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MAN'S FUTURE IN ARCTIC AREAS

Proceedings of the 13th Polar Libraries Colloquy
10–14 June 1990

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Rovaniemi 1990

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C O N T E N T S

3. Collection of Polar Literature on CD-ROM

4. Procurement and Storage of Arctic and Antarctic Knowledge

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Foreword

Juhani Lillberg
Chairman of the Organizing Committee

In the past decades arctic regions have become the focus of increasing international interest. This interest has been stimulated lagerly by the recognition of the scientific and political importance as well as the economic potential of the arctic regions. Growing interest has given rise to different forms of international cooperation.

It is interesting to see that northern librarians and information specialists have been at the head of this international cooperation. They have always worked together and since 1971, almost twenty years ago, even spent some days every second year together in their own colloquy discussing common problems. This cooperatin has been both useful and pleasant.

The original idea of the Northern Libraries Colloquy, was to limit the amount of participants so as to allow the greatest possible informal exchange. But the number of participants has increased. Over 100 librarians and other individuals interested in northern and polar information resources came from fifteen countries to the 13th meeting at Rovaniemi in the beginning of June 1990. It was very rewarding for the organizers, the Arctic Centre and the Lapland Regional Library, and good evidence of the importance of this kind of cooperation.

The name of the colloquy has changed after the Boulder meeting two years ago. The name of Rovaniemi colloquy was for the first time the Polar Libraries Colloquy. The name and the theme, Man's Future in Arctic Areas, reflect the changing situation in the world.

The Arctic differs radically from the Antarctic. The later is a countinent, the former sea and ice. But more importantly the Arctic has been for centuries populated by people and not penquins. Further, the Arctic is seldom seen as a dictinct geographical region, because each part of it belongs to different, more southern nations. However, in the field of scientific research there are many similarities between the Arctic and the Antarctic. The organizers of the colloquy selected this research-oriented way of thinking and accepted the broadening of the colloquy's name.

We have good reason to expect the current arctic and polar problems, connected to environmental questions and the life of native peoples, to become more severe as levels of human activity rise in the arctic region in the future. That was one reason to select the theme "Man's Future in Arctic Areas" for the colloquy. Over 40 excellent papers were given by participants in five sessions and during the excursions of the colloquy. The session themes were:

-Problems of arctic communication; procurement and storage of arctic and Antarctic knowledge;
-Collection of polar literature on CD-ROM;
-Procurement and storage of arctic and Antarctic knowledge;
-Research and research institutes of the Arctic
-The future and central problems of arctic information management.

The administrative meeting concluded the official portion of the colloquy. The participants agreed to hold the 14th Polar Libraries colloquy, in 1992, at the Byrd Polar Research Center, Ohio State University, Columbus, Ohio, USA.

By publishing the papers of the 13th Polar Libraries Colloquy the organizers want to make the presentations and papers widely available. As Jaakko Numminen, Secretary General, Ministry of Education, Finland, said in his formal opening; finding a solution to the arctic or any other problems requires an ability to apply information. It is on this ability and its development that the future of arctic areas and the future of humanity depends.

The organizers of the 13th Polar Libraries Colloquy want to thank all those persons who have helped in carrying out a succesful colloquy and proceedings.

Welcome Address

Jaakko Numminen
Secretary General of the Ministry of Education

Circumpolar areas have been the object of intense interest in recent years because of the serious threats facing them. This colloquy is by no means the only one to examine the future of these areas. The participants possess more information about these questions than anyone else. Information, however, is only the starting point in the quest for knowledge and wisdom. Faced with the immense amount of information available, one must be able to choose the essential information and discern the interrelationship between facts. Finding a solution to circumpolar, or any other problems, is not merely a question of the bulk of available information; it entails an ability to apply information. It is in this ability and its development that the future of arctic areas and the future of humanity depends.

Cooperation in circumpolar research and information services

The purpose of this colloquy is to promote exchanges of information and cooperation, and naturally to broaden our perspective on circumpolar questions.

The institutions and individuals participating in the Polar Libraries Colloquy have no easy task. I am fully aware of the difficulties facing those who wish to collect and combine facts about the circumpolar areas from immense global data banks. Even if relevant key words can be found, combining different facts poses many technical problems. And besides, it is not certain that the research findings are relevant. Often the information in question has been collected and processed according to models and theories created for other circumstances. More research and international cooperation are needed in each discipline.

This is the first meeting called the Polar Libraries Colloquy. It now covers southern polar areas too. This demonstrates a desire to grow and develop, to use all the relevant information available.

Northern countries and peoples feel great affinity even though divided by oceans, tundra and great distances. It is truly rewarding for Finland and the organizers to see that so many experts have accepted our invitation to attend the colloquy.

Arctic research in Finland

Finnish traditions in arctic research go back a century and half. Being experts in information services, you are perhaps familiar with the work of the linguist M.A. Castrén, the ethnologist Sakari Pälsi, the great collector Sakari Paulaharju and explorer A.E. Nordenskiöld. In more modern research, Finland plays an important part in cold region construction technology and ice breaker engineering.

In the international perspective, Finland has not been a "great power" in arctic research since the turn of the century. Finland's role in future research could perhaps be to initiate cooperation and to process information. The Arctic Centre has been established for this particular purpose. It shows our ability to specialize in the application and processing of existing information and know-how.

In order not to give you too modest a picture of Finnish arctic research, I should mention that matters relating to northern areas are studied in more than 20 institutes in Finnish Lapland alone. They focus on the following areas, among others:

- cultural research
- arctic engineering and cold regions construction technology
- applied ice and snow research
- meteorology
- aurora borealis
- acidification of waters
- northern forest biotope
- law and social sciences.

As the colloquy now also deals with Antarctic research, it may interest you to know that the Aranda, the new research vessel of the Institute of Marine Research, brought our expedition back from the Antarctic in March. This voyage will provide us with information and experiences and -- as we hope -- lead to new expeditions.

The Arctic Centre and its information service

The Arctic Centre, which is one on the organizers of this colloquy, is a new institution. It began to operate on the first of September 1988 and will move to its new premises at the end of 1992.

It took a long time for the idea of an arctic centre to find its form. The advocates of the project were not only far-sighted but also persistent. An international architectural competition was held in 1983. When it proved difficult to include the necessary appropriations in the normal financial

plans, I made as bold as to suggest that the centre should be included in the programme of the anniversary celebrations of Finnish independence. As you may know, other cultural institutions (such as the Ontario Science Center) have a similar background. My idea came off; the Arctic Centre was chosen as one of the projects to be financed under the anniversary scheme. The decision was made in 1987, the year marking the 70th anniversary of Finnish independence, and Centre will be opened to the public during the 75th anniversary celebrations in 1992.

The Arctic Centre maintains a data bank, promotes research, and stages exhibitions relating to the Arctic and adjoining northern areas. Under present plans, the Centre will house researchers, secretaries of international cooperation groups, visiting researchers, and other project staff. It will also provide a forum for international researchers to launch joint projects, exchange information and present their findings. The centre will not be a research institute in the traditional sense of the word, with fully equipped laboratories of its own.

It is our belief that the Arctic Centre will promote international interaction and import new information to Finland, providing a channel for international contacts. It will house international congresses and events, such as this colloquy, which is perhaps the most important meeting arranged here so far.

An International Advisory Board has just been appointed for the Centre. Its members are prominent researchers from eight countries. Professor W.M. Sackinger from the United States has been invited to chair the Board.

Arctic research is carried out in hundreds of research units all over the world. The information service of the Arctic Centre maintains contacts with 576 research institutes and libraries. The Centre is preparing a database on these institutions and has begun to collect data on "arctic" experts. The next step will be to include research projects in the database.

At present, arctic research carried out in the United States and Canada is easily accessible in data banks and on CD-ROM discs, but information about Nordic research is scattered about in data banks and lists in each country. This is one of the challenges facing the Arctic Centre.

The information service of the Centre will focus on locating and recording Nordic multidisciplinary studies on northern areas. From the Centre's databases this information will be available to researchers all over the world by means of data communications.

The arctic environment

There has been an explosive increase of interest in the arctic areas over the past few years. But are we too late? For years, the calls for help from researchers and the inhabitants of the arctic areas fell on deaf ears. We have paid dearly --with environmental disasters and extensive destruction of nature -- for the evidence it has taken to arouse people.

Now that the importance of the arctic areas and cultures is understood at last, we can perhaps take a more optimistic view of the future. Arctic countries have launched joint environmental conservation projects. Great expectations are placed on the Arctic Centre and other institutes like it elsewhere; there is readiness to develop these centres.

We in Finland have noted with satisfaction how rapidly and efficiently different states have established cooperation in environmental questions. In January 1989 the Finnish Government took initiative for international arctic cooperation. The aim was to draw up a set of conventions to prevent pollution of the arctic environment, to promote scientific research on which measures can be based, and to create a system for monitoring the arctic ecosystem.

This arctic cooperation exists betweeneight circupolar states, with Great Britain and the Federal Republic of Germany, and also the Inuit Circumpolar Conference as observers. The first preparatory meeting was held here in Rovaniemi in September 1989. The following meeting was held in Yellowknife, Canada, in April this year. The forms of cooperation will be further developed at a meeting to be held in Sweden in January 1991, prior to a ministerial meeting to be held in Rovaniemi later in the spring.

The meeting held here in Rovaniemi last year was the first major challenge for and proof of the potential of our Arctic Centre. The Centre has also contributed to the reports on the state of the environment submitted at the preparatory meetings, and its experts have been members of the Finnish delegations. Without the Arctic Centre, the first preparatory meeting or the ministerial meeting would hardly have been held in Rovaniemi.

Ladies and Gentlemen,

I would like to greet the colloquy in the name of the Finnish Ministry of Education and wish the participants every success in their important work.

Welcome Address

Veijo Ilmavirta
Director
Arctic Centre
University of Lapland

On behalf of the University of Lapland and the Arctic Centre I am delighted to welcome you, distinguished delegates from 15 countries, to Lapland, to Rovaniemi, and to the 13th Polar Libraries Colloquy. We are happy that so many of you have responded to our invitation. We have done our best to make this week comfortable and successful for you.

Today the globe is a very small place. The rapid growth in population and the increased standard of living in industrialized countries have placed arctic areas under serious environmental stress. There are signs of growing demands to exploit the natural resources in the harsh climatic conditions of arctic areas. Everyone knows what has happened to the extremely fragile nature and indigenous populations in the circumpolar North. We are now living in the years which are the most critical for the future of arctic areas. I believe it is not too strong to say that "Man's future in arctic areas" is now in our hands, in the hands of the present generation.

Most arctic problems are highly global. We are no longer able to handle these questions alone in our own countries. Large-scale international cooperation is the only key which can unlock the mesh of problems we are dealing with. Promising evidence of the international efforts to increase cooperation was the first consultative meeting of eight arctic countries concerning the arctic environment. The first conference took place last September here in the Rovaniemi town hall, just where we are now. For cooperative and coordinative processes open exchange of information is essential. Libraries, international data banks and networks are the basis for scientific discussion and administrative decision-making. The necessary instrumentation and knowledge to run information systems is now in our hands. There is no longer any reason to avoid international cooperation. We here in the Polar Libraries Colloquy, I believe, are on the road to success.

As the director of the Arctic Centre I am pleased that the Arctic Centre has had the opportunity to divide the responsibility of the organizing work of the colloquy with the Lapland Regional Library. Arctic Centre is premised upon international multidisciplinary cooperation in research and information services concerning the arctic and subarctic areas, and the natural resources, culture, technology and economy therein.

We are now fulfilling the operational strategy adopted by the Arctic Centre. This colloquy is one example of international cooperation. I hope that the Arctic Centre will soon establish its place among several hundreds of institutions already active in polar areas.

I wish you a good stay here in Rovaniemi and the best of success in the 13th Polar Libraries Colloquy.

A Brief History of the Polar Libraries Colloquy

G.A.(Nita) Cooke

The idea for the Northern Libraries Colloquy (NLC) originated nearly twenty years ago from Garth Graham and Nora Corley Murchison. At that time, Garth was providing library services to the Yukon, and Nora was providing library services to researchers and others interested in northern regions from the Arctic Institute of North America (AINA) library which was then located in Montreal. They thought it would be a good idea for librarians whose libraries were oriented toward northern regions to get together and exchange ideas and information about each others' collection and needs.

The idea was expanded into a definite plan by the AINA Library Working Group, headed by Dr. Ian Jackson who approached the Boreal Institute for Northern Studies (BINS) to cosponsor the colloquy. At the same time, Garth Graham was in Edmonton and visited Professor J.J. Bond, then director of BINS, who agreed the meeting would be beneficial and offered the Institute as the conference site. Edmonton was also chosen as the first meeting place because a major library conference (CLA) was to be held in Vancouver that year. Thus the dates were set so that participants could easily continue on if they wished. As newly appointed librarian at BINS, I was lucky enough to be in the right place at the right time and so, by good fortune, become one of the founders of the NLC.

From the outset it was agreed that these meetings would be invitational and limited to those librarians whose collections were either physically in the circumpolar North or whose libraries served as a major source for researchers and others interested in the North. The idea was that numbers should be limited so as to allow the greatest possible informal exchange between participants.

The question is often asked, "Why colloquy instead of conference or some other term?" The first planning committee spent quite some time in deciding on colloquy and consulted dictionaries for a term which would embody the reason for the meetings. Colloquy, defined by the Shorter Oxford English Dictionary as "a talking together; a dialogue; converse," fitted best. And so the First Northern Libraries Colloquy was held in Edmonton from 16-17 June 1971.

The first Colloquy was exploratory-was it a good idea? Would these librarians have anything in common to discuss?-and was planned by a committee under the chairmanship of Mr. R.S. Jamieson, the Assistant Director of BINS. Invitations were sent to representative librarians enclosing a questionnaire to be completed regarding their library's resources. These completed questionnaires formed the basis for the Northern Libraries Directory, the first edition of which was later compiled by Nora Corley Murchison.

Responses indicated that the idea was viable, and twenty-three librarians (16 from Canada, 3 from Alaska, 3 from the Lower 48, and 1 from England) attended. Notable among the attendees were Marie Tremaine, founder of the Arctic Bibliography, Harry King from the Scott Polar Research Institute (SPRI), and Willie Makiuk, an Inuk who was in charge of the library at Canadian Armed Forces Northern Region Headquarters in Yellowknife.

As the two days of sessions were very fruitful, it was decided to continue the meetings annually and to begin a newsletter. Phyllis Nottingham (now DeMuth), then with the Alaska State Library in Juneau, volunteered to be responsible for the newsletter (Northern Libraries Bulletin) and remained editor and coordinator until 1987 when she retired.

The second meeting was held the following June at the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) facility in Hanover, New Hampshire. The date was chosen to allow participants the opportunity to continue on to the SLA conference which was held in Boston that year.

This time there were 37 participants, but again the only non-North American was Harry King from SPRI. However, the third meeting (June, 1973) saw much more European involvement as it was held at SPRI in Cambridge, England. In all there were 49 delegates, 16 from Canada, 3 from Denmark, 3 from Finland, 3 from France, 1 from the German Federal Republic, 12 from Great Britain, 1 from Norway, and 10 from the USA., including 4 from Alaska. Thus the venues began to alternate between North America and Europe and the need to combine with another major conference was no longer necessary.

The fourth meeting (1974) was held at AINA in Montreal, Canada and the fifth (1975) in Rovaniemi, Finland, where, for the first time, the meeting was actually in the region of mutual interest.

At the sixth meeting (1976) in Fairbanks, Alaska, it was decided that meeting every year was too frequent and everyone agreed that meeting every second year would be better in order to allow volunteers time to carry out a promised project, e. g., the compilation of the directory. Thus the seventh meeting, in Paris, was held in 1978.

At the eighth meeting in 1980, an experiment was made of having the meeting in two venues, the first part in Edmonton, Canada, addressing the southerners' need for northern information and the second part in Whitehorse addressing the northeners' information needs. Logistically, this proved to be somewhat of a nightmare and the idea has not been repeated by the subsequent organizers.

At the second meeting, visits were arranged to other collections and now a tour either within the colloquy or postcolloquy is part of the programme. At the sixth colloquy a logo was designed and informally adopted.

From the outset, there has tended to be a dichotomy between those whose libraries are physically in the North giving library service on the spot and those libraries physically in the more southerly latitudes but whose collections are oriented to the North. The "southern" libraries tend to be exclusively research-oriented, whereas those in the north are of all types. And then there was always Harry King urging us to "think polar," since many collection also have material on Antarctica!

Although there has been much urging from some, the group has never been formalized, because its international but unstructured nature seemed to be a major strength. However, certain activities now form what some might view as a "hidden agenda." For instance, each host is entirely responsible for the planning and content of the meeting and publication of any proceedings. It is expected that the local, and to some extent, national rescoures will be highlighted.

The colloquia have been a major source of opportunities for each of us to expand our horizons, to make many friends and to get to know the resources around the circumpolar world. Many cooperative projects have resulted and no doubt many more will come. Whether the ground becomes "formal" or not, I am sure the spirit of informality will pervade and much will be accomplished by each person's contribution.

Colloquies

1st Edmonton, Alberta, Canada, Boreal Institute for Northern Studies, 16-17 June 1971. No proceedings were published. Notes taken at the sessions were mimeographed and circulated to participants only.

2nd Hanover, New Hampshire, USA, CRREL, 31 May - 2 June 1972.

3rd Cambridge, England, Scott Polar Research Institute, 25-27 June 1973.

4th Montreal, Quebec, Canada, Arctic Institute of North America, 3-6 June 1974.

5th Rovaniemi, Finland, Rovaniemi Library, 26-30 May 1975.

6th Fairbanks, Alaska, USA, University of Alaska, 11-15 July 1976 (no proceedings).

7th Paris, France, Centre d'Etudes Arctiques, 19-23 September 1978.

8th Edmonton, Alberta, Canada, Boreal Institute for Northern Studies, 1-3 June and Whitehorse, Yukon, Canada, Department of Information Resources, Yukon Territorial Government, 4-6 June 1980.

9th Tromsø, Norway, University of Tromsø, 1-6 June 1982.

10th St. John's, Newfoundland, Canada, Centre for Cold Oceans Resource Engineering, 12-16 August 1984.

11th Luleå, Sweden, Luleå University, 9-12 June 1986.

12th Boulder, Colorado, USA, Institute for Arctic and Alpine Research and World Data Centre for Glaciology, 5-9 June 1988.

13th Rovaniemi, Finland, Arctic Centre, University of Lapland, 10-14 June 1990.

The 14th Polar Libraries Colloquy will be held in Columbus, Ohio, USA, at the Byrd Polar Research Institute, Ohio State University.

Summary of Administrative Meeting

Polar Libraries Colloquy
14 June 1990, Rovaniemi, Finland

The Administrative meeting of the Polar Libraries Colloquy is the forum for discussion of the Colloquy's business matters. The meeting was chaired by Martha Andrews of the Institute of Arctic and Alphine Research, University of Colorado, USA, and was the last session of the 13th Polar Libraries Colloquy.

The meeting began with several short announcements. Jerry Brown of the National Science Foundation, USA, informed the Colloquy about several newsletters, and suggested they be listed in future issues of the Polar Libraries Bulletin. The bulletin on OMNET was also mentioned. Several members also suggested that the Colloquy directory be updated. No plans were made to do this. The Colloquy organizers informed the group that the 13th Polar Libraries Colloquy proceedings would be published in October 1990, and that the final date of submission for manuscripts was 31 August 1990. Nita Cooke, formerly of the Borael Institute for Northern Studies, Canada, explained the current status of that insitute, noting the change in name to the Canadian Circumpolar Institute, with the library collection transfered to the University of Alberta.

There then followed a presentation by Paul McCarthy, Directory of the University of Alaska Fairbanks (UAF) library, and members of his staff. The presentation concorned PolarPac, a comprehensive polar regions database now being coordinated by the UAF group. Submissions to PolarPac were encouraged, and a brief demostration was given. The Colloquy participants generally had a favorable impression of the service.

The remainder of the meeting centred around proposals from participants. The Colloquy participants discussed the idea of formalizing the Colloquy group and perhaps eventually organizing an association. Both Eugene West of UAF and David Walton of the British Antarctic Survey noted that a more formal structure would benefit the newsletter, directory, and colloquy proceedings activities of the Colloquy. Nick Flanders of Dartmounth Colloge then proposed that an organization committee be formed to examine this idea and report back to the group at the next Colloquy. This proposal was accepted.

The next proposal was by Ron Inouye of UAF. His proposal to invite the editors of the major polar journals to the next Colloquy was accepted.

A proposal that the Colloquy endorse the Agreement on Resource Sharing for the Antarctic Bibliography was made by David Walton. This proposal was also accepted.

The last item of business was the venue of the next Colloquy. An invitation was extended by Lynn Lay of the Byrd Polar Research Center at Ohio State University, Columbus, Ohio, USA. The Colloquy group accepted this invitation, and the 14th Colloquy will be held in Columbus, Ohio, sometime in spring or autumn of 1992.

At the end of the meeting the participants expressed their appreciation to the Arctic Centre and others who organized the Rovaniemi meetings. A group photograph was taken outside.

Data Bases (DB) and Knowledge Bases (KB) in Regional Arctic Research: The Problem oforganization and effective application

Vladimir Putilov
Kola Scientific Centre Academy
of Sciences of the USSR.

Complex arctic research on the base of regional programs (ecology, technology, demography and other programs) requires a creation of integrated computer-based research systems. Various methods of object and phenomena research, nature experiments, and computing simulation are united in these systems. Special information technologies for such integrated systems creation and application are needed.

Functional-purpose technology, founded on the application of DB and KB, for organization and control of research within complex scientific programs was created. The technology allows us to synthetize complex research models as algebraic and graphic decomposition structures of complex problems. These structures are reflected in DB and KB structures of an investigation system. KB content is basic for designing of system information structures and for planning automated complex research algorithms. During the progress of KB investigation the formalization and accumulation of non-formalized knowledge of investigators and the organization of compatible work for investigators with different problem orientations for complex problem solving are provided. Distributed DB are used for work with self-data, which supplied DB with material.

In conditions when knowledge about investigating processes and objects is weakly determined and approximated a priori, the technology provides a possibility of computer-based procedure designing of complex research. That problem is typical for large complex tasks.

In the Institute on Informatics and Mathematical Modelling, of which the Kola Scientific Centre is a part, this functional-purpose technology is used for complex technology research and ecology systems modeling.

The organization of multilevel investigations is an actual problem at the present stage of applied ecology for spatial and temporal planning. Since the scale of negative ecological changes is vast, and there is considerable insufficiency of

knowledges about biosphere change processes, it is advisable to conduct the consecutive realization of a complex investigation. In the first order, there is a rationality to using these approaches, which can ensure the broad-scale obtaining of empirical information, in combination with operative analytic possibilities. Realization of such investigations will provide the necessary knowledge about scales of occuring changes, temporal characteristics, existence of typical and critical periods, quantitative and qualitative changes of ecological systems. This group of methods is founded on the analysis of recording structures, which are: the ring-layer of the trees, marsh, soil, lakelands, glacial accumulation. The principal advantage of these methods is the possibility for reception of information characterization over a long retrospective period. The generalizations in an analogous level may be done by using a sequence of aerial photographs and space photographs.

The next group of methods is intended for more precise detaling of the results of previous scale generalization of spatial-temporal regularity of ecological dynamics. Here the objects of study are: organisms, organs and their totalities, tissue and so on. So we are able to receive a notion about more small-scale temporal regularities and to differentiate the spatial characteristics received.

In the final stage the introduction of intensive methods is advisable, which will provide the receiving of information about mechanisms of biological systems change in result of anthropological influence, and to searching the suitable means for adaptative process stimulation. The given group of methods consists of chemical, physical, physiological biochemical and biophysical methods. In addition there is the receiving of information, which allows one to describe thin spatial-temporal regularities.

The combination of methods offered above allows one to glide rationally over the whole system of scientific works, since the result are used for a spatial-temporal organization of more precise and labour-consuming investigations.

Any artificial monitoring systems allow one to fix a process of destruction of natural ecosystems at the last stages. The description received therefore does not give a notion about anthropological dynamics and does not permit and to estimate the initial state. The approach for long-time information reception is concerned with the methods, based on studing natural recording structures. Trees, fixing the many years dynamics of environmental conditions, are an optimal object for ecological investigations.

The magnitude of an annual increase in diameter with a record of human change taken into account, has determined as a basis characteristic of that negative appearance, by which the main parameters are concluding.

The information technology considered is intended for decisions in both problems considered and the other important ecological tasks. The technological scheme elements are represented here, they are realized and automatized mainly. The investigations had been made by an example of Kola Peninsula, they allowed us to receive the results adequate with the real data. The information technology proposed should be a basis for human influence analysis in a wide range of spatial and temporal intervals. The information received provides for wide-scale monitoring and gives the base for expert diagnosis system development and the dynamic prognosis in the field of ecosystem states.

The further investigations for given information technology development are planned to be organized in several directions. The first one is an integrated automatized system creation based on methods and procedures offered. The second are works in developing of units for expert diagnosis, mathematical modeling and prognostication. Besides it, the experimental research is raising the space of retrospective analysis.

The given information technology viewed as a whole is planned as a developing system. New elements should be created by using the research model, they will expand considerably in perspective the list of theoretical and applied ecology problems, which provide for technology described above.

Finding Northern People in Selective Databases

Julia H. Triplehorn
David A. Hales
Elmer E. Rasmuson Library
University of Alaska Fairbanks

Introduction

With the development of oil and gas resources, the construction of the Alaska pipeline, the passing of the Alaska Native Claims Settlement Act, subsistence issues, the development of schools in rural Alaska, and related issues, there has been an increased interest on the part of researchers from various disciplines to acquire historical and contemporary information about indigenous people of Alaska and Canada. From all indications presently known, this interest will continue in the future.

Project Description

This paper will discuss the indexing policies, subject terms and unique features for locating information about Alaskan and Canadian native people in five major databases: America: History and Life, ERIC (Educational Research Information Center), Psycinfo (Psychological Abstracts), Sociological Abstracts and Dissertation Abstracts On-Line. This information will assist searchers with their planning strategies.

Methologies

The first step was to identify the terms which used to find information about Alaskan and Canadian native People, both collective terms such as Alaska natives and important individual group terms such as Haida. This latter group proved challenging to identify because of the variant spellings, such as Athabascan/Athapaskan. Inuit is used extensively in Canada for their Eskimo population; Eskimo is the usual term in the United States.

The second step was to identify principal scholarly databases social scientists utilize in researching Alaska natives. Since the purpose of the study was to dentify appropriate subject terms, keywork databases were not included. Canadian databases were not considered, but would make an interesting future comperative study.

The third step was to run a computer search with the terms from Step 1 on DIALOG on March 2, 1988.

The fourth step was to write the database producers for detailed information about their indexing policies for searching their databases on-line.

The fifth step was to modify the original search strategies, using the information supplied by the database producers. A follow-up search was run on May 1, 1990 and a revised search incroproating some of the Colloquy participants suggestion was run July 27, 1990. This revised search appreas in Table 1. Searching with a broad scope to include all possible index variations. The numbers are not significant by themselves--they only reflect the depth of coverage on the topic.

TABLE I

FINDING NORTHERN PEOPLE IN SELECTIVE DATABASES

	Amer Hist	Diss Abst	ERIC	PsySoc Abst	Abst
GROUP TERMS					
Alaska? (w) Native?	67	56	814	59	40
Canada? (w) Native	16	2	499	9	16
American? (w) Indian? & (Canada? or Alaska?)	64	30	1426	194	73
Indigenous (w) People? & (Canada? or Alaska?	12	2	25	1	5
Native (w) American? & (Canada? or Alaska?)	23	22	156	29	28
Amerind and (Canadia? or Alaska?)	1	1	0	0	0
Indian? and (Canada? or Alaska?)	1303	205	1654	1303	205
TRIBAL UNITS					
Aleut?	113	94	202	7	20
Eskimo?	727	167	727	191	191
Inupiat?	9	7	58	18	9
Inuit?	123	42	74	31	46
Atha?as?an?	88	48	163	14	29
Yupik?	2	7	64	1	2
Haida?	63	18	45	3	7
Tsimshian?	29	8	16	4	7
Tlingit	63	20	57	6	13

Results

Each of the five databases are reviewed for content, indexing policies and unique features.

1. AMERICA: HISTORY & LIFE is an interdisciplinary database with a broad chronological scope of North America and covers historical information published since 1964. The indexing vocabulary for North Americans is drawn with few modifications from Ethnographic Bibliography of North America by George Murdock. (New Haven: Human Relations Area Files, 1972.) Indexing always employs at least one of three terms, Aleuts, Eskimos, or Indians, and plural in all cases. General terms, such as Alaska Native, are not used.

Specific ethnic, cultural and geographic subgroups can be selected by modification of the general plural term, for example Aleuts (Pribilof). In contrast, specific groups of American Indians are assigned a specific term corresponding to the conventional tribal designation, for example Haida Indians, Tlingit Indians. Subgroups are designated such as Tlingit Indians (Chilkat). Native languages and language groups follow a similar format to the above group, as Yupik Language.

2. DISSERTATION ABSTRACTS ON-LINE is a definitive subject, title and author guide to all American dissertations accepted at an accredited institution since 1861, when academic degrees were first granted in the U.S. Some Canadian, British and European dissertations after January 1988, and Master theses from Masters Abstracts after Spring 1988 are included.

Authors, rather than the database editors, select index terms from a broad subject code list supplied by University Microfilms. Since 1983, authors supply keywords not in the title to clarify subject content and facilitate retrieval. These additional words are in parenthesis at the end of the title. Free text searching of title and abstract words are suggested.

3. ERIC (Educational Resources Information Center) covers educational material in two printed indexes: Resources in Education identifies the most significant and timely education research reports and Current Index to Journals in Education indexes over 700 periodicals of interest to the education profession.

The Thesaurus of ERIC Descriptors is the key to the subject descriptors used in indexing. These were extensively reviewed in 1979 for the relationship of one term to another and for their use in indexing. References are assigned broad descriptive headings with specific group units in the identifier field. This is the only database using Alaska Native and Canadian Native as subject headings.

4. PSYCHINFO covers the world's literature in psychology and related disciplines in behavioral sciences since 1967. Each record contains three levels of indexing: a content classification code of 17 broad subject areas, terms from the Thesaurus of Psychological Index Terms, and an index phrase or identifier designed to capture the author's free text language.

The term American Indians is used to index all Native American populations excepting Eskimos, and includes North and South America and the Caribbean Islands.

American and Canadian native groups are indexed under the specific group name in addition to one the two appropriate index terms: Eskimos or American Indians. If the group is unspecified, the broader term is used. In this case, probably both should be used to locate all the material on this subject.

Indexing also includes an identifier phrase in a separate field from the descriptors and includes terms in a natural language from the text of the article on topics and methods of research. A descriptor search could be narrowed by adding the group name from this field. This permits exact retrieval on a specific group name.

5. SOCIOLOGICAL ABSTRACTS covers the worldwide literature in sociology and related disciplines in the social and behavioral sciences since 1963.

The Thesaurus of Sociological Indexing Terms includes descriptors for Eskimos and American Indians. Tribes and similar indigenous groups are indexed using a geographical term and the descriptor "Traditional Societies." A descriptor search on Alaska and Traditional Societies will retrieve research groups not identified as Eskimos. This search could be broadened by 'ORing' in other geographic terms: Canada, North America, and by 'ORing' Eskimos with broader North American cultural groups. This latter term in conjunction with other geographic terms can be used to search groups that have emigrated, such as North American Cultural Group and Oregon. This would give citations on Eyaks now living in the state.

Conclusion

Each database producer has individual criteria and terminology for indexing the Alaskan and Canadian people. These have been reviewed. Each database needs to be considered separately; no one term strategy will work in all. A proposed strategy has been presented in Table 1 which could be utilized as a saved search. This will enable the search to quickly retrieve information without re-keying the strategies each time.

Meän Akateemi-Academia

Henning Johansson

Tornedaliensis. A New Concept on the Top of Europe

The "Top of Europe" or "Northern Calotte" (Nordkalotten), refers geographically to the area of the Nordic countries and USSR north of the Arctic Circle. This paper deals with matters concerning that area and especially with vernaculars derived from the Finnish language spoken by people in the area. The aim of Academia Tornedaliensis, founded in 1988, is to be a multilingual institution that takes initiatives in research and developmental work. The main areas of activities are: Culture, Language, Society, Milieu and Trade and Industry. The Academy has devoted itself to develop the cultural heritage of the area. It is to date built on voluntary work but endeavours to become recognized by the Nordic states as a common concern.

In order to understand the need of Meän Akateemi-Academia Tornedaliensis, it is appropriate to give a short historical background of the development concerning this geopraphical area. From the point of view of political science Finland and Sweden have a long joint history. Already in 1155 Finland was incorporated into the Kingdom of Sweden. The joint history lasted to the beginning of the 19th century and Napoleonic wars in Europe. At that time the Swedish king had his own affairs with the big neighbour in the east, the Russian Tsar. The development of those affairs ended in 1809 when Finland was ceded to Russia and became a Grand Duchy of the Russian Empire.

The next one hundred years in a way formed a parenthesis in the history of Finland since Finland in 1917 unilaterally declared independence. This paper is not the place to analyse the development after that, but it ought to be reminded that Finland is the only nation in the world that has preserved her independence at war with the Red Army of the Soviet Union. Maybe among other things it in a way indicates something of the cultural heritage of this people, including the sisu (perseverance) and wise leadership of the people. That heritage is one of the roots of Meän Akateemi-Academia Tornedaliensis.

Another root goes back to the era of the greatness of Sweden between 1620 and 1765. At that time Sweden perhaps had the most well-organized and efficient administration in Europe. Many of the nations south of the Baltic were incorporated into the Kingdom of Sweden and it consisted of a core area where

the Baltic was a lake in Sweden. The Northern Calotte was a very diffuse area. Although the Swedish Crown had land claims, Sweden and the Swedish language, however, did not influence the everyday life of the people there. All this came to an end in 1809.

Consequently the area north of the Arctic Circle in our countries has a common cultural heritage. Among others Vahtola (1980) and Wallerström (1987) have verified this in studies of place-names and archeological investigations. Recently professor Phebe Fjellström (1990) has very strongly shown the influence from the east on the culture of northern Sweden almost 400 kilometers south of the Arctc Circle. The peace treaty in 1809 meant, however, that a national border between Finland and Sweden was drawn straight through a geographical area with a common culture. This meant that we got national minorities in Sweden and Norway with a Finnish speaking background.

For some length of time the Finnish language was allowed to go on living unharassed alongside with Swedish in Sweden and Norwegian on Norway. However, a very strong Swedicization of Finnish speking Torne Valley started in 1988 when Swedish state schools were introduced in order to give people proper schooling, which meant in Swedish only. The case was almost the same in Norway. The Swedicization had tremendous negative effects on the culture of the area and pushed the original language to isolation and to a minority position with all the negative attiludes we know from other parts of the world connected with it. Simultaneously the Finnish language in Finland developed its own way.

This development means that we today in fact can speak about a language of its own in the northernmost part of Sweden and Norway. This language, basically Finnish of course, is known as "Meän Kieli" (our language). In scientific literature the language is called Torne Valley Finnish by some writers (Ranängen, 1988) and Tornedalish by others (Jernström, 1988 and Oksaar 1990). The language is no longer just used in spoken communication only. It flourishes and in the past few years a number of books have been published in it. Consequently Meän Akateemi-Academis Tornedaliensis has proclaimed it a language its own. The northernmost universities in our countries have indeed tried to conduct research on this question. However, as Vahtola (1989) has recently shown the shortage of teaching and research staff is a major barrier to progress in the study of this area and its culture. Moreover no university is responsible for coordinating research activities. This together with the roots of the north made it important to found Meän Akateemi-Academia Tornedaliensis.

The Academy has organized a successful seminar on the theme "What is a border?" A new seminar "May best pictures from the Northern Calotte" is under preparation and is mostly directed to children. This summer the Academy also is going to organize a seminar about literature about the Northern Calotte and writers from there. Reports from the activities are intended to publish a bibliography dealing with matters about the minority in question. Perhaps that is a task for someone taking part in this Polar Libraries Colloquy? The Academy is willing to try to find sponsors for such a work.

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Sami Database and the publication of Sami Bibliographies at the University of Trondheim, Norway.

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A lot of bibliographies dealing with Sami subjects have been produced though with different purposes. Already by the end of the 19th century extensive literature lists were published in some monographs on Sami subjects. In, for example, von Düben's classical work on the Sami culture from 1873 "Om lappland och lapparne", most of the central works then published were listed. At the end of the 19th century, Wiklund and Qvigstad published their valuable bibliography of everything so far published in the Sami languages.

The years around 1900 constituted a period of dynamic research into the Finno-Ugric cultures, a phenomenon connected with the Finnish nationalistic movements of that time. However research was not limited to just the Finnish culture, research into the Sami culture also occured.

