, online data and data catalogues, and arrays of storage servers and data distribution methods. One example is the National Snow and Ice Data Center, which is part of the National Aeronautic and Space Administration’s Earth Observing System Data and Information System (EOSDIS) Data Centers. The NASA data centers process, archive, document, and distribute data from NASA's past and current Earth Observing System (EOS) satellites and field measurement programs. Each data center serves one or more specific Earth science disciplines and provides its user community with data products, data information, user services, and tools unique to its particular science. The NSIDC DAAC focuses on the study of the cryosphere. This is NSIDC’s primary goal as one of the DAACs; however, due to its use of e-science methodologies and e-communications, its scientists and project managers provide support and data for a much larger community. Without the bits and bytes of data products, many researchers in diverse fields would be without information vital to their research and ultimate discoveries, forcing them to reinvent the wheel of prior research.

As part of its focus on the cryosphere, NSIDC creates supporting websites, documents and other materials to inform the general public about the influences and effects of climate change and global warming. All of these products are available electronically, and they are distributed via the various e-communications tools.

Granted, websites are nothing new, and almost every business, educational institutions, organizations of all types have them. Of course, they run the gamut in ease of use and readability, in the amount and helpfullness of their information, and finally, in their ability to provide up-to-date information and data of all kinds. However, NOAA is using e-science in a way that brings it into 3-D where you can touch it, watch it, and marvel over it.

As part of its educational and outreach goals, NOAA is using computer and video projectors and a huge globe to illustrate various aspects of Earth System science. Science On a Sphere (SOS)® is a room-sized, global display system that projects planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating. Using NOAA's collective experience and knowledge of the Earth's land, oceans, and atmosphere, NOAA uses Science On a Sphere® as an instrument to enhance informal educational programs in science centers, universities, and museums across the country. Science On a Sphere® is available to any institution and is currently in operation at a number of facilities in the US. There are both fixed locations and traveling spheres, which bring the experience to schools, museums, or any venue where learning about the earth is part of the program.

While Science on a Sphere brings e-science into 3-D, its website provides further information about the data used to create the videos and downloadable files to enhance learning. NOAA has melded the physical world of science with the virtual world of the internet.

A final example of how science organizations and institutes use e-science is the Alfred Wegener Institute’s web site. Here researchers, educators and the general public find news feeds, research reports, and pictures of the science carried out in the frozen reaches of the Arctic and Antarctic. The institute coordinates German polar research and makes available to national and international science important infrastructure, e.g. the research ice breaker “Polarstern” and research stations in the Arctic and Antarctic.

The Future of E-Communications and E-Science – A “Best Guess” Scenario
Before I hypothesize on what e-science and e-communication might look like in the future, I would like to briefly mention a few other communication examples:

- Science Library Pad provides a forum for science librarians and science publishers to discuss and exchange thoughts on the use of technology and other issues
- Chat applications allow instantaneous (or almost instantaneous) communication between librarians and users, scientists, etc.
- Twitter provides a forum for short tweets of information exchange
- RSS feeds give the subscriber up-to-date news on science, world events, etc.

Now for some quick thoughts on how e-science and e-communication might work together in the future:

- Science filmed and shown on sites such as YouTube would reach researchers, educators, students, and the public at large
- Podcasts of science in action can reach users on-the-go, at home or in the classroom.
- Applications for mobile devices will update your users with all of the information they need for research while in the field.
- Virtual worlds, such as Second Life, might provide a classroom or meeting place for scientists, librarians, etc. Soon (if not already in practice), field researchers will use the virtual world to demonstrate their work and train new explorers and scientists.

These are just some thoughts based on what I know is already out there. What other applications and tools will appear in the near future? We really don’t know, but whatever might develop, librarians and scientists will find ways to use it to provide access to information for everyone.

PANGAEA® - ARCHIVE AND SOURCE FOR DATA FROM EARTH SYSTEM RESEARCH

Hannes Grobe
Rainer Sieger
Uwe Diepenbroek
Michael Schindler
Alfred Wegener Institute for Polar and Marine Research

PANGAEA® - Publishing Network for Geoscientific and Environmental Data is a library for georeferenced data from the earth system, archived with related metainformation in a relational database and distributed via web services and accessible through various clients on the Internet. Data distribution and provision follows recent exchange standards as Dublin Core, OAI-PMH, XML and ISO19xxxx for the geoscientific metadata description. The content can be retrieved through library catalogs, search engines and portals. Data set descriptions include a bibliographic citation and are persistently identified using a Digital Object Identifier (DOI). A data warehouse functionality can be used to extract individual compilations from the inventory.

PANGAEA is hosted by the Alfred Wegener Institute for Polar and Marine Research (AWI), Bremerhaven and the Center for Marine Environmental Sciences (MARUM), Bremen, Germany. The system is used by the World Data Center for Marine Environmental Sciences (WDC-MARE) as repository. Long-term archiving is assured through a contract with the German National Library of Science and Technology (TIB) and DataCite, the new international initiative to facilitate access to research data. Through a cooperation with the publisher Elsevier, data supplements in PANGAEA are automatically linked to publications in journals of the subject „Earth and Planetary Sciences“, served through ScienceDirect.

DATACITE – INTERNATIONAL CONSORTIUM FOR DATA CITATION

Jan Brase
German National Library of Science and Technology,
Welfengarten 1b, 30167 Hannover.
Germany,
jan.brase@tib.uni-hannover.de

Access to research data is nowadays defined as part of the national responsibilities and in recent years most national science organisations have addressed the need to increase the awareness of, and the accessibility to, research data.

Nevertheless science itself is international; scientists are involved in global unions and projects, they share their scientific information with colleagues all over the world, they use national as well as foreign information providers.

When facing the challenge of increasing access to research data, a possible approach should be global cooperation for data access via national representatives.

- A **global** cooperation, because scientists work globally, scientific data are created and accessed globally.

- With n**ational representatives**, because most scientists are embedded in their national funding structures and research organisations .

DataCite was officially launched on December 1st 2009 in London and has 12 information institutions and libraries from 9 countries as members. By assigning DOI names to data sets, data becomes citable and can easily be linked to from scientific publications.

Data integration with text is an important aspect of scientific collaboration. DataCite takes global leadership for promoting the use of persistent identifiers for datasets, to satisfy the needs of scientists. Through its members, it establishs and promotes common methods, best practices, and guidance. The member organisations work independently with data centres and other holders of research data sets in their own domains. Based on the work of TIB as the first DOI-Registration Agency for data, DataCite has registered over 800,000 research objects with DOI names, thus starting to bridge the gap between data centers and publishers.

This presentation will introduce the work of DataCite and give examples how scientific data can be included in library catalogues and linked to from scholarly publications.

http://www.datacite.org

IMPACT OF CHANGES IN THE PUBLISHING INDUSTRY ON THE COLD REGIONS BIBLIOGRAPHY PROJECT: ARE WE REALLY MORE EFFICIENT?

Sharon Tahirkheli (snt@agiweb.org) and MaryAnn Eitler
Cold Regions Bibliography Project
American Geological Institute

ABSTRACT

Major changes have swept through the publishing industry since 2000 when the American Geological Institute began compiling the *Antarctic Bibliography* and the *Bibliography on Cold Regions Science and Technology*. Publications were typically available in print and were distributed through traditional channels such as libraries and information centers. The Internet was beginning to have an impact on publishing, but the electronic journal was not very common and e-books were nonexistent. When conference proceedings were distributed electronically is was via temporary web sites and on CD-ROMs. Government reports were occasionally available online, but frequently disappeared or were of poor quality. Theses were occasionally available in electronic form, but the vast majority could only be located via large collections like University Microfilms.

In today's publishing model electronic journals are the norm, e-books have gained acceptance, and government agencies regularly make their publications openly available. Other changes include digital institutional repositories, the open-access movement and self-posting by authors. Each development has necessitated changes in the day-to-day process of compiling the Bibliographies. Bibliographic information now frequently arrives already in electronic form. The addition of DOIs and URLs, implementation of link-checking procedures, utilization of automated alerts, push/pull of publisher metadata, and establishment of author web services are all new aspects of bibliography production. The effort expended adapting to new publishing environments has been significant – with no end in sight.

Introduction

The Cold Regions Bibliography Project (CRBP) at the American Geological Institute (AGI) produces two polar bibliographies: the *Bibliography on Cold Regions Science and Technology* and the *Antarctic Bibliography*. The *Bibliography on Cold Regions Science and Technology* has been produced since 1951 under sponsorship of the U.S. Army Corps of Engineers (currently under the oversight of the Cold Regions Research and Engineering Laboratory (CRREL)) (Liston, 2002). The *Antarctic*

Bibliography has been sponsored by the U.S. National Science Foundation (NSF) since 1962. Both Bibliographies were compiled at the Library of Congress until the late 1990s. Under pressure from cost escalation in the 1990s and in recognition of the rapid changes in the Web and in scientific publishing, NSF initiated a joint request for proposals with CRREL in 1998 for the ongoing compilation and maintenance of the Bibliographies. AGI was eventually granted the responsibility for the continuance of the Bibliographies under a five-year cooperative agreement with NSF and a subsequent six-year grant. A major goal of the project was to reduce the costs of the production of the Bibliographies while simultaneously leveraging the efficiencies of scale that were possible at AGI and exploiting the opportunities provided by enhanced digital processing. AGI is the producer of GeoRef, the primary abstracting and indexing service in the geosciences and had significant experience in utilizing electronic data from external sources. AGI also has a large and well-trained staff of experts working on all aspects of bibliography production.

Current Status of the Bibliographies

The *Bibliography on Cold Regions Science and Technology* contained 175,137 items when the CRBP was launched at AGI. Since that time the Bibliography has grown to contain 236,527 items as of May 25, 2010. The initial target compilation was 5000 items per year, but the actual average annual growth has been in excess of 6100 references per year. In 2008 the bibliographers processed an astonishing 7250 citations – the largest single-year compilation for the Bibliography.

The *Antarctic Bibliography* contained slightly more than 60,000 items when AGI began to compile it. As of May 25, 2010 the Bibliography contains 88,237 items. This number includes a large increment from the Scott Polar Research Institute of references to publications from the 1950s – 6187 citations. The initial target for annual additions was 2000 records per year. The average annual growth has been more than 2200 items per year.

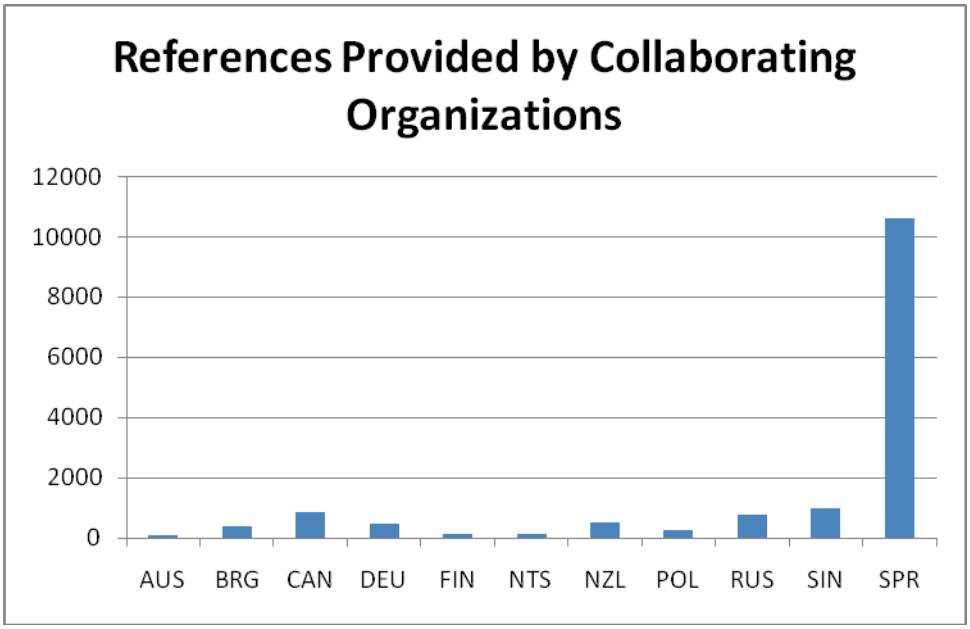
The rate of growth of the Bibliographies has exceeded the original projections while the budget and staffing projections have remained fairly flat. The original five-year budget totaled $860K – or an average of $172K per year. The current budget totaled $968K – or an average of $194K per year over a five-year period – an increase of only 13%. This level of cost containment has been accomplished because of operational adaptations to digital processing and a staggered sixth-year budget. These adaptations include: the development of collaborations with similar organizations to facilitate the exchange of electronic bibliographic information; increased processing of metadata provided directly by publishers; and extensive utilization of electronic publications that are made openly available on the Web. Electronic advancements in the publishing industry have also impacted the user interface. New services provided by the CRBP include: direct linking to publications through DOIs and URLs; automated alerts for individuals; dynamic web services for sponsoring organizations; and download options for bibliographic software.

Compilation Opportunities

Collaboration with Similar Organizations

As noted in an earlier review of CRBP collaborations (Tahirkheli, 2008) exchanging electronic data with similar organizations helps the CRBP to avoid unnecessary duplication of effort. Similar organizations that are engaged in compiling and maintaining bibliographic information that overlaps with the CRBP were identified. AGI has entered into several collaborative relationships with these groups. Since the early 1980s, AGI has fostered collaborations with similar geoscience organizations in the production of GeoRef. The application of collaborative bibliographic development to the CRBP was not difficult. The primary collaborator with the CRBP has been the Scott Polar Research Institute. Over the course of the project, SPRI has provided more than 10,000 references to the *Antarctic Bibliography*. This includes references to the scientific literature of the 1950s as well as current quarterly additions to the file. In addition to SPRI, the CRBP has benefited from collaborations with the following organizations:

AUS	Geoscience Australia
BRG	Institut de l'Information Scientifique et Technique, France
CAN	Geological Survey of Canada
DEU	Bundesanstalt für Geowissenschaften und Rohstoffe, Hanover, Germany
FIN	Geological Survey of Finland
NTS	National Technical Information Service
NZL	Antarctica New Zealand and Institute of Geological and Nuclear Sciences, New Zealand
POL	Panstwowy Instytut Geologiczny, Warsaw
RUS	IPIRAN in Moscow
SIN	Institute of Geochemistry, Guizhou, China



Tab. 1: References provided by Collaborating Organizations

Source	Number of References
AUS	111
BRG	374
CAN	854
DEU	470
FIN	147
NTS	122
NZL	498
POL	267
RUS	758
SIN	1005
SPR	10,594
Total	15,200

To date, collaborating organizations have provided more than 15,000 of the new references added to the CRBP by AGI. The primary beneficiary of these additions has been the *Antarctic Bibliography* with about 42% of the additional references being derived via collaborative arrangements.

What is the impact on cost? Does receiving 42% of the references via collaborative arrangements result in a 42% cost savings? No. The situation is a bit more complicated. Even though receiving completed references is a big step in bibliographic compilation, the data must still be loaded, formatted, reviewed and edited to conform to all of the standards of the CRBP databases. In addition, increased needs for programming are required to allow each new data format to be assimilated into the CRBP databases.