One of the large tasks undertaken was the initiative to start publishing an extensive Finno-Ugric bibliography. This commenced with the material published in the year 1900. The bibliography was printed in one of the central journals for Finno-Ugric studies: "Finnisch-ugrische Forschungen : Zeitschrift für finnisch-ugrische Sprach- und Volkskunde." The bibliography's first year, 1900, was published in 1901. The issues for the following years were published irregularly, depending on when the collection of material was completed. The timelag between first appearance of material to be included in the bibliography and publication of the bibliography itself grew rapidly. The bibliography for 1912 was not published until 1938. 1912 also became the last year covered by the bibliography. The task had quite simply become too large because of the unlimited scope of the bibliography, which even included short newspaper articles. Both before and after the publication of this extensive Finno-Ugric bibliography ceased, a number of other bibliographies covering material about the Sami were published. These were bibliographies on special subjects such as: language, physical anthropology or ethnography, and general, but regionally limited, bibliographies. Though nothing further will be said about these bibliographies here, further details are given in my survey published in the Norwegian journal for local history, "Heimen", in 1980. I have brought with me a few copies for those interested.

It is now more than ten years since work commenced on a Sami bibliography - later Sami data base - at the University Libraryin Trondheim.

Right from the start, the sights for the Sami bibliography have been set high. The ultimate objective was to record everything written on Sami matters or in the Sami languages, irrespective of where it was published. All material published in newspapers is however excluded.

When the work on the Sami database began in 1980, it was centered upon recording literature published in Norway. This was because Norway stood out among the Nordic countries having a Sami population as the worst off, with regard to sami bibliographical aids. This work was provisionally completed at the end of 1989 when the "Sami bibliography : publications in Norway 1945-1987" was printed.

You are welcome to see the copies which I have brought here. The information system used for the Sami database is called POLYDOC, which has been developed by the Norwegian Center for Informatics, Oslo. In this database system, flexibility has a particular strength, and in general there have not been any serious problems in adapting it to the needs of the Sami database.

In the beginning, the idea behind the computerization of the Sami bibliography at the University of Trondheim was not primarily to create an online-database. In those days there were really very few libraries in Norway and Scandinavia which were able to conduct online searching of databases.

To begin with the computerization was primarily undertaken as a tool for producing printed bibliographies on Sami subjects. On demand we have produced many such bibliographies from searches of the database.

As in most databases we are able to define the searches in manyways. For example a writtenout bibliography can be defined to contain literature published:

in a certain country
in a certain language
in a certain period
on a certain subject

An example: "A bibliography of literature published in Norway in English in 1950-1970 about Sami minority situation".

Most of these bibliographies would not be extensive, but wouldbe very useful for the researcher, and they can be produced in few minutes. In the printed bibliography, "Sami bibliography : publications in Norway 1945-1987", the different registers can be used in a similar way to delimit desired literature by reading the registers crosswise to each other. It takes longer than searching the database online - but it works.

The data base was earlier made available through the public data network from a computer at the University Data Processing Center in Trondheim. The substitution of the host computer has however forced us to make it unavailable for some time.

In addition, copies of the data base are installed on some PC's at cooperating institutions outside the University Library. At present, software is being developed to enable us to offer interested users copies of the data base complete with a subscription for updating. With the personal computers of today there is no problem in managing a database of this size. The Sami database of today contains about 5000 bibliographical records.

The storage needed is not more than 3,5 Mb. The POLYDOC computer program needs another 3,5 Mb. A PC (personal computer) with 10 Mb hard disk is therefore sufficient to manage the database. Even if the database grows a lot in the future, almost any PC will have sufficient capacity.

The development of software which will enable us to offer interested users copies of the complete data base together with a subscription for updating is one of our main projects today. The other is to develop a multilingual thesaurus which will make it possible to undertake searches in the database independently of what language the references are written in or what language the user prefers to use. At present we are working with a five-lingual version: northern Sami, Norwegian, Swedish, Finnish and English.

During the last two years, cooperation has been established with Umeå in Sweden, Rovaniemi in Finland and Murmansk in the Soviet Union to set up a joint, continuous registration of everything published on Sami matters in the four countries. In 1991, I hope we shall see the first results of this cooperation. The data base will then have been updated with material published in all four countries. Perhaps not in each case for as long a period as the Norwegian section, but a start will have been made.

As a concrete and visible result, a joint, printed bibliography for 1988-1989 will also be available. With that, the publication of a running Sami national bibliography will have been initiated. When we have developed this into an annual publication we shall have achieved our objective:

"To provide the Sami people with a complete survey of published literature, on an equal footing with that provided for themajority population by their national bibliographies, in the four nations where the Sami live."

Science Collection Survey
Scott Polar Research Institute

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This paper is an overview of the science monograph collection at the Scott Polar Research Institute, Cambridge University. It is based a survey project undertaken during a Fulbright study of arctic science literature. The methodology for this review was the Research Libraries Group (RLG) Conspectus with modifications from the Pacific Northwest and British Library Conspectus. The conspectus provides a quantitative/qualitative survey method enabling libraries to record their collection strengths in a standardized form. This is then comparable with other libraries. Since Scott Polar is one of the largest polar collections, the results will enable other libraries to compare their collections with this well-known library.

Only monographs were considered in this review. The periodical collection is extensive; no classified list of the 2,000 periodical titles could be made in the short time available. The pamphlet file (reprints and reports) is another valuable part of the collection but was considered beyond the scope of the Conspectus.
The science section of the Universal Decimal Classification for Use in Polar Libraries was used as the basis for this survey and the worksheets. An evaluation team was selected for each subject area with one member usually being a research staff member from the Institute. The team surveyed the collection using the evaluation tools:

1. Criteria for Assessing Collections (Table 1)
   These are the standard elements for consideration in evaluations as developed by the RLG Conspectus. All of these elements were utilized, except the item on periodical coverage as previously mentioned.

2. British Library Language Code (Table 2)
   This code indicates the symbols for foreign language collection strengths. The British Library adapted these from the RLG Conspectus language code.

3. Collection Level Indicators (Table 3)
   The Pacific Northwest Collection Assessment indicators were utilized because of the expanded coverage to a,b, and c levels (Table 3). These give a more precise evaluation than the British Library ones.

Space only permits the tabular summary of the significant science subject areas (Table 4). These include all subject areas with collection level indicators of 3 and 4.

The complete survey can be obtained from the author.

TABLE 1

Criteria for Assessing Collections from
RLG Collection Development Manual, 2nd Ed.

1. Chronological Coverage
   Are older and newer materials consisently presented? Should they be?

2. Language Coverage
   How extensive is appropriate or significant foreign language coverage of the subject in the collection?

3. Principal Authors
   Are the standard, chief, or more important authorities and authors included?

4. Principal Works
   Are the classic, standard, essential and important works in the collection?

5. Primary Sources
   Are critically edited original texts and documents included? How extensively?

6. Criticism/Commentary/Interpretation
   How complete is secondary monographic or critical treatment?

7. Complete Sets
   Are sets and series well represented in the collection? Are they complete?

8. Periodical Coverage
   How extensive is periodical coverage of the subject? Are the chief titles included?

9. Number of Volumes
   Count for shelf-list, or approximation based on 10 volumes per foot of shelf occupancy.

10. Circulation Data
    Circulation records may need to be checked to add assessments above. In addition, circulation or use data may be helpful in assigning collection goals.

Table 2

British Library Revised Language Code

E Principally English language material

F Principally mixture of English and other European languages

W Material in both European and non-European languages

Y Principally one or more languages (other than English) from one linguistic or geographical area

Table 3

Collection Level Indicators
Pacific Northwest Collection Assessment
(Developed by the Alaska Statewide Collection Steering Committee)
Adapted from RLG Collection Development Manual, 2nd Ed.

0. Out of Scope
The library does not collect in this area.

1a. Minimal, with Uneven Coverage
Unsystematic representation of subject.

1b. Minimal, but Chosen Well
Few selections made, but basic authors, core works, and idealogical balance are represented. Can support fundamental inquiries.

2a. Basic Information Level
A collection of up-to-date general materials that serve to introduce and define a subject and to indicate the varieties of information available elsewhere. It may include dictionaries, encyclopedias, historical surveys, bibliographies, and peridicals in the minimum number that will serve the purpose. A basic information collection can support school instruction and routine public inquiries, but it is not sufficiently intensive to support higher-level academic courses or independent study or the wide-ranging recreational reading demands of a highly educated general public.

2b. Augmented Information Level
As above, expect more major periodicals, selected editions of important works, wider selection of reference materials.

3a. Basic Study Level

Includes the most important primary and second literature, a selection of basic representative journals/periodicals, and the fundamental reference and bibliographic tools pertaining to the subject. Adequate for curriculum support for undergraduate instruction. Adequate for independent study and the lifelong learning needs of the general public, with coverage at all appropriate readings level.

3b. Intermediate Study Level

As above, except a wider range of basic monographs, wider selection of the more important writes and secondary materials, stronger journal/periodical support. Collection adequate to support college-level term paper writing.

3c. Advanced Study Level

As above, except adequate for honours undergraduate or most gradute instruction or sustained independent study; adequate to maintain knowledge of a subject required for limited or general purposes but not strong enough for original research in a subject. It includes complete collections of the works of secondary writers, a selection of representative journals/periodicals, and all the reference tools and fundamental bibliographic apparatus pertaining to the subject.

4. Research Level

A collection that includes the major published source materials required for dissertations and independent research, including materials containing research reporting, new findings, scientific experimental results, and other information useful to researchers. It is intended to include all important reference works and a wide selection of specialized monographs, as well as extensive collection of journals and major indexing and abstracting services in the field. Older materials is retained for historical research.

5. Comprehensive Level

A collection in which a library endeavors, so far as is reasonably possible, to include all significant works of recorded and limited field. This level of collection intensity is one that maintains a "special collection." Older material is retained for historical research.

TABLE 4
SIGNIFICANT SCIENCE AREAS SUMMARY

UDC Polar Libraries		Collection Count General Subject Regional	Existing Collection Strength	Current Collecting Intensity	Goal	More than 15 Books in a Regional Area
53.08723	Remote Sensing	43 10	3bE	4 E	4 E	
55- 550.389	(Geophysics & Geomagnetism)	70 58	3aW	3 W	3bW	
551- 551.312.2	(Geology)	61 409	3bF	3 F	3bF	Svalbard, Iceland, USSR, Antarctica
551.32- 551.321.86	(Glaciology)	177 62	3cF	4 W	4 W	Greenland
551.322	Ice & Snow	82 4	3a/3bE	4 W	4 W	
551.324	Land Ice, Glacier Ice	104 243	4 F	4 F	4 W	Greenland, Alaska, SE, USSR, Kazakhskaya SSR, Antarctic, Other non-Arctic Regions
551.326	Floating Ice	124 106	3cF	4 F	4 W	Arctic Ocean, Antarctic
551.33	Glacial Geology	108 59	4 E	4 F	4 W	
551.34	Permafrost . . .	164 114	4 F	4 W	4 W	USSR, Yakutskaya ASSR
551.46	Physical Oceanography	129 199	1aE	3 F	3cW	Arctic Ocean, North Atlantic Ocean, North Pacific Ocean, Antarctica
551.5	Meteorology	113 90	3cF	3 F	4 W	Arctic Regions, Greenland, Antarctica
551.51	(Atmosphere, Air Temperature)	42 92	3bF	3 F	3c W	Arctic Regions, Antarctica
551.577	Snow Surveys	24 11	3cE	4 F	4 W	
551.578.46	Snow Cover	32 17	3cE	4 F	4 W	
551.578.48	Avalanche	41 14	4 F	4 F	4 W	
551.579	Hydrometeorology	24 9	3aF	3aF	3cF	
57	Biology	48 202	1aE 4 F	1bE 4 F	1aE 4 F	Arctic Regions, USSR Laborador Sea, North American Arctic
58	Botany	30 384	1aE 4 F	1bE 4 F	1bE 4 F	Arctic Regions, Canada, Alaska USSR Yakutskaya ASSR, Scandinavia, Sweden, Antarctica
59	Zoology	32 178	1aE 3bF	1bE 4 F	1bE 4 W	Arctic Regions, Iceland, USSR, Antarctica
588.2	Birds	262 305	4 F	4 F	4 F	Greenland, Antarctica
599	Mammals	327 131	4 F	4 F	4 F	USSR

Moving Toward an Arctic Information Network: Stage I

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Introduction

At the meeting of the 12th Polar Libraries Colloquy held in Boulder, Colorado, USA, 1988, a statement of action relating to the development of an international polar information network was approved by the participants. One of the goals of the action statement was to "...seek more effective means for the distribution of polar information through...a CD-ROM product through one vendor through which several polar data bases could reside and be made available." This paper discusses the results of such a project. Particular attention is paid to the content of the data base, including duplication of holdings and incidence of unique holdings among polar libraries.

This project began with several hypotheses to be tested. First, the assumption was made that the body of polar literature was finite and would probably yield, at the conclusion of the project, no more than 50,000-60,000 records. Second, based upon sampling research we had done, we projected a high rate of duplication among North American libraries, especially within the U.S. and within Canada. We expected a fair degree of uniqueness among non-North American libraries.

To build the PolarPac data base, we used bibliographic records already present on the WLN system, tape loaded monographic records for 4 U.S. libraries, and input serial bibliographic data for 23 libraries.

Interim Results

On April 22, 1990, the initial tape pull of records from WLN for the mastering of PolarPac was completed. Before looking at the data, it is important to remember that the information is incomplete. More serial and some monographic bibliographic records are still to be input. Final results will not be known until October, 1990.

In order to interpret the results, one must have some understanding of the WLN data base structure. Every effort is made through centralized authority control to have one bibliographic record with multiple library holdings attached to it. Duplicate records are avoided at all costs. This practice allows us to have some confidence that the rate of uniqueness and duplication found in the data base is representative of the collections surveyed.

TABLE 1

OVERALL RESULTS	
Bibliographic records pulled for PolarPac	85,293
Number of holdings pulled	156,599

TABLE 2

HOLDINGS PER RECORD	
Number of Holdings	Number of Records
1	44,279
2	20,508
3	13,995
4	4,405
5	1,416
6	485
7	117
8	33
9	15
10	16

The immediate readjustment we had to make to our hypothesis was that we would retrieve only 50,000-60,000 bibliographic records at the completion of the project. Since we had just retrieved 85,293 records SEE OVERALL RESULTS at the midway point of the project, it became immediately evident that the body of polar literature held in libraries was much larger than we had anticipated.

Secondly, we had projected that the overlap between libraries would be high. We believed this to be especially true among U. S. libraries, and, to a lesser degree, among Canadian libraries. We expected a fairly high rate of uniqueness among non-North American libraries.

Instead, as demonstrated above HOLDINGS PER RECORD, we found instead that 52 % of the records were unique to the library in which they were found. This was especially surprising since most of the data retrieved in this tape pull was monographic and represented, in the main, U.S. library holdings.

Table 3, column 3, illustrates the degree of uniqueness among the libraries pulled for PolarPac. Part A shows those libraries for which we had the most complete data on April 22, 1990. Part B shows those libraries whose serials listings are yet to be completed or for whom we do not have monographic data. Obviously, the data for those libraries is very suspect until completion of the project. Table 3, column 4 illustrates the degree of uniqueness among the libraries in Part A as related to their total collection size. This table illustrates to what degree the unique items held in the library were representative of the total collection composition.

Conclusion

Obviously, any conclusion at this point should be considered to be tentative pending completion of the NSF project. However, certain trends are evident which, in this author's opinion, will hold true at the conclusion of the project.

The body of polar literature (monographic and serial) held in libraries is far beyond that which we anticipated. The participation of the non-North American libraries will especially boost the total number of the titles found internationally that relate to the polar regions. The data on the uniqueness of the foreign library holdings is, as yet, incomplete. Yet every indication is that the input of the holdings of these libraries will increase the percentage of the data base which represents unique records and holdings. Thus, the participation of libraries outside of North America is to be especially encouraged since their contribution to the polar data base will enlarge and enrich it.

In terms of collection coverage, the libraries with the largest collections also contain much of the unique items available. A collection like the Rasmuson Library, University of Alaska Fairbanks, will have a large number of titles and a high percentage of unique holdings in all subject areas. Smaller libraries, if they are very specialized, will have a high percentage of unique holdings--but only if the focus and mission of those libraries is very precise. A small library without a narrow focus will not yield a high degree of uniqueness.

One might argue that future development of the data base should be based upon two criteria: 1) size of polar collection; and/or, 2) specialized nature of the collection. As more complete data is collected, more detailed analyses and conclusions will be forthcoming.

UNIV OF ADELAIDE BARR SMITH LIB.	68	5	0.01%	7.35%
UNIV OF LAPLAND-ARCTIC CENTRE	20	4	0.01%	20.00%
EXPLORER'S CLUB	46	4	0.01%	8.70%
NUNATTA ATUAGAATEQARFIA	100	3	0.01%	3.00%
HUDSON'S BAY COMP. ARCHIVES	26	3	0.01%	11.54%
WHALING MUSEUM LIBRARY	4	2	0.00%	50.00%
OCEAN ENG. INFORMATION CENTER	24	1	0.00%	4.17%
NATIONAL MARITIME MUSEUM-LONDON	5	0	0.00%	0.00%
GOLDTHWAIT POLAR LIBRARY	2	0	0.00%	0.00%
OULU REGIONAL INSTITUTE OF OCCUPATIONAL HEALTH	4	0	0.00%	0.00%
MARITIME MUSEUM OF THE ATLANTIC	1	0	0.00%	0.00%
NATIONAL MUSEUM OF DENMARK	17	0	0.00%	0.00%
TOTAL HOLDINGS FOR POLARPAC LIBRARIES	156599	44279		

NOTE
THE LIBRARIES BELOW THE LINE HAVE ONLY SERIAL HOLDINGS.
THEY DO NOT HAVE MONOGRAPHIC HOLDINGS INPUT AS OF YET

TABLE 3

PERCENT UNIQUENESS FOR EACH INSTITUTION AS MEASURED AGAINST TOTAL UNIQUE POLARPAC HOLDINGS AND COLLECTION SIZE

NAME OF INSTITUTIONS	COLUMN 1 NUMBER OF HOLDINGS PULLED	COLUMN 2 NUMBER OF UNIQUE HOLDINGS	COLUMN 3 % UNIQUE HOLDINGS PER TOTAL HOLDINGS	COLUMN 4 % UNIQUE HOLDINGS PER LIBRARY
UNIV OF ALASKA-FAIRBANKS	54125	19045	43.01%	35.19%
ALASKA STATE LIBRARY	27969	6576	14.85%	23.51%
ALASKA RESOURCE LIBRARY	19412	6544	14.78%	33.71%
GEOPHYSICAL INST. LIBRARY	9245	3466	7.83%	37.49%
ALASKA DEPT OF FISH & GAME	5081	1731	3.91%	34.07%
U.S. FISH & WILDLIFE SERVICE	5528	1708	3.86%	30.90%
DARTMOUTH COLLEGE LIBRARY STEFANSSON COLLECTION	2302	1266	2.86%	55.00%
UNIV OF ALASKA-ANCHORAGE	24160	1168	2.64%	4.83%
U.S.MINERALS MGMT.SERVICE LIBR.	2896	1139	2.57%	39.33%
INST OF ARCTIC & ALPINE RESEARCH	1834	504	1.14%	27.48%
INST. OF ARCTIC BIOLOGY LIBRARY	13	0	0.00%	0.00%
SCOTT POLAR RESEARCH INST	1509	537	1.21%	35.59%
U.S. ARMY COLD REGION RESEARCH	484	114	0.26%	23.55%
IND. AFF. & NORTH. DEV. OTTAWA	243	107	0.24%	44.03%
BOREAL INSTITUTE FOR NORTHERN STUDIES	600	105	0.24%	17.50%
BRITISH ANTARCTIC SURVEY LIBRARY	162	54	0.12%	33.33%
PRINCE OF WALES NORTHERN HERITAGE CENTRE	173	51	0.12%	29.48%
WORLD DATA CENTER A FOR GLAGIOLOGY	240	43	0.10%	17.92%
N.Z. DEPT. OF SCIENCEFIC & INDUSTRIAL RESEARCH	144	32	0.07%	22.22%
HOGSKOLAN I LULEÅ	32	27	0.06%	84.38%
MUSEO STORICO-AERONAUTICA MILIT.	36	21	0.05%	58.33%
KEVO SUBARCTIC RESEARCH INST.	94	19	0.04%	20.21%

Moving Toward an Arctic Information Network: Problems of Access

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Once a library begins to collect Compact Disc Read Only Memory (CD-ROM), access bottlenecks quickly become apparent. The most immediate one is that each CD-ROM database is relegated to a single workstation. With popular databases patrons may soon be queued up for a few minutes searching time.

Solutions to this problem include limiting user time to search databases or purchasing multiple copies of the CD-ROMs and stand alone workstation for each copy. Neither solution is satisfactory. The former requires additional staff time to administer and is ultimately unsatisfactory to users who must work with a clock ticking over their shoulder. The latter soon becomes expensive as stand alone workstations for the same database begin to multiply like mice throughout the library.

Another problem occurs as multiple CD-ROMs from various sources are acquired. Does one purchase a separate workstation for each copy of each database? How far do budgets stretch to purchase multiple copies of these products?

The solution seems to be a **network** of CD-ROM databases. A network allows simultaneous access to one or multiple databases. What were formerly stand alone workstations dedicated to a single database become network stations able to access a variety of databases. Networks can be local area or wide area. Local area networks (or a LAN) usually provide access throughout a building or group of buildings in close proximity to one another (e.g., a college campus). A wide area network (or WAN) provides access across longer distances--from one end of the city to the other or from one country to another.

However, networking CD-ROMs is not something to be done before your morning coffee break, at least, not yet. Having just installed a number of CD-ROMs on a local area network at Rasmuson Library, I can provide some insight to the problems one is likely to encounter. Some of those problems are temporary, soon to be resolved and standardized; other problems run deeper and may require new approaches to resolve. Table 1 lists the pros and cons of networking CD-ROMs.

TABLE 1
CD ROM NETWORKING: PROS AND CONS

FEATURE	PRO	CON
COST	-Purchase single CD ROM for multiple access -Multiple use from each workstation	-Extra licensing fee for some CD ROMs -Higher cost per workstation -LAN installation and maintenance
ACCESS	-Multiple, simultaneous access to multiple databases -Access to other programs, utilities -Access both locally and remotely -Can easily add users and databases to network	-Various command structure for each databases -If network stops all access may be lost at all points -Too many users and databases may slow response time

At Rasmuson Library we made the decision in the spring of 1989 to develop a LAN throughout the five floors of the library. Our first use would be for access to our growing CD-ROM collection. We needed both a LAN operating system and a CD-ROM server. Ethernet was selected as the LAN topology because of its robustness as a network and to facilitate future connection to a fiber optic ethernet being installed on the campus.

After a lengthy evaluation, we began installation in December of 1989. The network was running by January. We currently have 10 workstations with access to five databases. One of the workstations is located about one mile from the main library. Table 2 provides a summary of programs we have tried over the network.

The network has been operating consistently with only minor problems, not unexpected with the installation and beginning operation of any network. However, there problems we face, and some of them are indicative of the broader problems of open access to information on CD-ROMs. All of these more substantial problems can be traced back to the fact that CD-ROMs were not initially designed for network operation. They were developed for individual use at separate workstations. This causes both technical and legal problems.

TABLE 2
RASMUSON LIBRARY LOCAL AREA NETWORK SOFTWARE
TESTED ON THE NETWORK

PACKAGE*	APPLICATION	RUNS ON LAN OK
NETWORK-OS* (by CBIS)	LAN OPERATING SYSTEM	YES
PERFECT MENU* (by International Compute Group)	MENU	YES
CD-CONNECTION* (by CBIS)	CD ROM LAN APPLICATION	YES
MSCDEX* (by Microsoft)	CD ROM UTILITY FOR DOS	YES
PC ANYWHERE* (by DMA, Inc)*	REMOTE ACCESS	YES
LASERCAT (by WLN)*	BIBLIOGRAPHIC DATABASE CD ROM	YES
ERIC (by Dialog)*	EDUCATION DATABASE CD ROM	YES
FEDERAL GOVERNMENT DOCUMENTS* (by Autographics)	GOV'T DOCS DATABASE CD ROM	YES
LE PAC (by Brodart)	GOV'T DOCS DATABASE CD ROM	NO
LIFE SCIENCES* (by Cambridge Scientific)	LIFE SCIENCES DATABASE CD ROM	YES
AQUATIC SCIENCES & FISHERIES ABSTRACTS* (by Cambridge Sci.)	AQUATIC SCIENCES DATABASE CD ROM	YES
MAGAZINE INDEX PLUS (by Infotrac)	PERIODICAL DATABASE CD ROM	YES
READER'S GUIDE ABSTRACTS (by Wilsondisc)	PERIODICAL DATABASE CD ROM	YES
ABI/INFORM (by UMI)	BUSINESS DATABASE CD ROM	NO
SPRINT (by Borland)	WORD PROCESSOR	YES

* indicates package currently running on workstations

Techically, our biggest problem with the network operation has been mounting new CD-ROM databases. Some install with no problems. Others we have yet to successfully run. Their software is incompatible with network operation. Memory to run the program is often a problem. At Rasmuson we are lucky to have an expert in software who has been able to work around many problems. The networking of CD-ROMs is still so new we often are implementing applications the vendors and manufacturers have not yet tried. As the use of CD-ROMs on networks expands, I am confident many of these problems will be resolved.

A larger issue is license agreements and fees to place a CD-ROM database on a network. The field is wide open. Some vendors specifically prohibit any kind of network or other external access to their product. Their view is: one CD-ROM, one access machine. Others make the license fee so prohibitive as to make it unreasonable. Some vendors have reasonable license fees for network applications. Finally, some place no extra charge for network access. It appears that the use of CD-ROMs over networks caught the vendors by surprise.

Vendor responses to these two problems have also been varied--from extremely cooperative to passively hostile. Although, I have not studied these responses scientifically, there does seem to be a correlation between cooperative vendors (to network operations) and both the ease of their software to run on the network and the reasonableness of their licensing agreements and fees.

A final problem with CD-ROMs on a network is how far the network can be extended before response time begins to significantly suffer. The inherent structure of a CD-ROM limits access speed. A normal hard disk, for example, has a faster access time. Ultimately, this may be the largest factor limiting the growth of the CD-ROMs on networks.

Our plans at Rasmuson Library are to continue expansion of our CD-ROM network (called Elmernet), both within the main library as well as extensions to wide area networks and dial-up access. The reaction of our patrons and our library staff has been overwhelmingly positive to expanded access. The cat is out of the bag and he is propagating prodigiously. Is it possible, with resource sharing and spreading networks, that we may someday dial a local access number and look into one another's CD-ROMs?

Moving Toward an Arctic Information System: Future Directions

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The CD-ROM product, PolarPac, offers a prototype of what a national, or international database on the polar regions might look like. Ms. West described the efforts to pull the database together, presented an analysis of its holdings, and made remarks relating to the uniqueness of the collection. In a subsequent paper, Ms. Andrews will discuss the evaluation of PolarPac as a resource sharing and collection development tool. My paper will suggest questions and options to consider in developing a common approach to a polar database while keeping it economically and politically practicable.

The current arrangement of PolarPac with the Western Library Network (WLN), a public non-profit corporation, offers the functionality of both an online database as well as a distributed "off-line" database. Online capabilities of WLN permit a high degree of currency and timeliness; the user incurs a cost only when the database is used. Disadvantages include the difficulty and expense of telecommunications, especially from afar. CD-ROM technology offers high portability, local control, and inexpensive distribution of the database. These two technologies, rather than being competitive, should be perceived as complimentary systems.

In considering a polar bibliographic database the library community must decide whether to <u>maximize</u> access to resources, a very expensive and perhaps impossible effort, or to <u>optimize</u> access to polar resources, an effort that can be achieved within the current and future resources.

Future prospects for the development of PolarPac on a regional, national and international level is based on six elements: 1) market; 2) usefulness of the information; 3) currency of the information; 4) cost; 5) additional subjects or geographic collections that can be added to the database; and, 6) its value in resource sharing.

In determining the market for the CD-ROM we must more clearly understand prospective users of this information in large institutions with very generalized research interests versus research institutions with specific mission orientations. (e. g., Ocean Engineering). Are we designing a product primarily

for the world-class scientists or one more reasonably directed to beginning and mid-level scientists, graduate students, civil servants, and others who need to develop a more comprehensive understanding of polar problems and peoples? Will mission-oriented libraries find the database attractive enough in meeting their primary needs and related research so as to justify this expenditure over time? Will a database coordinated in one country be politically and intellectually feasible for use by various national institutions and research groups? Will language provide a barrier significant enough that polar information will be regionalized by language? Will the current process, distribution, and cost be attractive enough to other major research institutions and mission orientated research institutions to encourage them to contribute significant data and time to this effort? The PolarPac database is primarily monographic or serial in nature with a preponderance of holdings relating to Alaska, because of the heavy representation of Alaskan libraries. Foreign libraries can make a unique contribution to this database in the area of serials. Can the focus on the polar regions be maintained as additional bibliographic data is added from countries that have both arctic and sub-arctic regions and collections?

Can we design a process that provides data on a timely basis in CD-ROM format with the option of on-line access to make it attractive to a wide variety of institutions? Enlarging our market is a necessity if this is to be feasible. Can the information be used to coordinate collection development and shared cataloging? Can the costs be kept modest enough to enlarge and maintain a market of users other than those represented by the Polar Libraries Colloquy? What is that price? Can costs be kept low enough to interest smaller mission-orientated libraries, smaller university and government libraries with polar emphases, and individual researchers as well?

A modest cost and the inclusion of other formats could materially enhance the value of the database to researchers. Data on oral histories would provide additional information on native peoples who come primarily from an oral culture. Archival and manuscript materials and locally generated, yet comprehensive indexes, such as the Bibliography of Alaska, could provide access to a significant article literature related to the database. A computerized directory of all Polar Library Colloquy collections could provide access to each library represented here by subject, geographical area or mission emphasis.

Are polar-oriented libraries willing and capable of sharing information on a timely basis and in an effective manner? Dennis Stephens, our Collection Development Officer, often remarks that the effective delivery of materials is the stone in the shoe of resource sharing. If the database is to have value above simply identifying sources or citations, libraries must commit to effective resource sharing.

PolarPac can indeed serve as a prototype for future development. The next appropriate step is to add the monograph holdings of significant libraries in several other countries. The addition of bibliographic data from significant libraries in Canada, Norway, Sweden, Finland, Denmark and Greenland, as well as holdings from other polar libraries in Germany, France, and Italy would add materially to the value of the database if language problems apparent in some of those could be overcome. Selective addition of mission-oriented collections such as ocean engineering would strengthen various subjects within the database.

The use of WLN as both host for the data and generator of the CD-ROM offers several advantages. The first is a complementary on-line/off-line access previously mentioned. WLN also offers common bibliographic standards and the use of common, well designed, easily searchable software.

Market, frequency and cost of the database are inter-related factors, each of which affects the other. We must design a process that allows access to information conveniently, relatively currently, and at minimal cost if we are to continue to expand the market for this information. A polar database may not be a commercially feasible operation in the traditional sense nor can any one agency subsidize it on a continuing basis.

A concept articulated by Edward De Bono, called "PO" thinking, suggests thinking the opposite of current practice to develop credible alternatives. An alternative to having an agency such as the National Science Foundation or the University of Alaska Fairbanks fund the input of data would be to have the contributing library pay tape processing and data entry costs, as a condition for inclusion in the database. While this might seem a strange practice it is certainly not uncommon.

It is becoming more common to request processing costs for significant collections; many scientific publications already require page costs for scientific papers. This strategy would spread the cost of entry reasonably over many institutions at a relatively minor cost to each. Additional copies of the database could be made available to the significant

contributors at a decreasing cost to compensate for input cost incurred. An annual or semi-annual production of the CD-ROM seems reasonable if one-line access is possible and data is added on a continuing basis.

If the strategies suggested are adopted the polar libraries may be able to negotiate with WLN to market an increasingly valuable product at modest cost. The inclusion of other formats, geographic and subject areas that are not represented at this time could materially add to the use of the data base and its appeal to its broader audience, particulary to those in humanities and social sciences. Given the model and the evaluation process that will follow, if we are in a position to make a preliminary commitment to an on-going database that can be international in scope, I would recommend that at this conference, representatives from the significant library collections gather on at least on an informal basis, to discuss the points raised in this and other papers and assess whether an international polar database is possible and practical.

Resource Sharing Among U.S. Providers of Polar Information

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Introduction

It is impossible for any library to have in its collection all materials necessary to meet the needs of its patrons. Consequently, resource sharing as a means of providing adequate library service is inevitable. The question is "exactly how do we go about accessing materials, information and expertise beyond the walls of any single library?" The solution for polar information providers and users lies in formal networking, which could be accomplished by formalizing cooperative arrangements now underway among Polar Libraries Colloquy "members" (Thuronyi and Galpin, 1988).

The sharing of library resources among polar libraries internationally has a long history, especially since 1971 when the Northern Libraries Colloquy began (Andrews, 1984). Within the U.S. polar information community there are numerous library sources to be tapped. These range from large libraries with small but significant polar holdings, to small libraries with holdings that are almost entirely polar or cold regions related (Minion and Cooke, 1985). It is important for the small libraries not only to have access to the larger library collections through the online cataloging utilities, but also for the holdings of the smaller libraries to be included in these systems so that the resources in their collections may be shared. The provision of increased accessibility to the polar and cold regions special libraries holdings follows up on the suggestion in a A National Arctic Information Network that "access is needed to the highly specialized materials in small arctic libraries that are not members of a bibliographic utility" (Hickok et al, 1987, p. 87). A recommendation from the twelfth Northern Libraries Colloquy in 1988 "encourage[d] polar libraries to become a member of one of the national bibliographic utilities" (Brennan and Andrews, 1988, p. 26).

"Implementation of a U.S. Polar Bibliographic Information System"

These recommendations are being carried out through a National Science Foundation grant to the University of Alaska Fairbanks entitled "Implementation of a U.S. Polar Bibliographic Information System."

Part I of this grant, managed at the University of Alaska Fairbanks, is involved with production of the POLARPAC CD-ROM discussed elsewhere on this program.

Part II of the grant, which is being managed at the Institute of Arctic and Alpine Research, University of Colorado, is entitled "Resource Sharing for Polar Information." Four special libraries, with significant polar and cold regions holdings, are contributing their monographic and serials holdings to the Western Library Network (WLN) for inclusion on the POLARPAC CD-ROM. WLN includes holdings from all major libraries in Alaska, thereby becoming THE relevant bibliographic utility in the U.S. for users and providers of polar information. Pertinent holdings in that system, together with relevant Dartmouth College Library holdings downloaded from the Research Libraries Information Network (RLIN), form the basis of the POLARPAC CD-ROM.

The four special libraries involved are at the Institute of Arctic and Alpine Research (INSTAAR) at the University of Colorado at Boulder; the World Data Center-A (WDC-A), Glaciology, also at the University of Colorado at Boulder; the Goldthwait Polar Library at the Byrd Polar Research Center, Ohio State University (GPL-BPRC) and the Arctic Environmental Information and Data Center (AEIDC), University of Alaska, Anchorage.

This giant step toward resource sharing must be seen only as a beginning. Much remains to be achieved before an efficient polar information sharing system is in place. A truly efficient system would eliminate duplication of effort, and allow extended coverage of materials now eluding indexing into online databases.

The Canadian Polar Information System (Minion and Goodwin, 1990) has proposed a system of production centres and contributing centres with indexing responsibilities assigned on a distributed basis. A similar model could be used for the U.S., built on existing systems such as WLN, a bibliographic utility, and COLD, the Cold Regions/Antarctic Regions reference database. I propose, for purposes of illustration here, to call WLN and COLD "production centres," - centers with adequate existing resources and expertise to function as database entry points.

"Contibuting centres" (the four special libraries mentioned above) would be responsible for forwarding indexed records to one of the production centres, preferably in machine-readable form according to a standard format. The indexed records from the four contributing centres would reflect the distribution of tasks among the four special libraries ("contributing centres"). This distribution could be based on subject types held, or other cooperative techniques.

For instance, theses, monographs, and reports catalogued as monographs are already being funneled to WLN, giving it the function of a "production centre" where keying in of each unique record would occur once only. Reprints at WDC-A and BPRC would appropriately enhance the COLD database, the other possible "production centres." WDC-A already benefits from cooperative cataloging with COLD. The remaining reports at the four libraries, and the analytics from their periodicals, might also be appropriate records for an expanded COLD.

One of the major advantages of the system described above would be that procedures would be worked out to eliminate duplicate coverage of materials. Thus resources would be freed up so that the portion of polar literature (social sciences? grey literature?) determined to be presently receiving inadequate coverage could be brought under bibliographic control.

These resource sharing possibilites were discussed briefly at a meeting of the U.S. Polar Bibliographic Information Working Group last March in Anchorage. Representatives from government agencies, and from academic and special libraries in the U.S., were in attendance. At this meeting coordination of U.S. polar bibliographical information activities with other relevant bodies was addressed. At this point in time it is a matter of keeping open communications with these groups with an eye to cooperation wherever possible.

Sustained funding of a U.S. Polar Bibliographic Information System will be a necessity. Althought it would be desirable, as has been suggested (Roederer, 1988), for an Arctic Data and Information System to be supported by the taxpayer, various other sources for funding need to be sought. If user subscriptions to this service are expected to provide much support, a marketability study of the final CD-ROM product will be needed.

Further non-bibliographic files could be added later to the POLARPAC CD-ROM, such as Polar and Cold Regions Library Resources: A directory, full text of the Polar Libraries Bulletin, Arctic Environmental Science Data Directory, etc.

When several files exist on the CD-ROM, software should be written to connect the files so that the user will find bibliographic records, data sources, and expertise available in a connected fashion.

Cooperative links will be sought to the proposed Canadian Polar Information System, and also to UK and European systems.

The "Arctic and Antarctic Regions" CD-ROM from NISC already reflects input from the U.S., Canada, and the U.K. Until more formal international links are possible, a Polar Bibliographic Information Bulletin Board (POLAR.LIT) on Omnet's SCIENCEnet communications network (electronic mail) will be used for international cooperation. Numbers 1 & 2 of an online "newsletter" have already been electronically published, along with several other notices. For those without access to SCIENCEnet, the Polar Libraries Bulletin will appear twice yearly to keep the polar information community informed.

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The Arctic & Antarctic CD-Rom Database: A Practical Review

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Abstract

This paper is a review of the first version of the CD-ROM database "Arctic & Antarctic Regions" from the National Information Services Corporation (NISC). Multidisciplinary specific subject searches were conducted for the scientific staff of the Byrd Polar Research Center, using both the novice and expert search modes. The scientists evaluated the results of the searches to determine if the information obtained was of value to their current research projects and if the results produced any citations with which they were unfamiliar. Aspects of the search techniques, ease of use, and the documentation provided by the vendor are discussed from the viewpoint of a novice computer user. Applications for use by the staff of a small interdisciplinary library are also discussed.

Introduction

The first version of the CD-ROM database, Arctic & Antarctic Regions, from the National Information Services Corporation (NISC) contains citations from the U.S. Library of Congress's Antarctic Bibliography and the Bibliography on Cold Regions Science and Technology. There are over 147,000 citations stored on the disk. Abstracts are also included for some of the citations. The database covers material from 1950 to February of 1989.

To begin a search the user most first select either the novice search mode or the expert search mode. The novice search mode allows the user to globally search the entire database for keywords. The expert search mode entails requesting specific field searching, such as only the author and/or title fields. In the expert search mode the retrieved records can be sorted by publication date or by specific fields. Boolean logical connectors can be used in either search mode , and truncation can be used to retrieve all possible variants of a particular search term. When the citations have been retrieved, the user can view a short list of titles with publication dates or choose to view the full records, with abstracts and keywords. There is also a browse list to assist the user in his selection of search terms.

When the search is completed, the search can be either printed or stored on disk for future reference. There are several data format options available to the user, including formatted text, bBASEIII, Lotus or WordStar Text.

CD-ROM Searches

To review this CD-ROM product, multidisciplinary specific subject searches were conducted for the scientific staff and one graduate student of the Byrd Polar Research Center. All the searches were done by the librarian using the search terms which the researchers had selected. Nineteen searches were completed for the research staff and two were done for the library. All the searches needed to be used with the Boolean connectors "and" or "not."

When the searches were completed and printed out, the research staff was asked to complete a short questionnaire. The questionnaire consisted of these questions: 1. Are any of the citations unfamilar to you? If so are they useful to your research? 2. Are there any citations which you think should have appeared, but were not listed? 3. It is useful to know about foreign language citations or would you prefer not to have them? 4. What order would you like the citations listed, alphabetical, chronological or does it matter? The staff was also asked to rate the overall usefulness of the search and any additional comments were encouraged.

An assumption was made in regard to the scientific staff of the Center and the searches. The researchers should presumably know the literature in their field of expertise and they would be able to judge whether or not pertinent references were missing from the data sets. If the staff were aware of most the citations, there would be little need to use the disc. Some of the staff estimated the amounts of unfamiliar citations in percentages and their estimates were surprising. On some of the searches, they were unfamiliar with 30%, 50% and 90%; these citations they rated as valuable to extremely valuable to their research.

The answers to the questionnaire indicated that the searches were either useful or very useful, with a few exceptions. After conferring with the scientists who felt their searches were not useful, it was apparent that the search strategy should have been altered. For exmple, one search involved the terms, "satellite" and "image" and "wind" and "Antarctic", with image, wind and Antarctic as truncated terms. The search may have produced more relevant hits if the search terms "ice" or "ice and sheet" had also been chosen. In retrospect, some of the search terms may have been too restrictive. If the scientist had executed the searches, he might have realized this and entered a new search strategy and obtained better results. The scientists were able to pinpoint where some important literature was missing, such as a specific author's work, but suspected that if the search terms were broadened, the missing publications would appear.

The searches which contained the most citations were deemed as the most valuable, especially by the graduate student. The student submitted search terms which were broader than the research staff's search terms. He was intersted in having a general survey of the literature, while the research staff was more familiar with the literature and wanted citations for specific reasons, such as to use in preparation for a publication.

There was no overwhelming consensus of opinion concerning the sorting of the retrieved searches. Some wanted alpabetical, while others wanted them to be chronological and still others said it did not matter at all. The novice search mode does not allow for any type of sorting, so those who had a preference would be retrieving a great number of citations, the staff would have preferred some order, whether it be chronological or alphabetical.

Most of the staff wanted foreign citations, but only if the citations had an English abstract. One search for the graduate student was over 100 pages when it was printed out, and he did not want the abstracts. He felt that be would be able to identify those references of interest to him by the author and title alone.

CD-ROM uses

The CD-ROM can be utilized by the library staff for the library's own purposes. The Goldthwait Polar Library is a multidisciplinary library with holdings in almost every aspect of polar research. However, as is the case with other specialized libraries, some aspects are better represented than others. Recently, the Byrd Center hired research associates whose fields of concentration are marine biology and phycology. While we do have some material on these subjects we need to add to our collection in these areas. The CD-ROM can aid in collection development. By searching the CD-ROM for algae and benthic ecology citations we can determine what reprints or reports we need to acquire to make our library more useful to the new scientists. Using the expert search mode, we can perform author searches and use the information obtained to request specific reprints which our library is lacking.

Two searches were conducted for the library in response to a letter from another university's law library. The law librarian wanted to know what had been published concerning environmental protection in the Antarctic, specifically the dumping of hazardous waste in Antarctia. The searches were easy to complete and a reply to her letter was sent out in a relatively short amount of time. Using the printed version of the Antarctic Bibliography would have required a great deal more

time. Two weeks later, a law student from a nearby university visited the GPL. He was interested in the same topic. The previous searches were stored on disc and a printed copy was made available to him.

Each spring quarter the Byrd Center sponsors a graduate student seminar which concerns the polar regions. The librarian can use the CD-ROM to produce a bibliography of the literature for the course and the document can also be used by the instructors to decide what articles the students should read. The search could be done as soon as the topics and the instructors have been chosen. The library then becomes involved and knows what the students will need to use when they visit the library.

The CD-ROM is also an excellent tool for any scientist who wants to investigate ideas for new research projects. With little effort, the scientist can produce a survey of the literature to determine what has been published on any given topic. It may help him to decide if what he wants to do is wide open for new research with many possibilities to explore or if the work has already been done by others. By looking at other scientists' publications, he may also know who he should contact for more information or who to collaborate with on future projects.

Software and Documentation of the CD-ROM

While the searches were well received, several problems were encountered using the CD-ROM itself. The CD-ROM software is not "user friendly." The documentation which the vendor provides does not go into great detail. Screens appear on the CD-ROM which are not even discussed in the user manual. In comparison with other CD-ROMs, such as Silver Platter's Agricola, the commands and pop-up windows are much more complicated and confusing. A new or casual user of the product would become easily frustrated at the lack of specific instructions.

Conclusion

The second version of the Arctic & Antarctic Regions CD-ROM is due to be released momentarily. Five new databases (ASTIS, C-CORE, CITATION, SPRILIB, and AORIS) have been added and the coverage has been expanded to January of 1990. The additional database makes the CD-ROM extremely attractive, even though the cost may be prohibitive for some small research libraries. According to the vendor, the help screens and the search techniques have gone through drastic revisions and the CD-ROM will be easier to use. Sections of the users' manual have been rewritten and expanded. The Byrd Center scientific staff's positive responses to the searches indicate that they would want to have access to such a valuable research tool on a regular basis.

LINNEA --- Library Information Network for Finnish Academic Libraries

Antti Soini
Automation Unit of Finnish Research Libraries

Background

A totally new era in Finnish library automation has started. The first three installations for the uniform academic library network, LINNEA, have been made in 1989 followed by at least six new installations in 1990.

Based on a long and extensive study - started already in 1984 - the Finnish Ministry of Education made the somewhat unique decision to finance and organize a nationwide library automation project.
The objectives of the project can be summarized as follows:

1. An **integrated library system** should be installed locally for each university; the same software for each.

2.A **central system** should be established to provide services to the local systems.

3.**Data communication networks** and software should be used to link together the local systems and the central system.

The uniqueness of this approach is that the same software will be used all over. The benefits of a uniform library network using a uniform software were so indisputable that the Ministry of Education decided to finance it centrally. No doubt this also made it easier for the universities to accept the concept. Planning and co-ordination of this project was given to the Automation Unit of Research Libraries in the Ministry on Education.

The process of selecting the system was by no means an easy one. It took time and mental resources: to select a system for 20 libraries - not only for one - made it extra complicated. Bids were requested from the major library system vendors. The evaluation of the systems took two years; not so bad actually - many single libraries have used more.

Finally in 1988 we agreed upon the software vendor and VTLS (Virginia Tech Library System) was selected. VTLS is developed in the United States and is at present used in about 120 libraries round the world.

Those characteristics of the VTLS system which make it especially suitable for the Finnish Academic libraries are:
a) real *functional integration* between functions;
b) *ease of use*;
c) *standards* for record structure as well as for character sets and the flexibiblity to let us continue with our FINMARC format;
d) *networking capabilities* and valid references;
e) *comprehensiveness* in subsystems and functions already implemented;
f) *research and development* and enhancements are constantly done to keep the system modern even for the years to come.

Networking in LINNEA

In a network concept like LINNEA the main dataflow is carried between the central system (Union catalogue) and the local systems, but communications between the local systems are also frequently used (for ILL requests etc) as well as from the local systems to other networks or external bibliographic services. In VTLS two basic options are available for networking: a) *machine-to-machine* connection using either dial-up, leased line or microwave connections; and b) *network-to-network* connection using special software developed by VTLS.

To set up a dedicated network for libraries with all the technical and economic resources needed was not a realistic alternative for LINNEA - and it was not necessary either. There already is a sofisticated, functional network established for universities and research centres: FUNET (Finnish University and Research Network).

FUNET connects at present 16 universities and more than 20 research institutes into a uniform network. FUNET connects the local area networks with leased lines using multi-protocol architecture. Protocols supported are TCP/IP and DECNET. FUNET is also committed to OSI as soon as standards and corresponding software are available. The leased lines between LANs are now using line speeds from 64 kbit/s up till 2 Mbit/s. FUNET has also established connections to the Scandinavian, European and worldwide research networks.

LINNEA (Library Information Network for Academic Libraries) is a logical network consisting of a national bibliographic resource, linked with local library systems, integrated into a single, uniform network. Connecting the local library systems into the university LANs gives the authorized users access to a wide range of bibliographic and other library services throughout the country and even abroad using the network connections available through FUNET.

LINNEA is at present still in the beginning of its long march. The customization of the VTLS software for the basic functions has been done. (It is not easier to teach an "English speaking system" the Finnish language and customs than to teach a human foreigner.)

The first library installation was here in Rovaniemi, in Lapland university and the latest installation was for the Finnish National Bibliography in Helsinki University Library about a month ago.

All the 20 university libraries, 2 additional central libraries, the National Depository library and the Central system should have their VTLS systems installed before the end of 1993 and LINNEA as a network should be basically completed.

Services of LINNEA

VTLS as an integrated library system is very well organized to take care of the various local library routines and user services. The real advantages of co-operation come via the Central system and resource sharing. Copy cataloging, ILL are the basic functions of Union catalogue database. However, the existence of a high-speed, well-equipped network with established connections to worldwide networks offer new perspectives. No database is too far to reach if important data is available there.

How these new tools could improve the arctic study and availability of arctic literature? I can see many interesting alternatives which could be analyzed and perhaps tested already in the near future. I leave two suggestions for further evaluation:

1.The Arctic Centre as a part of Lapland University will be a user of the VTLS system. The same system is also used by the University of Alaska in Fairbanks. Connections between these two libraries could be tested very easily because librarians on both places already are familiar with the system itself. Whether to use dial-up lines or network connections via FUNET/Bitnet/Internet could be a part of the test project. Many problems are anticipated if regular transfer of records is needed because of the different MARC formats used and different character sets as well, but still the rapid access of the information itself could be valuable.

2.At the moment the Lapland University database doesn't include any specific arctic collection. A significant part of the Lapponica collection of the Lapland Regional library is, however, in machine readable form using MARC-based format. Could it be possible to make these records available via the VTLS system of the University, in a separate arctic database? Why not to find out if this database could be completed with the arctic material from other Scandinavian countries. The benefit on having the arctic database on the university computer is the easy and economic access from abroad via existing research networks.

These are just a few examples. The perspectives are promising; the results depend on human efforts, resources and attitudes.

Data Base for Historical Material from Norweigan Polar Areas

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Norsk Polarinstitutt

Polar history has a central position in Norwegian tradition. Fridtjof Nansen and Roald Amundsen are known to all; their names and achievements are much used in various connections, whether it be simple advertising or in order to create a profile for an institution. The polar areas both in the north and south have played an important role for many parts of this long country, both for the economy and for employment. I can mention sealing, whaling, fishing - which may not have a very high status out in the world nowadays, but which have been the economic backbone for mere existence in certain Norwegian areas - mining in Svalbard, logistic support for expeditions - expeditions from many countries have used, and still do use, Norwegian ships and expertise for their expeditions to the Arctic or Antarctic. Norway is in fact the only country in the world which has territorial possessions in both the Arctic and Antarctic, and it has at various times had considerable traffic to both areas.

In other words, polar history in Norway is not concerned with a rather distant field, such as colonial history in Africa would be, but on the contrary is still part of a living tradition. Perhaps it is this feeling of nearness that has led to a more relaxed view of the less publicized sides of this history and its material remains in general.

It was the Norwegian Polar Research Institute (NP) that first took up the question of the need for greater activity within research into Norwegian polar history, as well as the need to investigate the present status of material sources for this history - photographs and film, archival material, cultural objects of all kinds, and unpublished written material such as diaries and letters (the library of the Polar Institute covers the area of published written material as well as a good deal of unpublished). Out of several years' experience of questions to the Institute concerning where specific material might be found, the idea arose that a data base should be created whereby interested persons could approach <u>one</u> institution (NP) to find out <u>what</u> exists of historical material concerning Norwegian polar history and <u>where</u> it is to be found. The theory is then that a person contacting the data base to ask where material relating to, for example, early whaling activities in the Norwegian Arctic will be told that there is a collection of photographs there and there, some archaeological finds there, a written archive there, and

so on. As it is now, one can spend a considerable amount of time and money to investige at each possible place.

The aim of this plan is enormous. It covers all source material both inside and outside Norway which concerns both Norwegian history in all polar areas and all historical activities in Norwegian polar areas. Obviously this is not a goal which can be reached in a short time with limited resources. But a start has been made.

The Norwegian Council for Science and the Humanities (NAVF) took up the question of greater activity within polar historical research. Amongst other projects, they joined together with the Polar Institute and created a 3-year project which has the above-mentioned plan as its starting point. One scientist and an assistant are engaged on the project, which runs until May 1992. To give the project a realistic framework it was decided to start with film and photographs, which as we are all aware have not always been shown sufficient consideration as valuable original material. This was also a natural choice since the Polar Institute has the largest collection of polar historical photographs in Norway.

The specified main aims of the project were firstly to create or adapt a registering system for the photographic material, to test this and to start the systematic registering. After this trial period the assistant has taken over the job of routine registering. In addition, all possibly relevant institutions, and private collections where possible, are being asked to contribute with a summary or list of such material in their collections. The material itself will not be collected unless the owner wishes to donate it. A questionnaire has been sent out and the first wave of replies has been catalogued. A deeper investigation into the various collections will be the next step. The concentration on photographic material does not exclude other material, which is noted wherever it occurs, but so far without being specifically searched for because of the time and resource factor. Finally the main side of the project for NAVF is that research concerning photographs as a source of information about polar history be carried out.

The computer program POLYDOC was chosen for registering the photographs, both because it could be adapted to suit the purpose and because it is also being used by the library at the Polar Institute and the archive of place names in the Norwegian polar areas at the same place. The library is both gradually transferring its main catalogue to POLYDOC and is also registering the collection of diaries from participants on polar expeditions and winterings on the same system.

POLYDOC is not necessarily the one and only system we shall use and we are open to the possibility of changing to a program which may give mote international compatability. But even then the greater part of the work will already be done. Especially with the photographs much time is used in identifying images checking details.

Each photograph is registered in such a way that it gives searching possibilities from all imaginable directions. We can ask for image categories such as buildings, ships, sledges, etc., or for specific years or time periods such as 1939-45. We can ask for names of people or places, and we can also search in the free-text descriptions. Finally we can ask the computer to produce a list of photographs showing a combination of the above-mentioned factors, e.g., a certain person at a certain place in a certain year. The computerproduced answers will also tell us in which collections the photographs in question may be found.

The first intention with this photographic data base was also to include the image itself in a related system so that both the written information and the copy of the photographs could be produced electronically. Various digital and analogue systems were investigated, but we have not yet found an entirely suitable answer. In the meantime the negatives most in danger (nitrate film and glass plates) are gradually being copied onto 70 mm film, which is both a safety measure and a first step to later transfer to digital or video programs.

I have tried to indicate through this paper that the resources that have been put into this project are not unlimited. On the contrary there are only myself and an assistant on half time working to realize the entire plan. I would therefore at the present time not advise anyone to try to use the data base ! However we feel that we have made a good start and I personally hope that the obvious need for this data base will lead to an expansion of resources needed to make it a reality.

The Health of the Eskimos: an Updated Selective Bibliography

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Background

In 1968 Dartmouth College Libraries published a slim volume compiled by Robert Fortuine, M.D., entitled The Health of the Eskimos: A Bibliography, 1857-1967. With the publication Dr. Fortuine put away his 3" x 5" catalog cards and vowed never to touch them again. Besides, he reasoned, computer data bases would soon make such bibliographies obsolete.

In fact, during the past 22 years, computer databases have gone a long way towards making catalog cards obsolete while bibliographies on broad subjects such as Eskimo health are still needed. Each bibliographic computer database has limitations and in almost every subject area a comprehensive listing of relevant items requires use of more than one and often numerous databases.

The project to update Dr. Fortuine's bibliography began several years ago with the establishment of the Insitute of Circumpolar Health Studies at UAA. The institute's director was interested in developing an information component for the programme and during discussions with information scientists from AEIDC the idea of updating the bibliography was adopted. Dr. Fortuine, who later joined UAA's faculty, agreed to collaborate on the project as did librarians from AHSL who had been maintaining a file of documents listed in Fortuine's bibliography and were interested in obtaining new materials.

The project team began work in 1988 with initial funding by the Institute of Circumpolar Health Studies. AHSL staff provided National Library of Medicine searches on the topic "Eskimo Health," as well as access to computer networks and assistance in acquiring documents. AEIDC assumed responsibility for identifying appropriate items and assisted in obtaining them. Once acquired, Dr. Fortuine sifted through and classified the papers, and AEIDC staff entered citations onto a bibliographic database and placed the documents in the Eskimo health file AHSL.

The update was confined to published, health-related literature in English, French, or German pertaining to Eskimo and Aleut peoples of Alaska and Canada. It would include any document from 1857 through 1967 that had not been listed in the original bibliography as well as those published through December 31, 1988.

Methodology

AHSL searched MEDLINE and other data bases on the National Library of Medicine system. AEIDC checked the titles and AHSL obtained copies of each document that seemed relevant. AEIDC also conducted computer searches, beginning with data bases on the Dialog system. We combined the terms "ALASKA?" and "ESKIM?" in the first general search of Dialog's Dialinex which covered perhaps 100 data bases. Number of hits ranged from 0 (Aquaculture) to 47 (Biosis). By using a select search strategy, subsets with the number of hits per data base could be further refined. In some cases, e.g., where the number of hits was excessive, the search strategy was quite complex. An example of this is: "select search (ALASKA? or CANAD? or AR?TIC) and (ALEUT? or INUIT? or ESKIM?) and (HEALTH? or NUTRITION? or COLD (3n) ADAPT?)." The number of hits in the Dialindex search as well as the relevance of retrieved titles determined which databases were chosen.

In order to limit duplications, citations from all searches were compared with articles already in the data base or on order. After AEIDC acquired unique items, they were sent to Dr. Fortuine for his selection and tentative classification. Using a format it had developed, AEIDC entered the final documents onto an in-house bibliographic data base. In addition to computer searches, project members reverted to the "old fashioned" way of producing a comprehensive bibliography. We looked at references in items we acquired as well as at relevant bibliographies (for example, Arctic Bibliography).

Discussion

In terms of our accomplishment thus far, we have searched 100 or more computer data bases and approximately 35 published bibliographies. To date we have identified some 2,000 items for possible inclusion in the data base. (We expect the total number of items included to be between 1,200 and 1,500.) The database part currently contains 1,029 items relevant to Eskimo and Aleut health that were published, for the most part, between 1967 and 1988. AHSL files contain copies of all these items. Contingent upon funding, we plan to publish the updated bibligraphy by 1991. AHSL intends to continue to collect documents on the subject, making its files a major resource for UAA and its Institute for Circumpolar Health Studies.

We invite your help in bringing additional health-related documents to our attention and in sending us hard copies, if possible. Please do so even after publication of our bibliography as our goal of updating the original bibliography has been expanded to include maintaining a file of relevant items at AHSL. We hope our Greenlandic and Soviet colleagues will see fit to augment these efforts with complementary projects.

Incorporating corporate memory in a Canadian Polar Information System

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Introduction

The title of my paper at the 12th Polar Libraries Colloquy in 1988 was "A Conceptual Framework for a Canadian Polar Information System" (CPIS). Since that time, a lot of water has flowed under the bridge. Today, I would like to present another conceptual framework, this time for the incorporation of corporate memory in a CPIS. It is truly a case of counting chickens before the eggs are hatched.

Canadian Polar Commission

One of the most notable developments since the last Colloquy took place on 25 May 1990, when the Minister of Indian Affairs and Northern Development tabled the legislation to create the Canadian Polar Commission. The Commission's mandate will include the promotion and dissemination of knowledge of the polar regions in Canada and elsewhere. We are one step closer to the realization of our dream of having a Canadian Polar Information System.

Corporate Polar Information Holdings in Canada

Canada, being a major arctic nation, has significant holdings of polar information, for example:

> A large number of federal government departments, including DIAND (Department of Indian Affairs and Northern Development), EMR (Energy Mines and Resources), DOE (Department of the Environment), ISTC (Industry, Science and Technology Canada), NRC (National Research Council) and F&O (Fisheries and Oceans), generate and hold vast amounts of information on the North. In fact, there are very few departments which do not concern themselves with some aspect of social, political, economic, employment, health, climatic or other issues relating to the North.
>
> The two northern territories (NWT and Yukon) also produce and hold significant quantities of valuable polar information.

Provincial governments that include cold regions along their northern borders conduct research on the North.

Canadian universities currently offering northern and/or native studies programs and other universities are repositoes of polar information.

The National Library of Canada, the Canada Institute for Scientific and Technical Information, and a large number of public and special library collections include significant quantities of publications on the North.

Last, but not least, records of oil, gas, mining and trading companies enrich the corporate information holdings of Canada.

Management of Corporate Memory

Another major development since the last Colloquy is the Canadian government's policy on the Management of Government Information Holdings (MGIH).

The MGIH policy charges the federal government departments to identify, conserve, organize and make readily available the information holdings which serve to reconstruct the evolution of policy and programme decisions, or have historical and archival importance.

The information holdings are to be managed in a coordinated manner, regardless of the form or medium in which the information is held. These include:

departmental publications;
unpublished studies and reports;
departmental records, including correspondence, memoranda;
photographs, films, filmstrips, slides;
microforms;
maps, plans, drawings, diagrams;
sound recordings, videotapes;
machine-readable databases.

One of the major outcomes of MGIH implementation will be an inventory of corporate information holdings. Polar information holdings, if held by a department, will also be included in such an inventory.

Several federal government departments are in the process of setting up a formal process to manage information. Planning and audit measures have been instituted whereby departments will be assessed on their performance.

Bibliographic Control of Polar Information

It is evident that the scattered polar information holdings of Canada need to be described/indexed in a coordinated manner for a CPIS and made accessible to the research community in Canada and abroad.

We are all familiar with the problems associated with bibliographic control of published documents and unpublished studies and reports. However, a large number of records, with or without their location information, are already available through information utilities such as DOBIS and UTLAS, or through consortium-based or individual library systems. The National Library of Canada has been conducting research into the interfacing of incompatible systems by using the Open Systems Interconnection (OSI) technology, whereby systems using diverse hardware, software and telecommunication technologies would be able to talk to each other.

Departmental records are another story. Like the library classification systems, records are organized according to subject file classification systems. Also, like the automated library catalogue, many records systems in the government are automated. In order for these systems to link up some of the following must be considered:

the existing records for information in all media must be compatible with each other in order to create a truly composite inventory;

new systems being must take into consideration the need to accommodate multi media, so that it would be possible to use one institution-wide automated system for information holdings;

the same thesauri, authority files, subject healdings, data dictionary and glossaries must be used for the indexing of records and publications, so that the search conducted on a library database may be saved and reused on a records database and vice-versa;

transparent machine interfaces must be used to provide linkages between information on the same subject held in a library and a records database. This should accomplish automatic branching out from one database to an other in succession;

cross references must be provided in each database (e.g., library's) to draw attention to the other databases (e.g., departmental records, ministerial tracking systems, forms, audio-visual materials, etc.).

A composite inventory of information holdings, for example, from DIAND, DOE, F&O, EMR, and ISTC, would facilitate downloading of the polar information holdings from each, through proper contractual arrangements, into the CPIS.

The Canadian government has recommended the coordination of hardware, software and telecommunications technologies to ensure data integrity. By the time a few departments have developed composite inventories, OSI developments may make it possible for the government to provide access to information on any subject under its jurisdiction on a government-wide basis, instead of on a department-by-department basis.

In due time, in a Canadian Polar Information System, the representation of and access to various media could be accomplished through the utilization of videodisc or Hypermedia or both. Hypermedia is a proven software environment in which print and non-print information including full text can be managed.

A Production Centre to Capture Designated Corporate Memory

As the planning for a CPIS progresses, it is envisaged that there will be four or five production centres, thus dividing the responsibility for document selection, acquisition, indexing, input, information dissemination and document delivery among the potential CPIS partners. For some time, the concept of establishing a production centre for government documents has been mentioned.

Conceptually speaking, a CPIS production centre in Canada's National Capital Region could initially capture corporate memory for all the federal government documents on polar subjects in Canada's two official languages. Later, if feasible, selected provincial and local government documents, as well as official publications from other countries could be added.

Many federal government information repositories (libraries, records centres, audio-visual units) have already converted their holdings into machine-readable format. Federal government libraries are generally well-funded to develop collections in support of the parent organization's mandate.

Strong collections may already exist for incorporation into the CPIS. Thus, large amounts of seed money in core funding may not be needed for a CPIS.

One Step at a Time

> ... But would the federal libraries be interested in forming a consortium in order to set up a production centre in the National Capital Region?
>
> ... Does anyone know the extent of strengths which may exist in the collections of these federal repositories?
>
> ... What kind of involvement would be requested or required from other holders of corporate memory, e.g. records offices?

These and many other questions can not yet be answered, as a CPIS exists only at the idea stage. However, none of the questions are unanswerable, nor are any of the hurdles insurmountable. Perhaps we should proceed in this order:

> Hold an information session (similar to the one recently held in the Yukon) for interested librarians from federal departments and other institutions, such as the two universities in Canada's capital;
>
> With the cooperation of these librarians, compile an inventory of holdings of polar information in Ottawa-Hull similar to the one done for the province of Quebec;
>
> Thirdly, if feasible, the Canadian Polar Commission and the departments in question could designate a library to establish and manage a CPIS production centre in the National Capital Region.

The Source Material of the Archival Institutions to the History of the Arctic Regions

Carl-Edvard Edvardsson
Landsarkivet i Härnösand

In the archival institutions of the different countries you will find information and knowledge from all the sectors of the communities, both from the state, the communal organizations, and from the private sector. The source material in the archival institutions of the Nordic and arctic countries contributes to the knowledge of, on the whole, all aspects of the community, of the economy, and of other conditions of human life in the arctic regions.

The rich material of the libraries, which is often better known than that of the archives, has in all cases, except fiction and experimental science, its basis in the content of the archives. In general you may say that no accounts in, for example, history, geography, science of religion, or science of art are written about without being based extensively on the source material of the archives.

The important source material for the history of the Arctic is often kept in archives and institutions far from the Arctic Circle, in subarctic or temperate areas. This is in all cases valid for the different national archives, e.g., the national archives of Canada, Denmark, Norway, Sweden, Finland, and the Soviet Union. The collections of the national archives are often the best source for research about general problems in the arctic areas. In the collections of the regional archives, e.g., in the different regional archives of Canada and the Soviet Union, in the state archives (statsarkiv) of Norway, in the regional archives (landsarkiv) of Finland and Sweden, you will find archival material which in a more penetrating way illustrates the social and economic conditions of populations and individuals.

In the national archives you will find the documents from the parliaments, the governments and their ministries and departments, from the civil service department and from organizations and institutions of national interest. From now on I will take examples from conditions in Sweden, from the National Archives, from the regional archives of northern Sweden, and from the "landsarkivet", the regional archives at Härnösand.

In the rich collections of the National Archives you will find documents from activities which concern almost all aspects of life in the Arctic. In the archives of The Ministry of Justice you will find information about the courts and the power of judging. The source material in the archives of the Ministry for Foreign Affairs is of great interest for researchers. In those archives you may find information about adjustment of frontiers and international relations in the arctic area. Documents concerning social conditions of the original population of the area may be find in the archives of the Ministry of Health and Social Affairs. The important questions about communications in the arctic area and between the countries of the Arctic get an extensive illustration in the archives of the Ministry of Transport and Communications. Because of the special economic conditions in the Arctic, e. g., low degree of industrialization and massive unemployment, you can expect to find important information about such questions in the archives of the Ministry of Finance. The matters of education are of immense importance for the development of an area. The matters of university education in the Arctic, of the compulsory educational system and especial questions about the schools for the original polulation, the Lapps, may be studied in the archives of the Ministry of Education and Cultural Affairs. The hard climate in the Arctic and another special conditions bring about that the agriculture in northern areas often must be supported by special measures. In the archives of the Ministry of Agriculture you will find a wealth of information about these matters. We all know that unemployment and matters about the labour-market are important questions for arctic areas. It is natural to direct the researchers in those fields to the archives of the Ministry of Labour. The Swedish state has during along time carried on an active policy of industry in the arctic region. Information about this policy is found in the archives of the Ministry of Industry. The environment of the Arctic is, for many reasons, very susceptible to encroachment and pollution. Matters about the environment in the Arctic and research about the process of change in this area may find research material and answers in the part of the governmental organization that handles questions about environment, e g in the archives of the Ministry of Environment and Energy.

In Sweden, the ministries of the government have executive authorities, e.g., civil service departments, which are given the task of carrying out the decisions of the parliament and the government. Here I may mention the following authorities, which have archives of great importance for arctic research in different areas, namely the National Board of Health and Welfare, the National Social Insurance Board, the Post Office Administration, the Telecommunications Administration, the Swedish State Railways, the National Road Administrations, the Board of Civil Aviation, the Board of Customs,

the National Tax Board, the National Board of Education, the National Board of Agriculture, the National Board of Forestry, the National Board of Fisheries, the National Labour Market Board, the Forest Service, Statistics Sweden, the National Environment Protection Board, and the State Power Board.

In respect of the Swedish part of the Nordkalotten, e.g., the county of Norrbotten, the source material of state agencies from the oldest time and up to the twentieth century is collected in the regional archives of Härnösand. In the county of Norrbotten you will find source material in the archives of the popular movements and in the archives of the local authourities, of the county council, and of private enterprises.

In the regional archives of Härnösand you will find the source material from the ecclesiastic authorities in the county of Norrbotten, including the material from the national registration, which is essential to almost all research. Furthermore you will find the judgement books from the courts, the estate inventory deeds and all those documents, which form the legal base for ownership of land and water.

In the regional archives you will also find the material from the county administration. In old times the county administration dealt with all administrative cases that were not ecclesiastic or judicial. Even in the ecclesiastic and judicial area the county administration had a certain competence. In the archives of the county administration you hence will find material which gives a panoramic view of the life of a whole part of the country. The rich source material about the life of the Lappish inhabitants is of special interest. In the archives of special authorities, for example lappfogdar (sheriffs of the Lapps), agriculture administration , and board of the Lappish schools you will find information about the conditions of the Lappish people and about the cultivation circumstances in the arctic regions. When it concerns environmental issues the information in the archives of the forest administration and of the vattendomstolar (courts of the water affairs) form an important base for research. In the private archives from Norrbotten in the regional archives the perspectives of companies and private persons are highlighted.

The possibilities of research and information retrieval about the arctic regions in the different archives are too little known to researchers and others. This depends partly on the fact that important archival material for the arctic regions is kept far from these regions. Often you will find the material in the capitals of the different countries or in major administrative centers in the southern parts of the

arctic or subarctic regions. At present the regional archives in Härnösand work with a survey over the source material to the history of the Swedish part of Nordkalotten. In the long run it is an important task for cooperation in the arctic regions to producce a data base with a survey of the content in the different archives, which keep source material from these regions. In such a data base you would also be able to find out the possibilities for research that you have available in the different holdings, and also a guide on how to do research in a number of subjects, which are typical and important for the Arctic.

Bibliographic instruction in a cross-cultural classroom

Rheba Dupras by Sharon West
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The Rural Alaska Honors Institute (RAHI) is a program designed to help rural Alaskan high school students improve their academic and social preparation for college. Starting in 1983, each summer approximately 40-45 selected rural high school students have come to the University of Alaska Fairbanks campus for six weeks to take several specially-designed courses, including instruction in the use of a university library. Most of the RAHI students are Eskimos, Indians, or Aleuts who attend very small rural high school (schools of 75 students or less in villages of less than 300 people) and who have not had opportunities to develop basic library use skills. The objectives of this library instruction have been: (1) to introduce the principles of library catalog organization, especially subject access, (2) to teach the use of call numbers, (3) to teach the use of periodical indexes, and (4) to encourage the students to develop the abilities to express their information needs to librarians who may be strangers to them.

During the first two years of the program the library instructors (including myself) used traditional teaching methods: lectures, recitations, and discussions. Despite overall improvement in their skill level, the students did not respond well to these methods. They complained of boredom, too much talk and too little activity during class, and too much abstract description of catalogs, indexes, and bibliographies. The library instructors were teaching primarily native students, and we learned to recognize cultural influences upon their learning styles. After talking with other teacher who had rural teaching experience and reviewing the literature on teaching native Americans, I as the RAHI library instructor for 1985 and 1986 changed the teaching methods in the library skills course to reflect two significant values of Alaska native cultures: information must be presented in practical rather than abstract terms, and social harmony is valued above task orientation. Therefore, with the revised methods lecture was seldom used, only a few questions about assigned readings were asked in class, and all concepts were explained through demonstrations and reinforced by immediate practice. Cooperation was emphasized instead of competition by having students frequently work in small groups, and students were motivated through personal attention.

The following are examples of some of the class activities developed as part of the revised teaching methods. When studying periodical indexes, students used actual newspaper articles and worked in small groups to identify indexable concepts, names, and places not readily identifiable in the headlines. Then the groups explained the content of their article and the reasons for their choice of index terms to the rest of the class. Students worked in groups of 3 or 4 to put sample call numbers in correct order. Each member of the group also had to explain the rules applicable to their samples. Each student brought a book and a xeroxed magazine article to class to practice bibliographic citation format. Student were given assignments to complete in the university library. I enlisted the help of other RAHI staff to provide individualized help to students during evening study halls in the library. I tried to motivate the students by getting to know them and by recognizing their efforts to please me. At the end of two years using these "culturally sensitive" methods, I evaluated their effectiveness by examining the students' work on assignments, pre-tests and post-tests, student evalutions of the instruction, recommendations made for each student at the conclusion of the program, and observations made for each student at the conclusion of the program, and observations from the rest of the RAHI staff. The students who were taught by the revised methods showed greater overall improvement, including improved ablilities in using subject catalogs and periodical indexes, than those taught through traditional methods.

On the post-tests, 94% of the students taught through the traditional methods showed improvement, while 89% of the students taught through the revised methods showed improvement. This may not be a significant difference in overall improvement because the degree of improvement was higher with the revised methods. The number of students who improved their scores by 21-30 points (on a scale of 1-104 points) almost doubled with the new methods, and the number who improved scores by more than 31 points nearly quadrupled. With the tradtional methods, almost half the students only improved by 10 points or less, but with the revised mathods over half improved by 21 points or more.

Examination of the students' evaluations of the instruction revealed no significant differences throughout the four years in response to questions about their confidence in using libraries and their level of comfort in asking librarians for help. However, when asked to rate the course and the instructor, students responded much more positively to the culturally sensitive methods.