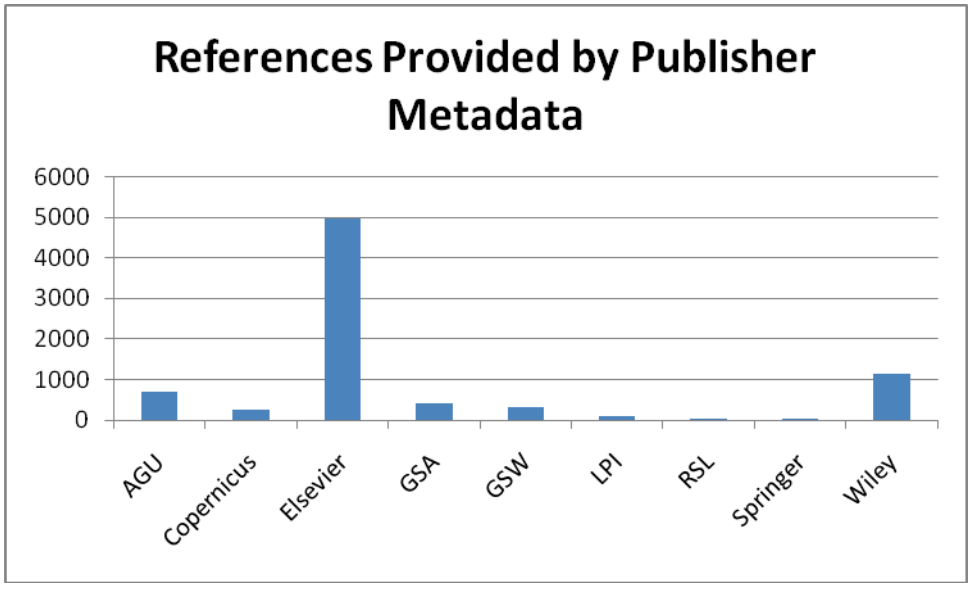
Publisher Metadata

As publishing has becoming increasingly electronic, the ability of publishers to provide bibliographic metadata to abstracting and indexing services has grown. When AGI initially began compiling the CRBP, only a couple of publishers provided metadata. Today, most commercial and many society publishers routinely provide author, title, pagination, author abstract, volume, issue and DOI information – either by RSS feed, by automated uploads to AGI or by providing open-access metadata for harvesting. The following publishers have provided significant metadata:

American Geophysical Union (AGU)
Copernicus
Elsevier
Geological Society of America (GSA)
GeoScienceWorld (GSW)
Lunar and Planetary Institute (LPI)
Royal Society of London (RSL)
Springer
Wiley/Blackwell

Tab. 2: References Provided by Publisher Metadata

Publisher	Number of References
AGU	692
Copernicus	257
Elsevier	4961
GSA	412
GSW	311
LPI	111
RSL	10
Springer	9
Wiley/Blackwell	1148
Total	7911



Since AGI began compiling the CRBP, more than 7900 references have been added to the databases based on publisher metadata. This figure is almost exactly 10% of the references that AGI has added to the CRBP databases.

What is the impact on cost of incorporating electronic publisher metadata into the CRBP? Does receiving 10% of the references directly from publishers result in a 10% cost savings? Again, the answer is no. The situation is even more complicated than with collaborative agreements. Even though receiving publisher metadata helps keep editing costs down and eliminates the need for data entry, the data must still be loaded, formatted, reviewed and edited to conform to all of the standards of the

CRBP databases just like the data from collaborators. The need for programming is still required to allow each new publisher data format to be assimilated into the CRBP databases.

Open-Access Publications

Another major development in scientific publishing is the Open-Access Movement. Over the past decade, a number of series have become openly available on the Web. Many of these publications are journals that would formerly have been available through subscription only. Others are series published by government organizations where the taxpayers are demanding visible results from the taxes that are paid. Whatever the reason for the open access, the end result is that bibliography compilation has been made both easier and more difficult at the same time. First, it is now very easy to gain access to a publication that is available on the Web. No more waiting for paper copies to arrive or borrowing copies from libraries. However, there is no longer a trigger – such as the arrival of print – to insure that the bibliographer is aware of a publication. This problem can be alleviated by the publisher providing alerts, RSS feeds, or automated notices, but this is rarely the case.

The CRBP recently initiated a study of the series that had been selected for inclusion in the Bibliographies over the period from September 1, 2005 to March 30, 2010. Of the 2097 series cited during that time period, approximately 400 have been initially identified as open-access series. Review of this list is ongoing by CRBP staff. Some examples of important open-access series in the polar literature include:

Berichte zur Polar- und Meeresforschung - Reports on Polar and Marine Research. ISSN 1618-3193. Start date: 1981. Publisher: Alfred Wegener Institute for Polar and Marine Research.

Cryosphere. ISSN 1994-0424. Start date: 2007. Publisher: Copernicus on behalf of the European Geosciences Union.

ERDC/CRREL Technical Report. Start Date: 1995. Publisher: U. S. Army Corps of Engineers, Engineer Research and Development Center.

Polish Polar Research. ISSN 0138-0338. Start Date: 2002. Publisher: Panstwowe Wydawnictwo Naukowe.

Ukrayins'kiy Antarktichniy Zhurnal – Ukrainian Antarctic Journal. ISSN 1727-7485. Start date: 2003. Publisher: Ukrayins'kiy Antarktichniy Tsentr.

The CRBP is currently adding some of the relevant open-access series to the list that AGI maintains for GeoRef at http://www.agiweb.org/georef/about/openaccess.html. Series included on this list must have open content for a minimum of two years and must make its current issues openly available. Journals that open up their content after a waiting period of six or twelve months are not included in the list.

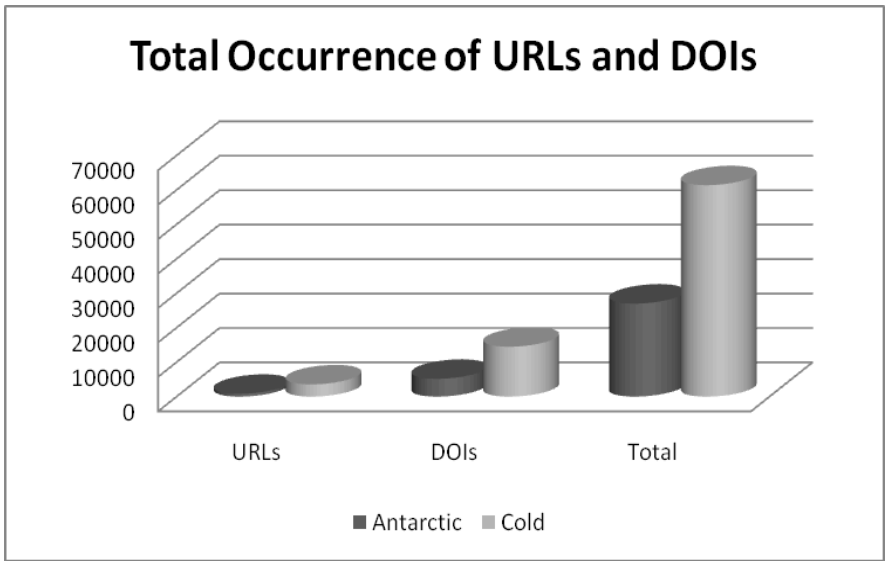
How does open access enable cost containment by the CRBP? Materials that are openly available on the Internet do not need to be purchased, borrowed through interlibrary loan, or sought in a library collection. The items must still be located, selected for inclusion in the databases, and, unless the publisher provides metadata, the bibliographic information must still be entered into the databases. Staff time for production of the Bibliographies is not reduced. Programming costs can potentially increase as open-access publisher make metadata available in a variety of new formats with widely varying delivery mechanisms.

Display enhancement

DOIs and URLs

Electronic publishing and open-access series have added a new dimension to user expectations from a bibliography. It is no longer sufficient to supply a reference. Users expect to be able to immediately find the full-text of a publication. Digital Object Identifiers (DOIs) and Universal Resource Locators (URLs) can now be added to bibliographic references to enable immediate linking to full-text. Publishers frequently provide the DOIs with metadata; but when they do not, the DOI is an ugly combination of numbers and letters that must be entered and edited (e.g. 10.1007/s00382-004-0496-8 or 10.1130/0091-7613(1999)027<0375:AMMPSL>2.3.CO;2). URLs are worse because they are unstable. In 2009, the CRBP ran a link-checking procedure and discovered that all CRREL reports that were online had moved to a new location resulting in the breaking of all URL links. These links were quickly fixed. But gone are the days when a bibliographic record is produced and completed. Link-checking and correction must be a continuous part of bibliography maintenance.

As of May 2010 more than 14,000 of the items in the *Bibliography on Cold Regions Science and Technology* (Cold) contained DOIs and more than 3500 contained URLs. Almost a third of the references are instantly linkable to full-text. In the *Antarctic Bibliography* (Antarctic) almost 1000 items have URLs and more than 5000 have DOIs.



DOIs and URLs are costly additions to bibliographic maintenance. They represent an entirely new set of fields that must be edited adding to the cost of initial reference development. The URL represents a source of continuous change requiring repetitive review of completed references. This is an entirely new time sink for CRBP staff.

Automated Alerts

Automated alerts allow researchers to review recent additions to the databases. Each quarter, month or week a list of new references is generated. There are two types of alerts provided through the CRBP. The first, and longest running, type is the monthly alert for each bibliography. These alerts are posted to the web site each month and contain an alphabetical listing by author of the last month's new references. The *Antarctic Bibliography* is also sorted by category. The *Bibliography on Cold Regions Research and Technology* alert is located at http://www.coldregions.org/cralert.htm. The *Antarctic Bibliography* alert is located at http://www.coldregions.org/alertlst.htm. The CRREL library forwards an email notice of the posting of the alert to all of its researchers. The second type of alert is tied to the research interest of a specific researcher. For a small fee, CRBP staff assist users in setting up a subject alert. Once an alert strategy is developed, a list of references is generated and emailed to the researcher on a schedule of the researcher's choosing.

How do automated alerts impact costs for the CRBP? The initial set up of the monthly alerts required the services of a programmer. Ongoing costs are minimal; however, CRBP staff must insure the timeliness and the quality of the alerts each month. The costs of the individual alerts for researchers are covered by the small fee charged for initiating the alert.

Publication list web services

Over the last year, the CRBP has developed several web services in cooperation with the staff at CRREL. CRREL publications used to be listed on the CRREL web site in separate listings maintained manually by CRREL staff. Using automated

queries of the *Bibliography on Cold Regions Science and Technology* database, publication lists are now generated dynamically with current publications appearing automatically as the database is updated. A web page (partially reproduced below) provides links to the queries sorted by year and type of publication.

CRREL Home > Library, Publications, and Products > Technical Publications

CRREL Technical Publications

The following links provide access to a database of all of CRREL's authored publications. The most recent publications will be listed first. Be sure to have internet popup blockers turned off. To learn more about the database and how to use it, click here. To conduct your own specific search, click here.

Publications will be listed with the most recent first.

Technical Publications by Year

2009	ALL PUBLICATIONS	TECHNICAL PUBLICATIONS	JOURNAL ARTICLES	CONFERENCE PAPERS	MISCELLANEOUS
2008	ALL PUBLICATIONS	TECHNICAL PUBLICATIONS	JOURNAL ARTICLES	CONFERENCE PAPERS	MISCELLANEOUS
2007	ALL PUBLICATIONS	TECHNICAL PUBLICATIONS	JOURNAL ARTICLES	CONFERENCE PAPERS	MISCELLANEOUS

Technical Reports by Category

To search CRREL publications by category, you will be re-directed to the Bibliography on Cold Regions Science and Technology search page. All CRREL authored publications—including reports—can be searched by author/title and key words. Be sure to choose "**crrel**" for the "Source" category

---

| CRREL Home Page | Feedback | Privacy and Security Notice |

Attempts were made to develop an author publication list web service; however, author publication lists often include materials not covered by CRBP – conference abstracts and posters. The attempt was abandoned for now.

Publication list web services must be designed and developed using expensive programmer time. Once developed they can continue to operate in a self-sufficient manner – as long as servers, URLs, and programs do not change. As mentioned earlier, in 2009 all CRREL publication links were broken and had to be repaired – a costly, time-consuming effort.

Efficiencies – Or Not

What is the total impact of these changes to the costs of bibliographic processing? It was noted earlier that costs have risen only 13% over the eleven-year period that the CRBP has been managed by AGI. But while the costs of developing the metadata have plunged, the costs of obtaining and manipulating external metadata have soared. There have also been substantial increases in costs for web site design and programming. The changes are summarized as follows:

Collaboration – eliminates duplication of effort, but requires programming to accommodate format differences.

Publisher metadata – eliminates the need for data entry, but requires programming to accommodate format differences. (There really is no standard!)

Open-Access publications – eliminates need to purchase publications or pay for interlibrary loan or shipping, but requires operational adaptation to a variety of situations including monitoring of web sites, potential development of programs for new publisher metadata formats and delivery mechanisms.

DOIs and URLs – results in additional metadata fields for entry and edit; introduces need to develop link-checking procedures and then continuous editing of records.

Automated alerts – requires development and maintenance; personalized alerts require staff interaction with researchers.

Web services – requires development and ongoing maintenance; necessitates frequent testing to assure continued operation.

The bottom line

We are more efficient; however, the components of the operation have changed. Fewer staff hours are needed for data entry, but more hours are required for editors, developers and programmers.

Acknowledgments

The Cold Regions Bibliography Project is supported by the U. S. National Science Foundation and the U.S. Army Cold Regions Research and Engineering Laboratory under Grant No. OPP-0440772. The assistance of AGI staff members Connie Manson and Lawrence Berg in the compilation of the data for this paper is greatly appreciated.

References

American Geological Institute. Cold Regions Bibliography Project. 2010. http://www.coldregions.org.

Liston, Nancy C. 2002. The Bibliography on Cold Regions Science & Engineering. In: Kirsten Caning and Vibeke Sloth Jakobsen (eds.), Poles Apart – Poles On-Line; Proceedings of the 19th Polar Libraries Colloquy. Copenhagen: Danish Polar Center, p. 58-62.

Tahirkheli, Sharon. 2008. Collaborative bibliographic development in the Cold Regions Bibliography Project. In: S. Sarti and M. Cecconi (eds.), Building polar networks; a strategy for the future; Proceedings of the 21st Polar Libraries Colloquy. p. 69-81.

U.S. Army Corps of Engineers, Engineer Research and Development Center. CRREL Technical Publications. 2010. http://www.crrel.usace.army.mil/library/technicalpublications.html.

THE NATIONAL INSTITUTE OF POLAR RESEARCH, JAPAN: A BRIEF HISTORY AND HOW TO ACCESS THE JOURNALS

Yoriko Hayakawa
National Institute for Polar Research Japan, Midoricho 10-3, Tachikawa Tokyo, Japan, xkawa@nipr.ac.jp

Abstract

The library of the National Institute of Polar Research (NIPR) publishes a number of academic journals and the *JARE Data Reports* series. *Antarctic Record,* one of NIPR's academic journals, began publication in 1957 and reports on the activities of the Japanese Antarctic Research Expeditions, including the first one led by Nobu Shirase in 1910.
Recently all *Antarctic Record* articles were made available on the CiNii platform produced by the National Institute of Informatics, and are also on Open Access. Beginning in 2003, all of NIPR's journals are on Open Access except *Polar Science*.
That same year, we also began to provide fulltext of *Antarctic Record*, *JARE Data Reports,* and other NIPR journals, from the OPAC server of our library. My paper features a short history of NIPR, our new library, and also shows how many times our journals have been accessed at the CiNii site over a one-year period, 2009.

Introduction

The National Institute of Polar Research (NIPR) has been organizing the Japanese Antarctic Research Expedition (JARE) since NIPR was established in 1973 in Itabashi in Tokyo. The First vice Director was Professor Takeshi Nagata, who was the head of the first JARE from 1956 to 1957. Before the Institute began, it was a section of the Ministry of Education in Kasumigaseki and soon followed as a department of the National Science Museum in Ueno before becoming the National Institute of Polar Research. The Institute moved to Tachikawa City in May 2009.
Table 1 shows the history of NIPR and the remarkable topics of JARE.

In November, 2010, JARE went as the 52nd expedition to Antarctica. Their base station was the Syowa Station. Previous expeditions have used the Asuka and the Mizuho Stations , but they have not been used recently.
In the past three years, JARE has been to the branch base of Dorm Fuji, 500 km from the Syowa Station, and to the Sør-Ronderne Mountains area in Dronning Maud Land. In the summer of 2009, the NIPR Library Director was a member of the expedition and was one of the researchers who collected meteorites there.