Evaluation statement:
This course is among the best you have taken.
traditional methods44% agreed
revised methods71% agreed

Evalution statement:
This instructor is outstanding.
raditional methods50% agreed
evised methods83% agreed

This study is not a model of empirically-conducted research because it is problematic to examine assignments, pre- and post-tests, evaluations, and recommendations which were not designed for this use. However, there is reasonable evidence that the changes in methods did help to make this course more effective.
At the end of this study, I saw two areas which needed more attention: (1) library work needed to be better-integrated into the other RAHI courses, and (2) because the students bonded so closely with their library instructor, they asked few questions of the reference librarians, which hindered the achievement of the fourth instructional objective (developing ability to express needs to librarians they don't know).

From 1987 through 1989 RAHI library instruction underwent more changes. At present, students no longer take a separate library course. Instead, one librarian works with the other RAHI instructors to integrate library use wherever it naturally fits into the courses they teach. This library instructor also works individually with students as they express a need for help during their study time. This builds upon students' ablilities to learn from demonstrations and immediate practice in an atmosphere of cooperation. It also seems to help them build confidence in asking for help from librarians who are strangers to them. It does not provide a structured explanation of principles of library organization, nor does it ensure that all the students reach a minimum basic level of understanding. But it does respond to individual needs and learning styles in helping prepare students to use a university library.

The Bibliography of Alaskana and the 1989 Prince William Sound Oil Spill

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When the oil tanker EXXON VALDEZ hit Bligh Reef in Prince William Sound on March 24th, 1989, little did we know how information about that accident would spill into our database, the "Bibliography of Alaskana." Nor could we anticipate the diversity, quantity, or quality of that news and information. Would oil spill information pollute our database?

The Bibliograpy of Alaskana

Prior to 1969, the library staff of the University of Alaska Fairbanks Rasmuson Library was aware of the limited access to its periodical and serial holdings. Students, faculty, and researchers wanted current Alaska and polar information quickly from magazines and journals, few of which provided quarterly or annual indexes if at all; the time lost awaiting indexes greatly decreased the value of the information. In some instances when available, the depth of such indexing proved inadequate for northern specialists. State and university publications, organizational newsletters, regional journals -- all contained information of importance but of decreasing value over time due to lack of access or inadequate indexing. The problem was compounding as increasing numbers of publications were received.

In 1969 the "Readers Services Department" decided to compile an index to the Alaska and polar-related materials received by the Rasmuson Library with the first index produced in October 1969 by Thomas Allsen. Called the "Bibliography of Alaskana," "BibAk" was a monthly typed list of articles arranged under broad subject headings; copies were made and distributed throughout the Library. This procedure continued until 1973 when Don McWhirter of the University business office recommended computerization to provide cumulative indexing. Alan Schorr was responsible for "BibAk" when its first computer-generated issue was produced in 1974 on the University's main frame Honeywell computer; it continued in that format until 1979.

The computerized format broadened access from limited subject headings to include author, and title keyword; "BibAk" came in two sections--citation and index. These were compiled into a 1969-73 cumulative volume by Joseph A. Burke who coedited "BibAk" with Schorr until 1974. Janet G. Burke then assumed the editorship, and in 1977 a new computer program merged the citations and indexes. Brenda S. [Artman] Knavel became editor in 1978 and continued until a 1983 Rasmuson Library reorganization when Marnie Corwall assumed the editorship (Hales, 1990).

During this period the "Bibliography of Alaska" underwent significant changes. Now a part of the Rasmuson Library "Gnosis Information System," BibAk was on-line and accessible from multiple locations. Indexing refinements incorporated Library of Congress subject headings and special local terms. These changes substantially increased "BibAk" capabilities and user access.

During 1985-86 the University of Alaska system experienced a major reorganization which included the Rasmuson Library. In 1986 Marnie Cornwall continued as the "Gnosis" manager, and the "BibAk" editorship transferred to Pauline Gunter as part of a broad "Alaska Information Project" adding specialized Alaska and polar regions monographs and micrographic materials to "BibAk." During this period, significantly greater polar coverage was undertaken, particulary on Canada (Gunter).

In 1987 I became editor. During subsequent years the "BibAk" scope has broadened from primarily the social sciences to include the physical sciences; geographically the previously widened scope was continued to include more of the polar regions. In 1989 updated VTLS software added keyword and Boolean searching to previous subject, author, and title capabilities.

Currently, "BibAk" is staffed by Leo Kelly, Student assistant; Raynetta Bailey, Indexer; and Ronald Inouye, Editor. Four hundred and forty-four periodicals including the major international polar journals received by Rasmuson Library are reviewed, and approximately 5,000 citations are entered annually. Articles are entered into the database within 24 hours of receipt and are available online within 4 days. It contains over 16,000 citations. While primarily designed to serve Rasmuson Library and other University of Alaska library patrins, "BibAk" is available free to users locally or internationally with dial-in capability.

The 1989 Prince William Sound Oil Spill

When the EXXON VALDEZ oil tanker tragedy occurred, the event unfolded as a news story. Investigations of the accident and subsequent clean-up raised questions of jurisdiction and fiscal liability. Native communities, fishermen, cannery workers--the human dimension of the spill's effects later became the subject of reporting and research after the initial coverage of the oil's environmental effects on fauna and flora. Prior to the EXXON VALDEZ oil spill, the only other major northern oil spill "BibAk" listing was the "Baffin Island Oil Spill Project" research published in Arctic (Vol. 40, Supplement 1, 1987). Alaska librarians reacted swiftly to the Prince William Sound oil spill and via serveral state-wide teleconferences assessed instate collection for scientists as well as the general public (Sourdough, Summer '90, pp. 5-10)

With extensive litigation arising from the oil spill, the library community should join their science counterparts in monitoring the oil spill information. During the recent "Arctic Science Conference" the scientific comminity voiced professional and ethical concerns regarding the impoundment of spill data for litigation purposes by state and federal agencies as well as the oil industry. Scientists are unable to review previous oil spill data for current and future research.

The "Bibliography of Alaskana" has provided a cumulative listing of the publicly available Prince William Sound oil spill literature. Beginning rather slowly, 2 months after the spill, "BibAk" contained 21 citations ("Global Change: Proceeding...", p. 16). In September, 6 months after the spill, there were 79 citations (Sourdough, Fall 1989, p. 9). The subsequent coverage has increased substantially; as of May 10th, 14 months later, 436 citations in the following primary subject headings are available (followed by the number of articles):

Exxon Valdez (Tanker)	(171)
Hazelwood, Joseph, Captain	(54)
Oil Spills -- Prince William Sound	(211)

Major oil spill articles appeared in many sources: local, state, national and international periodicals. "BibAk" captured stories from weekly news sources as diverse as Time and the British Economist, and from in-depth choronicles like Rolling Stone (Dec. 14, 1989) to pictorials like National Geographic (Jan, 1990). One specialized series entitled the "Oil Spill Reporter" lasted but 3 issues and yet provided significant essays on the significance of that tragic event in Prince William Sound.

With inspiration from Nita Cooke's 12th Colloquy poster session of Arctic cartoons, this author collected oil spill cartoons; these add another dimension to the news stories, poetry, photographs, essays, editorials, legal suits, videotapes, etc., which documented the oil spill.

In retrospect the tragedy of the 1989 Prince William Sound oil spill of the EXXON VALDEZ has provided an unfortunate but yet significant topic now well captured in the "Bibliography of Alaskana" (and polar regions). We invite you and your patrons to assess the quantity and quality of that oil spill information.

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Designing a Canadian Polar Information System

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Introduction

Among the major impediments to polar research both nationally and internationally are fragmentation and isolation. In the 1987 report Canada and Polar Science (Adams et al., 1987) it was stated that a common theme of complaint running through many of the submissions to the authors "was the lack of the contact, information and coordination within the northern science community." This general feeling of isolation and fragmentation was also evident in the field of information systems. While it was recognized that a number of specialized arctic-oriented databases and bibliographic systems containing polar information existed, the lack of coordination and compatibility between these systems made it very difficult for researchers to identify current research and findings. Canada and Polar Science recommended the establishment of Canadian Polar Information System (CPIS) to coordinate the retrieval of this information.

The Boreal Institute for Northern Studies (Boreal) and the Arctic Institute of North America (AINA), as producers of the two largest Canadian polar databases, became keenly interested in the creation of a CPIS. Believing that the needs of Canadian polar researchers would be best served by a single national database with numerous contributors, Boreal and AINA have spent a considerable amount of time over the last two years working towards the design of such a system. While the databases of these two institutes (BOREAL and ASTIS) could serve as the core for a CPIS, the development and success of a CPIS requires the contributions of other polar information centres and users from across the country. These contributions include the opinions of users from across the country. These contributions include the opinions of users and experts during the design of the system, and, ultimately, the contribution of records to the established database.

A number of important developments have taken place. In September 1988 a meeting was held in Yellowknife to discuss the needs of users in the NWT and possible designs for a CPIS.

In November 1988 the Circumpolar and Scientific Affairs Directorate, Department of Indian Affairs and Northern Development (DIAND), released the report Enquête sur les Collections Nordiques au Québec (Robitaille, 1988) which examined northern library resources in Québec. Two workshops were held at Université Laval in March 1989. The second of these two workshops brought together Boreal and AINA, four Quebec universities, and DIAND staff to discuss Quebec participation in a CPIS. In April 1990 a workshop held in Whitehorse, Yukon, resulted in the establishment of a group to examine northern information resources in that region and methods for Yukon participation in a CPIS.

The Laval meeting was a particularly critical one in the development of a CPIS because it was at this meeting that a working group of five universities was established to refine the design of a CPIS. It was also at this meeting that four major questions relating to the design of a CPIS were identified. These questions were:

-What subject and geographic access methods should a CPIS use?
-What organizational structure should a CPIS have?
-Have any of the needs of the potential users of a CPIS been overlooked?
-What technical design, including record formats, network structure, software, hardware, and procedures, should a CPIS use?

Funds from the Circumpolar and Scientific Affairs Directorate have since allowed the completion of the first two studies. A proposal for the third study has been submitted. The results of the first two studies will be outlined later. First, a brief synopsis of the design of a CPIS will be presented.

Design

A CPIS is aimed at anyone with a need for information about the polar regions. The envisioned users include researchers and decision-makers in government and industry, faculty and students at educational institutions, native organizations, public interest groups, and members of the public. A CPIS must be designed for both sophisticated and novice users. Assistance in conducting online searches must be available.

The types of information to be included in a CPIS will depend on the amount of funding available. A CPIS will certainly contain bibliographic information, i.e., citations to information in printed form. When possible, citations will be accompanied by annotations or abstracts, and eventually some full text may be included.

Multiple location codes will be included whenever possible, and document delivery is a long-term objective. Descriptions of research projects will also be included in a CPIS, thus filling the gap between initiation of research and published results. A CPIS should also contain a directory of Canadian polar experts and a directory of organizations. Numeric data will not be included, although references to significant northern database could be included in order to lead researchers to this type of information. The possibilities of including a Geographic Information System, electronic mail or computer conferencing facilities in a CPIS were considered and rejected.

All subject areas relating to polar regions will be covered in a CPIS. The top priority will be to include information relating to the Canadian North although some non-Canadian polar literature will be included. It is hoped that links with other international polar information systems will be developed, thus making all polar literature easily accessible. The first priority of a CPIS will be new information; that is, information produced in the years after a CPIS begins operation. Older material will be included as funding permits. Funding will also determine the comprehensiveness of a CPIS. Our estimates regarding the volume of Canadian polar information to be included in a CPIS are:

10,000 bibliographic items per year
1000 new polar research projects each year
2000 polar experts
200 organizations and agencies
1000 numeric datasets

In terms of products and services, it is expected that a CPIS will produce an online database, a CD-ROM database, a printed current awareness bulletin, specialized bibliographies, online searching by CPIS staff and sub-sets of the database in machine- readable form. An SDI service and annual printed bibliography may also be available.

Because Canada is a bilingual nation, a CPIS will support both French and English. The extent of support in both languages will depend on funding. Standards set by the National Library of Canada will be followed. Native language information will also be included, but again the extent of support will depend on funding levels.

Backround Studies

As previously mentioned, the Laval workshops identified four questions which were to be examined in detail in order to refine the design of a CPIS. The first question related to the methods of subject and geographic access. Successful retrieval from a CPIS, and therefore the success of a CPIS as a whole, depends on the choice of effective methods for subject and geographic access. In a DIAND-funded study four different subject access methods and five different geographic access methods were examined in detail. The subject access methods considered were: no controlled vocabulary, a theasaurus, Library of Congress Subject Headings, and the Universal Decimal Classification for use in Polar Libraries. The geographic access alternatives considered were: no controlled vocabulary, a thesaurus, the Universal Decimal Classification for use in Polar Libraires, latitude and longitude, National Topographic System map sheet numbers, and certain combinations of two of the other alternatives. An interim report describing these alternatives was distributed to 17 information specialists, who voted overwhelmingly in favour of thesauri for both subject and geographic access. Hopefully, the development of such thesauri is an area in which international cooperation can take place.

A second backround study, also funded by DIAND, examined how a CPIS will be organized and managed, and proceeded from the assumption that a CPIS should make use of existing Canadian polar information centres in order to take advantage of current funding, expertise and databases. The study included an analysis of the decisions and tasks to be performed during the design, implementation and operational phases of a CPIS. Since a CPIS will require a mechanism to collect information from a large number of existing information centres , the study concluded that there should be "production centres" and "contributing centres." "Production centres" are to be chosen on the basis of existing resources and capabilities to undertake the selection, standardization, and entry of records into the CPIS database, as well as undertake other responsibilities for the system as a whole. "Contributing centres" will forward records to a production centre for standardization and entry. The study recommended that initially there should be between three and five production centres, to be chosen by the proposed Canadian Polar Commission, and that the development of production centres in northern Canada should be encouraged.

The second background study then presented three possible organizational stuctures to 17 experienced information specialists. The alternative chosen by this group would see an Information Committee of the Canadian Polar Commissiom created to manage CPIS. It would consist of the following individuals:

- two members of the Polar Commission.
- the executive officer of the Polar Commission
- the heads of each of the CPIS production centres
- one representative of the CPIS contributing centres.

The Information Committee would assume broad responsibilities for policy- and decision-making over the whole range of activities involved in setting up and running a CPIS. Specialized expert committees could be constituted by the Information Committee as necessary.

Two background studies remain to be done. The background study on user needs will likely be initiated this summer. The last background study, on the technical design of a CPIS, will be undertaken as late in the design process as possible since technologies are continually changing.

Cost and Funding

The cost of a CPIS will, of course, depend on the ultimate design of the system. Depending on a number of variables, the cost could range from $500,000 to $2,000,00 per year. Funding will have to come from a variety of sources. A CPIS will attempt to recover as much as possible from the sale of products and services. It is estimated that eventually as much as $50,000 per year could be recouped through sales. It is also assumed that production centres will bring some of their own funding to CPIS. Some revenue will also be obtained from specialized bibliographies. However, a CPIS will require a major source of core funding such as the government of Canada through the Canadian Polar Commission, or a combination of federal, provincial, territorial, and private sector sources.

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Canadian Locations for International Polar Science Literature

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Abstract

One of the questions that arises in the discussion of polar information in Canada is whether the international literature is easily accessible. To investigate this question for the scientific literature, a random sample of citations was taken from the Bibliography on Cold Regions Science and Technology and checked against commonly available databases of Canadian holdings. Canadian locations were found for 73% of the sample, with 80% of these items being available from a single collection, that of the Canada Institute for Scientific and Technical Information. Of the items with no Canadian location, 85% were Russian language material.

1. Introduction

In 1985, a committee was formed to report to the Minister of Indian Affairs and Northern Development on the "advisability and feasibility of creating a National Polar Institute for Canada." Their report, Canada and Polar Science (Adams 1987), noted the lack of "an outstanding, comprehensive, up-to-date polar library..., a comprehensive, modern, multi-disciplinary information system supporting polar research activities; a systematic repository of research on polar information outside Canada, an institution or body mandated to be a source of publicly-accessible information on the Canadian North and other polar regions" (p. vii) and stated that this affects the quality of polar research in Canada possibly by contributing to the "dismemberment and inaccessibility of information about current research and its findings"(p. 88). Although there is still no "outstanding, comprehensive up-to-date polar library in Canada" the question can be asked whether international polar literature is available in Canada and how easily accessible is it? Does the lack of a polar library necessarily mean a lack of access to international polar literature?

The catalogues of a large number of Canadian libraries are available to people who can use the Datapac telecommunication s system. It seemed worth investigating whether this collection of catalogues could provide locations for polar science literature and whether a single collection could

provide all or most of the polar information researchers might need. In particular, this study asks whether the national science collection at the Canada Institute for Scientific and Technical Information (CISTI) could satisfy these needs? If there was a gap in the polar science literature (either in Canada or at CISTI), did it have any particular feature?

2. Methodology

Four hundred citations were selected randomly from the Bibligraphy on Cold Regions Science and Technology v. 32-41 (1978-1987). This bibliography was chosen because it is international in scope and covers a wide range of scientific disciplines relating to polar regions. A sample size of 400 citations was used because it could be searched within a reasonable time and it provided a confidence interval of 6 percentage points at the 80% level (or 9 points at the 95% level) which seemed to be sufficiently accurate. Also, to reduce the confidence interval by any appreciable amount (say to 4 percentage points at the 80% level) 1000 citations would have had to be checked. The increased level of confidence did not warrant the additional resources necessary to check the extra citations.

Each citation was first checked to see if the item could be found in the CISTI databases: CISTIMON, which is the catalogue of the CISTI monograph collection from 1978 on and CISTISER, which lists the serial titles held by CISTI. If that failed, citation was checked on UNION, the Union List of Scientific Serials in Canadian Libraries and NTIS (the National Technical Informatiom Service, a database listing United States government-sponsored research, development, and engineering reports. Any English language titles not yet found were then checked on BOREAL, which includes material catalogued by the Boreal Institute for Northern Studies since 1977. These five databases are all searchable using CAN/OLE, an automated informatiom storage and retrieval system operated and maintained by CISTI. The NTIS database was included because the CISTI collection includes almost all the documents listed in it so the database serves as an index to that part of the collection.

The remaining items were checked in four non-CAN/OLE databases. The National Library of Canada maintains a database using DOBIS (the Dortmunder Bibliothekssystem) which includes records from the U.S. Library of Congress and the National Library of Canada; serves as the catalogue for a number of government libraries (including CISTI) and gives Canadian locations for items reported to the National Library by other libraries. The database maintained by Utlas Inc. includes the holdings of hundreds of Canadian university, public, and special libraries.

The Arctic Science and Technology Information System (ASTIS) database is compiled by the Arctic Institute of North America and gives locations for most of its approximately 30, 000 items. The microfiche version of this database was searched because the searcher was not as familiar with searching it online so it was less expensive to use the microfiche version. The database of the Ocean Engineering Information Centre (OEIC) at the Centre for Cold Ocean Resources Engineering is now searchable online using a modem and dialing a toll free number so it was also searched.

A location was considered to have been found if there was a bibliographic record with a holdings statement showing that the issue or volume being checked was held by a Canadian library. Once a location was found, the search was stopped. This was done as a simulation of an interlibrary loan procedure, rather than an investigation of the presence of a record for each item in each database. For Russian language monographs, both English and Russian titles were searched using truncation where possible as well as the editor or author's name. For Russian series, the title, corporate source and author were searched as appropriate. Reports were searched by author, series title, report title and corporate source.

3. Results

Canadian locations were found for 294 items out of 400. CISTI was a location for 236 items. Of the 106 items for which no location was found, 90 were in Russian, 11 were in English, 3 were German and there was one each in Italian and Japanese. Subject areas of items not found included soil (15), snow (11), construction (10), ice (6), climate (5), swamps (3), permafrost, forestry, mapping, environment, military, icebreaking, remote sensing, avalanches. More monographs than serials were not found.

In percentage terms, there were locations for 73% of the items. This can be generalized to say that for 18 of 20 possible samples from the population, locations would be found for 70-76% of the items. CISTI was a location for 59% of the items or 56-62% for 18 of 20 samples. Of the items with Canadian locations, 81% were available from CISTI. This includes 70% of the Russian language items, 84% of the English and 67% of the other language items.

Normally CISTI is able to fill 80% of the requests it receives for loans or photocopies (CISTI, 1989). What might account for this lower than normal success rate for polar science literature? In general, libraries will not send requests to CISTI for items they know will not be there, so any check of a

list of items against the CISTI collection is liable to produce a somewhat lower success rate than the fill rate reported by the document delivery section. However, of the items not found, 85% were in Russian, so language of publication seems to be an important factor. This can be further seen in the fact that 80% of the English language items were available from CISTI compared to only 30% of the Russian language items. All other languages together formed only 6% of the sample. CISTI was a location for 62% of the items in the other languages, which included German, French, Italian, Japanese, and Chinese.

4. Discussion

The results indicate that polar science literature in English is as readily available from CISTI as any other type of science literature. The recent material in the CISTI collection (since 1978) is catalogued on CAN/OLE and DOBIS. CISTI accepts requests for loans, photocopies and information from anyone in Canada. This would argue that polar science literature, at least such literature as is represented by the Bibliography on Cold Regions Science and Technology, is reasonably accessible from a single collection. The exception is Russian language material. Here two collections, those of CISTI and the University of Toronto, combined to provide locations for 39% of the Russian language items in the sample (89% of those that were found in Canada).

How important is the fact that there was no Canadian location for 56% of the Russian language material? There are a number of considerations. One is the undeniable quantity of Soviet experience in dealing with practical problems in the north (see, for example, Armstrong 1979). To the extent that this experience is reported and analyzed in the scientific literature, it is a resource that people in Canada certainly need to tap.

Another consideration is the extent to which Canadian researchers are able to deal with information in Russian. It can be assumed that Canadian polar scientists are not vastly different from the British scientists surveyed by Ellen (1979). In that study, only 7% of the sample claimed to be able to read Russian at all, 0.8% with fluency. Bichteler and Ward (1989) report 66% of geoscientists surveyed do not use foreign language literature in any language. Given this small audience, it is not surprising that libraries do not have complete collections of Russian language material despite its potential value. Instead, people rely on the research from the Soviet Union which is available in English, either in translation (7% of the English language titles found at CISTI were translations from Russian for instance) or in the form of conference papers given in English by Russian-speaking scientists.

In conclusion, access to well-known international polar science literature does not seem to be a particular problem for people with access to a library or even without access to a nearby library since CISTI will lend directly to anyone requesting information. However, we cannot conclude from this that a polar library would not be necessary or useful. A couple of examples from my collection illustrate areas where a polar library could be helpful.

A quick survey of the conferences in my collection revealed that for 25 conferences on polar topics held in Canada from 1978 to 1987, eight are not indexed in either the ASTIS Bibliography or the Bibliography on Cold Regions Science and Technology. These two good sources provided no access 27% of the papers from these conferences. Also a quick review of items cited in the papers at a recent conference, Icetech '90, shows no obvious location for about 23% of the items cited. The common types of missing items are proprietary reports, contract research for government departments and less well known conferences. Indexing of Canadian conferences and collecting "grey literature" are functions that could usefully be provided by a polar library or by expanding the resources available to the network of existing polar libraries that already do work in these areas.

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The Library of the British Antarctic Survey, Cambridge

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Abstract

The history of the British Antarctic Survey, and of its predecessors, Operation Tabarin and Falkland Islands Dependencies Survey, is outlined. The objectives, stock, and organization of the Survey's library and the services provided are described. In addition to the main library at its headquarters in Cambridge, the Survey maintains small scientific libraries on each of its five bases. The problems of remote information provision are discussed.

British Antarctic Survey: a brief history

The British Antarctic Survey (BAS) is one of the foremost contributors to international research in Antarctica. The Survey had its origins in a small-scale wartime naval operation, Operation Tabarin, which was initiated in 1943. Although Operation Tabarin's purpose was strategic it had from the outset a strong scientific slant as many of the participants had previous Antarctic experience with the Discovery Investigations, British Graham Land Expedition, etc. In 1945 the scientific work of Operation Tabarin was transferred to the newly-formed Falkland Islands Dependencies Survey which in 1962 was renamed the British Antarctic Survey.

The scientific programs of the Survey gradually expanded, particularly during and after the International Geophysical Year 1957-58, and then more dramatically from 1982 following the Falklands conflict. Today the Survey employs over 400 people, maintains five permanently manned bases in the Antarctic and Sub-Antarctic, and operates two ships and four aircraft. Six scientific Divisions (Geology; Geophysics; Ice and Climate; Upper Atmospheric Sciences; Marine Life Sciences; Terrestrial and Freshwater Life Sciences, Human Physiology and Medicine) carry out a wide-ranging programme of research in the Antarctic. Each division has a nucleus of permanent staff, plus a number of contract scientists employed to work on particular projects. Contract scientists conduct field work in the Antarctic for up to two years and then return to the UK for a period of laboratory analyses and writing-up. Scientists on the permanent staff visit the Antarctic during the austral summer, usually once in every two or three seasons. During its first thirty years of existence the

Survey did not have a library as it was not until 1976 that all the UK-based activities of the Survey were brought together on one site. Before then there had been a small administrative headquarters in London while the scientific sections were attached to various university departments and research institutions throughout the UK where our scientists used the local library facilities.

When in 1976 all sections of the Survey moved to a new purpose-built headquarters building in Cambridge a library was established, although not in purpose-built library accommodation, and a professional librarian was appointed. Each scientific section brought with it a small number of books and, in the case of the biology sections, a substantial number of offprints, but essentially the library started from scratch. The library was deliberately kept small with only core material being purchased, partly because of easy access to the Scott Polar Research Institute and other university libraries in Cambridge and partly because of limited funds. The increased funding of BAS following the Falklands conflict led to a substantial increase in the number of scientists employed. To accommodate these a new building was necessary: this was completed in 1988 and includes office and laboratory space, conference and catering facilities and surpose-built areas for the library and for the Survey's archives.

BAS Library: objectives, stock, orzanisation and services

Some basic statistics:

Staff: One professional librarian (full time)
One library assistant (part time)
[A second professional librarian (part time) will be appointed later this year]

Budget (1990/91): £34,000 for book and journal purchases, building and inter-library loans (c. 70% of the budget is spent on journals)

Stock (figures are approximate):
5500 books and pamphlets
17,000 offprints **
330 current journal titles
miscellaneous collections, such as Expedition Reports
**The offprints collections is especially important as the BAS Library, though small, is very much multi-disciplinary and we therefore cannot hope to take all potentially relevant journals.

The aim of the Library is to obtain all core material and as much other relevant material as possible and to organize this material in such a way that the information can be easily retrieved.

The BAS library does not hold, nor do we aim to obtain, everything published concerning the Antarctic: for example, little historical material is held. Our acquisitions policy closely follows the needs of the Survey's current scientific programs and it is therefore essential for the librarian to liaise closely with the scientific staff to ensure that the appropriate books and journals are purchased. The principal subjects covered are geology, geophysics, glaciology, climatology, meteorology, upper atmospheric physics, botany, zoology, and marine biology, all with an accent on the polar regions. However, the collections also include much scientific material not related to a particular geographic area, and also material related to non-polar regions where they have some direct relevance to Antarctic research programmes - e.g., material on the geology of the Southern Hemisphere continents which, along with Antarctica, were once part of the supercontinent, Gondwana.

Until 1987 everything added to stock was catalogued manually and classified by UDC. which was thus the means of subject searching. This was fine for the librarian who came to know the UDC. classification numbers off by heart, but not very popular with the users who did not like having to translate their search terms into long and complex numbers! In 1987 the MicroCAIRS software package was purchased and has been used to set up an in-house database to continue (and it is hoped eventually to replace) the old card catalogues. The database allows much more detailed indexing than was possible in the card catalogues: users can now search by author, title, keywords, date of publication, etc. or by any combination of these. Although searching is now primarily by alphabetic terms, every item in the database is allocated one UDC. number indicating its broad subject area which helps overcome the problems caused by the same word being used in many different contexts. (UDC. is also still used, in a simplified form, for shelf arrangement.) Two main search options are available, one menu-driven and thus easily accessible to the novice user. The alternative search option allows one to conduct complex searches but is therefore inevitably less "user friendly". Staff are encouraged to ask for guidance from the library staff before trying this search option for the first time!

The database has a thesaurus facility which has been used to control the form of terms in the index - e.g., American spellings are suppressed in favour of English ones - and to allow searching on a term and all its narrower terms - e.g., for Antarctic place names.

The database also enables one to create "stored profiles" for individual scientists. This is of great benefit in an organization where staff may be absent from the UK for several months at a time and therefore need to catch up on what has been published in their field since they left for the Antarctic. Now one can simply search against their stored profile all records added to the database since their departure and provide a print-out of recent relevant material. This facility is also used to provide staff in the UK with regular personalized lists of references. For more general notification of new material to staff, a quarterly accessions list is produced from the database.

The BAS Library exists primarily to serve the staff of the Survey. However, as our collections grow and as public and scientific awareness of Antarctica increases, the number of outside visitors to the BAS library is also increasing. The 1982 Falklands conflict and the discovery of the Antarctic ozone hole by BAS scientists in 1985 have particularly contributed to this greater awareness.

Problems of remote information provision

I have indicated above how BAS staff may be away from the UK and therefore from the latest information for several months at a time. Each of our five bases has a small scientific library (I am probably the only librarian in the UK who has five sub-libraries she has never seen!) to which new books, etc., are sent each year. Bird Island, South Georgia, receives fairly frequent mail deliveries through the Royal Naval Fleet Auxiliary ships, but other bases can be supplied only during the austral summer when the Survey's two ships are in the Antarctic. The most southerly base, Halley, normally receives only one visit by a BAS ship each year, during January. This means that books for Halley which arrived in the UK library after R.R.S. Bransfield sailed for the Antarctic in October 1989 will not reach Halley until January 1991!

Until the 1980s communication with the bases was very limited. However, in 1983 a satellite link was installed via INMARSAT and it is now possible to contact bases by teleprinter, fax, and telephone. It is also possible to transmit electronic data between the computer at Halley and computers in the UK. Thus, whilst we still rely on our ships to deliver books, periodicals, etc., to the base libraries, papers of direct relevance to current field work projects can be faxed to the Antarctic.

Other BAS information services

Finally, I would like to say a little about two other areas of information provision with BAS, both outside the aegis of the library but which should nevertheless be mentioned in order to provide a complete picture. First there are the Survey's archives which comprise the administrative records and scientific working documents of the Survey from its inception, including the records of Operation Tabarin. The archives have been designated "a recognized place of deposit for public records" by the Public Record Office.

Secondly, there is the Survey's information and public relations section. They are responsible for dealing with general enquiries from the public, particularly from schools, arranging contacts with the press and organizing exhibitions illustrating the Survey's work. A range of information leaflets is available to help the general enquirer: more specialized scientific enquiries would normally be passed on to the appropriate scientist. The section is also responsible for editing and issuing the Survey's publications.

Greenlandica in the Rasmuson Library University of Alaska Fairbanks

C. Eugene West
Elmer E. Rasmuson Library
University of Alaska Fairbanks

As part of its larger collection of Alaska and Polar Regions materials, Rasmuson Library has been actively acquiring monographs and serials about Greenland for about 20 years. This acquisitions program began in answer to user reguests for information about the Inuit/Eskimos, glaciology and geology, climatology, and fisheries of Greenland by our university community. Our goal is to obtain a nearly complete Greenland monographic collection, augmented by a selection of serials and periodicals.

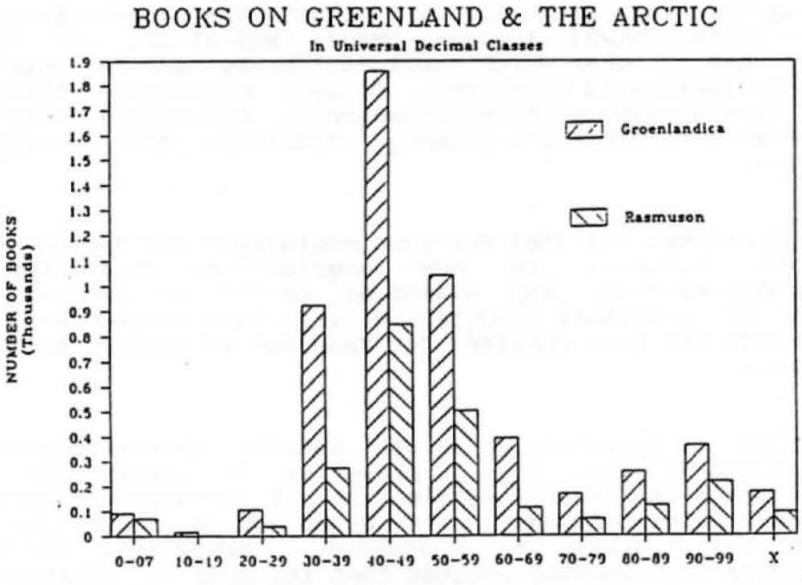
Twenty years ago the potential number of titles and cost of acquiring Greenland materials were within the capabilities of Rasmuson Library physical plant, budget, and staff. It also appeared that no other North American library had developed a special collection on Greenland. Cornell University (Ithaca, NY) had considerable Greenlandic material but only insofar as these related to Cornell's primary objective: its Icelandic collection.

After two decades the need for some evaluation our Greenlandic collection relative to our acquisitions goal became increasingly evident. Any evalution needed to measure the quantity of published monographic literature about Greenland and how much had been obtained for Rasmuson in various subject categories.

Publication of Groenlandica (Nuuk, Nunatta Atuagaateqarfia, 1986), edited by Benny Hoyer, presented an opportunity to proceed with a comparative examination of Rasmuson Library's Greenlandica with holdings in the Groenlandica collection in the National Library of Greenland. Monographs in the Groenlandica bibliography suggest that the body of literature about Greenland totals approximately 7,000 titles. Rasmuson Library holdings were compared following the arrangment of the Groenlandica bibliography; titles published in Greenlandic Inuit dialect separate from general titles published in the Greenland and the Arctic.

The National Library of Greenland has about 2,160 monographic titles in the Greenland Inuit dialect, biligual Danish/ Greenlandic or with substantial sections in Greenlandic (Hoyer 1986, xxi). Rasmuson library holds 18 percent of these or 382 titles. Only 60 Rasmuson titles are fully processed with assigned subject classification. This small number does not lend itself to a breakdown by UDC subject categories and no more detailed comparison is possible at this time. The Alaska Native Language Center on our campus also has about 400 titles. The amount of duplication in these two collections has never been examined.

The Groenlandica bibliography lists about 5,388 titles on Greenland and the Arctic. Rasmuson Library owns approximately 2347 monographic titles or about 43.6 percent.
The table below presents a comparison of monographic titles about Greenland and the Arctic owned by both libraries. Each of the ten major subject categories of the UDC system of classification is illustrated so that relative strengths in each subject are readily apparent.



00-07	General works	60-69	Applied Sciences.
10-19	Philosophy. Psychology.	70-79	Fine Arts. Entertainment.
20-29	Religion.	80-89	Literatures and languages
30-39	Social Sciences.	90-99	History. Biography
40-49	Geography and Travel.	X	Unclassified
50-59	Science and Mathematics		

It is clear that strength of Rasmuson's Greenlandic materials is in the UDC classes: Geography and Travel, Science and Mathematics, and separately, Inuit language materials at 18 percent. Rasmuson has evidently been acquiring broadly across all subject categories but with emphasis on selected subjects. It is uncertain as to whether this emphasis is the result of user demand, reflects the relative publication record of recent years, or the availability of materials offered for sale. Rasmuson Library appears to have developed a good Greenlandic collection in the two decades of acquisition under review. However, it will be many years before Rasmuson has a collection which contains most of the available literature.

This study of monographic holdings compared only those titles held by Rasmuson Library against those owned by the National Library of Greenland. No effort was made to identify materials owned by Rasmuson Library but not in the Groenlandica bibliography. There are undoubtedly additional Greenlandic titles among the 54,000 monographic titles in the Polar Collection the Rasmuson Library which are not in the National Library of Greenland. How many there are is a matter of speculation and time did not permit their inclusion in this evaluation.

In the future, automation of the Rasmuson cataloguing processes utilizing the Western Library Network bibliographic utility may eventually allow determination of strengths and weaknesses of the library's Greenlandic collection periodically. Rasmuson Library also has an automated circulation system, known as Gnosis, which utilizes VTLS software. The Gnosis system should eventually allow determination of use patterns by subject through a study of circulation statistics but this feature is not yet operational.

Research in the Oulu Regional Institute of Occupational Health

Tuula Vauhkonen
Oulu Regional Institute of Occupational Health Library in Northern Finland

The Oulu Regional Institute of Occupational Health was founded in 1973. It is one of the six regional units of the Institute of Occupational Health, which is located in Helsinki. The Institute of Occupational Health is subordinated to the Ministry of Social Affairs and Health, and its functions and finances are regulated by law.

The priority areas of the Institute are:

- prevention of severe occupational health and safety hazards
- prevention of work-related diseases
- development of the psychological working environment
- prevention of new occupational problems
- concrete support and development of occupational health services and occupational safety measures.

These strategic activities are carried out through research activities, training and education, dissemination of information and the provision of advisory services.

The activities of the regional Institutes concentrate on industrial hygienic measurements, advisory services in occupational medicine, training and dissemination of information, and ergonomics. Each regional Institute has specialized in research on some regionally or nationally important aspect of occupational health and safety.

Oulu Regional Institute of Occupational Health acts in northern Finland as an expert institute in occupational health and safety. Oulu Regional Institute has besides specialized in cold research and mining and metallurgy.

Research

The priority areas of research in the Oulu Regional Institute of Occupational Health are work in cold conditions and occupational health and safety in mining and metallurgy industries and in special aspects of occupational health and safety in northern Finland.

Cold research

Cold research in the Oulu Regional Institute is directed to:

- prevention of cold (by technical advice, by clothing)
- cold physiology (adaptation to cold, work in cold)
- diseases in cold (frostbite, vibration, respiratory organs).

Reasons for cold research are the following:

- the need to know the risks involved in working in the cold
- the need to know the safety and health criteria for cold work
- the need to know the optimal temperature conditions for work
- the need to know the meaning of age and differences between individuals in the cold
- the need to know the meaning of diseases and medication for cold work
- the need to know the means to minimize the disadvantages in cold work

The goals of cold research in the Oulu Regional Insitute of Occupational Health are to give basic information to occupational health services and to develop models for prevention of cold disadvantages.

When cold research began it was focused on such things as frequency of cold work and developing necessary equipment to measure and estimate the health effects of working in the cold.

Adaptations to the cold have also been and still are the reason for many research projects. One of the latest projects concerning adaptation to cold climate is focused on the members of the expedition to Antarctica.
Research on physiological problems in different outdoor occupations was completed in 1988.

Effects of the cold on bronchial asthma on track maintenance workers have been studied.

Raymond's disease among snow mobile drivers and track maintenance workers has been studied.

A project of the frequency of conditions resulting from frostbite is one of the research projects going on.

Work clothes suitable for the arctic climate have been developed in collaboration with the garment industry and the first set of clothes has been prepared. This development work is still going on. Thermal physiology of the foot and leg, protective properties of winter work boots and the effect of wind on the transfer of heat and moisture in multilayer clothing have been studied.

A comparative study of measuring methods for research on protective properties of clothing against cold has been studied in collaboration with the Institute of Industrial Hygiene and Occupational Diseases of the USSR, Moscow.

In several research projects local heating systems have been developed to make working conditions in the cold better. The studies have been done for instance in cold halls and in the food industry.

Study of reindeer herders

Health risks, work accidents and morbidity of reindeer herders have been studied in the Oulu Regional Institute Occupational Health. Reports on exposure to vibration when driving snow mobiles, accidents happening in reindeer herding, and respiratory diseases among reindeer herders have been published.

Study of metallurgy

Development of biological and industrial hygienic monitoring methods for arsene and polycyclic aromatic hydrocarbons (PAH) has been going on in the Oulu Regional Institute.
The Oulu Regional Institute has also participated in a study of the Institute of Occupational Health, where they study the exposure of Finnish workers to chemicals.

"Studies in Polar Research" - a polar monograph series

D W H Walton
British Antarctic Survey
Natural Environment Research Council

Introduction

In all fields of human activity the written word has played some part. In research it is the predominant form of communication and books and journals provide the information rock on which all experimental and investigative activity is based.

In the academic fields of science, law, politics and the humanities documentation of results is principally by journal articles, symposium proceedings and books. This last category comprises a spectrum of material from undergraduate textbooks to state-of-the-art technical manuals to research monographs attempting to synthesise available data and indicate future research problems.

The production of research monographs is difficult. The authors require both wide experience in the subject and an ability to synthesise. The books take a long time to write, their market is generally fairly small but they often remain the major reference source in a subject for very many years. They are consulted by many but sold to few!

You cannot write research monographs to make money! Indeed it is difficult even to publish research monographs and make money. What is absolutely certain is that without the purchase of these monographs by academic libraries there would be an inadequate market to support their publication and this crucial part of the academic jigsaw would fall apart.

Many reviews of the latest monographs from international publishers complain of high prices and this has been said both of the commercial groups (Pergamon, North Holland, Elsevier etc) as well as of the academic publishers (Cambridge University Press, Oxford University Press). It is true - they are expensive and librarians might be forgiven in thinking that some publishers are out to exploit the market for all that it will bear.

My intention in this paper is to describe the establishment and development of a series of polar monographs, and explain how and why costs are so high for this type of book.

Remit of the "Studies" series:

In the late 1970s Cambridge University Press (CUP) recognized the rapidly growing international interest in the polar regions. Monographs on polar subjects were being published in many countries by a wide range of publishers but there was no major international publisher who had a clearly defined polar niche in the market.

Discussions between Dr Simon Mitton (then Director for Physical Sciences publishing at CUP) and Dr Terence Armstrong (then Deputy Director of the Scott Polar Research Institute) formulated a remit for a scholarly series which would occupy this niche. CUP already had a variety of discipline defined science monograph series but this was the first with a geographical remit.

The remit agreed was as follows:

"The series is to be international and, where appropriate, interdisciplinary. It scope will include studies in the biological, physical and social sciences. Its aim is to produce books which are fairly short (about 200 printed pages in standard 228 x 152 mm format) with all the necessary illustrative material. They should be appropriate for use by the research student as well as the professional scientist." As we will see later, the remit has developed over the past ten years.

To match the organization of other CUP series an Editorial Board was required. Armstrong was asked to be the first Chairman and to recruit a range of expertise to get the series underway. Although up to eight board members had been originally discussed because of the breadth of the series, in the end Armstrong recruited only six covering botany, geology, glaciology, anthropology and zoology. Both SPRI (T.E. Armstrong, P. Wadhams, B. Stonehouse) and British Antarctic Survey (R.J. Adie) were represented but there were also members from the University of Reading (S.W. Greene), Simon Fraser University in British Columbia (I. Whitaker) and Ohio State University (P.N. Webb). All these members were active internationally and all had considerable experience of editing and writing. All were appointed for a fixed term. The desirability of adequate international representation on the Board was recognized but with meetings always being held in Cambridge this proved to have practical difficulties.

The management link between the Board and publisher was a desk editor at CUP who was responsible for seeing accepted manuscripts through the press and for assisting the Chairman in running the Board. It was decided that proposals could be considered in two forms. Those from authors whose standing and ability was beyond doubt would be assessed on the basis of a detailed chapter synopsis. For junior authors it was expected that some sample chapters would also need to be provided. All Board member would comment on all proposals and, if the specialism was too far removed from the expertise available, an outside opinion would be sought.

Board members were expected to be active in soliciting MSS in their own fields but it was hoped that acceptable unsolicited proposals would be submitted after the series had been publicised. Each Board member was expected to make an active personal interest in ensuring the quality of the final MSS arising from any proposal they introduced. The Board would meet twice a year in Cambridge to discuss policy and progress.

Development

In publishing, especially academic publishing, progress is rarely rapid. Despite initial optimism the series got off to a slow start. Table 1 shows the progress in contracts signed and titles actually published. The delay from conception to publication was over four years for many titles and rarely less than three. It might be assumed that the present difference between the two lines represents titles we still expect to receive but that is not so. All CUP contracts have a manuscript delivery date on them but is liberally interpreted. You do not get the best from academics by hassling them and CUP has a general policy of not pressuring authors. However, initial enthusiasm can evaporate and author's circumstances can change. Periodically the Board reviews progress on all titles under contract and recommends cancellation of those where expectation of delivery has reached initiaty. At present there are 11 titles under contract.

Althought there has never been an actual publishing quota the expectation has always been to try and achieve three or four new titles per year. After a slow start we seem to be achieving that at the moment.

The interdisciplinary nature of the series was part of the original remit and this had developed especially well in law and politics. The titles published so far are grouped by field in Table 2. Biology and ecology is as well represented as law and politics, but there is no anthropology and little earth sciences. The split between polar regions is almost equal with eight Antarctic, seven Arctic and one bipolar title.

Only one conference proceedings has been published and, in general, the series is not seen as the right place for this type of material. At present bibliographies are unlikely to be accepted nor are books with a major illustrative component. In general, historical works have had a harder road to acceptance than mainstream science and bibliographies have been deemed inappropriate. But in a young series policies can and should be kept under active review. An important feature of the series is a commitment to publish translations of important works. This is at present limited to "difficult" languages (i.e. not French, German or Spanish) and so far has produced two biology volumes translated from Russian.

The design of the series has been increasingly formalized over the years. All books carry the series logo but there are two page layout styles. One is for largely narrative volumes, especially legal and political texts, whilst the other is for scientific texts which require considerable numbers of figures and halftones. The books are all printed on coated paper so that halftones can be placed in situ but CUP will not fund any colour illustrations.

Production

CUP is a very large publisher with over 1000 new titles per year. Size breeds organisational difficulties and the rate of publication has often been remarkably slow. Recent internal reorganisation has led to an improvement, with only 8-10 months between receipt of MS and publication.

At present, most of the series books are computer typeset and go through two proof stages. This is expensive and efforts are being made to change this. In theory, books can be set more cheaply directly from author-supplied disks but should anything go wrong the costs of untangling the problem can negate all the savings. Very strict prescription of format and word processing package is essential to make this route useful. Technical improvements in hardware now make it possible for authors to prodice high quality camera-ready copy which again saves money. In future, it is likely that typed manuscripts will be digitised using electronic scanners, saving the direct costs of typing in 100,000 words via a keyboard.

CUP books are not cheap and it is instructive to consider why. Outside the publishing world few people appear to understand the price of a book is calculated.

The critical determinants in the unit price are market size, production costs and print run. In general, the cover price of most of the series books works out at c.10p per page which, for scholary monographs with limited markets, is actually cheaper than a number of other major publishers. How does CUP arrive at this price?

Despite being a charitable institution wholly owned by Cambridge University, CUP has to be run commercially to survive. All titles are expected to cover their costs and a proportion make sufficient profits to fund both the unexpected failures and essential re-investment.

Let us take a book selling at £50. Up to £5 is required by for copy editing and drafting of illustrations, a further £10 covers actual printing costs, the next £10 covers all CUP overheads including advertsing, marketing, warehousing etc. and a further £2.50 is retained as profit by CUP. Of the remaining £22.50 royalties account for £5 and the last £17.50 goes to the bookseller. To ensure adequate repayment of CUP overheads pricing of all titles must include a minimum of £2,700 for this. Thus short run books are especially vulnerable to this "found-end loading" increasing the final cover price.

Obviously, the publisher has certain expectations about market size and responsiveness. These are important in both setting the original print run and considering reprints. At present, initial printings of books in the series range from 700 to 1200. Depending on the rate of sale of the hardback a decision can be taken on the potential for producing either a further short run reprint (150-300 copies) or a longer run of a paperback version. So far, only one series book had gone into paperback.

CUP has no remainder policy, so books remain on the back list until stocks are exhausted. They have titles still in stock printed over 50 years ago! On occasion, the cover price may change, upwards initially but as the book gets older substantial reductions of up to 40% are possible.

How well does the series sell? It depends on the title. Some sell quickly, exhaust the market and fall out of print since their contents have become dated. Others may become the standard reference works for decades to come and will be kept

in print by annual sales of 30 or 40 copies. As an indication, the first volume - Deacon - has sold 1034 copies over six years, whilst Headland, published in February this year has already sold 319 copies.

Finally, what of marketing? All publishers have problems reaching their customers and no more so when the community is as fragmented as the polar one. Overseas offices in New York and Melbourne help to spread the word internationally but even with considerable efforts, international bureaucracy often frustrates sales. For many countries, including those in the EEC and Canada, CUP has considerable customs clearance problems, including in some cases significant import duties. These are strong disincentives to mount displays and organise local warehousing operations. 1992 should see the end of much of this, both in the EEC and in North America, but will some other branch of officialdom find a way to limit the trade in the printed word?

The future

Ten years on, the series has become established with all 15 hardback titles and one paperback currently in print, and a further hardback to be published this year. There is a wide range of books under contact - from the history of Antarctic science to Dutch Arctic whaling - and many more under active development. CUP is happy that the series has achieved its original aims and is now becoming profitable.

More might be achieved if sales were higher. This would both justify producing a cheap paperback version for purchase by individuals and underline the value of the series in the eyes of librarieans. In the averagg medium-sized scientific library these days about 50% of the budget is spent on staff, 40% on journals and only 10% on books. Despite steeply rising journal costs there is a marked reluctance on the part of library committees to cancel journals of even marginal interest. This inevitably erodes the budget for books.

As polar librarians, I assume that all of you can find useful titles in the sries so far, but have you all bought them? The future of the series lies as much in our hands as in those of our contributing authors!

Acknowledgements

I am grateful to Terence Armstrong and Simon Mitton for their help in the preparation of this paper.

TABLE 1

Categozation of published titles

Life Sciences

The Living Tundra - Chernov
Vegetation of the Soviet Polar Deserts - Aleksandrova
Reindeer on South Georgia - Leader Williams
Microbial Ecosystems of the Antarctic - Vincent
Polar Bryophytes and Lichens - Longton

Earth Sciences

The Frozen Earth - Williams & Smith
Antarctic Mineral Exploitation - Orrego Vicuna

Atmospheric Sciences

Arctic Earth Pollution - Stonehouse

Law & Politics

The Antarctic Treaty Regime - Triggs
Antarctica: the Next Decade - Parsons
Transit Management in the Northwest Passage - Lamson & Vanderzwaag
Canada's Arctic Waters in International Law - Pharand
The Age of the Arctic - Osherenko & Young

Others

The Antarctic Circumpolar Ocean - Deacon
Chronological List of Antarctic Voyages - Headland
Ecology of Macquarie Island - Selkirk, Seppelt & Selkirk

TABLE 2

Contracts Issued and Books Published

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Contacts issued	3	7	1	2	8	4	6	1		1
Titles published				1	1		3	7	3	3

Keeping Track of the Antarctic Treaty System and its Related Literature

Janice Meadows
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University of Cambridge

The ATS does not have a secretariat and, as a result, the associated documents and reports issue from a number of places. This paper, designed to help librarians and researchers locate this material, describes the nature and sources of the basic literature.

Though Antarctica may seem remote to those of you whose attentions are fastened on the North, the Antarctic Treaty System (or ATS) may prove particularly relevant as a model for coming cooperation in the Arctic (Beck, 1989). In this eventuality, perhaps Arctic librarians and information specialists will be able to exert some influence in the organization and distribution of the associated literature. The documentation of the ATS, while fairly easy to follow, has a somewhat limited accessibility.

The Antarctic Treaty System refers to the Antarctic Treaty of 1959, related Recommendations agreed subsequently by signatories to the Treaty, and three separate conventions. "It also includes the results of Meetings of Experts, the decisions of Special Consultative Meetings, and, at a non-governmental level, ...the pervasive effects of the work of the Scientific Committee on Antarctic Research (SCAR)" (Heap, 1989). The ATS generates regular and irregular documentation in addition to inspiring a great deal of written commentary. The purpose of this presentation is to describe the organization of the ATS, its offical papers, and how libraries or researchers may obtain access to them.

The Treaty was negotiated in the aftermath of the International Geophysical Year (IGY) of 1957-58 which saw unprecedented investment in Antarctic research and logistics. IGY was a success on the scientific front and as an example of international cooperation, despite cold war politics elsewhere and conflicting sovereignty claims over parts of the Antarctic. In 1959 the Government of the United States invited the other eleven nations who had participated in Antarctic research of the IGY to a diplomatic conference in Washington where the Treaty was negotiated; the original twelve became Consultative Parties. Accession to the Treaty is open to members of the United Nations or to other states by invitation of all Consultative Parties. Consultative status

is dependent upon interest in Antarctica by conducting substantial scientific activity there. To date there are a total of 25 Consultative Parties (ATCPs) and a further 14 states without Consultative status, that is, who have acceded to the Treaty but have not undertaken "substantial scientific activity" in Antarctica. The 39 states participating today in the ATS represent almost 80% of the world's population.

The Treaty provides for regular Consultative Meetings (ATCMs) which are held every two years, hosted by one of the Consultative Parties. During these meetings, which last about a week (and are preceded by a planning or preparatory meeting), delegates representing Consultative Parties meet in accordance with Article IX, section 1 of the Treaty: "for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering and recommending to their Governments measures in furtherance of the principles and objectives of the Treaty." Non-consultative Parties may attend the meetings as observers. The meetings are designated by Roman numerals and the Recommendations reflect that number (Recommendation X-4 being the fourth Recommendation made during the tenth ATCM). The most recent ATCM was XV, held in Paris in October of 1989; by its conclusion the number of Recommendations had grown to 186. The next consultative meeting is scheduled for October 1991 in the Federal Republic of Germany.

These regular meetings are supplemented by Special Consulatative Meetings which are arranged as needed to discuss single issues such as accession to Consultative status of a particular country or special topics in depth; a single Special Consultative Meeting may entail multiple sessions over several years before it is concluded. To date, there have been nine Special Consultative Meetings: seven were to consider advancement from non-Consultative to Consultative status; meetings II and IV were to negotiate the text of the Convention on Conservation of Antarctic Living Marine Resources and the Convention on the Regulation of Antarctic Mineral Resource Activities.

There have also been three "Meetings of Experts" to discuss Antarctic telecommunications. This class of meeting is not restricted to ATCPs and serves an advisory rather than decision-making purpose.

One further component of the ATS is the Scientific Committee on Antarctic Research. SCAR is "a scientific committee of ICSU [the International Council of Scientific Unions] charged with the initiation, promotion and coordination of scientific activity in the Antarctic, with a view to framing and

reviewing scientific programmes of circumpolar scope and significance" (ICSU, 1987). SCAR was established in 1958, also as a result of IGY, and has its own membership of national committees representing the scientific academies of 28 countries; these 28 countries include all 25 of the ATCPs. SCAR and the ATS are "two distinct and separate entities: the first is political and legal, the second scientific" (Headland, 1989, p.22). Thus SCAR is not a creation of the ATS yet it plays an important role within the System, advising but not dictating, in a "mutually benefical relationship" (Zumberge, 1986). Because of this relationship, SCAR publications figure significantly in the task of tracking ATS literature.

Antarctic Treaty System Documentation

The Treaty and all subsequent "instruments of ratification and ... of accession" are deposited in the National Archives of the United States in accordance with Article XIII paragraph 3 of the Treaty. Offical documents are produced in four languages: English, French, Russian and Spanish; each version is equally authentic.

The basic guide to the ATS is the Antarctic Treaty Handbook which was first compiled in 1977 and is now revised after each biennial meeting. Its purpose is to "help those who come fresh to the Antarctic Treaty System to understand how it has developed since 1959" (Handbook, xi). Although it is not an "offical" document, it is recognized by Treaty Parties as the source comprehensive information on the evolution of the system. It is also one of the few ATS documents that is actually "published," albeit in very small numbers.

The sixth edition (1989) of this compendium begins with an invaluable instruction to the ATS and includes the Treaty text, a consecutive list of Recommendations and a list of contracting parties which indicates date of accession and Consultative/non-Consultative status. This introductory material is followed by three sections which illustrate the history of ATS decisions by excerpts from relevant Recommentations. The first, subtitled "General measures," describes the Antarctic environment, facilitation of international scientific cooperation, exchange of information, operation of the ATS, and postal services. Part 2, "Expeditions and visitors," brings together ATCM Recommendations on individual conduct in Antarctica and includes sections on waste disposal, environmental impact assessments, tourism, conservation of living resources and the various protected areas. Part 3, "Other components," presents the text of the three conventions which have been negotiated since the Treaty and concludes with the constitution and membership of SCAR.

The reports of the ATCMs, the Special Consultative Meetings, and the Meetings of Experts form the nucleus of ATS documentation. The host country prepares the final report in the four offical languages and distribute copies to the other members of the ATS. The report summarizes the meeting and includes the offical text of any action, such as a Recommendation, which is taken during the meeting. It does not include the numerous information papers submitted to the ATCM or the preparatory meetings; these are not promulgated. Another category of unpublished material is the Annual Exhange of Information specified in Recommendation VIII-6 which is designed to share details about research expenditions, base personnel, ships, aircraft, communication systems, availability of emergency facilities, etc.

Accessing ATS Documents

The members of the Treaty, sensitive to accusations of exclusivity and secrecy, have long recognized the "desirability of ensuring and facilitating the availability of information about the Antarctic Treaty System" (Heap, 1989, p.1405), discussing the issue as early as 1977 and as recently as 1989 at the XV ATCM. The system which has evolved for public disseminnation of Treaty information must accommodate not only requirements of confidentiality but also the lack of a central bureaucrary to prepare and distribute reports. Both of these issues were discussed in 1985 at the XIII ATCM (ibid., p. 1409). During that meeting it was agreed that unless particular exceptions were requested, all Conference and Information Documents submitted at the first, second and third ATCMs would no longer be confidential at the end of 1985; documents from later meetings would receive similar declassification; and documents submitted during future meetings would be checked for sensitivity as soon after the meetings as possible. These documents are archived with the annual Exhanges of Information. Their accessibility to the public depents upon the individual policy of each country's archive. Only the archives of the twelve original signatories could have a complete set of Treaty documents.

Rcommendation XIII-1 consolidated some important decisions for the future of information dissemination. It provides for full and accurate coverage of the meetings to appear in the reports and for the Handbook to be "regularly maintained as a current complication of the recommendations and other actions agreed by Consutative Meetings." It specifies that "to the greatest extent practicable and feasible and in accordance with national laws and regulations" certain types of information be made available upon request. This includes final reports of the ATCMs, the Antarctic Treaty Handbook, annual exhanges of information about scientific programmes by ATCPs, location of data and sample depositories, and bibliographies of Antarctic reports and publications.

Finally, XIII-1 recommends that a national contact point (or points) be designated and charged with the maintenance of these information sources, this list of contact points to be published as an annex to each ATCM report and each edition of the Handbook. National contact points have been designated for 28 countries including all of the Consultative Parties. (See Appendix.) Recommendation XII-6 provided for copies of the Final Report to go to the United Nations and at the XIV ATCM it was decided also to send information to a number of other international organizations with interest in particular agenda items.

The following documents are distributed to the official contact points. At present only a few copies of each are produced and so are not available for general distribution to the public, though libraries and researchers may be able obtain copies by application to the appropriate contact point or national Antarctic research organization.

Handbook of the Antarctic Treaty System which includes text of:

Antarctic Treaty, Washington 1959
Agreed Measures for the Conservation of Antarctic Fauna and Flora, Brussels 1964 (annexed to Recommendation III-8)
Convention for the Conservation of Antarctic Seals, London 1972
Convention on the Conservation of Antarctic Marine Living Resources, Canberra 1980
Convention on the Regulation of Antarctic Mineral Resource Activities, Wellington 1988

Report of the nth Antarctic Treaty Consultative Meeting
Report of the nth Antarctic Treaty Special Consultative Meeting
Report on Antarctic Telecommunications Meeting; Washington 1963, Buenos Aires 1969, Washington 1979

Unpublished material which may be held in contact point archives but is not necessarily available for public inspection:

Annual Exchange of Information
ATCM Conference and Information Documents

An additional source of information about the ATS and its decisions is Polar Record, published since 1931 at the Scott Polar Research Institute, which covers significant meetings and developments. This quarterly publication is available by subscription or agreed exhange.

Several "reports" are produced within the SCAR community for internal distribution. The National Committee Reports to Car is an annual submission required of each SCAR member to report the Antarctic research activities accomplished during the past year and planned for the next. This Report, which also includes a bibliography of the country's Antarctic publications during the year, is distributed in limited numbers to other SCAR members. The quarterly SCAR Bulletin includes the Recommendations from each ATCM in addition to other ATS material and is available publicly as a section of Polar Record.

Finally, a unique compendium of Antarctic information which includes the ATS and its role in the history of the region is Headland's Chronological list of Antarctic expeditions and related historical events (1989) which has entries about the development of the Treaty System and of SCAR gleaned from the unpublished exchanges of information of both organizations. Similarly, it gives details of national activities and stations, principally from the same sources.

Outlook

Establishment of an "infrastructure" (by which is understood a secretariat) has been discussed in detail at the last three ATCMs. A secretariat "could serve as an important source of continuity and expedite communication of information and documentation" (Kimball, 1988). While the advantages of countinuity and centralization are recognized, there is concern about costs of an infrastructure as well as a fear amoung ATCPs of loss of autonomy within the ATS; thus far the existing organization is still deemed adequate. However, the growing size and visibility of the Antarctic Treaty System dictate that the issue will continue to appear on future agendas.

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Kimball, Lee 1988. "The Antarctic Treaty System," Oceanus 31(2): 14-19.

Zumberge, James H. 1986. "The Antarctic Treaty as a scientific mechanism - the Scientific Committee on Antarctic Research and the Antarctic Treaty System," pp. 153-168 in Polar Research Board, Antarctic Treaty System; an Assessment. National Academy Press, Washington.

Appendix: Abridged List of National Contact Points Derived from Annex E, Handbook of the Antarctic Treaty System, 6th ed., 1989.

***+ ARGENTINA.** Dirección General de Antártida, Ministerior de Relaciones Exteriores y Culto, Reconquista 1088 -10° piso, 1003 Buenos Aires, República Argentina.

***+AUSTRALIA:** Diretor; Antarctic Division Department of the Arts, Sport, the Environment, Tourism and Territories, Channel Highway, Kingston, Tasmania 7050

***+BELGIUM:** Services des Affaires Générales (P 17), Direction général de la Politique, Ministere des Affaires étrangeres, du Commerce exterieur et de la Cooperation au Developpement, 2, rue Quatre Bras, 1000 Bruxelles

***BRAZIL:** Division of Marine, Antarctic and Outer Space Affairs (DMAE), Ministério das Relaçôes Exteriores, Sala 305 - Axeno I, Esplanada dos Ministèrios, 70.170 Brasilia, DF Brasil

***+CHILE:** Instituto Antárctico Chileno (INACH), Correo 9, Santiago

***CHINA, PEOPLE'S REPUBLIC OF.** General Office, National Committee for Antarctic Research, 1 Fu Xing Men Wai, West District, Beijing

DENMARK: Secretariat for Law of the Sea Questions, Danish Ministry of Foreign Affairs, Asiatisk Plans 2, DK-1448 Copenhagen K

ECUADOR: Ministerio de Relaciones Exteriores, Dirección de Asuntos Maritimos y Espaciales, Avenida 10 de Agosta y Carrion, Quito

FINLAND: Ministry of Trade and Industry, Bureau for International Affairs, Aleksanterinkatu, 10 00170 Helsinki

***+FRANCE:** Ministere des Affaires Etrangers, Direction des Affaires Juridiques, 37 bis Quai d'Orsay, 75007 Paris

***FEDERAL REPUBLIC OF GERMANY:** Alfred-Wegener-Institut fur Polar- und Meeresforschung (AWI), Columbusstrasse, Postfach 12 01 61, 2850 Bremerhaven

***GERMAN DEMOCRATIC REPUBLIC:** Director for Antarctic Research, Institute for Physical of the Earth, Academy of Sciences of the GDR, Telegraphenberg Postdam 1561
GREECE: President of the Greek National Committee for the Polar Zones, A7 Direction Department of the Law of the Sea and Antarctic Matters, Ministry of Foreign Affairs, Academias 3, Athens 10671
***INDIA:** The Secretary, Department of Ocean Development, Lodi Road, New Delhi - 110003
ITALY: Programma Nazionale die Richerche in Antartide, Dipartimento Protezione Ambiente, ENE PAS, CP 2400, 00100 Roma AD
***+JAPAN:** National Institute of Polar Research, Kaga 1-9-10, Itabashi-Ku, Tokyo 173
KOREA, REPUBLIC OF: Polar Research Lab, Korea Ocean Research and Development Institute, ANSAN P.O. Box 29, Seoul 171-14
NETHERLANDS: Scientific, Technological and Nuclear Cooperation Section, Council of Europe and Sciendific Cooperation Department, ministry of Foreign Affairs, P.O. Box 20061 2500 EB, The Hague
***+NEW ZEALAND:** The Ministry of Foreign Affairs, Private Bag, Wellington, I
***+NORWAY:** Norwegian Polar Research Institute, P.O. Box 158, 1330 Oslo Lufthavn
PERU: Comisión Nacional de Asuntos Antárticos (CONAAN), Ministerio de Relaciones Exteriores, Lima
***POLAND:** Head of the Committee on Polar Research, Polish Academy of Sciences, Palac Kultury i Nauki, 00-901 Warszawa
***+REPUBLIC OF SOUTH AFRICA:** Director (Administration) Department of Environment Affairs, Federated Forum Building, 315 Pretorius Street, Pretoria 0002
***SPAIN:** Comisión nacional del Programa Antárctico Español, Dirección General de Cooperación Técnica Internacional, Ministerio de Asuntos Exteriores, c/José Abascal - 41, 28003 - Madrid.
***SWEDEN:** The Direktor, Polar Research Secretariat, P.O. Box 50005, S-104 05 Stockholm
+UNION OF SOVIET SOCIALIST REPUBLICS: Arctic and Antarctic Research Institute, 199226 Leningrad, B-226 Bering Street, Dom 38
***+ UNITED KINGDOM :** Head of Polar Regions Section, South America Department, Foreign and Commenwealth Office, London SW1A 2AH
***+ UNITED STATES OF AMERICA:** Director, Office of Oceans and Polar Affairs, OES/OPA, Room 5801, Department of State, Washington, DC 20520
***URUGUAY:** Instituto Antárctico Uruguayo, Buenos Aires 350, Montevideo

* Consultative Party+ Original Signatory

Britain in the Arctic: A Directory Database

William J. Mills
Scott Polar Reseach Institute
University of Cambridge

Abstract

This paper describes the construction and applications of a directory database listing the current activities and interests of the British government, commercial and industrial organizations, scholars and scientists. The implications of such directories in furthering collaboration between polar libraries are discussed.

In general, when librarians gather at meetings such as this, there is perhaps a tendency when we discuss 'databases' to think only of 'bibliographic' databases. These are certainly by far the most common type of databases to be found in libraries but, if libraries are to act as information centres and not simply as repositories of information, there are good arguments for the establishment and maintenance of other types of databases also,and particularly of what I shall term 'directory' databases. By this, I mean any searchable file, preferably though not necessarily computerized, containing directory-type information. A file of companies producing polar-related equipment is thus a directory database, as is a file of travel agents and tourist companies operating in polar areas, or even a file of second-hand book dealers specializing in polar books. Each of these directory databases could prove useful if set up at one polar library and made available to others. These are just a few examples and many more could be suggested. My paper today concerns the setting up of probably the most commonly discussed type of directory database, a searchable listing of research, research projects and related interests and expertise.

At the most recent meeting of this colloquy at Boulder in 1988, Sokolov summarized the findings of a recent project investigating the design of a United States Arctic Information Network. Having drawn attention to the finding that direct access to experts was regarded by potential users of the network as very important, more so indeed than had been anticipated prior to the study, she remarked on the poor provision of useful directories containing appropriate information. "The only cross-discipline, cross-organizational directories that served to identify arctic experts, are the Canadian Department of Indian and Northern Affairs series (now on-line at ASTIS) and our own [ie. Arctic Environmental Information and Data Center] Current Research Profile series.

Neither series has been updated for several years and both have apparently been discontinued because of funding problems" (1988, p.44). At the same meeting, "directories of research and researchers" and details of "research in progress including funding information" were recognised by Kamra as important components of a Canadian Polar Information System (1988, p.55). Since the 12th Colloquy, at least two useful listings of research and researchers have been published for Canada (Association of Canadian Universities for Northern Studies, 1989, and Science Institute of the Northwest Territories, 1988), and the excellent annual publication Research in Svalbard (1982-) has continued.

However, it is certainly true that whatever inadequacies exit in relation to bibliographic coverage of polar literature, directory coverage of polar research is still worse.

In this paper I shall describe the compilation of a directory listing the research and other interests of British organizations and individuals in arctic and sub-arctic regions. Although one product of this exercise was a printed directory, here I shall chiefly emphasize those aspects relating to the loading and housing of the directory in database form.

The BRITAIN IN THE ARCTIC directory database project was sponsored by the Natural Environment Research Council (NERC) following publication of the NERC policy document Britain in the Arctic: a strategy for British Research in the Arctic (1989). The Library of the Scott Polar Research Institute was commissioned to compile a comprehensive listing of current British research and other activity in the Arctic. The object was to produce both a printed version, to be published by NERC, and to set up a companion database, maintained at SPRI. The printes version of the directory, Britian in the Arctic: a directory of activities and interests, was published in January 1990 containing most, but not all, of the information collected by that date. The data base is still growing.

The questionnaire used is illustrated in Appendix A, its eventual form and the nature of the questions asked being decided upon jointly by NERC and SPRI. Given that no similar exercise had been conducted previously in the UK, compiling an initial mailing list of individuals and organizations with potential arctic and sub-arctic interests was a complicated and time-consuming activity. Amongst the stages in mailing list compilation were: comprehensive literature searches for authors with British addresses; exhaustive study of relevant directories such as Current Research in Britain and World of Learning; collection of membership lists of relevant societies, such as the Arctic Club of Great Britain and the

International Glaciological Society. Many additional names were gathered by including a question in the questionnaire requesting respondents to add the names of other individuals in their organizations known to possess arctic interests. Using methods such as these, over 1100 questionnaires were distributed during the summer and autumn of 1989. To date, 421 completed questionnaires have been returned, 385 of which were included in the published directory.

Choice of software was a relatively straight-forward matter. The SPRI bibliographic database SPRILIB is mounted on the university mainframe using the MUSCAT package designed by Martin Porter. Since there is also an MS-DOS version of MUSCAT which Martin kindly allows the library to use free of charge, the best solution was clearly to house the BRITAIN IN THE ARCTIC database on an IBM AT-clone. The programing involved was comparatively simple, with many of the procedures, especially those relating to production of camera-ready copy for the printed version of the directory, requiring only minor modifications from those already written for SPRI's other publications, and most notably Polar and Glaciological Abstracts. Total programing time was two and a half days. Data entry naturally took considerably longer but, fortunately, the Institute was prepared to make a secretary available to me for the equivalent of four weeks.

SPRI has benefited in many ways from producing the directory. Closer links have been fostered both with NERC and with the British arctic community in general. With regard to NERC, we have been able to demonstrate to policy makers that the extent and depth of British arctic research interest is substantially greater than previously recognized and thus to back NERC's bid for increased funding of arctic research. With regard to the British arctic community in general, SPRI's central information role has been drawn to the attention of many organizations and individuals with whom we have had few dealings in the past and we, in our turn, are much more aware of their interests and needs. Compiling the directory hs proved an exceptionally cheap and effective means for the better marketing of our information service.

The polar community's need for directory databases, particularly those listing researchers and current research projects, is only slightly less great than its need for the comprehensive coverage of polar literature by bibliographic databases. Directory databases need not be expensive to set up. BRITAIN IN THE ARCTIC cost around 1500 and would have cost less without the need to produce camera-ready copy suitable for publication. Polar libraries have much to gain from maintaining databases of this kind especially if they wish to exploit the growing opportunities made available by information techology for the development of genuinely proactive information services.

There is, in addition, one other highly pertinent argument in favor of the setting up of polar directory databases. Cooperative projects involving bibliographic databases are always likely to be particularly difficult to establish. Differences in field structure, indexing methods, etc., pose only minor difficulties. The real problems result from the embedding of differing conventions within the historically established practices of each library. Seemingly minor changes can thus have major implications. To produce a combined international polar directory databases is in comparison a simple matter and one which, furthermore, could have the potential to generate much-needed income. An international listing of polar researchers would be a feasible and worthwhile project, but a better bet to generate income would be to compile a listing of polar companies, products, services and expertise. The cause of an integrated polar information system would be much advanced if we could, by successfully designing and maintaining a genuinely international database of this kind, show that effective international cooperation is not impossible, may well be financially lucrative, and certainly is well-worth the effort.

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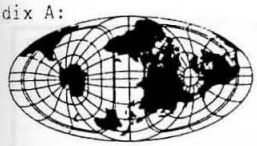
Appendix A:



SCOTT POLAR RESEARCH INSTITUTE
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Telephone: 0223-337733/336540
Extension:

Director: Dr. P. WADHAMS

Telex: 81240: CAMSPL G
Fax: (0223) 334748

BRITAIN IN THE ARCTIC:
a directory of activities and interests
(sponsored by the Natural Environment Research Council)

Name:.....
Organization:.....
Address:.....
.....

Telephone:.....
Telex:.....
Fax.:.....
E-mail (give JANET or BITNET addresses if available, others if not & indicate network):.....
.....

1. Please tick appropriate box(es) to indicate general nature of Arctic interests and activities:

Academic research	☐	Industrial research	☐	Government	☐	Private interest	☐
Commercial	☐	Exploration	☐	Other (please specify):.....			

2. Please indicate geographical areas in which you are interested:

Arctic	☐	Alaska	☐	Canada	☐
Greenland	☐	Iceland	☐	Svalbard	☐
Norway	☐	Sweden	☐	Finland	☐
U.S.S.R.	☐	Arctic Ocean & adjacent waters	☐	Other (please specify):.....	

3. Where appropriate, please indicate broad subject disciplines by which your Arctic and sub-Arctic interests may be categorized:

Anthropology	☐	Economics	☐	History	☐
Archaeology	☐	Engineering	☐	Medicine	☐
Architecture	☐	Environment	☐	Natural resources	☐
Arts & Literature	☐	Geography	☐	Oceanography	☐
Atmospheric studies	☐	Geology	☐	Politics & law	☐
Botany	☐	Geophysics	☐	Zoology	☐
Climatology	☐	Glaciology	☐	Other (please specify):.....	