JARE members number about 80, 20 of whom are staff or researchers of our Institute. The other members are staff from other Ministries and companies. JARE includes two medical doctors and two cooks who are employed by other Institutes or companies.
Current expedition members will prepare for the 2010 trip to Antarctica from July through November at NIPR, and at the end of November, they fly to Fremantle, Australia and board the ship “Shirase” there.
JARE has two groups that go to Antarctica: the summer party stays only four months, and the winter party is there longer, 1 year and 4 months. The summer party cannot stay at the Syowa Station, so they stay on the ship. They work harder because of the long but limited, summer days.
Table 2 shows the number of JARE members from 1956 to 2011.

Tab 1. History of NIPR and JARE.

Month, Year	**NIPR topics**	**JARE topics**
Jan. 1912		Lieutenant Nobu Shirase named “Yamato Yukihara” (Yamato Snow Field) at 80°5′*S* 165°37’ *W*
Nov. 1956		1stJARE went to Antarctica from Harumi in JAPAN.
May 1961	The Science Council of Japan recommended to the government the establishment of the “Institute of Polar Research” (tentative name) as an organization of Ministry of Education, Science and Culture for the cataloging, storage, and research of materials obtained as a result of Japanese Antarctic Research Expedition.	
Feb. 1962		Stop JARE to 1965 Nov. by the force of government
Apr.1962	“Polar Department” of the National Science Museum established.	
Apr.1966	The National Science Museum is reorganized and the “Polar Division” is also reorganized into the “Polar Research Division”. The Division is divided into the Polar Laboratories No. 1 and No. 2.	
Sep. 1968-Feb. 1969		JARE-9 reached the South Pole by Vessel from Syowa Station. It is 5182km far from that station.
Dec.1969		JARE-15 found 663 meteorites in Yamato Mountains, 300 km south of Syowa Station.
Apr.1970	Evolution of the “Polar Research Division” continues, and the Division becomes the nucleus of Japanese Antarctic Research Expedition as the “Polar Research Center”. The Center is divided into the Polar Operations Division, Polar Research and Materials Division, and the Administration Section.	

Month, Year	**NIPR topics**	**JARE topics**
Aug.1970	Moves from Ueno to Itabashi, to the location formerly occupied by the Japanese Imperial Army's No. 2 Tokyo Arsenal.	
Sep. 29, 1973	Establishment of the National Institute of Polar Research. The institute has four sections in the Division for Research (Geoscience, Glaciology, Ecology, Polar Regions Engineering); two sections in the Data Collection and Processing Division (Biology, Inorganic Materials); two sections and six groups in the Administrative Office; and one section and two groups in the Operational Office. Syowa Station has become the base for NIPR observational activities in the Antarctic.	
Apr.1974	Establishment of the Cold Region Construction Section to the Research Division, the Data Analysis Section to the Data Collection and Processing Division, the Collaborative Observation Section to the Operational Office, and the Library.	
Oct.1982		Observed First Ozone decrease by S. Chubachi, a member of JARE-23.
Apr.1984	Meteorite Research Section added to Research Division. Aurora Science Data Section added to the Data Collection and Processing Division.	
Feb. –May 1987		JARE-27: Y. Naito observes 73 day diving record of an adult female northern elephant seal obtained using the long-term time depth recorder developed for Antarctic seal research by NIPR. Today this kind of research is called "Bio-logging Science".
Jun. 1990	Arctic Environment Research Center and Information Science Center established. Data Analysis Section eliminated from Data Collection and Processing Division.	
Apr.1993	Atmospheric and Hydrospheric Remote Sensing Research Section eliminated from Research Division, and Polar Atmospheric Material Cycle Research Section established. The Department of Polar Science, the School of Mathematical and Physical Science created as a program of post-graduate study in the Graduate University for Advanced Studies (SOKENDAI). NIPR became a parent institute of SOKENDAI.	
2000	NIPR has 16,200 meteorites.	JARE-41 found more than 3,500 meteorites in Yamato Mountains.

Month, Year	**NIPR topics**	**JARE topics**
Apr.2004	NIPR established by the Inter-University Research Institute Corporation as a Research Organization of Information and Systems. At the same time, the Graduate University for Advanced Studies (SOKENDAI) was established by the National University Corporation. The School of Mathematical and Physical Science was renamed the School of Multidisciplinary Sciences, and incorporates the departments of Statistical Science, Polar Science, and Informatics.	
Jan. 26, 2007		The drilling operation, begun Nov. 2005, at Dome Fuji Station successfully reaches 3035.22m depth.
May 2009	NIPR relocates from Kaga, Itabashi Ward, Tokyo to the new campus in Midori-cho, Tachikawa-shi, Tokyo.	

Tab 2. Numbers of JARE members from 1956 through present

Dept. year	Number	Total	Summer Party	Wintering Party	First experience person	Ship	Memo
1956	1	53	42	11	53	Sôya	
1957	2	50	50	-	33		The ship could not come alongside the pier.
1958	3	37	23	14	14		
1959	4	36	21	15	23		
1960	5	35	19	16	26		
1961	6	18	18	--	9		JARE operations stopped 1962-1965; contingent on the research vessel.
1965	7	40	22	18	24	Fuji	
1966	8	40	16	24	28		
1967	9	40	12	28	27		
1968	10	40	12	28	32		
1969	11	40	10	30	33		
1970	12	40	10+1	29	33		
1971	13	40	10	30	33		
1972	14	40	10	30	29		
1973	15	40	10	30	29		
1974	16	40	10	30	36		
1975	17	40	10+1	29	34		
1976	18	40	10	30	33		

Dept. year	Number	Total	Summer Party	Wintering Party	First experience person	Ship	Memo
1977	19	40	10	30	33		
1978	20	42	10+2	30	34		
1979	21	43	10	33	33		
1980	22	44	10	34	36		
1981	23	44	10	34	34		
1982	24	45	10	35	31		
1983	25	47	12	35	39	Shirase	
1984	26	48	13	35	29		
1985	27	50	15	35	33		
1986	28	52	15	37	35		
1987	29	52	15	37	38		
1988	30	54	17	37	37		
1989	31	55	17	38	40		
1990	32	55	16	39	41		
1991	33	53	16	37	39		
1992	34	55	16	39	45		
1993	35	56	16	40	46		
1994	36	56	16	40	37		
1995	37	56	16	40	42	Shirase	
1996	38	58	18	40	41		
1997	39	58	18	40	45		
1998	40	60	20	40	45		
1999	41	60	20	40	44		
2000	42	60	20	40	45		
2001	43	60	20	40	43		
2002	44	60	20	40	36		
2003	45	62	22	40	39		
2004	46	62	25	37	29		
2005	47	60	23	37	42		
2006	48	62	27	35	41		
2007	49	59	30	29	38		
2008	50	46	18	28	25	Aurora Australis	
2009	51	40	34	28	****	New Shirase	
2010	52	40	30	33	****		

NIPR in the scientific literature

Fig 1 shows a comparison of the number of articles included in Web of Science by the British Antarctic Survey (BAS), the Alfred Wegener Institute (AWI), and NIPR. The figure shows the number of articles from our Institute's research activities since 1983.

NIPR has the lowest number, but it is increasing. AWI shows the highest number of research papers written from 2001 to 2009.

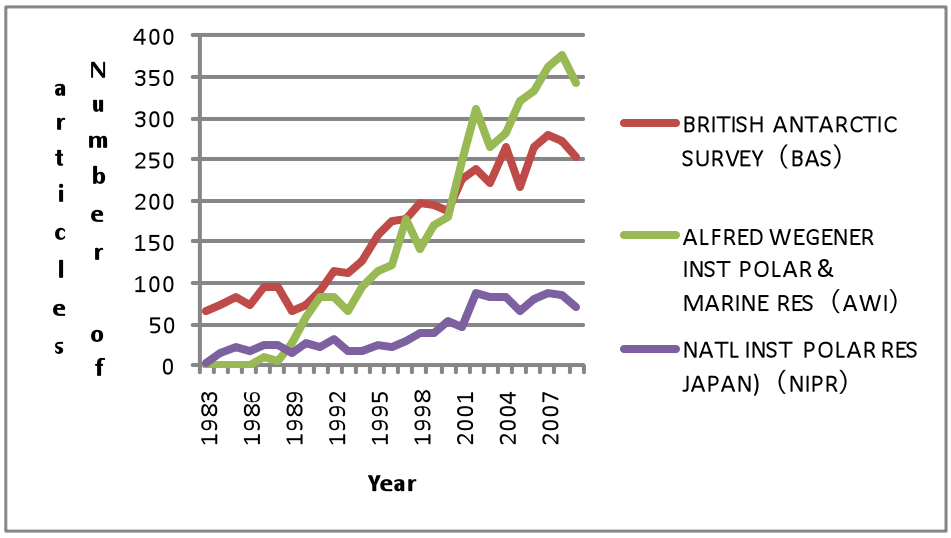


Fig 1: Numbers of articles in Web of Science (Nakajima, 2010).

NIPR Publications

Here is the title list of our journals that NIPR has been publishing since the 1957 International Polar Year:

- *Antarctic Record*
- *JARE Data Reports*
- *NIPR Arctic Reports*
- *Memoirs of National Institute of Polar Research, A- F; Special issue*
- *Antarctic Map Series*
- *Special Map Series*
- ***Polar Science***

Antarctic Record is published three times a year, and includes papers and reports submitted by expedition members. Recently 80 % of the papers in this publication are written in Japanese. *JARE Data Reports* and *NIPR Arctic Reports* record the observed data at Antarctica or the Arctic. In the past, it was important to show the data in the published papers, but now researchers can get the digital data directly from our data center. These titles introduce what kind of data exists, the methods of observation, and the contact person to ask for access or use of any data.

Memoirs of the National Institute of Polar Research are monographs that mainly include doctoral theses. The Special Issue series of *Memoirs of NIPR* is a bit different in that it features special topics obtained from the Institute's research activities. *Antarctic Map Series* features geographical maps while the *Special Map Series* includes many kinds of maps, but mainly geomorphographic maps of Dronning Maud Land in Antarctica.

These five previously published titles (1986-2006) with collections of articles written in English

- *Advances in Upper Atmosphere Physics*
- *Polar Meteorology and Glaciology*
- *Polar Geoscience*
- *Antarctic Meteorite Research*
- *Polar Bioscience*

were condensed into one new journal, *Polar Science* in 2007. These titles were published once a year and reported the results of an annual conference.
Each research group in our Institute holds a conference annually. For example, the Upper Atmosphere research group traditionally held their conference in August. After the conference, the speakers submitted their research papers to the editorial board for revisions , and then the journal was published by the following August. However, this method was thought to be out-of-date, so all of the papers from the different groups were merged into one new journal, *Polar Science*. This journal is now published four times a year but is not yet indexed in the Web of Science.

Other publications

Polar News is not an NIPR publication, but is published by a group called the Polar Committee, which is made up of retired members mainly from NIPR. It is similar to the USA's Polar Times. Many article authors are former NIPR staff, and many JARE members are affiliated with the Polar Committee.

Where and how to access NIPR journals

CiNii

- Produced by the National Institute of Informatics
- NIPR journal list : http://ci.nii.ac.jp/organ/journal/INT1000001377_en.html
- Website: http://ci.nii.ac.jp/en

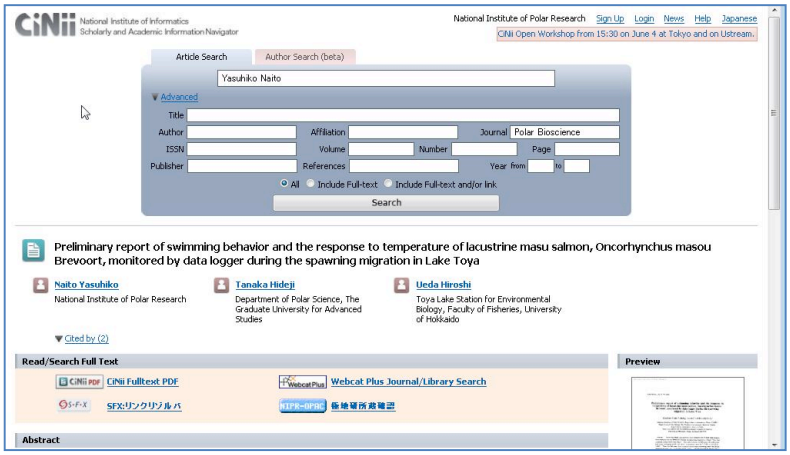


Fig 2: CiNii Search Screen

NIPR Library OPAC

- Website: http://libsv.nipr.ac.jp/mylimedio/search/search-input.do?lang=en

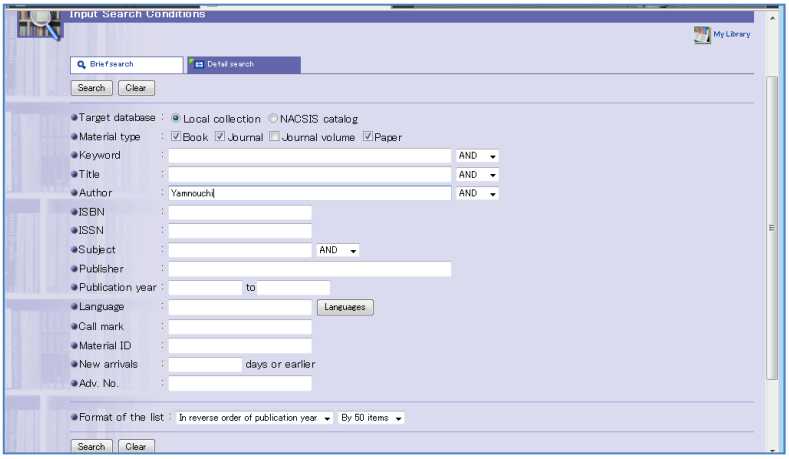


Fig 3: OPAC Search screen

What is the difference between CiNii and NIPR's OPAC?

- You can copy tables or figures from the PDF on OPAC.
- You can find articles from NIPR journals on OPAC.
- You can find more articles from various Japanese journals on CiNii.

Journal Usage Trends via CiNii

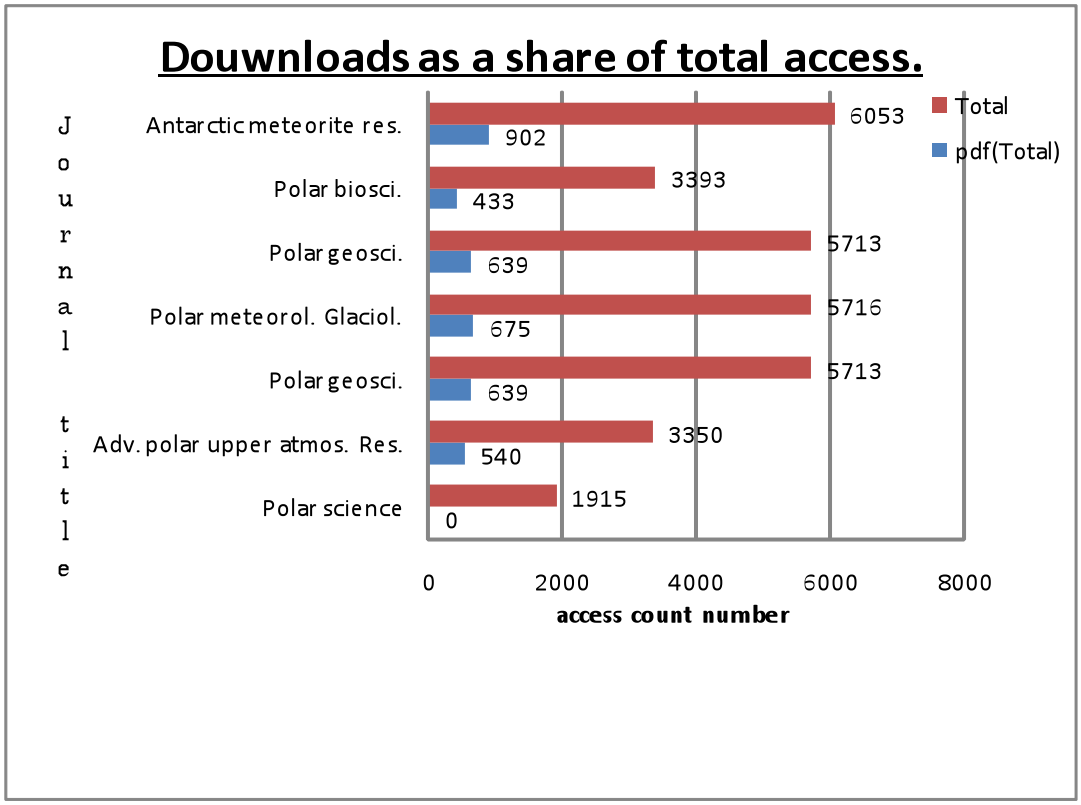


Fig 4a :Access count to journal contents in 2009 on CiNii.