4. Please provide a brief description of your current Arctic and sub-Arctic activities and interests:

5. For research projects receiving funding, information would be appreciated as to which projects are receiving funding and from which sources:

6. Are there any areas in which you would be particularly interested in collaborating with other individuals or organizations?

7. What specialist expertise, services or products can you or your organization make available to others (either for sale or in collaborative projects)?

8. Please list any other individuals working in your organization whom you know to be interested in the Arctic or sub-Arctic, or in related subjects. (This is to help us ensure that our listing of British Arctic research is as comprehensive as possible.)

9. Is there any other information you would wish to have included in this directory? (Researchers may wish to enclose lists of publications; companies to list products and services, etc. We shall include what we can in the Directory.)

Britain in the Arctic: a directory of activities and interests will be maintained as a computer database and will therefore be registered with the Data Protection Registrar. In order to comply with the terms of the Data Protection Act, we should be grateful if you would sign the following declaration:

I understand that this information will be stored in computer files and is subject to the provisions of the Data Protection Act.

signed: dated:

The questionnaire should be returned to:

William Mills,
Information Officer,
Scott Polar Research Institute,
Lensfield Rd.,
CAMBRIDGE, CB2 1ER

PLEASE RETURN ALL FORMS ASAP

The unfolding of "Glasnost" and its prospective effects on library book exhanges and collection development: an Alaskan perspective"

Tamara Lincoln
Elmer E. Rasmuson Library
University of Alaska Fairbanks

"Glasnost," loosely translated as openness, has brought irreversible changes to the Soviet Union. The world is still debating about its implications, yet the waves of change that have burst forth in the 1980s have penetrated the entire socio-cultural, political and economic sphere of the Soviet Union and have deeply affected the entire world.

The reforms now under way have had a major impact on opening both internal and external communications and they have equally altered the very means and patterns of communication. As a result, the reforms have had a major impact on broadening and strengthening the multiple interrelationships with many American institutions and universities. The University of Alaska has not remained immune to this process. Because of its heavy arctic research interests, it has become progressively more involved with particularly the Siberian institutions of higher learning. The effects of "glasnost" on foreign travel by Soviet citizens has resulted in opportunities to receive visitors on our campus that were not so long ago thought impossible. Similarly, there is an enlarged menu of possibilities by the University of Alaska Fairbanks, and other campuses are responding aggressively by both sending our faculty and receiving colleagues from their academies, institutes and universities.

Many issues need to be addressed as we respond to these developments. Within this spectrum, the University of Alaska libraries need to recognize the crescendo of this important moment in history and translate it into positive, mutually beneficial action, as the Librarian of Congress, Dr. Billington, has done. For the first time, in a long time, we are witnessing an enormous information expansion of valuable materials, available on topics, that were previously unobtainable, if not untouchable. Therefore, many American libraries are deeply aware of the escalation of exchange options and further extension of ties with Soviet scholars and institutions.

The University of Alaska Fairbanks is not entirely a newcomer to this scene of Soviet exchanges. Because of its strong northern research interest there has been a scholarly exchange programme established since the early 1970s, however, due to multiple reasons, it became somewhat subdued and then emerged fully again, as we anticipate a further extension of ties with Soviet scholars and institutions on all levels. Numerous institutes of the University of Alaska are already engaged in joint research and publication projects. Interest in Soviet and Russian studies has greatly expanded across the nation as well as in Alaska, and we are seeing a growing number of Soviet scholars and students on our campuses. "Glasnost" has had a special meaning to Alaskans, many of whom have strong traditional and areal ties to Siberia and Russia. The summer of 1988 saw the dramatic reopening of contacts. A pivotal factor here was the Reagan - Gorbachev Summit in May-June 1988, in which Reagan and Gorbachev expressed support for the expansion of contacts between the Native Peoples of the Soviet North and of Alaska. [Pravda, June 3, 1988]. A significant portion of this agreement was also devoted to "Arctic Science Co-operation."

Considering how fundamental scientific and technological developments are to Gorbachev's reform strategies, the enormous broadening of cooperative exchange agreements formed between the U.S.S.R and the United States is understandable. Within this framework of sharing knowledge and resources, a significant emphasis is placed on the development and enhancement of information science technologies, information exhange, and resource sharing.

Following this pattern, the University of Alaska Fairbanks as well as other Alaskan universities have continued to weave a very complex pattern of scientific and educational exchange agreements with the institutions of higher learning in the Soviet Union, concentrating on the Institutes and Academies of the Soviet North. There are three basic types of cooperative agreements: a) individual to individual; b) institute to institute; c) general international agreements that include Alaska. A conservative estimate at this point indicates that there are as 30 or more pending or complete agreements that have been formulated by the University of Alaska Fairbanks and Soviet institutions and academies - an example would include the Far Eastern Branch of the Academy of Sciences; Siberian Branch, USSR Academy of Sciences; State Committee of Public Education; Institute of the Botanical Problems of the North; All Union Academy of Agricultural Sciences; Irkutsk State University; Magadan Pedagogical Institute, and many others.

What role should libraries play in this network of new institutional relationship? Libraries have traditonally been regarded as sensitive barometers of the cultural climate they inhabit. In which ways have these winds of change affected the philosophical orientation and the existing interrelationsh ips of the Soviet and American libraries? In relation to this, we in Alaska need to determine the best and most acceptable ways of partaking in this significant phenomenon.

In opening many doors, "glasnost," in turn has also generated new needs in multiple spheres in the U.S.S.R. The rapidly escalating process of self-rediscovery and gaining broader gloal awareness has led to broadening information and bibliographic resource needs. As formerly forbidden topics, "treasures of the past" and emigré literature are rediscovered, the demand for them as well as access to them is increasing, thus expanding library exchange options beyond the former scientific and technical perimeters. In turn, the availability of broader exchange options have also opened for American libraries with the libraries of the Soviet Union. Other events have left an impact on this process. The catastrophes of the February 1988 fire, in the Academy of Science Library in Leningrad (destroying 400,000 items, and damaging 3.6 million items), as well as the fire in the Moscow Historical Library (in exchange reserve section) on October 4, 1980 are but a few examples.

For the purposes of this presentation, Slavic libraries were contacted by telephone, and a short questionnaire was distributed to 15 small, medium, and large libraries, engaged in exchanges with the U.S.S.R libraries. Unfortunately, the return has been slow, so more specific results will be reported later. Libraries holding large Slavic collection, such as the Universities of Illinois, Wisconsin, Indiana, Northern Illinois University, and Berkeley/Stanford indicate a great increase in contacts, as well as growth in serial and some monographic exchanges. The medium to small sized libraries report greatly varying patterns of serial and monographic exchange increases. A high level of broadening contact interest is reported by all parties.

The University of Alaska Fairbanks-Rasmuson Library is unique by comparison, because of its special polar collections. The aim of the Alaska collection is to represent a world class collecton of Northern materials. As University of Alaska is the foremost university of the North in the United States, and as such, its library collections, dealing with the polar regions, need to be continuously expanded, so as to secure that position. Broadening contacts with the major Soviet institutions of the North and its libraries is of paramount importance to this process of growth. In order to strengthen the profile of our Siberian related monographic materials,

assessed by Lincoln and West in 1986, continued expans'on must be maintained and broadening exchange bases must be considered in monographic and especially serial acquisitions.

Dependence on usual procurement and acquistion tools is not sufficient to support the northern-oriented research needs for many reasons, relating to the very nature of publishing in the U.S.S.R. The proliferation of "grey literature," reports and publications issued in small editions which are often institutions controlled and are extremely difficult, if not impossible to obtain through public channels. Therefore, many of the institutions need to be directly approached, and personal inter-relationships and contacts need to be established to secure the procurement of the needed sources. This pattern of interactions is commonly utilized by multiple American libraries, which have special Slavic collections. The problem of acquiring the less traditional literature is indeed more acute in the Arctic, where much research is dependent on data and information reported in grey literature. Through personal contacts established in an exchange process these problems may become alleviated.

Past experience of many American libraries has shown that long-term institutional publication exchange agreements have been important mechanisms for securing many valuable materials. In the interest of facilitating and improving the existing exchanges at the University of Alaska Fairbanks, a recommendation is made here to carefully analyze the existing exchange agreements established by the University of Alaska and initially select the specific institutions in the Soviet North that need to be targeted, based on our area interests. Some examples may be: the Far Eastern Branch of the Academy of Sciences in Vladivostok, Irkutsk State University; National Museum; Institute of the Biological Problems of the North in Magadan; University of Yakutsk; and many others. The approach needs to be cautious but determined and it can be expanded as fiscal and personnel support is obtained through possible future legislative and grant support. As the possibilities are expanding, new, creative items and sources for exchange. This represents a lengthy process, and to a certain extent, the Rasmuson Library has begun to analyze the existing options and available exchange resources. The planning process is being implemented, though the road ahead remains long. Nevertheless, we need to view this important moment in history as an excellent opportunity for the University of Alaska Libraries to enhance its contacts with the Soviet libraries, enrich collection development through expanded exhanges and in so doing participate in "glasnost."

Research on the Middle North : The Case of the Lakehead Centre for Northern Studies

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Introducation: The Middle North and the establishment of the Lakehead University Centre for Northern Studies

On 26 November 1989 a ceremony was held to celebrate the opening of the Lakehead University Centre for Northern Studies. The Centre was the first new northern studies centre of any size to be established in Canada in a great many years! The Centre had a director, six faculty members, a professional librarian, a library technician and a secretary. It was the first centre in Canada to have as its primary focus the immense area known as the provincial Middle North. It had the added distinction of being the first northern studies centre in Canada to be actually located within the northern region that was the primary focus of its attention, i.e. the North. Furthermore it was distinctive because it was part of a university that had a role that it had defined for itself as being on both in and for the North. That is, the Centre was directly relevant to the core of the university's mission.

The founding of the Centre was a particularly lengthy and difficult process. The early moves to establish some form of northern studies centre went nowhere and this was a direct result of the nature of the university at the time and the role that it was expected to play within the Ontario university system. It was only after nearly a quarter of a century of change and development not only within the university but also in the university system, the region, and the political system that circumstances become more favourable.

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1 The other major northern studies institutes are the Boreal Institute at the University of Alberta and the Arctic Institute at the University of Calgary.

2 Ontario, Commission on the Future Development of the Universities of Ontario, Ontario Universities: Options and Futures (Edmund. C. Bovey, Chairman), Toronto: The Commission on The Future Development of the Universities of Ontario, 1984.

By the early 1980s the situation both internally and externally had changed sufficiently that the concept of a truly "northern" mission or vision for the university and, therefore, the need for a northern studies was likely to be more favourably recived. Internally the university was rethinking its role, largely as a response to a government study called the Bovey Commission (2). It was being asked to identify what differentiated it from the other universities in Ontario and there was also considerable pressure on all of the provincial universities to produce coherent plans. As a consequence of a lengthy internal discussion process Lakehead finally focussed its attention on its northern role.
The concept of a centre for northern studies thus became linked with the overall purpose and role of the entire university. It became regarded by some as one of the key devices by which a northern ambience could be injected into virtually the entire structure of the institution.

Externally there had been many changes that made the additional role for the university more acceptable. One of these had been the growth of a consciousness of a region called the provincial north. This may have begun as early as 1970 when the Mid-Canada Corridor concept was proselytized by Richard Rohmer and Acres Research (3). While the idea went nowhere it reflected the beginnings of a new attention being paid to the region. In the following years many provinces established specialized northern development agencies in response to the steadily northward movement of development in the provinces. In Ontario a Ministry of Northern Affairs was established in 1976. This agency is now called the Ministry of Northern Development and Mines. In addition there was an increasing analysis of and experimentation with concepts and strategies of regional development.

Lakehead University's Centre for Northern Studies has as its primary purpose the analysis of the problems and prospects for the provincial north and especially northern Ontario, where it is located. It also has the role of making comparisons with other similar areas elsewhere such as northern Norway, Sweden, Finland, and the northern parts of the U.S.S.R. as well as Alaska, Greenland, and Iceland. This focus makes it unique as the other northern studies centres, such as the Boreal Institute in Edmonton and the Arctic Institute in Calgary, concentrate upon the far north of the Yukon and the Northwest Territories and, more generally, the arctic regions of the world.

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3 Acres Research and Planning Ltd, Mid-Canada Development Corridor: A Concept, Toronto: Acres Research and Planning Ltd, 1969. See also Richard Rohmer, The Green North: Mid-Canada, Maclean-Hunter, 1970.

Northern Studies Resource Centre and Data Base

The Library's involvement in establishing the Centre for Northern Studies at Lakehead can be traced back to 1982 with the hiring of a Northern and Regional Librarian. It was the responsibility of this librarian to determine existing relevant library resources, acquire additional research materials and develop a data base that would provide specialized access to those materials.

By utilizing hardware and software already available within the University, the Northern and Regional Studies Librarian was able to establish a usable data base within a relatively short period of time. The Library already had a number of special collections that contained both regional and northern material which meant that such material could be easily identified for subsequent input of the bibliographic records into the new data base.

By 1987 much new northern and regional material had been acquired by the Library. The data base had grown to approximately 21,500 records and the continued increase in the use of the data base had proven the need for such an access tool at Lakehead. Within a year the data base would be transferred to MultiLIS software, a fully integrated library system implemented throughout the Library.

The original intent in establishing the database had been to bring together the Library's northern and regional materials in an easily accessible fashion. Initially it had not been considered essential that the material also be physically housed together separate from the main collection. The data base would be the organizing tool. However, it soon became apparent that there would be definite benefits to bringing the material together and forming two linked special collections. One of the major benefits would be the building of two unique research collections that would provide a solid foundation for the increasing interest in research on the region and the North. The 1987 Presidential Advisory Committee on Northern Studies proposal for the establishment of the Centre for Northern Studies recommended the enhancement of the database and stated that the "resource centre and data base should support the achivities of the Centre for Northern Studies "and also become the major community resource of its kind"(4). Inherent in these recommendations was the transition of the Library's role from providing an access tool to providing a research resource. Therefore efforts were turned toward devoloping the collections.

Since one of the major goals in developing the collections was to support the research activities of the Centre for Northern Studies, it followed that input from the Presidential Advisory Committee on Northern Studies was essential. This was obtained both by having the Northern and Regional Studies Librarian sit in the Presidential Advisory committee and by noting the geographic regions upon which the Centre intended to concentrate. In decending order of priority these were northwestern Ontario, northern Ontario, the Canadian Provincial Norths, regions similar to the provincial norths in other parts of the circumpolar North, and the far North of Canada. The intent in priorizing the regions in this order was to focus research activities on those areas which, for the most part, are only dealt with peripherally by other Northern Studies Centres. This would then make Lakehead University's Centre for Northern Studies unique. Similarly, the Library's development of resources in support of the Centre's research would result in the development of two unique special collections based on the concentration on the same geographic areas.

The 1987 proposal by the Presidential Advisory Committee on Northern Studies also identified a number of areas of research which were likely to be of particular interest to the faculty of the Centre and of Lakehead faculty members in general. The Library was able to incorporate these areas of research interest together with the geographic areas already mentioned to develop a collection policy for the North Collection and the Regional Collection. The North collection would include the provincial Norths, with the ecpeption of northern Ontario, and the circumpolar north and also focus on those areas of research identified in the proposal. The Regional collection would include all of northern Ontario but have a particular emphasis on northwestern Ontario. Any material considered to be of research interest, regardless of subject, would be included in the Regional collection if it related to northwestern Ontario. The portion of the regional collection related to the rest of northern Ontario would follow the same subject guidelines as the North collection.

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4 Lakehead University, Report of the Presidential Advisory Committee on Northern Studies, op. cit. p. 3.

Since the far North would not be the primary focus of research for the Centre for Northern Studies, and since several other libraries in Canada have extensive holdings of materials on the Arctic, it was decided that material on the far North would not be as actively collected and would not be physically incorporated into the North collection. The main library's holdings on the Arctic, however, would be identified and included in the Northern and Regional Studies data base.

With the establishment of the Northern Studies Resource Centre, the data base and the special collections, the Library has now laid a solid foundation upon which to build for the future. It is at this point that the focus should turn toward goals which will ensure the continued enhancement and development of the facility and all its resources. There are three key goals for the future.

The first goal is to promote knowledge of the Northern Studies Resource Centre and what it can offer to the region and to the northern research community in general. In addition to increasing utilization of the Centre, promotion of the facility and its resources could also assist in the acquisition of research material. It is only through increasing public awareness of the Resource Centre that the Library can ensure that it is in a position to be offered other valuable materials or collections. In the past such donations have been scattered amoung the various local or regional institutions, sent out of the region entirely to a repository such as the Provincial Archives, or have even been lost and destroyed.

The second goal is to actively pursue the acquisition of relevant research materials. Northern and regional research material is available from a variety of sources, some traditional such as the usual publications lists issued by the government, booksellers and publishers and some less traditional such as donations and grey literature. Therefore concerted efforts have to be made to ensure that the non-traditional sources are preserved thoroughly.

The third goal is to improve accessibility. With such efforts being made to develop the collections of the Resource Centre, it follows that access to the material should also be increased. Currently access to the Library's online catalogue, which includes the Northern and Regional Studies data base is available across campus and in eleven Northwestern Ontario communities via their public libraries.

The Library has also been involved as a participant in the current investigation into the establishment of a Canadian Polar Information System (CPIS). Ultimately the Resource Centre's database should be made more widely available through a project such as CPIS or an established online data base such as QL.

Conclusions

The history of the development of the Lakehead Centre for Northern Studies reflects just how difficult it is to establish a regionally relevant multidiciplinary institute when the institution of which it is a part and the provincial authorities have little consciousness of the university's role, let alone that the role might be partly a regionally relevant one. However, once the role or roles of the university were clearly established the Centre became possible and, indeed, came to be seen as a tool for the development of the entire university, not only in its <u>for</u> the North role but in its <u>in</u> the North role. It was a tool in several ways. First, it provided a focus for academic research via its own staff and via the provision of some of the tools necessary for that research, especially the Resource Centre and Data Base. Second, it provided a basis for furthering the work of those departments that were already conducting regionally relevant work, such as History, Economics and Sociology. Third, it provided a basis for the establishment of new graduate programmes in those departments without them. Fourth, the Centre has provided a rationale and a focus for Lakehead University's international contacts. Lakehead, in fact had virtually no international contacts at the institutional level prior to the establishment of the Centre. It now has a modest number of agreements related to its northern focus.

In developing the Centre there has been an effort made to blend two objectives. namely that of furthering the general academic profile of the institution and that of enhancing its regional role. The two have proven to be compatible, although there is still resistance from those whose subjects have no particular northern relevance. Despite this the Centre has become the main tool employed by the university to provide it with a distinctive and clear role and direction for both internal and external purposes. Within that the Resource Centre and Data Base in the Library is an essential and critical focus which it is hoped will develop from being an institutional and regional resource to a provinical one and, eventually, a national one.

Finland - The 60th Parallel Syndrome

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Finland is situated between the 60th and 70th parallels. It can be seen as the most winter-dominated independent state of the world. Winter here is a long period of snow, ice, twilight, and darkness. Finland is also the only country where the entire coastline freezes every year. It is the border-line country, the last region where the warming effects of the Gulf Stream have allowed development of a culture based on agriculture. There, where the Finnish settlement has historically ended in the East, there has begun the endless wilderness of northern Russia inhabited by hunting and gathering peoples. Many of them spoke languages related to Finnish. The prehistory of Canada is a tale of Indians and Eskimos. And the prehistory of northern Russia and Siberia is largely a tale of Finno-Ugric peoples.

When climate is depicted on a map of the world the area between the 60th and 70th parallels appears as a rather cold region. Scandinavia - warmed up by Gulf Stream - is an exception. The coastline of Norway remains open throughout the years, as does the southern coastline of Sweden. Southern Sweden is also an area of relatively dense population and economic activities. North of the 60th parallel, however, in 1950 there lived 4 million Finns, 2.5 million Swedes, and 2 million Norwegians. Prior to the beginning of economic projects in the northern parts of the Soviet Union, Finnish was the predominant language on the northern side of the 60th parallel.

Finland last year was seeking full membership in the Antarctic Treaty. The other Antarctic Treaty members accepted Finland's application in their meeting in Paris in October, 1989. In support of Finland's application the Finnish Ministry of Trade and Commerce published a book entitled "Cold Climate Research in Finland." It is the first book ever published on this field containing 20 articles by leading Finnish scientists and specialists. Finland has more than 200 years tradition in cold research. Historically, there have been Finnish governors in Alaska and researchers in Tierra del Fuego. The awakening of nationalism inspired many gifted Finnish scientists in 19th century and in the beginning of this century to do research in northern Russia and Siberia.

Finland is a forerunner in cold research. It is not, however, really aware of its competence and capabilities. Snow, ice, and long winters are self-evident to us. Under such conditions, a large part of the scientific research is automatically cold climate research at least to some extent. Knowledge related to the cold is deeply implanted in Finnish culture. Dealing with the cold is an integral part of Finnish life and of the competence of the Finnish people to solve the problem encountered in this northern land - to make proper decisions for surviving and, indeed, thriving in the cold conditions. It is reflected in housing, clothing, and all kinds of technological solutions which contribute to everyday life and provide comfort and enjoyment of the harsh conditions. Indicative of how deeply engrained this is into our culture, we Finns do not feel that our climate actually is in any way harsh. If we meet a period of heavy cold, we just simply plan our clothing appropriately and adjust our technological surroundings to function properly through the cold period.

The Finnish climate may change drastically in the near future according to some predictions related to the greenhouse effect. This kind of news we have met with divided feelings. Losing winter means losing a large part of our historical tradition. Snow and ice are a source of real enjoyment for us. We love to ski in our nature - in the forests, on the frozen lakes, and on the gulfs of the Baltic. Thousands of Finns love to spend their weekends fishing on the frozen seas and lakes. Snow lightens our short winter days, and brightens the light from the moon and stars. Losing all this causes sad feelings in every Finn.

On the other hand, we naturally appreciate the warmth that may be created by the green house effect - the early springs, the longer summers. It is not certain, however, that the climatic changes will include more warmth for Finland. If the effect of the Gulf Stream is weakened by the coming changes, the end result may be the opposite. Our climate may cool down. The Gulf Stream releases in a few weeks as much energy as the whole of mankind uses in a year. With the greenhouse effect, all mankind will face a period of great insecurity and high risks.

The influence of the greenhouse effect on Canada and Siberia appears more certain and they probably will become promising areas of the future. The climate of these northern regions will to some extent undergo Finlandization. Their extremely cold winters will be moderate and become more or less like the winters have been in Finland. This will open vast opportunities for applying Finnish experience to make life more comfortable and enjoyable in those areas for the millions of people who will be moving there in coming decades.

If one travels around the globe along the 60th parallel, similarities can be found not only in the relationship between man and his environment, but also in that between man and alcohol. A tradition of heavy drinking can be seen everywhere. Informal social control favors periodic heavy intoxication instead of disapproving of it. On the other hand, there can be seen tendencies for creating official control systems to limit the alcohol damage. And sparking between the opposing forces is a lively public discussion concerning the availability of alcohol.

Statements about northern drinking habits have been written by, e.g., M.A. Castrén on his trips in Russia in the last century. Indeed such statements have been recorded by most of the people who have described northern conditions. Christer Boucht, for instance, tells about prohibition arrangements on American oil drilling ships in his book Frostbitet. The personnel of these ships represent many ethnic and cultural backgrounds. Therefore, the reason for the tendency toward heavy drinking cannot be sought on a national basis. This all suggests possible links between cold climate and alcohol behavior - a possibility that would appear to a fruitful area for alcohol research. Something new and indeed important might be found.

Finnish cold climate research has long traditions, but so does Finnish alcohol research, too. In the bibliography of Finnish alcohol studies, there are more than 400 references being produced yearly. Finnish alcohol research is internationally better known than our cold climate research.

The basis for Finnish alcohol research of today was actually laid when the prohibition act was annulled in 1932. The new liquor laws were written by K.J. Ståhlberg, who earlier functioned as the first president of our country. Before this he had written the Finnish constitution after our internal war of 1918. It was characteristic of Ståhlberg to be able to create stable institutions in periods of extreme political instability.

When Ståhlberg created the state alcohol company in 1932, his intention seems have been to provide the company with sufficient autonomy to keep political tensions from affecting directly its practical functions. Thus the Finnish state alcohol company obtained administrative power and duties suprassing those in any other country. To counterbalance this independent and influential alcohol company, Ståhlberg wanted to give broad authority to the local governments. This point was, hovever, subsequently abolished from the text of the law passed by the parliament. Consequently, the state alcohol company became a more solitary power centre than Ståhlberg had intended.

That tension which usually exists between the alcohol trade and industry on one side and the officials concerned with controlling alcohol damage on the other, was to a large extent moved by Ståhlberg to inside the single state alcohol company. The task of the company was to find the "right" solutions and make the "right" decision in an area where every solution and decision can be shown to be questionable by merely changing one's viewpoint.

The end result of all of this was a great need for information, and thus, in turn, for scientific research to generate this information. Consequently, research units were founded in the fields of both the social sciences and the natural sciences. Today no alcohol company in the world produces so much alcohol research as does the Finnish state alcohol company, Alko Ltd. Alko also has a very advanced information service department and an intensive and varied program of alcohol education and public information. Two axes can be seen related to the inner tension within the alcohol field. One axis is formed between alcohol damage research on one side and the production and commercial activities on the other. The other, orthogonal axes can be seen as stretching from national liquor legislation to grass roots public opinion. These tensions exist in all lands. In Finland we have tried to deal with them in a novel manner, with a single company, Alko, being situated in the crossing point of these two axes. The result has been not only efficient in economic and fiscal terms, but also flexible and creative, as indicated by the advanced system for information production and information resources management.

Cold climate creates a tension between man and his environment. Cold is a source of stress. Survival and the continuation of life reguire a tolerance for this stress. In this demanding fight, the color bearers of mankind are inevitably the arctic peoples. With their unique abilities and skills, Finland and the Finns represent here a mediating role between them and the temperate lands. Finland is a subarctic country. Nature here provides an energy production that is minimal compared to that in southern countries. This, however, has not forced us to perpetual mobility, as it has done to the northern hunting and gathering peoples. Agriculture, as a basis for our economy, has allowed, for instance, the early development of literary culture. The literacy rate in the population over 10 years of age was 97,6% already in 1880.

Like arctic peoples, the Finns also have met the challenge of cold in a creative manner. Our subarctic location has, however, provided us with a wider variety of methods and also closer contacts with modern technological culture. We have much to give, but we have also much to learn both from the Arctic and southern peoples.

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The Center of Arctic Studies, Paris, France

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The Centre of Arctic Studies, founded in 1957 by Professor Jean Malaurie at the Ecole des Hautes en Sciences sociales (EHESS), with President's Fernand Braudel's support, is the only French organisation offering a multidisciplinary programme on arctic research. In 1980, the Center became part of the Centre National de la recherche scientifique (CNRS), yet still remaining associated with the EHESS.

Since its creation, the Centre, which administers a CNRS-owned research station in Svalbard, has developed a wide range of activities : teaching, research, field-work, symposiums and film festivals, publications and documentation.

I Research

The main research focus deals more particularly with the earth sciences (mostly geomorphology and structural geology), life sciences (chronobiology), and human sciences (anthropogeography, cultural identities of the Inuit, Sámi, Indian and North-Siberian peoples, and problems raised by the development of these regions).

Every year since 1977, research expeditions have been organised at the CNRS-station in Svalbard, covering geomorphology, botany, microclimatology, geology, glaciology and remote sensing.

The Centre coordinates the works of 12 research laboratories involved in arctic research within the University and the CNRS.

A scientific Club promoting links between research and industry was founded in 1983. 50 researchers and industrialists take part it in under the chairmanship of a banker; it aims at initiating a cooperative programme between research and industry on arctic problems.

A new research programme (PREGANEM) has just been undertaken in cooperation with UNESCO to study the first contacts between natives from North America and Greenland and Europeans. It involves about fifty specialists and will lead to an important publication. A programme of bilateral cooperation between the

Centre and the Moscow Ethnographic Institute was established in April 1982 to study the evolution of arctic peoples. Three symposia have already been organised : the first one was held in 1982, in Leningrad, about arctic ethnography; the second one in 1983, in Paris, dealt with the traditional economy, especially hunting and fishing; the third, held in Leningrad in 1987 was devoted tc the firsts religious expressions. The fourth will take place in Paris, in December 1990: the theme is the "Identity crisis among arctic peoples."

II International Arctic Symposiums (see list in Appendix 1)

Since its creation, the Centre of Arctic Studies has organised 11 international Arctic symposia, one every two years. Several of them may be considered to have represented turning points in the history of arctic science. Let us mention the second one which dealt with the Northern Atlantic cod-industry (1964) ; the fourth, on "Arctic economic development and the future of Eskimo societies" (1969) which was the first historical meeting of Inuit repsentatives from different countries (Alaska, Canada, Greenland, and even northern Siberia) and facilitated the birth of the Inuit Circumpolar Conference (ICC). In 1973, the Center organised the first symposium on Arctic oil and gas and more recently, in November 1983, a colloquy on "The North Pole : History of its conquest and contemporary problems of maritime and air transportation ." Let it be remembered that the 7th Northern Libraries Colloquy was organised by the Centre in Paris, in 1978, with the CNRS's support, and its proceedings published under the title "Arctica 1978" (Paris : ed.du CNRS, 1981). Actually all those symposia proceedings, including the debates, were published as a whole.

The last one was held in February 1989 on Arctic Technology and Economy in cooperation with the Banque Nationale de Paris.

III International Arctic Film Festival

The Centre of Arctic studies initiated the international arctic film festival; the first one, which was held in Dieppe (France) in June 1983, was a great success. The official programme covered different categories of films as suchdocumentaries, archives, fiction, scientific and native films. Prizes were awarded within each of those categories.

The Second International Arctic Film Festival was held here in Rovaniemi from September 5 to 7, 1986. It was organised in cooperation with the City of Rovaniemi and the Finnish Committee of the European Foundation for Culture. An official selection of 37 films was presented to an international jury composed of ten specialists, under the honorary chairmanship of Lord Edward Shackleton. Several other films were included in an off-festival programme.

The Third Arctic Film Festival was held in Fermo (Italy) from May 26 to 28, 1989 under Mrs Umberto Nobile's honorary chairmanship. The Arctic Film Festival has become an important event which gathers film-makers, specialists on the arctic areas and natives before large audiences.

IV Publications (See list in Appendix 2)

The Centre of Arctic Studies has a large number of publications. Apart from the proceedings of its 12 international symposia, it has also initiated the setting up of five publication series including INTER-NORD, a yearly international and multidisciplinary scientific journal. INTER-NORD contains articles both in French and in English, by leading international specialists on the earth, life and social sciences as well as on the physics and engineering sciences. An important chapter is devoted to reviewing recently published articles and books (approximately 150 publications are reviewed within each issue). INTER-NORD has a printing of 1200. Issue no. 20 is in press.

The other series published by the Centre comprises SIBERIANA, which provides a collection of translations from leading Soviet scientific publications on the Siberian North (2n) ; CONTRIBUTIONS DU CENTRE D'ÉTUDES ARCTIQUES (13 volumes) ; BIBLIOGRAPHIE ARCTIQUE (5n) , which is made up of a thematic catalogue of the documents acquired by the Centre and of specialised bibliographies ; BIBLIOTHEQUE ARCTIQUE ET ANTARCTIQUE (5 volumes); ACTES ET DOCUMENTS (6 volumes) which provides the proceedings of nearly all the symposia of the Centre including the debates as a whole : therefore, ACTES ET DOCUMENTS represents a body of work of tremendous interest for the arctic sciences historian.

Finally, a newsletter entiled ARCTOS provides news from the Centre. (10n)

V Arctic Library

The Centre's library, which is unique in France, holds approximately 40,000 documents - including books, reprints and periodicals - covering all fields: the sciences of the earth and the ocean, the sciences of life, the social and human sciences, engineering. Maps and catalogs of the largest arctic libraries in the world - such as the Arctic Institute of North America, the Scott Polar Research Institute, the Dartmouth Collection, and the American Museum of Natural History - are available for students and researchers.

The Library's north Siberian department, which was developed thanks to close cooperation with many Soviet institutes, is among the richest in Western Europe.

For about five years, the Centre's staff has collected information on arctic films and museum collections; preliminary lists have appeared in Arctica 1978 describing 500 films and 143 museum collections. Complementary lists figure in INTER-NORD (an article is devoted to arctic museum news within each issue). Besides, a list of 700 new films will appear in the next issue of BIBLIOGRAPHIE ARCTIQUE (n 6).

VI Prospects

Several projects are in the works : setting up of a photo-library and a film library that would hold copies of the films selected for the Arctic Film Festivals; organisation of an archives department (diaries, expedition papers and log-books collected during 30 years by the Centre's researchers in Alaska, Canada, Greenland, Northern Scandinavie and Northern Siberia). Plans are presently made also to establish an Arctic Museum.
As for the next International Arctic Film Festival, it will probably take place in Osaka, Japan, in 1992.

APPENDIX 1

LIST OF THE INTERNATIONAL COLLOQUIES ORGANISED BY THE CENTER OF ARCTIC STUDIES (AND RELATED PROCEEDINGS)

1. Le marché des bois du Nord et la région économique de Haute-Normandie / The Market of Wood Products of Northern Origin and the Economic Region of Haute-Normandie / Rouen, 17-18 novembre 1964.
   — Débats publiés dans / Discussions published in / *Actes et Documents n° 1*. Fondation Française d'Etudes Nordiques. Rouen, Paris, 1965. 256 p. (20 F)*.
2. Premier Congrès International de l'industrie morutière dans l'Atlantique Nord : Tradition et avenir / First international Congress on the Cod Industries in the North Atlantic : Tradition and Future / Rouen-Fecamp, 27-29 janvier 1966.
   — Débats publiés dans / Discussions published in / *Actes et Documents n° 2*. Fondation Française d'Etudes Nordiques, Rouen, Paris, 1967. 259 p. (20 F)*.
   — Géo-économie de la morue : rapports scientifiques du premier congrès international de l'industrie morutière / Geo-economics of Cod-Fisheries: Proceedings of the First International Congress on the Cod Industries of the North Atlantic / Ecole Pratique des Hautes Etudes, Ed. Mouton, Paris, La Haye, 1969. 496 p. (165 F)**. *(Bibliothèque Arctique et Antarctique n° 2)*.
3. Les grands ports et trafic de l'Atlantique Nord / Harbours and Traffic of the North Atlantic / Rouen, Le Havre, 25-27 mars 1968.
   — Débats publiés dans / Discussions published in *Actes et Documents n° 3*. Fondation Française d'Etudes Nordiques, Rouen, Paris, 1970. 250 p. (25 F)*.
4. Développement économique de l'Arctique et avenir des sociétés esquimaudes / Economic Development in the Arctic Areas and Future of Eskimo Societies / Le Havre, Rouen, 24-27 novembre 1969.
   — Débats publiés dans / Discussions published in *Actes et Documents n° 4*. Fondation Française d'Etudes Nordiques, Rouen, Paris, 1972. 300 p. (30 F)*.
   — Le peuple esquimau aujourd'hui et demain : rapports scientifiques du quatrième congrès international de la FFEN / The Eskimo People Today and Tomorrow: Proceedings of the Fourth International Congress of the FFEN / Ecole Pratique des Hautes Etudes, Ed. Mouton, Paris, La Haye, 1973. 696 p. (210 F)**. *(Bibliothèque Arctique et Antarctique n° 4)*.
5. Le pétrole et le gaz arctiques : problèmes et perspectives / Arctic Oil and Gas: Problems and Possibilities / Le Havre, 2-5 mai 1973.
   — Débats publiés dans / Discussions published in / *Actes et Documents n° 5*. Fondation Française d'Etudes Nordiques, Rouen, Paris, 1975. 333 p. (45 F)*.
   — Le pétrole et le gaz arctiques, problèmes et perspectives : rapports scientifiques / Arctic Oil and Gas. Problems and Possibilities: Proceedings / Ecole Pratique des Hautes Etudes, Ed. Mouton, Paris, La Haye, 1975 (2 vol.). 912 p. (265 F, les 2 vol.)**. *(Contributions du Centre d'Etudes Arctiques n° 12)*.
6. Les problèmes posés par la gélifraction. Recherches fondamentales et appliquées. Roches et matériaux artificiels de construction / Problems Raised by Frost Action. Fundamental and Applied Researches (Rocks and Artificial Building Materials) / Le Havre, 23-25 avril 1975.
   — Débats et rapports scientifiques publiés dans / Discussions and Proceedings published in / *Actes et Documents n° 6*. Fondation Française d'Etudes Nordiques, Paris, 1977 et 1979. Vol. 1. 305 p. : Vol. 2. 600 p. (105 F les 2 vol.)*.
7. VII' Colloque des Bibliothèques Nordiques / 7th Northern Libraries Colloquy / Paris, 19-23 septembre 1978.
   — *Arctica 1978* : actes du VII' Colloque des Bibliothèques Nordiques / Arctica 1878: Proceedings of the 7th Northern Libraries Colloquy / Editions du CNRS, Paris, 1982, 570 p. (430 F)***.
8. Premier Colloque bilatéral franco-soviétique — Centre d'Etudes Arctiques (CNRS-EHESS) / Institut d'Ethnographie Moscou, Leningrad (Académie des Sciences de l'URSS) : — Problèmes ethnographiques et anthropogéographiques que pose l'étude des peuples arctiques / Ethnographic and Antropogeographic Problems Concerning the Study of the Arctic Peoples / Leningrad, 26-29 avril 1982.
   — Ethnographie et anthropogéographie arctiques : Premier dialogue franco-soviétique. Arctic Ethnography and Anthropogeography: First French-Soviet Dialogue. Editions du CNRS, Paris, 1986. 215 p. (200 F)***.
9. Deuxième Colloque bilatéral franco-soviétique — Centre d'Etudes Arctiques (CNRS-EHESS) / Institut d'Ethnographie Moscou, Leningrad (Académie des Sciences de l'URSS) : — Economie traditionnelle des peuples arctiques : tradition et progrès / Traditional Economy of the Arctic Peoples: Tradition and Progress / Paris, 25-29 avril 1983.
   — Actes à paraitre aux Editions du CNRS, Paris***.
10. Le pôle Nord : histoire de sa conquête et problèmes contemporains de navigation maritime et aérienne / The North Pole: History of its Conquest and Contemporary Problems of Maritime and Air Transportation / Paris, 7-10 novembre 1983.
    — *Pôle Nord 1983* : actes du dixième colloque international du Centre d'Etudes Arctiques / North Pole 1983: Proceedings of the tenth International Congress of the Centre d'Etudes Arctiques. Editions du CNRS, Paris, 1987***.
11. Troisième colloque bilatéral franco-soviétique - Centre d'Etudes Arctiques (CNRS-EHESS) / Institut d'ethnographie Moscou, Léningrad (Académie des sciences de l'URSS) : - Les premières expressions de la religion chez les peuples de l'Arctique / First Religious expressions among the Arctic peoples / Leningrad, 11-15 novembre 1987.
    Actes à paraitre / Proceedings to be published.
12. Ingénierie et économie arctiques / Arctic Technology and Economy / Paris, 15-15 février 1989.
    - *Ingénierie et économie arctiques / Arctic Technology and Economy*. Paris Bureau Veritas, 1989.