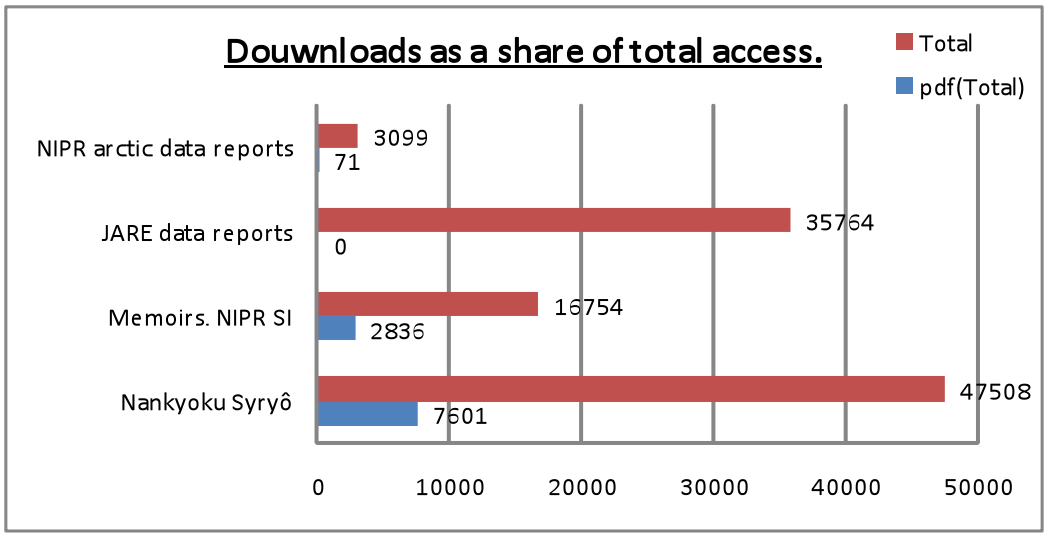


Figure 4b: Access count to journal contents in 2009 on CiNii.

According to Figure 4a, articles from five journals are used very often, even though they have already ceased. *Polar Science* is also accessed by CiNii users. CiNii is a popular website in Japan, so in our country, *Polar Science* is already well recognized. However, *Polar Science* is not an open access title, so there are no PDF downloads at this site.*Nankyoku Syryô* is also popular in Japan; it is an open access title and delivered freely to many universities and research institutes. Researchers have been accessing the PDFs directly since 2003. These figures show that NIPRhas succeeded with our digitized journals and they are well recognized on websites.

NIPR's new library in Tachikawa

After the Second World War, a U.S. Airforce Base was established in Tachikawa, so many Japanese think of the Airforce base when they hear the name Tachikawa. However, this area of Tachikawa city was returned by the U.S. 30 years ago.

Nowadays, a lot of national institutes like NIPR have moved to this area. In our building, there are three institutes: the Institute of Statistical Mathematics, the National Institute of Japanese Literature, and our Institute. On the first floor, there are three specific subject libraries for each of these institutes., but all differ in in mission and management.

Photograph of Lieutenant Shirase from NIPR's collection

This is one of two photographs of Lt. Shirase, who led the first Japanese expedition to the Antarctic in 1910. Can you see how determined he looks?

Fig 5: Lieutenant Nobu Shirase on the ship "Kainanmaru" on the way to Antarctica.

Fig 6: View of the book shelves in the new NIPR library.

References

Naito, Y, Boeuf Burney, JL, Asaga, T, and Huntley, AC(1989). Long-term diving records of an adult female northern elephant seal. Antarctic Record, 33, 1-9.

Nakajima, D (2010). Research evaluation on independent administrative entity : Case study in the National Institute of Polar Research, Master Course Thesis of Tukuba University. (in Japanese).

National Institute of Polar Research (2008). The member list . Japanese Antarctic Research Expedition from 1st to 50th. 89 p. (in Japanese).

National Institute of Polar Research(2009). The member list of 51st. Japanese Antarctic Research Expedition. (in Japanese).

National Institute of Polar Research(2010). The member list of 52st. Japanese Antarctic Research Expedition. (in Japanese).

National Institute of Polar Research(2010). History. Bulletin, 2010-2011:8.

National Museum of Science (2006). The Antarctica 2006: the 50thAnniversary. Japanese Antarctic Research Expedition. 94-95. (in Japanese).

IMPROVING ACCESS TO GRAY LITERATURE IN POLAR LIBRARIES

Daria O. Carle
Science Librarian / Associate Professor
UAA / APU Consortium Library, University of Alaska Anchorage
3211 Providence Drive, Anchorage, Alaska 99508 USA
afdoc@uaa.alaska.edu

Abstract

Gray literature collections were investigated at the libraries of the Australian Antarctic Division in Tasmania, Australia, and the Scott Polar Research Institute in Cambridge, UK. These collections are important, but problematic because they are not well documented, often have limited access, and are arranged by subject in a classification system specific to polar libraries. The amount of gray literature material in the two library collections was estimated. Using a representative sample of gray literature references from four different Antarctic expeditions in the early part of the 20th century, the number and type of materials were identified and compared, and the amount of duplication determined. Solutions for improving access to these materials are offered, including linking the gray literature collections to broader initiatives and using the references as metadata to include in online catalogs or on institutional websites. These solutions could be implemented in other polar libraries with gray literature collections, ultimately making this valuable information available to the interested public and to polar researchers around the world.

Gray literature, as defined in Reitz's *Dictionary for Library and Information Science,* consists of "…works such as reports, preprints, internal documents, conference proceedings, doctoral dissertations and master's theses, and other materials not readily available … because they were never commercially published or were poorly distributed" (p.131). Some definitions include government documents as another example of gray literature. All of these materials are called 'gray' (or grey), because they fall outside of the mainstream of traditional publishing.

An additional problem of gray literature is that it is frequently difficult to locate and/or access. Gray literature is often unique, with copies sometimes located in only one or two libraries in the world. The ability to electronically publish and distribute such literature, particularly as metadata, has changed the picture somewhat, but libraries continue to struggle with identifying, locating, preserving, and providing access to gray literature.

Gray literature and methods for improving access were investigated at two polar libraries, the Australian Antarctic Division in Tasmania, Australia

(http://www.antarctica.gov.au) and the Scott Polar Research Institute in Cambridge, England (http://www.spri.cam.ac.uk). Each of these libraries has a veritable treasure trove of information in its gray literature collections, but at present, much of the data are essentially unavailable because the material is not well described or documented, has limited access, and is arranged, often very generically, by subject using the *Universal Decimal Classification for Use in Polar Libraries* (Mills 2004).

The Australian Antarctic Division (AAD) Library's gray literature collection is contained in its Information Files (InfoFiles). Access to this collection is through a card catalog filed by subject number using the Universal Decimal Classification (UDC) system; a second card is filed by author or title. Currently, there is no electronic access to the InfoFiles.

The Library at the Scott Polar Research Institute (SPRI), part of the University of Cambridge, also has very extensive gray literature files in the Pamphlet Collection (Pams), containing an estimated 50,000+ items (Wong 2005). Approximately two thirds of the Pams are accessible through SPRI's in-house online catalog (Muscat); the other third is accessible through a card catalog by UDC subject number.

The project was completed in two parts. The first part was to estimate the number of items for each subject included in the UDC at each library. At AAD, lack of electronic access required that estimating the material in the InfoFiles card catalog be done manually by measuring designated amounts of catalog cards (25, 50, 75, etc.). Subjects with more than 100 cards were extrapolated accordingly. Electronic access to Muscat at SPRI enabled the number of items in each UDC subject category to be calculated. After limiting a Muscat search to the 'Pam' location, the UDC classification numbers were grouped into logical geographic areas and subject headings. A total was then generated for each of the selected UDC categories.

Table 1 shows that a total of 8,825 items, including geographic areas (650) and subject headings (8,175), was estimated in the AAD InfoFiles. At SPRI, the total number of Pams (31,204) listed in Table 2 represents both geographic (13,242) and subject locations (17,962).

Tab 1: AAD Information Files Collection by UDC classification number, geographic and subject heading, and the estimated number of items in each category. (Note: UDC numbers and subject headings shown in italics are superseded by the 1994 edition of UDC.)

UDC Classification for Polar Libraries	AAD Geographic Areas	No. of items
(*2) / (*60)	Polar regions	**75**
(*7)	Antarctic regions	**225**
(*702) / (*746)	Geography (specific Antarctic locations)	**50**
(*747)	Wilkes Land	**50**
(*76) / (*783)	Ross Dependency / Prince Edward Island	**75**
(*784) / (*784.9)	French Islands (Southern Ocean)	**50**
(*785)	Heard Island	**50**
(*786)	Macquarie Island	**50**
(*787) / (*888)	Sub-Antarctic Islands / Southern Ocean	**25**
	Subtotal (by Geographic Area)	**650**
UDC Classification for Polar Libraries	**AAD Subject Headings**	**No. of items**
016 / 017	Bibliographies / Catalogues	**75**
06.07	Excursions (foreign visits)	**25**
061.1 / 061.3	Government organizations / Associations / Congresses	**125**
159.9	Psychology	**25**
341.24	International treaties	**125**
502.7	Protection of biological environment	**75**
526	*Geodesy / Place names*	***125***
528	Geodesy / Surveying	**25**
55	Earth Sciences	**75**
550.312	Gravity and isostasy	**25**
550.38 / 550.386	Geomagnetic techniques	**125**
550.389	Magnetic surveys	**75**
551	Earth sciences	**100**
551.24	Geotectonics	**75**
551.32	Glaciology	**75**
551.321	Glaciological methods and instruments	**100**
551.322	Ice and snow	**75**
551.324	Land ice / Glaciers / Ice shelves / Ice sheets	**300**
551.326	Floating ice	**150**
551.331 / 551.334	Glacial erosion / Deposition / Deformation	**25**
551.336 / *551.382*	Ice ages / Geocryology	**75**

551.4	Geomorphology	**50**
551.46	Physical oceanography	**125**
551.462	Bathymetry	**25**
551.463 / 551.464	Sea water (chemical / physical properties)	**50**
551.465	Oceanography	**75**
551.466	Waves and tides (marine)	**25**
551.481	*Lakes / Ponds*	***50***
551.5	Meteorology	**50**
551.506 / 551.508	Meteorological data / Instruments	**100**
551.51 / 551.515	Atmosphere (structure; physical properties; general circulation)	**125**
551.52	Atmosphere (radiation / temperature)	**75**
551.55 / 551.578	Wind and air turbulence / Humidity	**75**
551.578.4	Snow	**125**
551.58	Climatology	**75**
551.593 / 551.94	Atmospheric optical phenomena / Atmospheric electrical phenomena	**50**
551.7 / 551.9	Stratigraphy	**50**
552	Petrography / Petrology	**50**
553	Economic geology	**75**
556	Hydrology	**50**
56	Palaeontology / Fossils.	**50**
57	Life sciences / Biology	**100**
574	Ecology	**50**
576.8	*Bacteriology / Microbiology*	***25***
577.4	*Ecology*	***25***
577.745	*Plankton*	***50***
58	Botany	**50**
581 / 582	Plants (physiology / taxonomy)	**125**
591	Animals / Physiology	**75**
593	Invertebrata	**50**
594	Mollusca	**75**
595.1 / 595.2	Platyhelminthes / Arthropoda	**25**
595.3	Crustacea	**50**
595.4	Arachnida	**25**
595.7	Insecta	**50**
597	Pices (fish)	**75**
598.2	Aves (birds)	**150**
598.42	Procellariiformes (petrels, albatrosses, fulmars)	**125**
598.421 / 598.434	Laridae (gulls) / Sterninae (terns) / Stercorariidae (skuas) / Phalacrocoracidae (cormorants)	**25**
598.45	Sphenisiciformes (penguins)	**150**
599	Mammals	**25**
599.5	Cetacea (whales)	**75**
599.745	Pinnipedia	**300**

61	Medical Sciences	**25**
612	Physiology (human)	**75**
612.592	Cold climates (physiological effects)	**50**
613	Health	**50**
614	Public health and safety	**50**
616	Disease and pathology	**50**
621.3	Electrical engineering	**75**
622 / 623	Mining / Engineering, military and naval	**25**
624	Engineering, civil and structural	**50**
626 / 628.2	Hydraulic engineering / Public health engineering	**25**
629.11	Land and road vehicles	**100**
629.12	Ships and boats	**350**
631 / 636	Agriculture	**25**
636.7	Dogs (domestic and in the service of man)	**75**
639.2	Fishing and fisheries	**25**
639.24	Marine mammals, hunting	**50**
64 / 641.5	Food (packing and storing; nutritive and energy values)	**25**
65 / 655.55	Telecommunications services	**25**
656.6	Transport services / Traffic organization and control	**50**
656.61	Shipping	**25**
656.7	Air transport	**75**
656.8	Postal services / Stamps	**25**
664	Food industries / Food processing and preservation	**25**
677	Textile and cordage industries	**25**
685	Travel and sports equipment	**25**
685.5	Expedition equipment	**75**
687	Clothes	**50**
69	Building construction / Building materials	**75**
711.4	Planning of settlements (including scientific stations)	**25**
737.2	Medals and decorations	**25**
77 / 779	Photography and cinematography	**50**
791.44 / 796	Entertainments / Games / Sports.	**25**
796	Sport / Tourism	**50**
91	Geography	**50**
91 (08) : (*7)	Expeditions (by date)	
	1772 – 1947	**150**
	1947 – ANARE	**75**
	1947 – other	**700**
910.2	Logistics / Cold regions travel	**75**
912	Maps / Atlases	**75**
92	Biographies (by name)	**350**
	Subtotal (by Subject)	**8175**
	TOTAL (Geographic Area and Subject)	**8825**

Tab 2: SPRI Pamphlet Collection by UDC classification number, geographic area and subject heading, and the estimated number of items in each category.