APPENDIX 2

PUBLICATIONS OF THE CENTER OF ARCTIC STUDIES

(1957 - 1990)

REVUE / *JOURNAL*

INTER-NORD. revue internationale d'études arctiques / *INTER-NORD. international journal of arctic studies* (1957 →). Parus / published n° 1 ŧo 19 Epuisés / Out of print: n° 1, 4, 5, 6, 7, 8, 9, 10.

■ Editions du CNRS — 295, rue Saint-Jacques, 75005 Paris. Tél. / Phone : (1) 42.26.56.11.

COLLECTIONS / *SERIES*

BIBLIOTHÈQUE ARCTIQUE ET ANTARCTIQUE :

1. The Lapps today in Finland, Norway and Sweden. Tome I: Conferences of Jokkmok 1953 et Karasjok 1956. Paris, La Haye : Ed. Mouton, 1960. 227 p.
2. Le Nouveau-Québec. Contribution à l'étude de l'occupation humaine / The Arctic Quebec. Studies of Human Settlements / (sous la direction de Jean Malaurie et de Jacques Rousseau). Paris, La Haye : EPHE, Ed. Mouton, 1964. 464 p.
3. Géo-économie de la morue. Rapports scientifiques du Premier Congrès International de l'industrie morutière dans l'Atlantique-Nord / Geo-economics of Cod-Fisheries: Proceedings of the First International Congress on the Cod Industries of the North Atlantic / (Rouen et Fecamp, 27-29 janvier 1966), (sous la direction de Jean Malaurie). Paris, La Haye : EPHE, Ed. Mouton, 1969. 487 p.
4. Le peuple esquimau aujourd'hui et demain / The Eskimo people Today and Tomorrow / Rapports scientifiques du Quatrième Congrès International de la Fondation Française d'Etudes Nordiques (Le Havre, Rouen, novembre 1969), (sous la direction de Jean Malaurie). Paris, La Haye : EPHE, Ed. Mouton, 1973. 696 p.
5. Les Vikings et leur civilisation. Problèmes actuels / Problems of the Vikings Civilisation / (sous la direction de Régis Boyer). Paris, La Haye : EPHE, Ed. Mouton, 1976. 242 p.

■ Diffusion : Editions de l'EHESS — 131, boulevard Saint-Michel, 75005 Paris. Tél. / Phone : (1) 4354.47.15.

CONTRIBUTIONS DU CENTRE D'ÉTUDES ARCTIQUES :

1. Jacques Rousseau, La Zonation latitudinale dans la Péninsule Québec-Labrador / Latitudinal Zonation in the Peninsula Quebec-Labrador/. Paris : EPHE, 1961. 64 p. *(épuisé).*
2. Arnljot Stromme Svendsen, la route maritime du Nord, son importance pour le transport maritime et la navigation internationale / The Northern Sea Route: its Importance in Maritime Transport and International Shipping / Paris : EPHE, 1963. 62 p. *(épuisé).*
3. Régis Boyer, Trois sagas islandaises du XVIII[e] siècle et un « Thâttr » / Three Icelandic Sagas of the 18th century and a "Thâttr"/. Paris : EPHE, 1964. 388 p. *(epuisé).*
4. Charles de la Morandière, La pêche française de la morue à Terre-Neuve du XVI[e] siècle à nos jours : son importance économique, sociale et politique / The French Cod Fisheries in Newfoundland from the 16th Century to Nowadays/. Paris : EPHE, 1967. 140 p.
5. Eigil Knuth, Archaeology of the Musk-Ox Way. Paris : EPHE, 1967. 78 p.
6. Régis Boyer, L'islandais des sagas d'après les « sagas de contemporains » / The Icelander of the Sagas as shown by the "Contemporaries' Sagas"/. Paris : EPHE, 1967. 130 p.
7. Patrick Plumet, Archéologie de l'Ungava. Le problème des maisons longues à deux hémicycles et séparations intérieures / Archaeology in the Ungava. The problems of the Long Houses with two Hemicycles and Internal Partitions/. Paris : EPHE, 1969. 68 p.
8. Albert Sauer et P.A. Shumski, Travaux glaciologiques à Kerguelen et dans l'Antarctique / Glacial Studies in the Kerguelen Islands and the Antarctic Areas/. Paris : EPHE, 1970. 169 p.
9. Daniel Nat, Eléments de préhistoire et d'archéologie nord-sibériennes / Prehistory and Archaeology in Northern Siberia/. Paris : EPHE, 1971. 258 p.
10. Régis Boyer, le livre de la colonisation de l'Islande (Landnamábók) / The Book of Iceland Colonization (Landnamábók)/. Paris : EPHE, 1973. 167 p.
11. Serge Bonin, Le traitement graphique d'une information hydrométéorologique relative à l'espace maritime du Nord soviétique / Graphic Treatment of Hydrometeorological Information from the Maritime Areas of Northern USSR/. Paris : EPHE, 1974. 270 p. (2 vol.).
12. Le pétrole et le gaz arctiques : problèmes et perspectives / Arctic Oil and Gas : Problems and possibilities/. Rapports scientifiques du Cinquième Congrès International de la Fondation Française d'Etudes Nordiques (Le Havre, mai 1973). Paris, La Haye : EPHE, Ed. Mouton, 1975. 912 p. (2 vol.).

■ Diffusion : Editions de l'EHESS — 131, boulevard Saint-Michel, 75005 Paris. Tél. / Phone : (1) 4354.47.15.

ACTES ET DOCUMENTS DE LA FONDATION FRANÇAISE D'ÉTUDES NORDIQUES (1964 → 1974) (sous la tutelle du Centre d'Etudes Arctiques)

1. Le Marché des bois du Nord et la region économique de Haute-Normandie / The Market of Wood Products of Northern Origin and the Economic Region of Haute-Normandie/. Paris, Rouen : FFEN, 1965. 256 p.
2. Premier Congrès International de l'industrie morutière dans l'Atlantique-Nord : tradition et avenir / First International Congress on the Cod Industries of the North Atlantic: Tradition and Future/. Paris, Rouen : FFEN, 1967. 259 p.
3. Les grands ports et trafic de l'Atlantique-Nord / Harbours and Traffic of the North Atlantic / Débats. Paris, Rouen : FFEN, 1970. 250 p.
4. Développement économique de l'Arctique et avenir des sociétés esquimaudes / Economic Development in the Arctic Areas and Future of Eskimo Societies/. Débats. Paris, Rouen : FFEN, 1972. 369 p.
5. Le pétrole et le gaz arctiques : problèmes et perspectives / Arctic Oil and Gas: Problems and Possibilities/. Débats. Paris, Rouen : FFEN, 1975. 333 p.
6. Les problèmes posés par la gélifraction. Recherches fondamentales et appliquées (roches et matériaux artificiels de construction / Problems Raised by Frost Action. Fundamental and Applied Researches (Rocks and Artificial Building Materials)/. Rapports et débats. Paris : FFEN, 1977 et 1979. 2 vol. 305 p. et 527 p.

■ Diffusion : Centre d'Etudes Arctiques (CNRS-EHESS) — 19, rue Amélie, 75007 Paris (tél. : (1) 4550.29.83 et 4550.29.84).

BIBLIOGRAPHIE / *BIBLIOGRAPHY*

BIBLIOGRAPHIE ARCTIQUE :

1. Liste des ouvrages et périodiques catalogués à la bibliothèque de 1969 à 1972 : présentation par thèmes (1 780 titres). 74 p. *(épuisé).*
2. Liste des ouvrages et périodiques catalogués à la bibliothèque de janvier 1973 à décembre 1976 : présentation par thèmes (2 655 titres). 189 p.
3. Liste des ouvrages et périodiques catalogués à la bibliothèque de janvier 1977 à juin 1980 : présentation par thèmes (2 300 titres) ■ Liste des mémoires, D.E.A., thèses de 3e cycle et doctorats d'Etat, présentés en France depuis vingt ans concernant les régions arctiques et subarctiques (1960-1980). 207 p.
4. Liste des ouvrages et périodiques catalogués à la bibliothèque de juillet 1980 à décembre 1981 : présentation par thèmes (2 300 titres) ■ Liste des thèses, en langue française, présentées en Belgiques, au Canada et en Suisse, depuis vingt ans concernant les régions arctiques et subarctiques (1960-1980) ■ Bibliographie thématique spécialisée relative à l'exploration, le développement et la production du pétrole et du gaz naturel de l'Arctique (1975-1981). 285 p.
5. Bibliographie des Indiens Ojibway (Canada, Etats-Unis) par Eric NAVET ■ Bibliographie sur les techniques de chasse et de piégeage chez les Amérindiens du Canada par Dominique CHAMBARON ■ Bibliographie des travaux (livres, articles, films) (1948-1984) de Jean MALAURIE ■ Filmographie arctique, liste n° 2 (500-1200) par Sylvie DEVERS. (*à paraître/to be published*)

■ Diffusion : Centre de Documentation Sciences Humaines CNRS — 54, boulevard Raspail, 75006 Paris (tél. : (1) 4544.38.49).

OUVRAGES / *SEPARATE BOOKS*

- *ARCTICA 1978.* Actes du VII[e] Congrès International des Bibliothèques Nordiques / Proceedings of the 7th Northern Libraries Colloquy/. Paris : Editions du CNRS, 1982. 570 p.
- Michèle Therrien, *La conférence tripartite fédérale, provinciale et Inuit Nouveau-Québec 1970. Analyse socio-politique./ Federal, Provincial and Inuit Conference lead in Arctic Quebec in 1970. Socio-political Analysis/.* Paris : Ecole des Hautes Etudes en Sciences Sociales, 1979. 221 p.
- Jean Malaurie, *Thèmes de recherches géomorphologique dans le nord-ouest du Groenland / Geomorphological Research Studies in North-West Greenland/.* Paris : Editions du CNRS, 1968. 495 p. (Mémoires et Documents, numéro hors série).
- *SIBERIANA 1983.* Recueil d'études publiées en Union Soviétique sur la Sibérie du Nord : sciences physiques, sciences de la vie, sciences de la terre, sciences de l'ingénieur, sciences sociales. Paris : Editions du CNRS, 1983. 250 p.
- *Contes esquimaux d'Asie :* K. Sergeeva, *Kivagme le conteur*; E.S. Rubcova, *Matériaux sur la langue et le folklore des Esquimaux asiatiques, dialecte de Caplino / Yuit Myths and Tales :* K. Sergeeva, *Kivagme, the Story-teller*; E.S. Rubcova, *Data on the Yuits' language and folklore, dialect of Caplino.* Paris : Editions du CNRS, 1987.
- *Ingénierie et économie arctiques / Arctic Technology and Economy.* Actes du 12è colloque international du Centre d'Etudes Arctiques / Proceedings of the 12th international colloquy of the Center of Arctic Studies, Paris, February 15 to 17, 1989. Paris : Bureau Véritas, 1989.

Scandinavian Databases as a Source of Information about the Arctic Region

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There are more than 400 databases in Scandinavia, about one hundred in each of the countries, Denmark, Finland, Norway and Sweden. They are in online systems linked to world-wide telecommunication networks and can thus be reached in all parts of the world. Databases in Scandinavia are mostly of a local nature. Many of these databases contain information about the arctic region.

Information on Scandinavian databases is collected and disseminated by Scannet, a project of Nordinfo, the Nordic Council for Scientific Information and Research Libraries. The collecting of information is carried out nationally in each country The latest inventory of Scandinavian databases was just published in the spring 1990 (Nordic Databases - Nordiska databaser 1990, ed.Scannet, Nordinfo-publication 17, Esbo 1990) The following information is based on it.

The number of databases in each of the Nordic countries is presented in figure 1. Figure 2 gives the distribution of the databases by type:

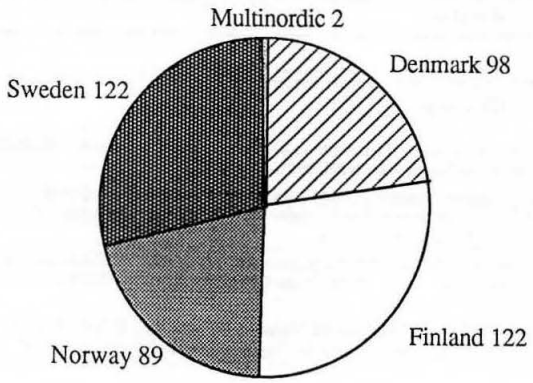

Figure 1. The number of Databases in each of the Nordic countries

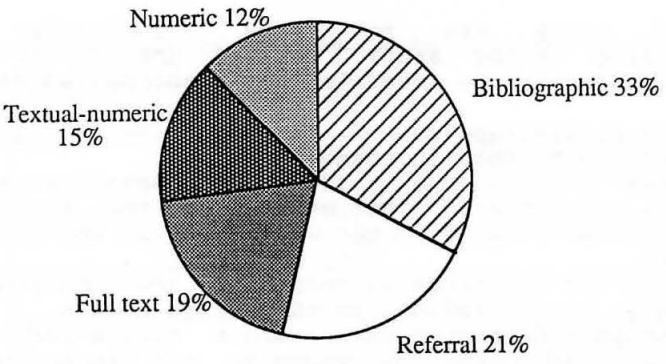

Figure 2. Distribution of the databases by type

The databases cover almost all fields of life. The subjects include:

- research and technology
- standards and patents
- news and newspapers
- statistics
- agriculture and fishing
- construction and building materials
- psychology and education
- biographies
- environment and occupational health
- medicine and hospital care
- research on alcohol and drugs
- art and music
- law and legal cases
- companies and markets
- business and management

The distribution of the databases by broad subject areas is given in Figure 3.

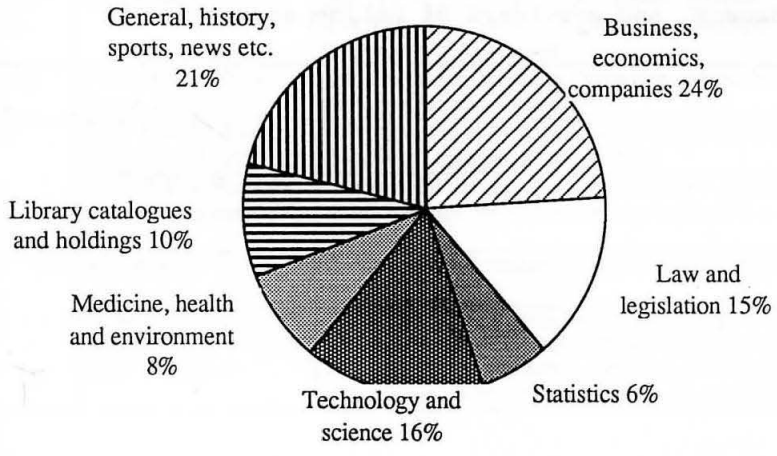

Figure 3. Distribution of the databases by subject

Although there are not many Scandinavian databases specializing in the arctic region, information relevant to arctic studies can be found in many Scandinavian databases:

-National bibliographies of the Scandinavian countries list all books published in these countries.
-Databases listing the holdings of Scandinavian research libraries contain also information on the books, reports, dissertations related to the arctic region and held in these libraries.
-Full-text and reference databases of Scandinavian newspapers report also events related to the arctic region.
-Bibliographic databases on different fields of science and humanities as well as medicine and technology contain references to studies related to the arctic region.
-Databases on business deal also with the business activities of the region.

Examples of Scandinavian databases are given in table 1.

Sources of information about Scandinavian databases: The directory Nordic Databases is published in a few-year intervals by Scannet. (3 volumes have been published so far. The text in the latest directory is in English.) Scannet Today is a newsletter published twice a year and available free of charge. It provides Nordic online news, database and host news and information on the activities of Scannet. The newsletter can be ordered from the secretariat of Scannet. Scandinavian databases are also presented at Nordic and international conferences and exhibitions by Scannet, database producers, and providers of online services.

Table 1. Examples of Scandinavian databases containing information about the arctic region

Database area	Name of the database	Contents
National bibliographies and library holdings	BASIS	References to monographs and periodicals from the Danish National Bibliography and foreign books holdings of Danish libraries
	KOTI	Bibliographic database covering the Finnish national bibliography
	KAUKO	References to non-Finnish monographs in 33 Finnish research libraries
	BIBSYS	Bibliographic references to books and other material in the Norwegian university libraries. Several special collections are included.
	BOK	Bibliographic references to Norwegian books and foreign monographs about Norwegians or Norway
	LIBRIS	The Swedish national bibliography, Union Catalogue of foreign books in Swedish Research Libraries, the bibliography of Swedish Government Publications etc.
References to articles (multidiciplinary)	ARTIKKELBASEN, Danish Article Index Online	References to articles from 17 Danish newspapers and appr. 800 Danish journals and annual publications
	KATI	References incl. Finnish literature on forestry, Finnish articles on agriculture, Lapponica, Finnish and foreign literature on Nordcalotte, Geology, Finnish historical bibliography, Finnish bibliography of meteorology, Bibliographia Studiorum Uralicorum, Fisheries bibliography
	NOTA	Bibliographic references to articles in 400 Norwegian periodicals
References, specific to the arctic region	SAMISK DATABASE	References to literature on all aspects of Samean life and interests, i.e. language, culture, history, dwelling areas, judicial rights etc., published in any language and any country
Business and economics	Firma Fakta Nord-Norge Fi Fa	Information on business firms in northern Norway, their products and services
Agriculture	LANTDOK, Swedish Agricultural Literature	Bibliographic information on all important Swedish documents on agricultural science
	MALTIKA, Regional database for agriculture	A statistical database on agriculture by areas, e.g. municipalities, provinces and agricultural areas in Finland
Fishing	FISHLINE	References to literature on fisheries and related fields
	MARINET, MARINE NETWORK	Information on Norwegian fish breeding. Statistical data and prognosis. Warning services on weather conditions, environment, pollution, fish illnesses, algae invasion etc. News services on a daily basis

Table 1. Examples of Scandinavian databases containing information about the arctic region (cont.)

Database area	Name of the database	Contents
Technology	BODIL	Bibliographic database for housing planning, environment, construction, civil engineering, building services, energy saving and related fields. It covers publications from Sweden, Denmark, Norway and Finland as well as some non-Nordic information deemed to be of interest to Nordic readers
	OIL	References to Nordic literature on geology, petroleum and offshore technology
Environmental protection	NATUR	References to the literature at the Swedish Environmental Protection Agency
Geology	GeoRegister	National reference database on Swedish geology
Medicine	SWEMED	Citations to Swedish biomedical literature
	MEDIC	References to articles about 60 medical journals published in Finland, and monographs and series etc.
	ALCONARC	Exhaustive coverage of Swedish, Norwegian and Danish literature and also literature from other countries
	NORDRUG	Citations, with abstracts, to scientific literature on alcohol and drug abuse. Exhaustive coverage of Nordic literature
Regional statistics	NSD Commune database	Official statistics, data from Norwegian communes back to 1769
	DDB, Demographic database	Socio-demographic archive containing historical data from the eighteenth century on the inhabitants in certain parishes in different parts of Sweden
	RSDB	Statistics on Sweden classified by county and municipality
	NDRT, Nordic Regional Database	Data on a county basis from Denmark, Finland, Iceland, Norway and Sweden
Humanities	NEF, Nordisk Etnologisk Folkloristik Database	Nordic Bibliography for folklorists, Annual Bibliography of Danish Maritime Research and Social Sciences
Newspapers and newswires	ATEKST	Full-text database of the dailies Aftenposten, Dagens Næringsliv and of the magazine Kapital
	ADA	All types of material from the Stockholm daily newspapers Aftonbladet, Dagens Nyheter, Expressen and Svenska Dagbladet
	Tidningsdatabasen	Complete text from the Swedish journals; Dagens Industri, Veckans Affärer etc. Economic articles from the Swedish daily newspaper Dagens Nyheter, Svenska Dagbladet and Sydsvenska Dagbladet
	TT Nyhetsbanken	Complete text of telegrams from the Swedish news agency, Tidningarnas telegrambyrå
General referral	NORDRES, Nordic Research Directory	Descriptions in English of research units and institutes in the Nordic countries

Cost Effective Document Delivery Using Facsimile Transmission via the Existing Computer Network

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This description of our project is not the report of a new use of technology that I expected to give when I submitted the abstract some months ago. Instead I am reporting on a promising technique that we have been unable to test in operation. However, I think that a report on what we are attempting to do might be of interest, and an explanation of our problems may help of the rest of you to avoid them.

To begin with, document delivery is a significant problem in Alaska. We have vast distances to cover, a problem particularly appreciated by those of you from Canada and the USSR. Library materials have low priority when an airplane is the only way to reach a village, and bad weather has prevented planes from getting through for several days (or weeks). In addition, because of the sparse populations, long distance telephone charges within Alaska are higher than telephone calls from Alaska to the rest of the United States. For example, it costs more to call Kodiak, Alaska from Anchorage than it does to call Washington, DC from Anchorage. This means that sending documents between Alaska libraries by telefacsimile (FAX) is prohibitively expensive for routine Interlibrary Loan (ILL) transactions.

The Consortium Library at the University of Alaska Anchorage (UAA) received a Library Technology grant from the U.S. Department of Education to evaluate the transmission of facsimile images over existing computer networks. We were to set up a network between the UAA campus in Anchorage and the libraries in four extended campuses (in Palmer, Kodiak, Kenai, and Valdez, Alaska). All of the campuses are connected by the University of Alaska Computer Network. We also were to test the technique between the Alaska Health Sciences Library (housed at Consortium Library) and hospitals in Barrow and Ketchikan, connected in one case by the university network, and in the other by a commercial network.

The technique involved new software which utilized an optical scanner, a microcomputer, and a modem to connect to the computer nerwork at the sending library. The receiving library needed similar equipment with a printer (preferably a Laserprinter) to receive, convert, and print the images.

By using the existing computer network, we would eliminate all telephone calls, and provide dependable and fast document delivery.

We purchased equipment and the computer staff at UAA proceeded to test the software. With only a few problems (to be expected in new system), we found that the technique worked beautifully in the computer laboratory. In fact the transmission quality can be made significantly better than a FAX, because you can utilize more dots-per-inch, giving more detail in the image. Then we installed the equipment in the Consortium Library ILL office and the Alaska Health Sciences Library (i.e. in two sites in the same building). And the problems appeared. The staff were trained on the system, but complained about the slowness of the process. It seems the files ("bitmaps") of the images are very large. And large files take a long time to download on low speed connection. We have 1200 baud connections, and to transmit a five page article to the computer network takes 50 minutes! Clearly, this is unacceptable in library operations.

So that is where we are, awaiting high speed connections to the UAA computer. I trust that at the next Polar Libraries Colloquy I will be able to report on this technology in document delivery. I believe it has great potential, and look forward to testing it in real library conditions.

I hope that my description of our problems will save some of you from getting caught in the trap of large files and slow transmission.

Towards a Polar Thesaurus: Geographic Indexing for an International Polar Bibliographic Database

William J. Mills
Ronald K. Inouye
Scott Polar Research Institute, University of Cambridge
Elmer E. Rasmuson Library, University of Alaska

This paper focuses on how to move toward greater conformity of geographic indexing. The first part of my title has become something of a misnomer since a polar thesaurus offers only one possible approach and that not necessarily the best.

I shall start from the assumption that the over-riding priority for polar libraries is to move as quickly as possible towards an integrated international polar information system, at the core of which should be a bibliographic database consisting of records submitted by many libraries scattered throughout the polar regions. The reasons why this should be our desired goal have been stated very frequently, and put briefly include: reduced cost through reduced duplication; improved coverage through more effective coodination; increased revenue through reduced competition.

Indexing is often viewed as presenting particularly intractable problems for the establishment of a combined polar database with input from many libraries. For example, in discussing plans to merge just two databases, BOREAL and ASTIS, Minion and Goodwin wrote, "the major problem that remains unresolved relates to subject/geographic indexing. Approximately 40% of the cost of merging the databases is directly related to this problem." (1988, p.160). They estimated these costs at $162,500. If costs on this scale are involved for merger of just ASTIS and BOREAL, on the basis of indexing difficulties alone the combination of all polar databases would appear far beyond the bounds of economic feasibility.

Subject and geographic indexing are often treated together because, at least superficially, they present similar problems which are thought likely to be soluble by similar methods. However, I think that the problems of geographic indexing are much more easily solved, and - fortunately - are also more important.

Both of these points are debatable, particularly the latter. Is geographic indexing really more important than subject indexing? Here I share Sokolov's view when she writes, "the requests we get for information tend to be by geographic area rather than subject. Patrons more often ask for everything we have about the Seward Peninsula rather than everything about petroleum geology in Alaska. Projects and contracts also tend to require everything about a geographic region than everything about a subject. I suspect that this is true of other 'northern' libraries" (1982, p.49). By and large, this reflects our experience at SPRI though we do have one notable exception, glaciology, where requests tend to be more subject-orientated though often including a geographic component. Why this should be so raises interesting questions deserving investigation in their own right, but basically I suspect that it is because polar libraries and databases are known to excel in the provision of information relating to specific regions, which is after all their raison d'être. Anyone whose information needs are strongly subject-rather than geographic orientated is likely to be better served by databases and libraries specializing in those subjects. The geographic organization of information is what we are expected to do best. If we are to establish an international polar database, capable of holdings its own in an increasingly competitive information world, one of the first issues to be resolved should be achievement of methods of geographic indexing which are essentially uniform among all contributing libraries.

However, whether geographic indexing is or is not more important than subject indexing is something of a side issue in this paper. The point is that geographic indexing is important and can be treated as a separate issue from subject indexing.

Very helpful summaries of the alternative possible methods for geographic indexing have been prepared by Nicholls (1989) and Goodwin and Minion (1989) as background papers for the planned Canadian Polar Information System; these authors have kindly allowed me access to their papers. Goodwin and Minion distinguish five possible alternatives: Canadian National Topopographic System map sheet numbers, no controlled vocabulary, latitude and longitude, a thesaurus, and Universal Decimal Classification (UDC) for Use in Polar Libraries. A sixth alternative, Library of Congress subject headings, was ruled out at an earlier stage. For an international as opposed to a Canadian polar database, National Topographic System numbers are clearly inappropriate. Uncontrolled vocabulary, will automatically be made available as long as title words (and preferably abstracts) can be searched. Assuming that uncontrolled vocabulary by itself is unlikely to be sufficient, three alternatives remain to be discussed: latitude and longtitude, a thesaurus, and UDC.

Goodwin and Minion provide this description of the latitude and longitude approach. "...[R]ecords are indexed with the minimum and maximum latitudes and longitudes of the geographic areas that they describe. Each set of four numbers defined a 'rectangle', line, or, if the minima and maxima are the same in both cases, a point. Records that describe no geographic area have no latitude or longitude given. Records that describe more than one non-contiguous area must ... be represented by a 'rectangle' large enough to include all the areas" (1989, p.12). One major database using this system is the geological database GEOREF. Whatever the virtues of the latitude/longitude approach, Goodwin and Minion's listing of disadvantages makes it quite clear that this is unlikely to provide an appropriate solution for a polar database. Indexing costs will be increased by the additional indexing time needed to calculate suitable rectangles: "geographic areas of interest to authors or searchers are seldom rectangles, but must be described as if they were" ... resulting in many false hits (1989, p.13). Not all retrieval software can carry out this kind of search; a sample survey of ASTIS records showed that ca. 80% would not be provided with latitude and longitude coordinates since they covered areas too large for the coordinate system to be workable. Searchers are likely to find the method too complicated to use.

Restricted by their brief to studying the needs of a Canadian Polar Information System, one problem of geographic access that Goodwin and Minion did not have to consider was that posed by the lack of any internationally agreed system of geographical nomenclature. As they state, whether English and French, "most Canadian place names have a single offical form" (1989, p.11). This is not true internationally. Whose nomenclature do we employ for the Antarctic? United States? Soviet? British? The oceans are no better. Within nation states, usually - though not always - there are officially accepted names, but what of areas where sovereignity is in dispute? Falklands or Malvinas? Wrangel Island or Ostrova Vranglaya? A thesaurus approach to geographic access has much to commend it but I really do feel that without an accepted international nomenclature, it would be strangled at birth by disagreements political in origin and quite beyond our control.

It is no coincidence that the man who pioneered the use of the Universal Decimal Classification in polar libraries, Brian Roberts, also served for many years as Secretary of the UK Antarctic Place-Names Committee. UDC's principal advantage is that it by-passes the nomenclature quagmire by using numerical notation. For those unfamiliar with the UDC polar schedule, here are some examples of geographic numbers:

(*50) USSR
(*51) Soviet Islands in the North Pacific Ocean
(*511) Ratmavova, Ostrov (Big Diomede or Noonarbook Island)
(*52) USSR, islands north of
(*527) Fransta-Iosifa, Zemlya (Franz Josef Land)

Without an internationally accepted system of geographic nomenclature, I see no alternative to adopting some form of numerical notation for geographic indexers. Whilst it is certainly true that indexers find keywords more memorable and information seekers tend to prefer terms to numbers, numerical notations function very successfully on a variety of databases. Prominent examples include CHEMICAL ABSTRACTS, BIOSIS, and MEDLINE. Given that in any conceivable loading of an international polar database, titles and abstracts will be searchable, free text searching will also be available to supplement the numerical indexing.

Naturally, as Librarian of the Library responsible for maintaining the one existing polar numerical notation, the UDC polar schedule, I may be regarded as a partical witness. Having said this, however, I should state here that with regard to subject as opposed to geographic indexing, I am far from convinced that an essentially numerical system such as UDC will meet the needs of our proposed polar database. This is one reason why I have emphasized the need to treat subject and geographic indexing as separate problems.

There is clearly much to discuss here in order to make material progress rather than simply provoke a debate, I suggest the following course of action. At the 5th Northern Libraries Colloquy held here at Rovaniemi in 1975, Harry King, then SPRI Librarian, invited his fellow delegates to submit suggestions for appropriate regional subdivision, particulary with reference to areas with which they were most closely involved. These suggestions were then incorporated in a new edition of UDC. I invite all those attending this 13th Polar Libraries Colloquy to repeat this exercise. Out of it I hope will come an internationally acceptable numerical notation for the geographic indexing of polar region, possibly, though not necessarily, based on UDC.

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Can the Soviet Union Ensure the Fulfilment of Sustainable Development of the Arctic in Future?

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The problem of sustainable development of the Soviet Arctic (SASD) is undoubtedly pressing in the context of discussion of such a theme as "Man's Future in Arctic Areas." The problem is complex and multi-faceted . It can be viewed in retrospect, at a current angle or in a long perspective. But we shall confine ourselves to treating our philosophy with respect to the SASD problem and shall try to assess the development options in line with the ongoing perestroika and democratization in our country. As a final result, we shall try to answer the question: can or cannot the Soviet Union ensure fulfilment of sustainable development of the Soviet Arctic in future?

As is known, the problem of sustainable development, i.e. "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [1], is actively discussed with respect to the whole planet as well as to its different regions. As for the Arctic, sustainable development depends first of all on a number of specific features of the region: peculiar physical and geographical parameters (high latitude location, the phenomenon of polar day and polar night, the specific radiation and light regime, low temperatures with excessive humidity of their air, occasional year-round sea ice, permafrost, development of land ice in some areas, scarcity of the organic world, absence of forests); the below-zero temperatures for 240 to 300 days a year and 150 days with a strong wind complemented with a long winter night substantially affect the labour activity in the Soviet Arctic (by expert judgment the discomfort coefficient there is a 4 to 10 times higher than, for example, in the Moscow Region). The same work made in arctic conditions requires an additional 400 to 700 calories in food compared to an area with a moderate climate. The cold and windy weather keeps people from open air recreation at their leisure time and as a result, for example, the inhabitants of Norlisk spend 4 times less hours on walks than Muscovites. Co-habitation of two radically differing population groups (migrants and natives) with their own cultural and economic modes calls for a sound and wise policy of recruiting the labour force for the arctic region. The Arctic nature is severe, but it is also unique: sensitive to anthropogenic activity, therefore it is necessary to take into account that arctic areas cannot always afford a high concentration of production and population, permissible in lower latitudes.

However at the same time considerable reserves of copper, nickel, tin and other minerals are discovered in the Soviet Arctic, huge oil, gas and natural bitumen are prospected on the arctic shore and off-shore. It is evident that development of these resources will require enormous spending due to the technological, social, ecological and, consequently, economic uncertainty of arctic projects. This makes it mandatory to formulate weighted long-term decisions relating to terms, rates and scale of the development of the Soviet Arctic.

Thus, in view of the regions abovesaid specifics, the SASD objective function in a perspective runs as follows: to ensure effective involvement of the arctic resources in the national turnover with due consideration of the natural, social, ecological and economic factors, and with priority given to social interest and with conformity to the parameters of conservation of all the Arctic environment components.

Now let us pose a question: can the SASD objective function be realized in practive? To answer that it could be useful to review, though in fragments, the trends of development of the Soviet Arctic. As we know, our country began to study and develop the Arctic in the 1930s. Since then a lot of research has been made into the region's natural environment, numerous mineral resources have been discovered and large-scale projects for their extraction and processing have been constructed. Along the arctic shore there have been erected settlements where thousands of Soviet people live and work. Up to the present time the Soviet Arctic zone was developed locally, and only the richest fields were attended to. The locality itself was but a narrowly-oriented part of the entire economic system. That traditional development strategy had historical roots and was accounted for by a striving to compensate for the regional difficulties of development by achieving immediate national economic results. One may state that before the 1970s in the arctic region social infrastructure lagged seriously behind basic production. Besides, there appeared some industrial complexes that had a negative effect on the region's ecosystems. To a certain extent, these phenomena could be explained by initial absence of a clear conception of the Arctic's natural environment, therefore development occurred by trial, accumulation of experience and, sometimes, error. However, until industrial development acquired a larger scale, the SASD problems were not acute or pressing. In the 1970s and 1980s the situation began to take a different turn. There appeared attempts to check the declining rates of economic growth by extensive methods. There was a sharp rise in the scale of the fuel and power industries and, as a consequence, forced involvement in production of still new natural resources, arctic ones included. Analysis showed that orientation towards accelerated development of arctic natural resources was

imposed by administrative command rather than deduced by means of economic calculations by ministries and agencies. They never employed multi-attribute scientific substantiation methods to estimate the projects for a long perspective from a national economic standpoint.

On the whole one may state that a result of the abovesaid major strategy of the region's resources in the national economic turnover:

-the material and technical basis is extended at the expense of the centralized investments without any attempt for higher performance;
-developments of the production sphere have come far ahead of the social spheren; as a consequence, the growing population has not a sufficient life-supporting basis, including houses with conveniences, nutritious food, decent services and health care;
-there appear numerous unfavourable trends in the development of the native population of the Arctic region;
-the ecosystems of the actively developed arctic areas have been seriously affected by now. Thus, the mode of development of the Soviet Arctic, as well as the region's ecological state cannot but arouse concern. To a large extent, it was that particular consideration that urged setting up a State Commission for Arctic Affairs under the auspices of the USSR Council of Ministers. The Commission is vested with the authority to regulate the activities of ministries and agencies from a national economic standpoint.

What are prospects for improving the situation?