UDC Classification for Polar Libraries	SPRI Geographic Area List	No. of items
(*2)	Polar regions	**149**
(*3)	Arctic regions	**736**
(*32)	Svalbard	**396**
(*35)	Iceland	**177**
(*38)	Greenland	**796**
(*40)	North American Arctic	**30**
(*41)	Canada	**1146**
(*48)	Northwest Passage	**12**
(*49)	Alaska	**614**
(*50)	Russian Federation, former USSR	**1438**
(*54)	Northern Sea Route	**46**
(*548)	Scandinavia	**97**
(*56)	Finland	**93**
(*57)	Sweden	**90**
(*58)	Norway	**195**
(*589)	Arctic Ocean, doubtful / non-existent islands	**46**
(*60)	Arctic Ocean and adjacent waters	**374**
(*601)	Arctic basin	**46**
(*61)	North Atlantic Ocean	**155**
(*611)	Baltic Sea	**141**
(*62)	Canadian Arctic waters	**80**
(*66) / (*666)	North Pacific Ocean / Bering Sea / Sea of Okhotsk	**224**
(*68) / (*686)	Arctic Ocean, seas adjacent to Russia	**256**
(*7)	Antarctic regions	**2798**
(*72) / (*721)	Falkland Islands	**333**
(*722) / (*722.5)	British Antarctic Territory / Falkland Islands Dependencies	**205**
(*725) / (*726.3)	South Orkney, South Shetland Islands / Antarctic Peninsula	**365**
(*728) / (*73)	Filchner-Ronne ice shelves / Dronning Maud Land	**63**
(*74)	Australian Antarctic Territory	**115**
(*75) / (*77)	Adelie, Terre / Ross Dependency / Victoria Land / Antarctica, Pacific sector	**282**
(*78) / (*789)	Sub-Antarctic islands / Heard & McDonald Islands	**616**
(*80)	Southern Ocean	**492**
(*82) / (*826)	South Atlantic Ocean / Weddell Sea	**165**
(*84)	South Indian Ocean	**79**
(*881)	Ross Sea	**61**

(217.5)	Gondwana	**30**
(234.3)	Alps	**27**
(261)	Atlantic Ocean	**6**
(4)	Europe	**85**
(510)	People's Republic of China	**30**
(6)	Africa	**8**
(7)	North America	**57**
(8)	South America	**41**
(93)	Australasia	**47**
	Subtotal (by Geographic Area)	**13242**
UDC Classification for Polar Libraries	**SPRI Subject List**	**No. of items**
001.89	Research programmes: Polar regions	**98**
001.94	Unexplained phenomena	**6**
01	Bibliographies: Polar regions / Antarctica / Glaciology	**57**
02 / 025.4	Information science / Libraries	**63**
06.049	Committees	**377**
061.3	Conferences	**45**
069	Museums and art galleries	**57**
159.9	Psychology	**177**
502	Environmental issues	**148**
521.8	Eclipses, Sun and Moon	**98**
527	Navigation	**64**
53	Physics	**110**
55	Earth sciences	**236**
551.32	Glaciology	**394**
551.321	Glaciological methods and instruments	**243**
551.322	Ice and snow	**1367**
551.324	Land ice	**378**
551.326	Floating ice / Icebergs / Sea ice / Ice on inland waters	**683**
551.33 / 551.35	Glacial geology / Ice ages / Geocryology / Raised beaches	**949**
551.4 / 551.46	Geomorphology / Oceanography, physical	**239**
551.5 / 551.521	Meteorology / Atmosphere / Radiation, atmospheric	**457**
551.574 / 551.579	Condensation / Precipitation / Snow surveys / Avalanches / Hydrometeorology	**1448**
551.58 / 551.593	Climatology / Atmosphere, optical phenomena	**747**
551.7 / 56	Stratigraphy / Hydrology / Palaeontology	**63**
57 / 575	Biology / Aerobiology / Genetics	**207**
58	Botany	**282**
59 / 595.12	Zoology / Mollusca / Platyhelminthes	**397**
595.2 / 595.7	Arthropoda / Crustacea / Arachnida / Insecta	**425**

596 / 597.6	Vertebrata / Fish / Amphibia	**246**
598.31 / 598.422	Gruiformes / Procellariiformes / Laridae	**320**
598.45 / 598.5	Penguins	**357**
599 / 599.32	Mammalia / Rodentia	**97**
599.5 / 599.53	Cetacea / Mysticeti / Odontoceti	**480**
599.55 / 599.724.4	Sirenia / Cervidae / Canidae / Ursidae / Mustelidae	**265**
599.745 / 599.745.3	Pinnipedia / Otaridae / Odobaenidae / Phocidae	**655**
612 / 614	Physiology / Health and preventive medicine	**191**
620.1	Materials testing. Defects of materials. Protection of materials	**111**
624 / 625.1	Engineering, civil and structural / Railway engineering	**494**
629.1.05 / 629.7	Navigational instruments / Vessels / Aerospace engineering	**298**
631.4 / 636	Soil science / Fertilizers / Animal husbandry and domestic animals	**129**
639.245.1	Whaling industry	**357**
64 / 641	Domestic science / Food. Cooking.	**81**
656.835	Philately	**33**
663	Beverages, stimulants and narcotics	**23**
665.215.1	Whale oil	**24**
681.11	Clocks, watches and chronometers	**26**
69 (211)	Building construction in cold regions	**46**
7.031.71	Art, Inuit	**165**
791 / 792	Cinema. Films (motion pictures) / Theatre	**28**
801.1	Orthography, spelling and transliteration	**84**
82-1	Poetry / Fiction	**47**
903	Archaeology	**8**
91(08) : (*2)	Expeditions : Polar regions	**1319**
91(08) : (*7)	Expeditions : Antarctic regions	**1069**
910.2 : 65	Logistics, expeditions and research projects	**25**
92	Biographies	**1169**
	Subtotal (by Subject)	**17962**

TOTAL (Geographic Area and Subject) **31204**

The numbers listed in Tables 1 and 2 provide only a general estimate of the amount of gray literature material available in the two libraries. AAD totals represented in Table 1 do not include a stack of some 600 items that had not yet been filed in the card catalog; these cards contained a mix of subjects and were in no particular order. Also excluded from the total were UDC subject areas with less than 15 cards. Totals given in Table 2 do not include the 33% of the SPRI Pams that do not have electronic access, or the materials that were never cataloged, but merely classified and filed. A large backlog at SPRI also exists; these items come from many sources, but duplicates have not yet been identified.

The totals in the two tables represent a snapshot of the status of the collections at the two libraries when the project was completed in May 2009. Both the AAD Info Files and the SPRI Pams continue to grow as new gray literature is added. However, even rough estimates of the amount of material shown in Tables 1 and 2 indicate that gray literature comprises a significant part of the AAD and SPRI collections.

For the second part of the project, a representative sample at AAD and SPRI was identified and used to compare the two collections and to provide more detailed descriptions of the material. The sample focused on four expeditions to Antarctica in the early part of the 20th century:

1. British Antarctic Expedition (BAE) 1910 – 1913
2. Australasian Antarctic Expedition (AAE) 1911 – 1914
3. British Australian New Zealand Antarctic Research Expedition (BANZARE) 1929 – 1931
4. British Graham Land Expedition (BGLE) 1934 – 1937

These four expeditions are well documented in the two collections and include a variety of publication types. Inquiries are continually received at AAD and SPRI for information about these expeditions, so improving access will benefit researchers and other potential users. In addition, making the material more available is very timely, anticipating renewed interest from the public with the centenary celebrations of BAE in 2010 and AAE in 2011.

Lack of electronic access at AAD required that all of the gray literature pertaining to the four expeditions be manually entered into *RefWorks,* the web-based bibliographic management software accessed through the library at the author's institution. The reference type and the data fields selected in *RefWorks* were kept to a minimum for simplicity. In order to track duplicates, multi-part articles were entered as individual references.

Of the 64 references included in the AAD sample, 35 (55%) had both an item in the InfoFiles as well as a card in the card catalog. Another 16 (25%) items were found in the InfoFiles, but lacked a corresponding card in the card catalog. The remaining 13 (20%) items had cards, but the matching item was missing from the InfoFiles. At SPRI, electronic access through Muscat enabled 101 records with Pam locations to

be directly imported into *RefWorks.* An additional seven references were added manually, consisting of items found in the Pams but not listed in Muscat, for a total of 108 items in the SPRI sample.

Table 3 shows the total number of gray literature items (172) for the four Antarctic expeditions found at AAD and SPRI, with a breakdown by publication type represented in Table 4. The majority were reprints of journal articles (69%). Other publication types included books (11%), newspaper articles (9%), unpublished material (9%), and personal communication (1%).

Tab 3: Number of items for the four Antarctic expeditions at AAD and SPRI

Expedition / Year	AAD Information Files	SPRI Pamphlet Collection	Total
BAE 1910 – 1913	14	73	87
AAE 1911 – 1914	30	21	51
BANZARE 1929 – 1931	17	6	23
BGLE 1934 – 1937	3	8	11
Total	64	108	172

Tab 4: Items by Publication Type for the four Antarctic expeditions at AAD and SPRI.

Publication Type	AAD Information Files	SPRI Pamphlet Collection	Total
Journal article	39	80	119
Newspaper article	8	8	16
Book, whole	0	14	14
Book, section	0	6	6
Unpublished material	16	0	16
Personal communication	1	0	1
Total	64	108	172

Given the similarity of the collections at AAD and SPRI, one would expect a large amount of duplication when the reference lists from the two libraries were compared. Surprisingly, this was not the case. Despite the specific focus on Antarctic-related subject matter in the two collections, only ten items (<6%) were found in both

libraries; all were reprints of journal articles. Table 5 lists the ten duplicate references from AAD and SPRI.

Tab 5: Duplicate References for the four expeditions at AAD and SPRI.

1. Brown, Robert Neal Rudmose. "The Australasian Antarctic Expedition 1911–14. A Review of ‘The Home of the Blizzard’ by Sir Douglas Mawson." *Scottish Geographical Magazine* 31, no. 3 (1915): 136-142.
2. Mawson, Douglas. "The Antarctic Cruise of the Discovery, 1929 –1930." *Geographical Review* 20, no. 4 (1930): 535-554.
3. ———. "The Australasian Antarctic Expedition, 1911–14." *Scottish Geographical Magazine* 31, no. 7 (1915): 337-360.
4. ———. "The Australasian Antarctic Expedition, 1911–1914. Summary of Results." *Scottish Geographical Magazine* 31, no. 1 (1915): 476-477.
5. ———. "The Australasian Antarctic Expedition." *Geographical Journal* 37, no. 6 (1911): 609-620.
6. Price, Archibald Grenfell. "The Winning of Australian Antarctica: Sir Douglas Mawson's B.A.N.Z.A.R.E. Voyages." *Proceedings of the Royal Geographical Society of Australasia* 61, December (1960): 13-20.
7. Priestley, Raymond Edward. "Inexpressible Island." *Nutrition Today* 4, no. 3 (1969): 18-27.
8. Stephenson, Alfred and William Launcelot Scott Fleming. "King George the Sixth Sound." *Geographical Journal* 96, no. 3 (1940): 153-166.
9. Taylor, Thomas Griffith. "The South Pole Story, Part 1 of 2 (as told to D'Arcy Niland)." *Walkabout* September (1962): 11-16.
10. ———. "The South Pole Story, Part 2 of 2 (as told to D'Arcy Niland)." *Walkabout* October (1962): 25-30.

The ‘RefShare’ feature was then implemented, a module of *RefWorks* that allows a group of references to be shared as metadata. RefShare offers the ability to view, sort, print, or generate a list of references, even if a user does not have access to *RefWorks.* The reference lists of the expeditions, available as metadata through RefShare, can then be linked to or distributed through a variety of resources. Adding metadata links to records in the online catalogs and to the websites of AAD and SPRI is currently in progress.

The metadata has the potential to be linked to broader initiatives such as the Antarctic Heritage Register (http://data.aad.gov.au/aadc/artefacts) maintained by the AAD’s Data Centre and SPRI’s Index to Antarctic Expeditions (http://www.spri.cam.ac.uk/resources/expeditions). Additional possibilities are many, but could include SPRI’s Freeze Frame project (http://www.spri.cam.ac.uk/resources/freezeframe) featuring visual resources of historic polar explorations, as well as the Mawson’s Huts Foundation (http://www.mawsons-huts.org.au), established to conserve the historical buildings of the Mawson expeditions.

This project determined, for the first time, the number of items in the UDC classification system for both geographic areas and subject headings at AAD and SPRI. The selected sample representing four Antarctic expeditions provided more information on the scope of the collections at the two libraries. The result is a better understanding of the gray literature at AAD and SPRI, along with possibilities for providing improved access to these significant collections. The full report with complete details of the project is available at: http://www.consortiumlibrary.org/blogs/dcarle/sabbatical/

Using metadata linked to library catalogs, institutional websites, and other sources are solutions that easily could be implemented in other polar libraries with gray literature collections. Climate change, particularly in the Polar Regions, emphasizes the need to make the material more accessible to the interested public and polar researchers around the world. The gray literature collections at AAD and SPRI will take on greater importance as the need for this information increases.

Acknowledgements

Sincere thanks to Library Directors Andie Smithies (AAD) and Heather Lane (SPRI) for providing advice and guidance throughout this project. I am grateful for the technical assistance of Rick Frolich, SPRI's online catalog expert, as well as the support, good humor, and camaraderie of the library staff at AAD and SPRI.

References

Mills W. (ed.) (1994). Universal Decimal Classification for Use in Polar Libraries, 4th edition. Cambridge, UK: Scott Polar Research Institute, University of Cambridge, revised 1994.

Reitz JM. (2004). Dictionary for Library and Information Science. Westport, CT: Libraries Unlimited, p. 321.

Wong J. (2005). Copy of email message to Heather Lane, Library Director. Scott Polar Research Institute, 11 Sept 2005.

CAPTURING CONVERSATIONS ABOUT CLIMATE CHANGE IN ALASKA

Polar Libraries Colloquy June 2010 / Bremerhaven, Germany
Bridget Burke Assistant Professor
Head, Alaska & Polar Regions Collections
Elmer E. Rasmuson Library
University of Alaska, Fairbanks

We used to kind of gauge when like hunting season starts. September years ago I remember going out with my parents and going out with other people, that, you know, once it gets cold most early in the first part of September everyone would know, you know, that's a probably a good time to go, and most of them come back with a moose, but in the last ten to fifteen years things have changed, you know, I would say drastically…The effects from, you know, the earlier spring, the longer, you know, the later fall I think brings about a lot of changes that's impacting how people are going to have to live, or actually how they are living right now

Introduction

The extreme nature of Alaska's climate is always a conversation starter. Whether traveling on a plane or talking to friends "outside," the weather is often the first piece of information both strangers or intimates want to extract. How cold is it? Is there snow yet? For many both inside and outside the state, the weather defines what it means to live in Alaska, where the winter temperatures in Fairbanks can drop to -40F (-40C). With serious study of global warming focused on the polar regions, our weather has become more that idle conversation. Talking about climate change with those in the sub-arctic who are witnessing rapid change will become an important tool for scientists working in this region. Fortunately, a long record of oral traditions based on habitation vastly expands a shorter record of scientific data collection based on seasonal visits.

The Alaska & Polar Regions Collections at the University of Alaska Fairbanks (APR) is part of the conversation. APR holds thousands of manuscript collections, millions of photographs, hundreds of hours of archival film, and nearly 10,000 oral histories documenting life in Alaska. Since the 1970s the complexity of the formats we hold and the ways in which we deliver them to our users has grown, in part driven by internal choices and collecting patterns, and in part the consequence of external standards for digital file formats, metadata, and web compatibility. These standards

lead to greater stability and portability, but also require greater coordination within APR, with our colleagues in other UAF library departments, and with peers in the profession as a whole.

What follows is an overview of some historical and current APR projects involving the collaborative curation and delivery of collections. The focus is on the evolution of Project Jukebox, our community-based oral history delivery site, which has gone from a stand-alone program, to one that uses an integrated approach in the delivery of oral history and other digital collections in a sustainable form. The examples will emphasize our goal of integrating community based knowledge into the documentary record, while also insuring that knowledge is delivered back to the community of origin. The examples that follow were chosen for the way they illustrate this evolution, but also for their topical relevance as they relate to capturing conversations about changing climate in Alaska.

Project Jukebox is a unit of the Alaska & Polar Regions Collections. It was founded in 1988 by William Schneider, an oral historian and anthropologist at UAF, to deliver resources held in UAF collections to Alaska communities. There are nearly forty Jukebox projects, almost all of them community-based. Community may be defined as a community of interest, as in the Pioneer Aviation project, but more typically the community is geographical: a village or town, a stretch of river, a way of living within a place. Jukebox secures funding from competitive grants, and has received support from a diverse group of local, state, and federal agencies, ranging from the National Science Foundation to the Alaska Reindeer Herder’s Association.

Early Jukeboxes focused on collecting and delivering audio and transcription of oral histories; graphics and presentation were determined by modest web design capacity, and accompanying images consisted of snapshots or photos contributed by the interviewees. Jukebox developed out of the oral history program, and was not reliant on relationships within APR’s nine other units, which include rare books, manuscripts and archives, the film archives, and the digital photo lab. Early Jukeboxes, like the one documenting the North Slope and the community of Barrow, Alaska, made scant reference to the larger institutional context of the program, and did not place the project clearly within the Rasmuson Library or the Alaska & Polar Regions Collections. This is a testimony to the single vision of Jukebox’s founder, and a reflection of the fact that the evolution of Jukebox pre-dates the development APR’s participation in the library’s online catalog and the development of the archive’s public catalog, and pre-dates the Alaska Digital Archives, a Content-DM based repository that holds digital objects from libraries and museums around the state, including APR. Early Jukeboxes had internal searching via keyword, but they did not have metadata attached to images or audio – metadata didn’t exist. They incorporated images and audio files into web pages, but those images and sounds did not reside in a stable repository – such a repository did not exist.

The First Climate Change Project

Jukebox has long had an interest in capturing conversations about climate change.

> *In communities around Alaska you hear comments like: "The weather is strange and unpredictable;" "Permafrost is melting;" or "Sea ice patterns are changing." These comments reflect Alaskans' observations and concerns about the effects of climate change on their communities and lives*.

The initial *Climate Change* project was developed as a collaborative effort between the Oral History Program and the *Observing Locally, Connecting Globally* (OLCG) teacher education project at the University of Alaska Fairbanks. As described in the OLCG documentation, the project “looked for speakers representing different parts of the state, and selected individuals from Barrow, Huslia, Arctic Village and Fairbanks. All but one are experienced members of the native community who maintain close contact with elders and who have a strong interest in environmental issues because of their own activities on the land. Many of their observations provide direct links between the climate and environmental changes they observe and the effects of those changes on life in rural Alaska.” Funding for the project was provided by National Aeronautics and Space Administration (NASA) and National Science Foundation (NSF) grants secured by the *Observing Locally Connecting Globally* program.

Interviews highlighted observations by local residents on changes in ice conditions, temperatures, and the timing of freeze and thaw, and the impact of these changes on local practices. The presentation on Jukebox featured transcripts of oral histories displayed while an audio clip played. While the initial *Climate Change* jukebox focused on native experience, it also included one climate scientist. The project confirmed that the intersections between locally observed phenomenon and scientific explanation were worth pursuing, and the concept of documenting different ways of knowing was extended in another Jukebox project, called *Dangerous Ice*.

Between 2004 and 2007, Phases 1 and 2 of the *Dangerous Ice* jukebox explicitly sought out different voices to discuss changing ice conditions. “The goal was to bring local community members and scientists together to share information about Interior Alaska river and lake ice. We wanted to hear their descriptions and explanations and determine if the topic of dangerous ice conditions is an area where local experts and scientists could work together to create understandings that could not be reached without each other’s expertise.” A National Science Foundation workshop was held at the University of Alaska Fairbanks and consisted of slideshows, discussions, and a field trip around Fairbanks to look at different ice conditions. The workshop brought together local community experts on ice conditions and scientists who study ice. Later this group travelled on the Tanana River to sites of historically dangerous ice. There were new features in this jukebox, with video of the excursions and a mapping

function incorporated in the site, but this new content was still embedded in the web pages, rather than referenced from a stable repository.

The biographies of three of the participants in the *Dangerous Ice 2* project show the range of knowledge and experience: Samuel Demientieff, of mixed Athabascan heritage, represented local knowledge. Demienieff grew up on the Yukon and Tanana Rivers where his father ran a barge service, and he traveled the rivers with his father in summer and traveled the frozen rivers in the winter. Knut Kielland is a wildlife ecologist with the Institute of Arctic Biology at the University of Alaska Fairbanks. He has traveled extensively on Interior Alaska lakes and rivers in winter, both as a scientist and as a dog musher. His perspective is a mixture of personal experience and observation and scientific understanding. Martin Jeffries is professor of geophysics with the Geophysical Institute at the University of Alaska Fairbanks. His research concentration is ocean and lake ice, ranging from Alaska to Antarctica, and he directs the Alaska Lake Ice and Snow Observatory Network (ALISON) Project that gets teachers and their students involved in studying ice conditions in their communities.

As noted in the project's final report, "the experts from communities tended to talk about what they had experienced and the ice scientists tended to summarize what they knew. While this finding was expected, we were pleased to see that the differences in styles did not hinder interaction. Often during the presentations, the scientists referenced the experiences of the local experts and the local experts commented about the conditions described by the scientists. This is what we had hoped would happen." The conversational format allowed scientists to deliver scientific knowledge in accessible, oral form, and the local experts provide context and history through long use and observation. They also recognized and enjoyed their different perspectives and life experiences, as evidenced in this exchange between Sam Demienteiff and Knut Kneilson:

> *[Samuel Demientieff]: It could be safe, it could also get you in trouble. If you find a place like that, really ram into it. But if you're going real slow, and you get across, you know, you're going across a weak area, its going to fall right through. So you know how, you know how to do this whole thing, you really know how to explain this whole thing?*
> *[Will Schneider] No.*
> *[Samuel Demienteiff] You take a scientist with you, send him down river first, and you watch him. If he disappears, its no good. Send another scientist down there, he goes all the way down, if he disappears, gotta go around.*
> *[All]: [Laughter].*

The Gates Portal Project

Over the last two years, yet another model for Jukebox presentations has emerged. The *Gates of the Arctic Research Portal* provides access to resources developed or held throughout the UAF's library and museum collections, providing a gateway to film, photographs, oral history, books, periodical literature, and artifacts to local communities.

Outside of the boundaries of the Gates of the Arctic National Park are about a dozen villages defined by the National Park Service as "resident zone communities," a distinction unique to Alaskan parks. In acknowledgement that conservation lands host both natural and cultural resources (communities and their life ways), the 1980 Alaska National Interests Land Conservation Act (ANILCA) recognized traditional land use and subsistence activities on lands set aside for conservation. "Resident zoned communities" are those which have traditional ties to subsistence or other cultural activities on lands now within park boundaries. Historian Theodore Catton states that this recognition of use is the distinguishing fact about management of federal lands in Alaska: it acknowledges the presence of both nature and culture within Park boundaries and on adjacent lands: an *"inhabited wilderness*." Returning documentation to these communities is the goal of the *Gates of the Arctic Research Portal* project, through a process of digital repatriation. The Park Service's funding of the project demonstrates their commitment to outreach and engagement in resident zone communities, and to a broader vision of conservation that addresses both nature and culture.

The resident-zoned villages of Hughes and Huslia are located just below the Arctic Circle on the Koyukuk River, about 250 miles northwest of Fairbanks and 50 to 100 miles from the boundary of the Gates of the Arctic National Park & Preserve. They are "bush" villages, located in Alaska's roadless interior. In the summer, boat travel on the river supports hunting and travel to fish camp; in the winter, travel by snow machine or dogsled supports subsistence activities. There are cultural and familial connections between the two villages, both Koyukan Athabascan settlements. Hughes is the smaller village, with a population of about 80; Huslia has over 250 residents. The villages are both intensely isolated and highly connected: two barges visit during the short summer season, carrying new washing machines and ATVs, septic tanks, furniture, and other durable goods. There are flights to and from Fairbanks and between the villages, and satellite dishes and high speed internet link the outside world. Internally, village residents are connected by shortwave radio, always on in every home.

A core concept behind the development of the *Gates of the Arctic Research Portal* is digital repatriation: the return, via the web, of cultural knowledge to the community of origin. David Krupa, ethnographer and the Park Service Cultural Resource Specialist who serves as primary researcher on the Gates portal project, describes the project this way:

In and around Gates of the Arctic National Park and Preserve, resident communities have long histories of patiently answering researcher inquiries about their lives and culture, but local residents want to know how this information will be used and shared to the benefit of their own communities. Local community members sometimes complain that they are only consulted when they can provide intellectual or cultural capital, only to be overlooked in the dissemination of results and products. Rather than propose new ethnographic and subsistence documentation every time a question arises, we developed a proposal to create digital portals to store research that has been completed and to offer community access via the Internet to the rich cultural and intellectual property still archived in libraries and museums at the University of Alaska Fairbanks.

How best to address what the Park Service acknowledges as “a long-standing asymmetry in institutional relationships with local communities?” The *Gates of the Arctic Research Portal* uses a consultative process to engage with local resident zone communities surrounding Gates of the Arctic National Park & Preserve. Alaska & Polar Regions Collections staff travel to the villages to give presentations about resources, and village residents travel to UAF to identify and prioritize collections to digitize. The consultative process is modeled after that used by NAGPRA, the Native American Grave Protection and Repatriation Act (1990), which established a mandate and a mechanism for the identification and return of human remains and grave goods from institutions to native custody. David Krupa of the National Park Service sees the Jukebox portal as a “geography-based one stop shop,” with a primary audience that is the communities themselves. Ultimately, the portal will provide access to land managers, wildlife biologists, policy makers, and the scholarly community. It is a unique response to Alaska’s unique geography, and to an approach to conservation lands that embraces human and cultural resources as worthy of preservation. It provides a gateway for under-served communities to access resources about themselves, and a mechanism for curatorial staff to learn more about their collections and the places and people that they document.

The *Gates* portal straddles three approaches to access: the enumerative, which involves gathering and listing resources; a model based on discoverability, which uses index terms to locate appropriate resources; and finally, direct delivery of content in the form of full audio and transcripts of interviews with village residents. Over the next few years we will continue to incorporate enumerative models, such as subject bibliographies accessible through the site. Increasingly, the goal is to move away from enumeration, and achieve full discoverability with better indexing and federated searching. The challenge of this transition includes developing crosswalks between several digital resources (the online catalog, the digital repository), as well as decisions about indexing levels that expand traditional AACR2 guidelines. For example, UAF cataloguers are unlikely to assign distinctive geographic headings to a monograph that contains significant local information, but does not meet the AACR2

standard of comprising a certain portion of the work. How do we make that content discoverable, and if not discoverable, then enumerated in a way that brings the content to the attention of communities and researchers? As we work to resolve these issues, the project models a good-faith effort at outreach and education to rural Alaska communities, and a genuine attempt to repatriate cultural knowledge to the resident zone communities of the Gates of the Arctic National Park & Preserve.

The *Gates of the Arctic Research Portal* is a gateway to existing access tools and content, not a replication. As an index to scattered collections, it relies on automated searches in the library's online catalog to identify film, print, and audio collections; searches in STAR, the manuscripts database for letters, diaries, and other archival material; and secondary sources identified through a link with the *Alaska & Polar Periodicals Index*, a UAF indexing project that covers hundreds of publications about the circumpolar north. Additionally, the portal site provides a gateway to other resources, including the US Fish & Wildlife Service, the Alaska Native Language Center, and UAF Museum of the North Collections. The portal gathers discoverable collections into a gateway site, benefitting both novice and serious researchers. The portal could not have happened ten years ago: our holdings were simply not that well documented within the existing library infrastructure, or that infrastructure did not yet exist. As for the actual content (audio and images from APR collections), whereas previously all Jukebox content was imbedded into the presentation mechanism in the form of files in web pages, with captions but no metadata, the Gates portal and future jukeboxes are striving to separate content from presentation, creating an overlay that relies on permanent digital objects that reside in stable repositories. Instead of embedding the audio files and images into a web page, the portal takes people to the Alaska Digital Archive, which holds content and associated metadata. Ultimately we hope to have a federated search function rather than multiple tabs for different tools and locations.

The Importance of Internal Collaboration

While formal agreements govern our projects with the Park Service, no similar roadmaps exist for Jukebox's internal relationships within the Alaska & Polar Regions Collections Department. The ongoing development of the portal concept is only possible with continuing conversations between Jukebox staff, APR's metadata coordinator, instructional technology staff, and bibliographers. The idea of a portal or gateway is one that implies opening doors, and collaboration amongst APR units is essential. The *Gates of the Arctic Research Portal* has forced a new level of internal cooperation for Jukebox, generating an examination of work flows, processes, and funding structures. For this reason the Gates portal is an experiment in collaboration on two levels: while Jukebox has consistently nurtured strong collaborative relationships with communities and with funders, it now has to cultivate stronger coordination with its colleagues in the APR. While no memorandum guides these interactions, Jukebox writes its grant proposals to support the work done by other APR staff, and its successful efforts fund portions of indexing, scanning, and film processing positions throughout the department. In turn, these units are becoming

more sympathetic to the time-sensitive nature of grant-funded projects, and adjusting their queuing to Jukebox needs. The future of Jukebox depends on coordination with other digitization, description, and repository functions within the Alaska & Polar Regions Collections.

Current Projects: Climate Change and Stakeholders

Two new projects, a *Alaska Stakeholders & Climate Change,* and *Dangerous Ice 3: Human Perspectives on Changing Winter Conditions in Alaska*, make explicit the importance of those individuals, communities, and organizations that have knowledge of and interest in the issues raised by changing climate conditions in the north. *Stakeholders* is sponsored by the International Arctic Research Center with funding from the National Science Foundation. The goal is to bring rural community members together with UAF scientists into a discussion about climate and environmental change in Alaska. The communities of Tanana, Fort Yukon, and Chalkyitsik are represented. The interviews, documenting local observation and scientific explanation, will be referenced by theme, stakeholder, and location.

In this latest iteration of Project Jukebox, significant time was spent in an unsuccessful effort to use Flash programming to drive the presentation. It is clear that the greatest challenge facing Jukebox is how to push innovation within a grant-funded structure where product, not process, is the core deliverable. The goal of separating content from presentation has proved more difficult than expected, and an unwillingness to compromise functionality (for example, insisting on delivering complete oral histories rather than excerpts) further challenges Jukebox staff. Creating a seamless presentation while pulling images, audio, and moving images from their repository in the Content-DM based Alaska Digital Archives has been difficult, and development continues on a framework of presentation based on templates that link to external content. Jukebox has been hesitant to embrace the importance of attaching full metadata to all content, a core tenant of best practices in digital delivery. In short, a new Jukebox model has required some internal soul-searching as well as conversations and collaboration with indexers, manuscripts unit staff, our instructional technology department, the digital repository manager, and the digital photo lab – all independent units within the department. Negotiations on staffing, funding, and queuing the work are now a constant in the life of Jukebox. This new integrated approach is more complex, from a technical, staffing, and workflow standpoint, though the ultimate goal is simplicity: to share one stable, well-described digital object across platforms, to be presented in a variety of ways to reach out to different user groups.

Conclusion

Oral histories provide narratives of change. They are the stories people tell about themselves, their lives, and their changing world. It is important that these stories be accessible for the data that they hold about traditional ecological knowledge and for the traditional cultural expressions they carry, because these do not reside elsewhere in the documentary record. Our challenge is how to ensure the stability of these

testimonies while dealing with constantly evolving delivery mechanisms. We believe that a standards and repository based approach will improve the chances of stable collections and metadata. We recognize the challenges of innovation in a product-driven reality of grant funding. We confront daunting legacy issues as we look at twenty years of Jukebox which function, separate from their content, as a virtual museum of twenty years of web design. Building a more sustainable funding structure mechanism to refresh, revise, or convert projects as new platforms become available essential. The hope is that by separating the *presentation* from the *content,* future Jukeboxes will be more portable. The communities they serve, the extraordinary outreach and repatriation initiatives that Jukebox promotes, the connections that it makes with communities will be sustained only if we can insure that the Jukeboxes themselves, the framework they provide and the content they hold, are stable and sustainable.

References

Jim Kelly interviewed by William Schneider, September 10, 2009. Alaska & Polar Regions Collections, Elmer E. Rasmuson Library, University of Alaska Fairbanks (APR). Kelly works on environmental issues with the Council of Athabascan Tribal Governments.

Jukebox home page at http://jukebox.uaf.edu

Jukebox North Slope page at http://jukebox.uaf.edu/northslope/nsmenu.html

Observing Locally Connecting Globally page at http://www.uaf.edu/olcg/, accessed 30 August 2010.

Jukebox Climate Change page at http://jukebox.uaf.edu/ClimateChange/home.html, accessed 30 August 2010.

Jukebox Dangerous Ice page at http://jukebox.uaf.edu/dangerice/start.htm, accessed 30 August 2010.