Before answering the above question, it is necessary to name the reasons for the negative trends. Identification of the reasons and their subsequent elimination will pave the way for implementation of the SASD idea and, in the final count, for the region'a future prosperity. To my mind , there exist at least six peculiar phenomena that influence the Arctic's development, though to a differing degree: lack of resource-saving technologies, as well as some international resource export liabilities, force to move the extracting technology into the Arctic; a wasteful economic system making it profitable for ministries to undertake expensive arctic projects; the absence of prices for land, water, forest, minerals leads to ascornful and extravagant attitude to nature; ineffectiveness of the operating ecological and nature-protecting legislation whose violation does not result in any practical responsibility for those guilty; lack of real power on the part of the local authorities to influence production; lack of information accessible to the public on the real state of things, as pursuing their narrow department goals, the ministries "closed" the information.

Perestroika, democratization and openness bring about positive changes in our society: profit-and-loss accounting and self-financing, cooperation and leasing. There is going to be a transition to wholesale trade in means of production. Reorganized will be systems of planning, financing and crediting. Republics and local municipally elected bodies will be vested with full power in decision-making with respect to their affairs. There will to be profit-and-loss accounting on a regional level, which will make it possible to put a certain barrier to departmental dictatorship. More serious attention is given to the natural environment: both its health and protection. There is strong orientation towards a careful relationship with nature. Besides, there have been steps made towards creating a law-governed state. All the ongoing processes fill one with optimism not only with respect to the events occuring on a national level, but also relating to the problem discussed here, i.e., SASD.

However, what has been done in this direction is not all that has been planned or is necessary to be done, therefore, there is no reason for rejoicing. Despite attempts to change the earlier approach to the national economy, by the cost and gross product criteria, there are no tangible results as yet. Moreover, the current five-year period still features the cost criterion of development. Consequently, further socio-ecological prospects of the Soviet Arctic to a large extent will be determined by how feasible will be a radical economic reform and actual introduction of a new economic mechanism. The latter will be possible only after elimination of the monopoly of ministries and agencies in some other sphere of activity and development of a normal socialist market.

Speaking of the current moment, we must say, however, that the first phenomenon of the abovesaid six has a descisive significance for the development of the Arctic. It can be explained by the existence of international liabilities concerning the export of natural resources, as well as by their wasteful consumption inside this country. As a results up until 1983, the USSR increased domestic consumption of oil, whereas in the remaining world there was an opposite tendency. In view of the above, the most urgent problems in our country are: 1. establishment of reasonable volumes of export and import of natural resources; 2. radical improvement of production and consumption patterns. The contemporary directive documents envisage certain resource-saving measures, on whose realization the terms and rates of arctic resources involvement in the national economic turnover will depend to a great extent.

Our people seem to increasingly understand that it is not moral to buy our well-being, paying whatever price or making whatever sacrifice. Our future generations will not forgive us for that, and it becomes evident during the discussion of further development prospects for Soviet Arctic. Nevertheless, the first attempt of our country to think of this complex region's development is undoubtedly a very inspiring event and a step in the SASD direction. But there is not yet sufficient ground to feel over optimistic about it, as there is still the problem of attaining material and finanical balance between the arctic projects and other regional projects. It is not easy at all, and that can be confirmed by the following fact. By 1985 there had been adopted so many Party and Government documents that concerned development of some branches of industry, regions, urban settlements and priority areas of the scientific and technological progess, that they would require investments up to the year of ...2050! One cannot but take into account that in the 12th five-year period the rates of adoption of such documents have held their own, which increases probability and scope of their overall unbalanced character.

Therefore, in my opinion, this circumstance may hit the social and ecological components of the arctic projects first. It would lead to a further gap between the SASD objective and practical state of things. This supposition is based on the prevalence of the first phenomenon, its most significant role - the other five phenomena would only regulate the size of the abovesaid gap. Hence, the following conclusion: the possibility and effectiveness of SASD in the Soviet Arctic will actually depend on the effectiveness of the perestroika process, because it determines how viable all the six phenomena will be. True, the State Commision for Arctic Affairs, the USSR Council of Ministers, may play a significant role here too.

However, one should think in realistic terms about the situation. One should clearly understand what we shall be facing tomorrow and, especially, the day after tomorrow. It is self-understood that declarations alone cannot solve the SASD problem. We have already heard correct words about the need for saving the sensitive arctic nature and unique culture of its peoples before. What we need now is activity, not words. It is only perestroika with its most needed cardinal economic reform that will guarantee SASD. There is no other alternative.

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Development of the Northern Economic Zone in the USSR: Tendencies and Limits

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Abstract

The north economic region consisting of five administrative-territorial units has developed more rapidly during the last 20 years than the European part of the country. But this advance especially in the utmost North is mainly connected with the development of raw material branches: timber, mining, fuels, fishing and others. It can be expected that under the conditions of preferential extraction of useful components, poor treatment and mining deterioration, the tendency towards the rapid progress would be gradually replaced by stabilization followed by the output reduction in some branches. A typical representative of this unit serves Murmansk region where the fishing and mining branch give nearly 70 percent of all industrial production.

Limits are put through the deterioration of mainly natural conditions, and labor costs become one of the major factors. It was not a decisive factor under conditions of the centralized price formation oriented towards the manufacturing expenditures, but in the course of market development it may be of great importance. New equipment and measures caused by scientific and technolgical progress do not compensate in some cases the actions of a cost-raise factor. Ever increasing demands to the living condition require additional expenditures on in the social sphere. It is necessary to note that local agricultural production takes only 35-40 percents of the total volume of the North region consumption (and 25-30% in the Murmansk region). In new conditions we have the problem of price formation too.

For conclusion in this part it is necessary to speak about theprincipal limit. It is constituted by demography factors (ecologial limits are discussed by other participants). The population of the North has been increasing more rapidly then in the central region.

The density of population in the North Economic region is about 4 person per square kilometer; in Murmansk region 9. The same figure is 1-2 in the Northern zone in the USA and Canada.

The demography policy was formed by state government. It can be said that we have not had a scientific strategy (further-reasonable strategy), but now have big towns. Towns are growing and, therefore, problems are growing. It; is connected with the monostructure of production. And many disabled people have no posibility to live in other parts of the country.

We have a number limits. But at the same time one should take into consideration the fact that a large scientific-technological potential is created here and the mastering has a basis and long-term nature. There are more then 200 organizations of science including 3 USSR Academy of Science centres. An analysis of these contradictory directions serves as a basis for determination in the tendencies in the USSR's northern development in the search for new non-traditional decisions.

The decision of the problem lies in the transformation of industrial patterns and creating new branches, such as tourism and machinery. Secondly, we must create conditions for the migration of people from the North. It must begin by shifting construction firms to a new place and the shifting of people must follow.

It is necessary to have a new state policy for solving demographic and ecological problems, because without this all processes of market development may be very painful for our region. Our institute now analyzes data about new equipment and technology for the North, movement of production, demography, and ecology directions and others. The base of data includes full information about the Northern economic region and five administrative units by the following parts:

-economic requirements for scientific and technical progress;

-development by sciences;

-social development and raising the population's standard of living;

-population and labor resources;

-professional training and education;

-natural resources;

-environmental protection;

-the guidelines for scientific and technical progress in industries and interindustry complexes:

•power industry;

•fuel industry;

•ferrous metallurgy;

•mechanical enginenring and metal working;

•timber and wood working industries;

•others;

-forgeing economic development and trade.

Every considering bloc includes from 20 to 50 figures by twenty years. This is the basis to predict new decisions.

The Management of Arctic Environmental Data in the United States:

Prince William Sound Oil Spill Data

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Introduction

This paper would have reported on the U.S. federal government's current efforts to manage its arctic environmental data. However after submitting the abstract, I learned that Denice Wiltshire of the U.S. Geological Survey (USGS) would be demonstrating the CD prototype resulting from these efforts. Instead of perhaps duplicating her remarks or canceling this presentation altogether, I decided to change my report to focus on the management of the Prince William Sound oil spill data. It is a bleak and shameful story.

The oil tanker Exxon Valdez ran aground in Prince William Sound on March 24, 1989, Good Friday. (Good Friday is a particularly memorable day for Alaska, because that was the day of the Great Alaska Earthquake some 25 years ago. The epicenter of the quake was also in Prince William Sound, less than forty kilometers from the now famous Bligh Reef.) The oil spill, as massive as it was, was only "34th on a list of the world's largest oil spills in the past 25 years," (Spill, the Wreck of the Exxon Valdez, by the Alaska Oil Spill Commission, 1990). What was significant was that this spill occurred in a pristine wilderness, so unspoiled that ten years ago the U.S. National Oceanic and Atmospheric Administration (NOAA) planned to perform a major marine ecosystem assessment of the area which would then serve as a baseline in the event of an oil spill or another environmental disaster. In preparation for this assessment, NOAA funded the Arctic Environmental Information and Data Center (AEIDC) to prepare a bibliography of information relating to Prince William Sound. Although the bibliography was published (Prince William Sound Annotated Bibliography and Index, 1979.), the assessment, itself, unfortunately, was never funded.

Immediately after the spill occurred, in March 1989, scientists from all sectors (from federal and state government; the private sector, particularly the fishing industry; conservation groups; and, of course, EXXON) converged on the sound and began to monitor the effects of both the spill and the clean-up efforts.

Alaska libraries marshalled their forces to identify what was already known about oil spills in cold water about Prince William Sound in particular. They set up a sort special repository network, produced bibliographies, and prepared themselves for the expected flood of reports that would result from the research activities on the Sound. What flowed in wasn't even a trickle.

The driving force behind all environmental monitoring efforts of the state of Alaska (and to a somewhat lesser extent behind those of the federal government) is the preparation of a lawsuit against EXXON. To this end, a 'gag order' was issued, forbidding state agencies from releasing their data. Similar orders were issued to several of the federal agencies involved. The funding of research by the state government is being directed by the Alaska Department of Law. Apparently, studies that might help the state's case are being backed, while those whose results might weaken the lawsuit are cancelled. (I say apparently, because it is not clear what is going on with the studies, and most certainly the results are being kept secret.)

The Alaska State Legislature did set up an Exxon Valdez Oil Spill Commission, commonly known as the Alaska Oil Spill Commision (AOSC), which consisted of seven experts, five of whom were Alaskans. AOSC was directed to evaluate why the spill occurred and what mitigation efforts took place, and to make recommendations to prevent a reccurence of such a disaster. AOSC held hearings around the state and reviewed a host of documents, but conducted no research on its own. AEIDC served as the library for the Commission and produced a bibliography of the materials collected. The final report was issued in early 1990 and AOSC ceased to exist on May 15, 1990. However, the materials collected are still available at AEIDC, and anything that was not copyrighted is also available from AEIDC on microfiche.

The U.S. Department of Justice, which is handling the federal lawsuit, has hired a Washington, DC, consulting firm (CACI) to set up an oil spill litigation library. Adding insult to injury, they have also recently instructed this firm to set up a public library in Anchorage to make available the oil spill materials that have been released. CACI has leased a four-story building in Anchorage and has made initial contacts with the library community in Anchorage. I believe they were a little surprised to find that libraries are as well organized as they are in Alaska. We anticipate that a cooperative relationship can be worked out between the litigation library consultants from Washington, DC, and the Alaska library community.

And then there is EXXON. I have it from 'a usually reliable source' that EXXON has gone one step beyond a gag order. Because written documents can be subpoenaed for use in a court of law, EXXON'S contractors have been instructed to turn over their raw data and to report their findings and conclusions in an oral report. In other words, there are to be no written documents relating to EXXON's oil spill research. There is a bright spot in this tale of dark oily secrets. NOAA through a contract with the Minerals Management Service, has been funding research in the Alaska marine environment since 1976. The program is called the Outer Continental Shelf Environmental Assessment Program (OCSEAP), and some two years prior to the Prince William Sound oil spill NOAA began the production of a collection of Alaska marine pollution databases resulting from the OCSEAP studies, as well as other relevant research. The collected databases were assembled on a compact disc (CD-ROM), which was recently released as the "Alaska Marine Contaminants Database." The databases included are evaluated as so user- friendly that the product has been written up in a number of trade journals. While the research represented in this effort predated the spill, the data is relevant and appropriate to our subject.

In summary, at this time both government and oil industry research is being released in an extremely limited manner. The reports that do appear are, for the most part, from the environmental community and/or for public consumption. My colleague from Rasmuson Library, Ron Inouye, has already reported on the Bibliography of Alaskana's coverage of the oil spill literature. This effort is to be applauded. At this time it probably provides the most comprehensive coverage of the literature produced.

The problem we face is not the bibliographic control of the reports; the problem is that the reports themselves are not being released. I can assure you that Alaska librarians are ready and willing to manage the environmental reports resulting from the Prince William Sound oil spill, as soon as they are released. When that happens, we will be happy to share the materials with you all.

Main Principles of Creation of the Arctic Ionosphere Research System

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More than 60 years ago two famous thinkers - the Russian geologist Vladimir Vernadsky and French philosopher Edward Le Roy suggested the concept of Noosphere or "Shell of Mind" as a recent status of the Earth's Biosphere evolution. The biosphere history includes billions of years and during this time spontaneous overturn of organic substance has been going on in the outer shells of the planet - in the lithosphere, hydroshsere, atmosphere. For millions of years since life began man has been a simple link of trophic chains of ecosystems and the equilibrium between mankind and environment has been stable. In the Arctic region a stable balance had remained up to the 20th century when some millions of vigorous southern people came to the Arctic to keep and use for the benefit of mankind tremendous natural treasures of the North - gold and diamonds, apatite and iron, nickel and copper, timber and fish. The newcomers meant to create a comfortable life the same in quality as that in the South. For that good purpose man started to remake the natural environment and exploit the natural resources so intensively, that he has transformed into a strong geological force. It was 50 years later when humans realized dangerous and sometimes disastrous consequences of unconscious disturbances of the Arctic ecosystems: technogenic deserts arose around industrial centres, fish disappeared from lakes and seas, millions of hectares of reindeer pastures were destroyed, the northern technosphere can coexist and evolve stably only under the conditions of their correspondence to the principles of the Ionosphere.

It means that man ought live in harmony with nature, the pollution of the environment must be cancelled, utilization of natural resources should not damage arctic nature, and the ecological science would be a good basis for maintenance of arctic ecosystem evolution. The principles are simple and universal. Vernadsky and Le Roy proposed them in the 1920s but a half century had been needed for a worldwide acknowledgement of these principles as a theoretical base for the "green movement" and "new thinking."

For the real creation of the arctic Noosphere it is necessary now to concentrate great efforts of northern research in 4 main directions.

1. Bioecology - the investigation of a structure and a turnover of matter and energy in the arctic ecosystems. This knowledge is necessary for a prediction of consequences of man's intervention in natural ecosystems and for estimation of permissible limits of this intervention (including quotas for timber felling, fishing, and waste dumping, etc.).

2. Social ecology - the research of physiological and psychological features of arctic inhabitants to study the conditions for adaptation of incomers from the South, to determine remote consequences of temporal living on the North of the non native inhabitants, to understand the influence of urbanization and technogenic pollution of the environment (including traditional food) on the arctic natives.

3. Industrial ecology - a detection of technogenic factor and Chemistry provide a choice of rational exploration and utilization of mineral raw materials. The Institute of Marine Biology and the Polar-Alpine Botanical Garden-Institute study the Earth and sea bioresources. The Polar Geophysical Institute studies the Ionosphere processes and their reflection in the physical fields that have impact on northern people. The Institute of Economic Problems estimates profitability of the technical designs suggested and predicts social and economical processes in the region. The Institute of Industrial Ecology reveals the environment evolution tendencies, examines the technical designs from their ecological viewpoints, studies the newcomers' ability to adapt to arctic conditions.

The Kola Science Centre publishes annually more than 1000 works (20 000 pages on average). The results of investigations are stored in the science archive and in the scientific library, the former involves more that 17 000 manuscripts. The library numbered first 6000 books presented by Academician A. Fersman and now its collection is 172 000 books and more than 250 000 newspaper and journals. Book exhange is done with 159 libraries, which has increased its collection with 132 000 foreign publications. Unfortunately, this information storage lacks an automatic data retrievel system. Annual bibliography of publications (about 3000 titles) dealing with the region's problems helps to orient a great variety of books. Integration of the Kola Science Centre's library into the common automated data base on the arctic Noosphere would allow us to improve essentially the cooperation in the elaboration of optimal regimes in nature management, brought pressure on arctic ecosystems; a search for their decrease and prevention, an ecological examination of technical projects.

4. Ecological monitoring - a regular control for the arctic ecosystems to detect their evolution tendencies and destructive factors.

The four directions of research must be involved and united in a common framework of information system "Arctic Noosphere." The arctic nature does not know about the existence of state boundaries. Transboundary, transoceanic and transcontinental flows transfer the effects of local disturbances over the Polar Cap of the Earth. For which reason the accumulation of knowledge useful for the arctic Noosphere creation is the mutual task of all northern states. While the nations developed the arctic region autonmatically, humans made a lot of mistakes but we could correct them more rapidly if we use common experience.

In that aspect the example of contemporaneous evolution of industry and science in Murmansk region of the USSR would be of interest for the arctic association. In 1930 Academician Alexander Fersman - a pupil of Vernadsky, founded the Kola Research Station of the USSR Academy of Sciences. Through 60 years the small station has evolved into the biggest science centre set up over the Polar Circle. The Centre involves 10 research institutes and a widespread network of local observatories and investigation stations. More than 4000 scientists, engineers and workers work in the Centre and by 1995 their number will be 5000.

Joint investigations of such Institutes of Geology, Mining, Complex science centres like the Kola Science Centre are believed to be formed in all the main arctic regions. The former system of data collection by small observation stations and short-term expeditions followed by data treatment made at single highly-specialized research organizations located in the North does not provide the prediction of Arctic evolution any longer. This pessimistic conclusion does concern social ecology. This problem cannot be studied thoroughly and solved successfully until we experience all the nuances of the problem ourselves.

Information about "Pollution of Pine and Spruce Forests in Northern Europe" in International Databases

Anna-Maija Mäkirinta
Biology Library
University of Oulu

Some years ago we in Finland believed that Lapland was the cleanest region in our country. Polluted areas were somewhere in Central Europe. Today we are worried about the pollution of the Kola Peninsula and its effects on nature in Lapland.

Material and methods:

The same profile, "Pollution (including acidification and heavy metals) of pine and spruce forests in Northern Europe" was serached on DIALOG as "OneSearch" from six databases: Agris (file 203), Agricola (file 10), CAB Abstracts (files 50 and 53), Biosis (file 5), and Pollution Abstracts (file 41). Geographically, the search was limited to Sweden, Norway, Finland, Lapland and Russia.

Results:

At the end of the Search, I have got 891 items (Tab.1). The best database as regards the quantity of items was CAB; both databases (file 50 and 53) gave a lot of items but the production of pollution research has clearly increased in the 1980s (file 50). Agris, too, proved to be useful. The number of items from BIOSIS would probably have reached the same level if a wider database (file 5) had been used. Pollution abstracts was a surprise: the number of references was low even through the subject was pollution.

Relevance:

Regional limiting to Northern Europe was necessary; the amount of items would otherwise have been too great (4450). This limiting, however, proved to be partly unsuccessful. The word "Norway" was problematic because the name of the Northern European spruce species (Picea excelsa) is Norway spruce. Consequently, this search system included every article related to our subject and dealing with Norway spruce even though the research in question was carried out in Central Europe (Tab.2). That is why relevancy was only 48%, if only the research dealing with really northern areas is regarded as relevant. However, for scientists research done in Central Europe provides useful and relevant material.

That is to say, the actual relevancy was 89% - really high. As regards relevancy, the best databases were again the CAB files, but POLLUTION Abstracts was better than the others.

Discussion:

For an effective search, one database is not enough. "OneSearch" on DIALOG is very useful because the overlap is no longer a problem and you do not need to pay for double items. Sometimes the amount of items grows too high, and there is no money to take out all the items, as it was in this case. From 891 items I printed 254 items (about 28%). I would like to print an equal number of items from every database for statistical review but this did not succeed. Secondly, I would have liked to print all the items from the BIOSIS database, but it does not succeed on "OneSearch"- not easily, at least. I have dealt items to three research groups working in the Department of Botany University, of Oulu and to Coordinator Eero Tikkanen in the Finnish Forest Research Institute. The researchers took part in formulating the profile and the search strategy too.
We need information, we need more research: pollution is a big problem for the future of man in Polar regions.

		1974-90 AGRIS	1979-90 AGRICOLA	1984-90 CAB	1972-83 CAB	1981-90 BIOSIS	1970-90 POLLUT	TOTAL
s1	Pinus or pine	10 035	15 243	13 466	26 498	12 762	475	78 479
s2	Picea or spruce	5 713	5 820	6 330	11 550	5 884	227	35 524
c3	1+2	14 569	20 112	17 886	34 240	17 149	659	104 615
s4	forest?	52 322	107 142	33 831	54 975	29 838	2 106	280 214
s5	pollution	11 547	35 259	9 218	11 064	36 540	31 602	135 230
s6	acid?	43 519	43 847	67 385	120 402	362 989	9 910	648 052
s7	heavy(w)metal?	6 148	2 097	2 351	2 330	6 482	4 816	24 224
s8	nickel	474	757	821	1 021	5 600	962	9 635
s9	copper	3 464	4 764	6 107	10 582	19 753	2 649	47 319
s10	iron	3 245	6 204	7 991	11 413	28 265	2 082	59 200
s11	chromium or chrome	552	843	908	1 199	5 260	950	9 712
s12	arsenic?	440	608	591	1 371	2 157	891	6 058
s13	cadmium	1 777	2 070	1 845	2 655	10 197	3 057	21 601
c14	5-13/+	63 314	87 705	86 984	150 944	443 108	46 959	879 014
c15	3*4*14	688	1 070	945	778	796	173	4 450
s16	Sweden	10 298	3 898	4 755	8 856	5 992	1 028	34 827
s17	Norway	7 133	2 947	4 523	7 432	5 765	385	28 185
s18	Finland	3 301	2 644	3 135	5 041	4 331	444	18 896
s19	Lapland	62	50	81	168	258	7	626
s20	Russia	31	1 562	1 643	3 752	179	14	7 181
c21	16-20/+	19 992	10 833	13 191	23 465	15 620	1 765	84 866
c22	15*21	182	96	338	138	105	32	891
s23	mycorrhiza?	1 884	2 687	2 646	3 872	2 953	42	14 084
c24	22*23	6	2	9	1	4	0	22

Table 1. Number of items in different files and total.

Files	AGRIS	AGRICOLA	CAB	BIOSIS	POLLUTION	Total
No	203	10	50+53	55	41	
Items total	182	96	476	105	32	891
Items typed	50	28	104	40	32	254
N. eur. items %	26	40	56	38	51	48
N+C eur. items %	92	86	95	85	93	89

Table 2. Relevancy of the search. CAB files were better than others.

21/3/18
0020738780BIOSIS Number: 88118841
CONIFEROUS FOREST AND ACIDIFICATION
HORNTVEDT R
SEKSJON SKOGOKOL., NORSK INST. FOR SKOGFORSKNING, 1432 AS- NLH.
NISK (NOR INST SKOGFORSK) RAPP 0 (3). 1989. 1-12. CODEN. RNISD
Language: NORWEGIAN

21/3/19
020787911 BIOSIS Number: 88117972
DYNAMICS OF LEAF FALL DESTRUCTION IN NORWAY SPRUCE FORESTS OF SOUTHERN TAIGA RUSSIAN SFSR USSR
KOROBOV E D
LESOVEDENIE 0 (3). 1989. 66-69. CODEN: LESOA
Language: RUSSIAN

21/3/20
0020178717 BIOSIS Number: 88090907
PATTERN RECOGNITION OF SPRUCE TREES AN INTEGRATED ANALYTICAL APPROACH TO FOREST DAMAGE
SIMMLEIT N: SCHULTEN H-R
FACHHOCHSCHULE FRESENIUS, DEP. TRACE ANALYSIS, DAMBACHTAL 20, D-6200 WIESBADEN, WEST GERMANY.
ENVIRON SCI TECHNOL 23 (8). 1989. 1000-1006. CODEN: ESTHA
Language: ENGLISH

21/3/21
0019657969BIOSIS Number: 88080145
TOTAL SULFUR CONTENT IN THE HUMUS LAYER OF URBAN POLLUTED FOREST SOILS
OHTONEN R; MARKKOLA A M; TORVELA H
DEP. BOTANY, UNIV. OULU, LINNANMAA, 90570 OULU, FINLAND.
WATER AIR SOIL POLLUT 44 (1-2). 1989. 135-142. CODEN: WAPLA
Language: ENGLISH

Figure 1. Some of the items are related to Central European research, but are, however, useful for use researchers.

Polar Literature in the "Umberto Nobile Documentation Centre." A Bibliography.

Gertrude Nobile

As requested by the Organizing Committee of the 13th Polar Libraries Colloquy, the presentation of the paper submitted by the "Umberto Nobile Documentation Centre" of the Italian Air Force History Museum is very concise. The Centre takes pleasure in presenting, as seen on the program, a select bibliography of polar literature available there, and it is certainly impossible to quote the many titles listed of this rather voluminous paper of about a hundred pages. Therefore this presentation is limited to a few general remarks about the arrangement of the bibliography, and its relation to the general theme of the Colloquy: "Man's Future in Arctic Areas."

The future in arctic areas presumes knowledge of polar history and Polar literature, and to both this bibliography may contribute.

It may be of interest to know that the Documentation Centre, which is named after General Umberto Nobile, possesses a unique collection of polar literature, part of which is related to aeronautical means employed in polar exploration. As you know, General Nobile, aeronaut and arctic explorer, reached the North Pole twice, in 1926 and 1928, with airships built and commanded by him. In the first transpolar flight of 1926 with the airship NORGE, an expedition carried out in conjunction with Roald Amundsen and Lincoln Ellsworth, the North Pole was attained for the first time, opening the Polar Route between Europe and North America. The second polar expedition with the airship ITALIA in 1928 had essentially scientific targets and results on, at that time, unexplored arctic regions. This expedition ended tragically with the crash of the airship on the pack-ice, still, fortunately all the scientific material collected during the flights, such as films, photographs, documents containing scientific measurements, etc., were saved and published later on. The Finnish audience here present may remember that among the various rescue expeditions organized for the ship-wreck of the airship ITALIA, Finland gave a generous contribution by sending the airplane "Turku" piloted by Lyr with Lieutenant Olavi Sarko as observer.

Both Polar expeditions with the airships NORGE and ITALIA are well known through literature, press articles, films and mementos conserved in various museums, among which also Rovaniemi, where in 1985 the NORTH POLE GALLERY was inaugurated in the Santa Claus Arctic Village. Parts of the material then displayed at Rovaniemi are now conserved in the Vadsø Museum, in Norway.

In the Bibliography presented here the works written by many famous polar explorers, scientists and polar experts are listed, not only those of the past as such by Nansen, Peary, Amundsen, Andree, Samoilovich, Papanin, Vize, etc., but also by polar experts of recent times, as Wally Herbert, Jean Malaurie, institutions; such as the Norsk Polarinstitutt, the Scott Polar Research Institute, etc.

The Bibliography is arranged in three main parts:

I. Arctic Regions, subdivided into monographs and articles;
II. Antarctica, also subdivided into monographs and articles;
III. Periodicals in the polar subject fields.

Within these three groups, works are listed alphabetically by author. An authors' index completes the bibliography to facilitate consultation.

Arctic Data Interaction--A Pilot Study on the Use of Hypermedia for Distribution of Arctic Data and Information

Denise A. Wiltshire
U.S. Geological Survey

In May 1988, the U.S. Geological Survey established a programme to work with representatives from the arctic research community to facilitate data management. One of the key activities that the U.S. Geological Survey has undertaken is active membership in the Arctic Environmental Data Directory Working Group, which is sponsored by the Interagency Arctic Research Policy Committee. The working group was established as a result of the Arctic Environmental Data System Workshop held in May 1988 at Boulder, Colorado. Representatives from the following United States agencies are members of the working group:

Council on Northern Resources Information Management
National Aeronautics and Space Administration
National Oceanic and Atmospheric Administration
National Science Foundation
National Snow and Ice Data Center
University of Alaska, Fairbanks and Anchorage
University of Colorado

Canadian participation on the working group includes representatives from Environment Canada and the Geological Survey of Canada.

One of the goals of the working group is to facilitate access to arctic data and information and hence improve dissemination. As a first step, the working group developed the Arctic Environmental Data Directory, which contains more than 250 references to arctic data sets maintained by United States Government agencies and other institutions. Information contained in the Arctic Environmental Data Directory is also shared with global change data directories to promote information resource sharing between the Arctic and global change research communities. To meet the data management goals of the Interagency Arctic Research Policy Committee, the working group has undertaken a pilot study to produce a prototype digital data journal. The goal of the pilot study, known as the Arctic Data Interactive (ADI), is to design an integrated information product that will be published using compact disc read-only memory (CD-ROM) technology. The ADI prototype will include the following information elements:

Arctic Environmental Data Directory;
bibliographic data sets;
full-text of selected research reports and/or short papers (including illustrations);
Arctic data sets (tabular, numeric, and imagery).

The ADI journal will comprise of a mix of textual, numeric, and spatial data and will include powerful tools to convert data and information into standard formats for analytical software applications, such as spreadsheets and image processing.

The design of the ADI prototype is based on the concept of hypermedia technology. Hypermedia is a software environment for developing non-sequential data base management systems. Hypermedia techniques provide the capabiblity to create associative links between structured and nonstructured information that may include data, text, graphics, and imagery. Hypermedia systems are also characterized by a graphic user interface that incorporates icons and multiple-windowing technology. Experimentation with hypermedia technology in this study is an attempt to integrate a broad range of information formats into one product that will facilitate access to arctic digital data and information.

13TH POLAR LIBRARIES COLLOQUY

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Finland

P R O G R A M J U N E 1 0 - 1 4 , 1 9 9 0

***** Sunday, June 10 *****

Registration at the hotel

20.00 Opening of the Colloquy and Get-Acquainted Evening at the Rovaniemi Public Library

***** Monday, June 11 *****

8.00 Registration at Rovaniemi City Hall

9.00 Jaakko Numminen
Secretary General
Ministry of Education — Welcome

9.25 Veijo Ilmavirta
Director
Arctic Centre, University of Lapland — Welcome

PROBLEMS OF ARCTIC COMMUNICATION:
PROCUREMENT AND STORAGE OF ARCTIC AND ANTARCTIC KNOWLEDGE

Chairperson: Veijo Ilmavirta
Arctic Centre, University of Lapland, Finland

9.30 Vladimir A. Putilov
Kola Science Centre, Soviet Union

Data Bases (DB) and Knowledge Bases (KB) in Regional Arctic Researches: The Problem of Organisation and Effective Application

10.00 David A. Hales
Julia Triplehorn
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

Finding Northern Peoples in Selective Databases

Coffee break

10.30 Henning Johansson
Luleå University, Sweden

Academica Torneådalensis: Presentation of the Culture at the Torneå River

11.00 Anders Løøv
University Library of Trondheim, Norway

Sami Data Base - Sami Bibliography

11.30 Julia Triplehorn
Geophysical Institute, University of Alaska, U.S.A

Science Collection Survey
Scott Polar Research Institute

12.00 Lunch

13.00 Excursion to northern artist Reidar Särestöniemi's gallery in the wilderness.

***** Tuesday, June 12 *****

SESSION I

COLLECTION OF POLAR LITERATURE ON CD-ROM

Chairperson: Paul H. McCarthy,
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

9.00 Sharon M. West
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

Moving Toward an Arctic Information Network:
Stage I

9.30 Steven L. Smith
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

Moving Toward an Arctic Information Network:
Problems of Access

10.00 Paul H. McCarthy
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

Moving Toward an Arctic Information System: Future Directions

Coffee break

10.30 Martha Andrews
Institute of Arctic and Alpine Research, University of Colorado, U.S.A.

Resource Sharing by Polar Information Providers

11.00 Lynn Lay
Ohio State University, U.S.A.

The Arctic & Antarctic Regions CD-Rom Database- a Practical Review

11.30 Jerry Brown
National Science Foundation, U.S.A.

Introduction

12.00 Lunch

SESSION II

PROCUREMENT AND STORAGE OF ARCTIC AND ANTARCTIC KNOWLEDGE

Chairperson: Kyösti Urponen,
Department of Social Sciences, University of Lapland, Finland

13.00 Antti Soini
Automation Unit of Finnish Research Libraries, Finland

Linnea---Library Information Network for Finnish Academic Libraries

13.20 Susan Barr
Norwegian Polar Research Institute, Norway

Data Base for Historical Material from Norwegian Polar Areas

13.40 Juli Braund-Allen
Arctic Environmental Information and Data Center,
University of Alaska, U.S.A.

The Health of the Eskimos: An Update Bibliography

14.00 Ramma Kamra
Indian and Northern Affairs Canada

Incorporating Corporate Memory in a CPIS

Coffee break

14.20 Carl-Edvard Edvardsson
Regional Archives at Härnösand, Sweden

The Source Material of the Archival Institutions to the History of the Arctic Regions

14.40 Rheba Dupras by Sharon West
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

Bibliographic Instruction in a Cross-Cultural Classroom

15.00 Ronald K. Inouye
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

The Bibliography of Alaskana and the 1989 Prince William Sound Oil Spill

15.20 Robin Minion
Ross Goodwin
Boreal Institute for Northern Studies, Canada
Arctic Institute of North America, Canada

Designing a Canadian Polar Information System

15.40 Joy Tillotson
Scientific and Technical Information,
National Research Council, Canada

Canadian Locations for International Polar Science Literature

SESSION III

RESEARCH AND RESEARCH INSTITUTES OF THE ARCTIC

Chairperson: Michael Pretes,
Arctic Institute of North America, University of Calgary, Canada

13.00 Christine Phillips
Natural Environmental Research Council,
British Antarctic Survey, United Kingdom

The Library of the British Antarctic Survey Cambridge

13.20 C. Eugene West
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

Greenlandica in the Rasmuson Library, University of Alaska Fairbanks

13.40 Tuula Vauhkonen
Oulu Regional Institute of Occupational Health Library in Northern Finland, Finland

Research in Oulu Regional Institute of Occupational Health

Coffee break

14.00 D W H Walton
British Antarctic Survey, United Kingdom

Studies in Polar Research, A Polar Monograph Serie

14.20 Janice Meadows
Scott Polar Research Institute, University of Cambridge, United Kingdom

Keeping Track of the Antarctic Treaty System and Its Related Literature

14.40 William J. Mills
Scott Polar Research Institute, University of Cambridge, United Kingdom

Britain in the Arctic: A Directory Database

15.00 Tamara Lincoln
Lakehead University, Canada

The Unholding of Glasnost and Its Prospective Effects on Library Book Exchanges and Collection Development

19.00 Evening Banquet at the City Hall

Opening of the Photographic Exhibition called **West Siberian Reindeer Herders** by Anatoli Burykin, Soviet Union

Aune Kämäräinen
Arctic Centre, University of Lapland, Finland

***** Wednesday, June 13 *****

13.00 **Lunch**

Excursion

Tour of Finnish Lapland, including nature park and guide centre, Gold Prospectors Museum.

15.00 Paavo Havas
University of Oulu, Finland

Introduction

15.20 Louise Wuorinen
Lakehead University, Canada

Research on the Middle North: The Case of the Centre of Northern Studies at Lakehead University

16.00 Jarmo Heinonen
Alko LTD, Finland

Finland - the 60th Parallel Syndrome

16.20 Sylvie Devers
Centre d' Etudes Arctique, France

The Center of Arctic Studies, Paris, France

17.00 Coffee break

19.30 Evening coffee in Peurasuvanto

***** Thursday, June 14 *****

THE FUTURE AND CENTRAL PROBLEMS OF ARCTIC INFORMATION MANAGEMENT

Chairperson: Sauli Laitinen,
Technical Research Centre of Finland

9.00 Sauli Laitinen
Technical Research Centre of Finland

Scandinavian Database as a Source of Arctic Information

9.30 Barbara Sokolov
Catherine Innes-Taylor
Arctic Environmental Information and Data Center,
University of Alaska, U.S.A.

Evaluation of Document Distance Delivery via Computer Networks in the Arctic

10.00 William J. Mills
Ron Inouye
Scott Polar Research Institute, United Kingdom
Elmer E. Rasmuson Library, University of Alaska, U.S.A.

Towards a Polar Thesaurus

Coffee break

10.30 Aleksander I. Arikaynen
Institute for System Studies, Soviet Union

Can the Soviet Union Ensure the Fulfilment of Sustainable Development of the Arctic in Future

11.00 Vladimir Selin
Kola Science Centre, Soviet Union

Development of the North Area in the USSR: Tendencies and Limits

11.30 Lunch

13.00 Barbara Sokolov
Arctic Environmental Information and Data Center,
University of Alaska, U.S.A.

The Management of Arctic Environmental Data in the U.S.

13.30 Anatoly Vinogradov
Kola Science Centre, Soviet Union

The Main Principles of Effective Research System for Investigation of Arctic Ionosphere

14.00 **ADMINISTRATIVE MEETING**

Chairperson: Martha Andrews,
Institute of Arctic and Alpine Research,
University of Colorado, U.S.A.

Polar Libraries Bulletin

14th Polar Libraries Colloquy

Future Activities of the Colloquy

Proposals by Conference Participants

Other Proposals

***** Friday, June 15 *****

Excursion to the City of Oulu by bus

***** Saturday, June 16 *****

Excursion to Murmansk, Kola Peninsula, USSR, by bus

13th Polar Libraries Colloquy, June 10 - 14, 1990 in Rovaniemi
List of the participants

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