Dangerous Ice page at http://jukebox.uaf.edu/dancerice/htm/reports.htm, accessed 30 August 2010.

Ibid.

Sam Demientieff, Knut Kielland, and William Schneider, unaccessioned audio for Dangerous Ice 3: Human Perspectives on Changing Winter Conditions in Alaska, recorded March 19, 2010.

Jukebox Gates of the Arctic Research Portal page at http://jukebox.uaf.edu/gatesportal/index.html

Theodore Catton, Inhabited Wilderness: Indians, Eskimos, and National Parks in Alaska (Albuquerque: University of New Mexico Press, 1997).

David Krupa, “A Balancing Act: Ethnography, Subsistence, and Alaska Parks,” George Wright Forum, 26(3), 2009.

Gates Portal Project Description, PMIS 91407, National Park Service.

NEW COOPERATION IN ARKTIKUM AND PILKE TO PRODUCE TUITION FOR LOCAL SCHOOLS

Liisa Hallikainen
Lapland University Consortium Library
Arctic Centre Library
Rovaniemi, Finland

ABSTRACT

Arctic Centre, with its library and science centre, is situated in the same building (Arktikum) as the Provincial Museum of Lapland and next to Metsähallitus (formerly known as the Finnish Forest and Park Service). Rovaniemi Art Museum is situated nearby. All four organizations have exhibitions for the public. Three of these organizations have communication goals that partly overlap and partly complement each other. Aspects we have in common are the arctic, northern regions, Samish people, climate and global change.

The main target group of the Arctic Centre Library is the visitors of all the exhibitions of Arktikum and Metsähallitus. A special target group is the local school children visiting the exhibitions as a part of their curriculum. We have made an agreement to produce common programs so that local school classes can learn parts of their curriculum in our exhibitions and library. The exhibitions and library complex are multidisciplinary, so, the subjects of the programs may vary from philosophy and religion through history and ethnography to natural and environmental sciences. We propose to divide the school class into five groups, with each group going to different exhibition, or to the library to search for information on the common topic from a different point of view. Alternatively, the whole class may have a task track through all of the exhibitions and the library. The results will be gathered when they are back at school. Library and museum staff will work together to prepare the material to be used before, during and after the visit.

1. Arktikum today and tomorrow

The Arctic Centre is situated in Arktikum, together with the Provincial Museum of Lapland. The Arctic Centre consists of a multidisciplinary research institute, Science Centre, Science Communications and library. Pilke Science Centre is now under construction next to Arktikum. Pilke belongs to Metsähallitus, previously known as The Finnish Forest and Park Service, and will have its offices located in that same building when completed. The Rovaniemi Art Museum is also located nearby.

The Arctic Centre Science exhibitions present an introduction to the Arctic and the strategies of humans and nature facing ongoing global change, asking questions about the future in a positive way. The exhibition of the Provincial Museum presents the Lappish wilderness and its cultural heritage. The Pilke exhibition (opening 2011) deals with the sustainable use of northern forests.

Today Arktikum is a famous attraction for schools. Local schools visit Arktikum to attend the exhibitions, view films, and to take part in workshops that are produced by either the science centre or the museum. Some of the local kindergartens also visit Arktikum regularly. However, few pupils visit the Arctic Centre library and fewer still use the library as an information source.

Even now Arktikum could be an excellent learning environment for different subjects and different forms of school but it is under-utilized. Next year the possibilities are more promising when the Pilke Science Centre opens next door.

2. For better use of the facilities

The objective of the Arctic Centre library is to increase knowledge and understanding of arctic issues by compiling information and communicating to and with experts and general public. The science centres and the Provincial Museum share the same objective: to communicate to and with the general public. As a library we are compiling information to add to our collections and databases. Most of the experts can and do use the library and already communicate with us. But how could we improve communication to our target groups, to the schoolchildren and other visitors of the exhibitions?

The teachers of the schools are usually very busy and don’t have much time for planning extra events. They don’t know our exhibitions and library well enough to use them by themselves. One of the school’s main objectives is to have the pupils get acquainted with their environment and the region where they live. It is the same in history, geography, biology, geology, environmental issues, culture, linguistics, etc.

We in Arktikum and Pilke have material and expertise in our subjects. By cooperating we can

- have regular program for schools
- have more diverse tuition
- make it easier for the schools to include our program in their yearly lesson plans through our marketing efforts
- increase visibility for each of us
- have more programs with fewer costs

Although the Arctic Centre is a part of the University of Lapland, the Provincial Museum belongs to Rovaniemi City, and Metsähallitus is a state-owned company,

our visitors don’t see us as different organisations So, to avoid confusion, we should not act as different organisations but rather combine our outreach efforts.

3. The first common program for schools

We have agreed to arrange the first common program for schools in May 2011, during International Museum Week. Our target group is eight-formers, 14-15 yearsof age. The subject will be forestry because the following year will be “the Forest Year”.

We will produce some preliminary tasks to carry out at school before coming to Arktikum and Pilke. These tasks might include some chapters to read, some terms to learn, and some questions to think about ahead of time.

Then the class comes to Arktikum and Pilke and goes through a task track working alone or in pairs. They will have five stops on the track: one in the library, one in the Arctic Centre Science exhibition, one in the Provincial Museum, one in Pilke Science Centre, and one in the Rovaniemi Art Museum. They will have several tasks per stop and there might be a scientist or other expert at some of the stops helping the pupils and answering their questions.

The tasks might be very different on the different stops at the five institutions. At the Arctic Centre, there might be something about biodiversity in forests, the effects of global change on forests, or the forest landscape in tourist destinations. Tasks about he history of forestry in Lapland might be included in the Provincial Museum. Pilke will make the tasks pertain to the use of wood and wood products, and in Rovaniemi Art Museum the pupils will study forest and trees in art. After the visit the tasks will be summed up at school.

If we have a look at the school syllabus for the eighth form, many subjects could be represented. Biodiversity and sustainable use of forests could be studied for biology. The effects of forestry on the environment and landscape, on different means of livelihood, and on cultural development could be studied for geography. In physics and chemistry the pupils could study wood as a source of energy, pulp and paper. In history they chould study industrialization in Lapland, the development of professions, and the infrastructure, changes in the forestry sector and its effects on the society. In civics they can learn about the effect on society by analysing what happened when a pulp mill was closed in a small town in Lapland. In arts and handicrafts they can study the objects and materials. One of the tasks of personal tutoring at school is to get the pupils acquainted with different professions, e.g., the forestry sector, in order to be able to make their own choices of their future studies and professions. Thus, in the exhibitions of Arktikum, Pilke and the Art Museum as well as in the library, the students can find relevant information on many topics included in the syllabus.

4. The Next step in the cooperation

From the library's point of view the most interesting group is the students of the upper secondary school, young people 16-18 years of age. They can use books and internet as sources of information. They can carry out wider and more independent tasks. They can work in groups and choose their way of presenting the results of the tasks.

Students at that age should already be thinking about what they want to study and what professions interest them. Therefore, it can be useful to divide the class into different interest groups. The technically oriented group can go to Pilke Science Centre, and the artistically oriented group can go to the Art Museum. Philosophically or theoretically oriented groups can come to the library and historically or ethnologically oriented groups can go to the Provincial Museum. The Arctic Centre Science exhibition can attract very many kinds of pupils: those who are interested in natural sciences, those who are interested in social sciences, or even law.

So, one visit to Arktikum and Pilke can give the students a variety of material for many school lessons in different subjects. These will be analysed, summarized, and taught to the members of other groups. The summaries may be lectures, essays, drama, poems, etc., depending on the subject and the group.

The variety of possible topics is enormous. Beginning with globalization, the students can learn its effects on climate, indigenous peoples, various societies, forestry, governance or international law. Those issues belong to the syllabus in biology, geography, history, and civics. Topics such as reindeer herding, tourism, indigenous peoples or winter relate to administrative, anthropological, artistic, biological, economic, environmental, geographical, historical, industrial, legal, linguistic, medical, philosophical, physical, religious, sociological and technological aspects. It is possible to help the teachers in nearly every subject if we make the effort to do so.

5. On the way

As a library we started with collections. We bought books, we subscribed to journals, we got donations and we started publication exchange and other cooperative efforts with other arctic or polar institutes. And, of course, we started to catalogue, index and classify the material as well as we could to ensure that the information can be found. We also had to ensure that the library catalogs can be found. This is the basis for all library work and it can be done only in deep cooperation with other libraries on national and international levels.

The next phase has been to collect and organize other information than publications. The information service in the Arctic Centre has been very active in producing databases, portals and other information systems in national and international

cooperation. This work is ongoing. For example, we are currently working with Barents Euro-Arctic Council to maintain their information portal.

Now it’s time for more active communication. The world is full of information and various information sources but sometimes it seems that people still don’t find it. We have to step out from the traditional role of a library to communicate. It means new kinds of work and new kinds of cooperation, and we hope our plan to work together to bring students to our respective organizations will be a good start.

UNIVERSITY OF THE ARCTIC DIGITAL LIBRARY PROJECT

By Sandy Campbell
John W. Scott Health Sciences Library
University of Alberta
Edmonton, Canada

The University of the Arctic (UArctic) is an international consortial university with more than 100 member institutions across the circumpolar north. Guided by its vision and values, “The University of the Arctic seeks to…empower the residents of the Circumpolar North, by building human capital through higher education, reduce barriers to higher education in the North in order to provide increased opportunities for northerners, develop initiatives in partnership with our community, and particularly with indigenous peoples, that are responsive to their needs and support their aspirations,create Shared Knowledge and provide for quality discussion on contemporary issues related to the Circumpolar North. build a shared regional identity, while valuing inclusiveness and respect for diversity across the region and strengthen the Circumpolar North's Role in the World by increasing knowledge about Arctic issue.” http://www.uarctic.org/compactArticles.aspx?m=73 viewed May 25, 2010.

Students enrol first in their home member institutions and then use the networking strengths and services of UArctic to locate programs of study related to the Arctic which they can incorporate into their degrees. Home institutions must approve the courses in order for the student to receive credit. The courses may be on-site, with the student travelling to another circumpolar institution or they may be offered on-line, with students from many different places taking part in a course.

UArctic will be celebrating its 10th anniversary in 2011. As a young institution, it is still growing and building. One of the areas of growth is in the provision of library and information services. Work in this area began several years ago. Outi Snellman, UArctic’s Vice-President, Administration addressed the PLC in Rome in 2006. The supply of library services was more thoroughly explored at the 2008 UArctic Council Meeting and Polar Libraries Colloquy in Edmonton. At that Colloquy, a panel of UArctic instructors addressed the PLC and presented some of the challenges related to the delivery of information for University of the Arctic students and positive suggestions and ideas for development. At that meeting, PLC struck a working group on the UArctic Digital Library.

As chair of the PLC/UArctic Digitial Library working group and as PLC Liaison to UArctic, I have attended two UArctic meetings since the 2008 Colloquy. At each meeting we have been able to further develop the digital library concept.

In August 2009, I attended the UArctic Council Meeting in Kiruna, Sweden. The developments from this meeting are reported in detail in the PLC Bulletin, Issue 63, Fall 2009, p. 2 http://arcticcentre.ulapland.fi/polarweb/plc/bulletin/PLissue63.pdf.

At this meeting I chaired a Break-Out session on the UArctic Library. A Break-Out session is an opportunity for Council Members who are interested in a particular topic to get together for a few hours of discussion. This session was attended by a group that was geographically dispersed, including representatives from Canada, Iceland, Greenland, Russia, Sweden and the United States. The group was also diverse in function, with representatives of rectors, instructors and UArctic staff present. The group reported back to the Council. The group identified several principles important in framing the library services. It also identified two information issues, which it recommended, be brought to Council's attention: these are 1) the need for information literacy to be incorporated into UArctic course offerings, and 2) the need for UArctic materials to be published in open access formats, so that members can draw upon the work of others. At this meeting, it was also agreed that the UArctic Library would report through the Secretariat.

In March 2010, I attended Arctic Learning Environment Meeting in Rovaniemi, Finland. This meeting of a small group of about twenty members was called to discuss the selection and development of a learning environment. PLC members Elaine Maloney, representing UArctic Press, and Arto Vitikka were also present at this meeting.

Learning environments are integrated software programs which allow electronic delivery of courses and usually incorporate efficiencies such as chat-rooms for students, electronic marking, and links to information sources. Examples of learning environments are WebCT and Blackboard.

The participants in the Learning Environment Meeting considered the functional requirements of a university's learning environment, adopted a pro-open source attitude, agreed that the library should play a role in the learning environment, and discussed where a library portal could reside. Both UArctic's own web-site and The Arctic Portal were suggested as possible hosts for such a portal.

UArctic currently supplies some information sources through its web-site. First there is the UArctic Atlas, which is a UArctic publication, and second, a link to Learning Resources.

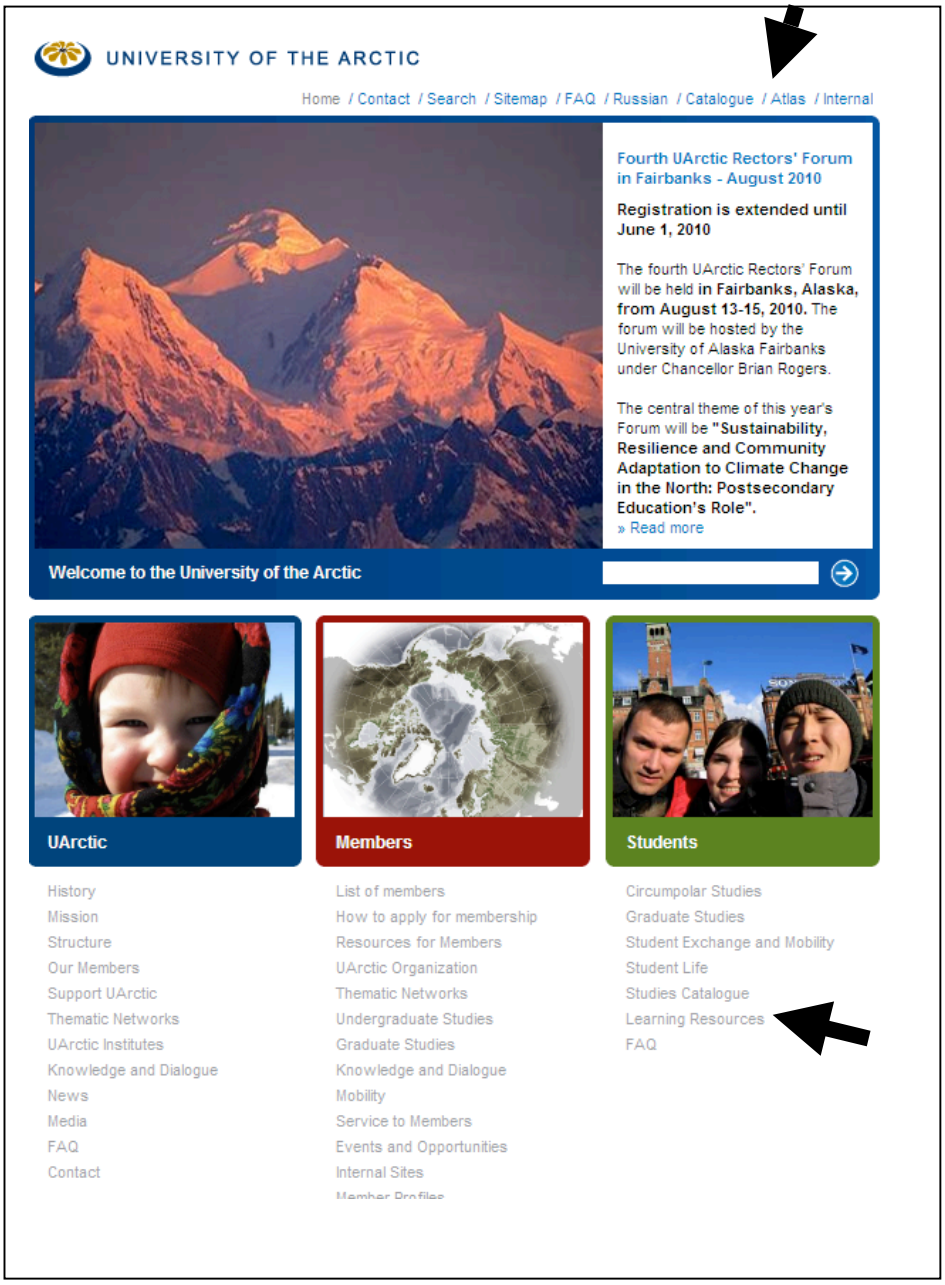


Fig. 1: University of the Arctic web-site showing information sources.

BACHELOR OF CIRCUMPOLAR STUDIES REFERENCE LISTS

UArctic offers seven modularized courses in a Bachelor of Circumpolar Studies program (BCS). These supply a broad overview of Arctic life, natural history, human history, current issues and politics.

Bachelor of Circumpolar Studies Courses

BCS 100: Introduction to the Circumpolar World
BCS 311: Land and Environment of the Circumpolar World I
BCS 312: Land and Environment of the Circumpolar World II
BCS 321: Peoples and Cultures of the Circumpolar World I
BCS 322: Peoples and Cultures of the Circumpolar World II
BCS 331: Contemporary Issues of the Circumpolar World I
BCS 332: Contemporary Issues of the Circumpolar World II

BCS 312: Land and Evironment 11
Module 1Frameworks for Analysis of Land and Environment in the Arctic
Module 2Biocomplexity in the North
Module 3Fisheries
Module 4Marine Mammals and Fisheries
Module 5Natural Resources: Chemistry and Environmental Sustainability
Module 6Water Supply and Waste Treatment in the Arctic
Module 7Observations, Sustainability, and the Impacts of Change
Module 8Food Chemistry, Subsistence Webs, and Nutrition
Module 9Diet and Mental Health of Circumpolar Peoples
Module 10Food Traditions and Food Systems in Rural Alaska
Module 11Nuclear Chemistry, Radioecology, and Stewardship
Module 12Cancer and Biomarkers of Health

Fig. 2. Example of modularized BCS course

Reading lists are included at the end of each module in the BCS Courses. Resources in the the reading lists may be print or digital. There is no source information for print material, although for some courses, material is distributed to students through the postal systems. Much of the digital material is linked to an electronic source. Sometimes the resource may be available electronically, but not linked. Most of the linked resources are open source materials. The third kind of resource in the reading lists are links to web-sites, rather than specific resources. Resources listed are sometimes not the most current. References are also sometimes incomplete. A list of all of the resources in the recommended readings is being compiled.

Module 5: Natural Resources: Chemistry and Environmental Sustainability
References

American Chemical Society. 2003. *Chemistry in Context*. Fourth edition. McGraw-Hill Higher Education.

Amer. Petrol. Inst. Washington, D.C.

Barber, K., ed. 2001. *The Canadian Oxford Dictionary*. Don Mills, ON: Oxford University Press.

Buell, Phyllis, and James Girard. 2003. *Chemistry Fundamentals: An Environmental Perspective*. Second edition. Jones and Bartlett Publishers.

The Fu Yen. 1999. *Environmental Chemistry: Essentials of Chemistry for Engineering Practice*. Prentice-Hall.

Giam, C. S., ed. 1977. *Pollutant Effects on Marine Organisms*. Lexington Books

Manskaya, S. M., and T. V. Drozdova. 1968. *Geochemistry of Organic Substances*. Oxford: Pergamon.

Fig. 3. Example of a reading list from a BCS 312 Module

Through its link to Learning Resources UArctic does supply a list of links to relevant web-sites. Most of those referenced in the modules are listed here.

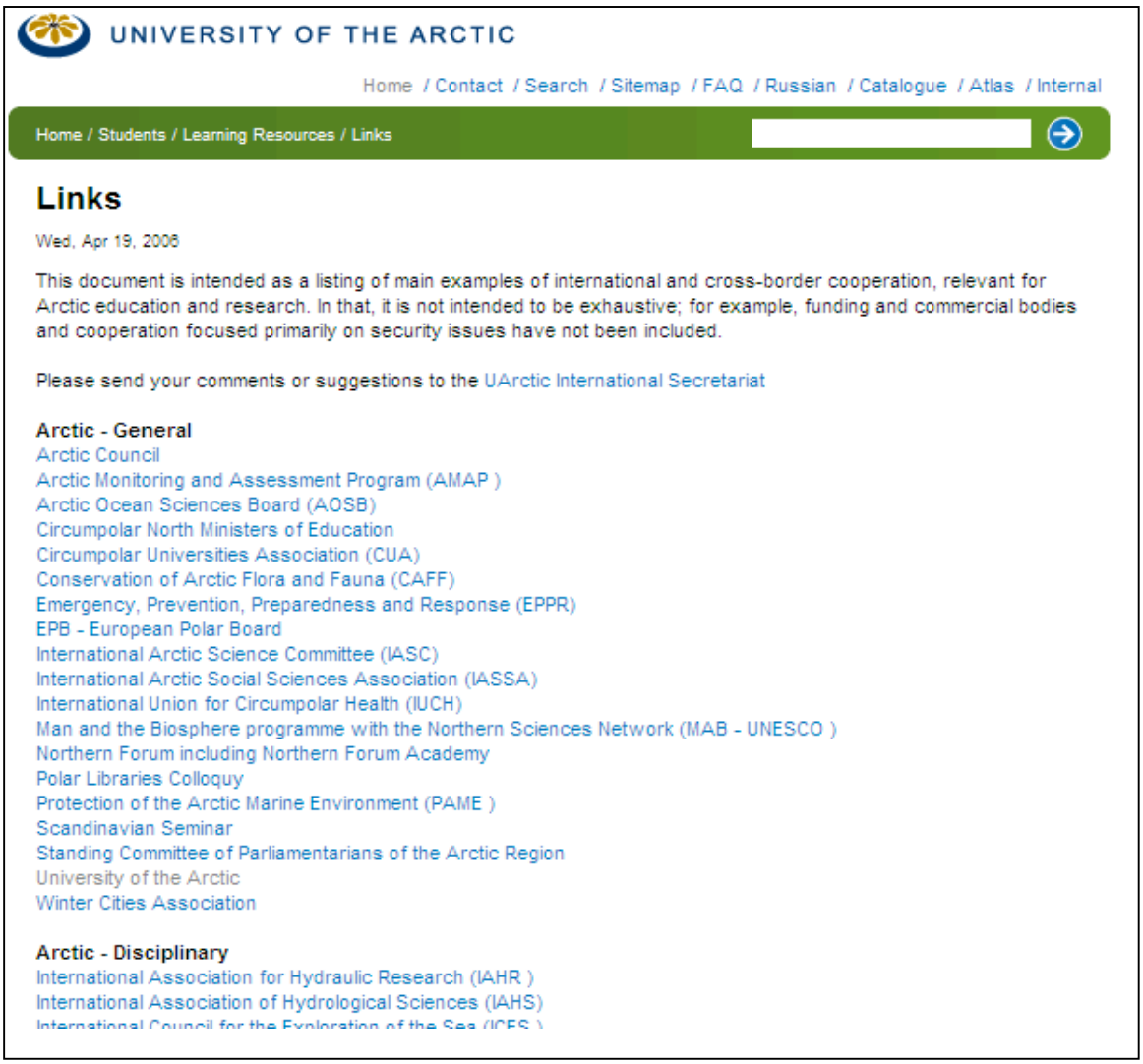


Fig. 4: UArctic's links page

NEXT STEPS IN THE DEVELOPMENT OF THE UARCTIC LIBRARY

1. The most easily accomplished next step will be to establish a web-presence for the UArctic Library on the UArctic web-site. This could be hosted at the same site as the UArctic web-site or through the Arctic Portal.

2. The list all the works that appear in course reading lists needs to be completed and made available to all member libraries. While the having the lists attached to each module is very effective for students who are taking the course, this format creates challenges for other users. Most difficult among these are that secondary users of the recommended reading lists must work their way through module after

module to find a particular source. References that need to be updated (new editions, dead links, etc) must be revised in every module where they appear. This list will be the first building block in a project to solve some of the challenges related to the embedded reading lists.

3. The lists should also be checked for newer editions, more current texts which cover the same subjects and materials, formerly only available in print which is now in digital format, as well.

4. UArctic needs to begin consideration of an open source database/catalogue of relevant resources including works used in the courses, UArctic publications and UArctic press publications. Evergreen is an example of an open source integrated library system which might be used. However, other, simpler options should also be considered.

The introduction of a library catalogue implies considerable staff time to develop and some staff time to maintain.

5. UArctic needs to begin discussions around resources that they could consider licensing. While much good open source material exists, much more material is available for license. This implies the need for ongoing funds.

CONCLUSION

The PLC/UArctic working group will continue working on the development of the UArctic Digital Library.

LIST OF PARTICIPANTS

Name	Organization	City	Country
Pierre Beaudreau	Departmental Library, Indian and Northern Affairs Canada	Gatineau	Canada
Horst Bornemann	Alfred Wegener Institute for Polar and Marine Research	Bremerhaven	Germany
Marcel Brannemann	Alfred Wegener Institute for Polar and Marine Research	Bremerhaven	Germany
Jan Brase	German National Library of Science and Technology	Hannover	Germany
Bridget Burke	University of Alaska Fairbanks	Fairbanks	United States
Sandy Campbell	University of Alberta	Edmonton	Canada
Daria O. Carle	University of Alaska Anchorage	Anchorage	United States
Bernhard Diekmann	Alfred Wegener Institute for Polar and Marine Research	Potsdam	Germany
Jan Anders Diesen	Lillehammer University College	Lillehammer	Norway
Tatiana Fridman	Kola Science Centre of the Russian Academy of Sciences	Apatity	Russian Federation
Ross Goodwin	Arctic Institute of North America	Calgary	Canada
Hannes Grobe	Alfred Wegener Institute for Polar and Marine Research	Bremerhaven	Germany
Liisa Hallikainen	Arctic Centre Library	Rovaniemi	Finland
Yoriko Hayakawa	National Institute of Polar Research JAPAN	Tachikawa-City, Tokyo	Japan

Name	Organization	City	Country
Gloria Hicks	ROCS @ NSIDC	Boulder	United States
Berit Jakobsen	The University Centre in Svalbard (UNIS)	Longyearbyen	Norway
Lindsay Johnston	University of Alberta Libraries	Edmonton	Canada
Lidia Kabdulova	Kola Science Centre of the Russian Academy of Sciences	Apatity	Russian Federation
Laura Kissel	The Ohio State University	Columbus	United States
Reinhard A. Krause	Alfred Wegener Institute for Polar and Marine Research	Bremerhaven	Germany
Heather Lane	Scott Polar Research Institute	Cambridge	United Kingdom
Nancy Lesh	Univ. of Alaska Anchorage	Anchorage	United States
Elaine Maloney	Canadian Circumpolar Institute	Edmonton	Canada
Jo Milton	British Antarctic Survey	Cambridge	United Kingdom
Hans Oerter	Alfred Wegener Institute for Polar and Marine Research	Bremerhaven	Germany
David Ongley	Tuzzy Consortium Library	Barrow	United States
Hans Pfeiffenberger	Alfred Wegener Institute for Polar and Marine Research	Bremerhaven	Germany
Fred Inge Presteng	Norwegian Polar Institute	Tromsø	Norway
Silvia Sarti	Biblionova Soc.Coop. Italian Antarctic Program	Rome	Italy

Name	Organization	City	Country
Hilary Shibata	Scott Polar Research Institute	Cambridge	United Kingdom
Shelly Sommer	Institute of Arctic and Alpine Research	Boulder	United States
Daniel Steinhage	Alfred Wegener Institute for Polar and Marine Research	Bremerhaven	Germany
Ivar Stokkeland	Norwegian Polar Institute	Tromsø	Norway
Rob Sutherland	Yukon College	Whitehorse	Canada
Sharon Tahirkheli	American Geological Institute	Alexandria	United States
Pirkko Toyra	Lulea University Library	Lulea	Sweden
Allaina M. Wallace	ROCS @ NSIDC	Boulder	United States
David Walton	British Antarctic Survey	Cambridge	United Kingdom
Isabella Warren	Scott Polar Research Institute, University of Cambridge	Cambridge	United Kingdom

Die "Berichte zur Polar- und Meeresforschung" (ISSN 1866-3192) werden beginnend mit dem Heft Nr. 569 (2008) ausschließlich elektronisch als Open-Access-Publikation herausgegeben. Ein Verzeichnis aller Hefte einschließlich der Druckausgaben (Heft 377-568) sowie der früheren **"Berichte zur Polarforschung** (Heft 1-376, von 1982 bis 2000) befindet sich im Internet in der Ablage des electronic Information Center des AWI (**ePIC**) unter der URL http://epic.awi.de. Durch Auswahl "Reports on Polar- and Marine Research" auf der rechten Seite des Fensters wird eine Liste der Publikationen in alphabetischer Reihenfolge (nach Autoren) innerhalb der absteigenden chronologischen Reihenfolge der Jahrgänge erzeugt.

To generate a list of all Reports past issues, use the following URL: http://epic.awi.de and select the right frame to browse "Reports on Polar and Marine Research". A chronological list in declining order, author names alphabetical, will be produced, and pdf-icons shown for open access download.

Verzeichnis der zuletzt erschienenen Hefte:

Heft-Nr. 607/2010 — "The Expedition of the Research Vessel 'Polarstern' to the Arctic in 2009 (ARK-XXIV/2)", edited by Michael Klages

Heft-Nr. 608/2010 — "Airborne lidar observations of tropospheric Arctic clouds", by Astrid Lampert

Heft-Nr. 609/2010 — "Daten statt Sensationen - Der Weg zur internationalen Polarforschung aus einer deutschen Perspektive", by Reinhard A. Krause

Heft-Nr. 610/2010 — "Biology of meso- and bathypelagic chaetognaths in the Southern Ocean", by Svenja Kruse

Heft-Nr. 611/2010 — "Materialparameter zur Beschreibung des zeitabhängigen nichtlinearen Spannungs – Verformungsverhaltens von Firn in Abhängigkeit von seiner Dichte", by Karl-Heinz Bässler

Heft-Nr. 612/2010 — "The Expedition of the Research Vessel 'Polarstern' to the Arctic in 2009 (ARK-XXIV/1)", edited by Gereon Budéus

Heft-Nr. 613/2010 — "The Expedition of the Research Vessel 'Polarstern' to the Antarctic in 2009 (ANT-XXV/3 - LOHAFEX)", edited by Victor Smetacek and Syed Wajih A. Naqvi

Heft-Nr. 614/2010 — "The Expedition of the Research Vessel 'Polarstern' to the Antarctic in 2009 (ANT-XXVI/1)", edited by Saad el Naggar and Andreas Macke

Heft-Nr. 615/2010 — "The Expedition of the Research Vessel 'Polarstern' to the Arctic in 2009 (ARK-XXIV/3)", edited by Wilfried Jokat

Heft-Nr. 616/2010 — "The Expedition of the Research Vessel 'Polarstern' to the Antarctic in 2009 (ANT-XXV/4)", edited by Christine Provost

Heft-Nr. 617/2010 — "The Expedition of the Research Vessel 'Polarstern' to the Amundsen Sea, Antarctica, in 2010 (ANT-XXVI/3)", edited by Karsten Gohl

Heft-Nr. 618/2010 — "Sozialhistorische Studie zur Polarforschung anhand von deutschen und österreich-ungarischen Polarexpeditionen zwischen 1868-1939", by Ursula Rack

Heft-Nr. 619/2010 — "Acoustic ecology of marine mammals in polar oceans", by Ilse Van Opzeeland

Heft-Nr. 620/2010 — "Cool Libraries in a Melting World - Proceedings of the 23rd Polar Libraries Colloquy 2010 June 13-18, 2010, Bremerhaven, Germany", edited by Marcel Brannemann and Daria O. Carle