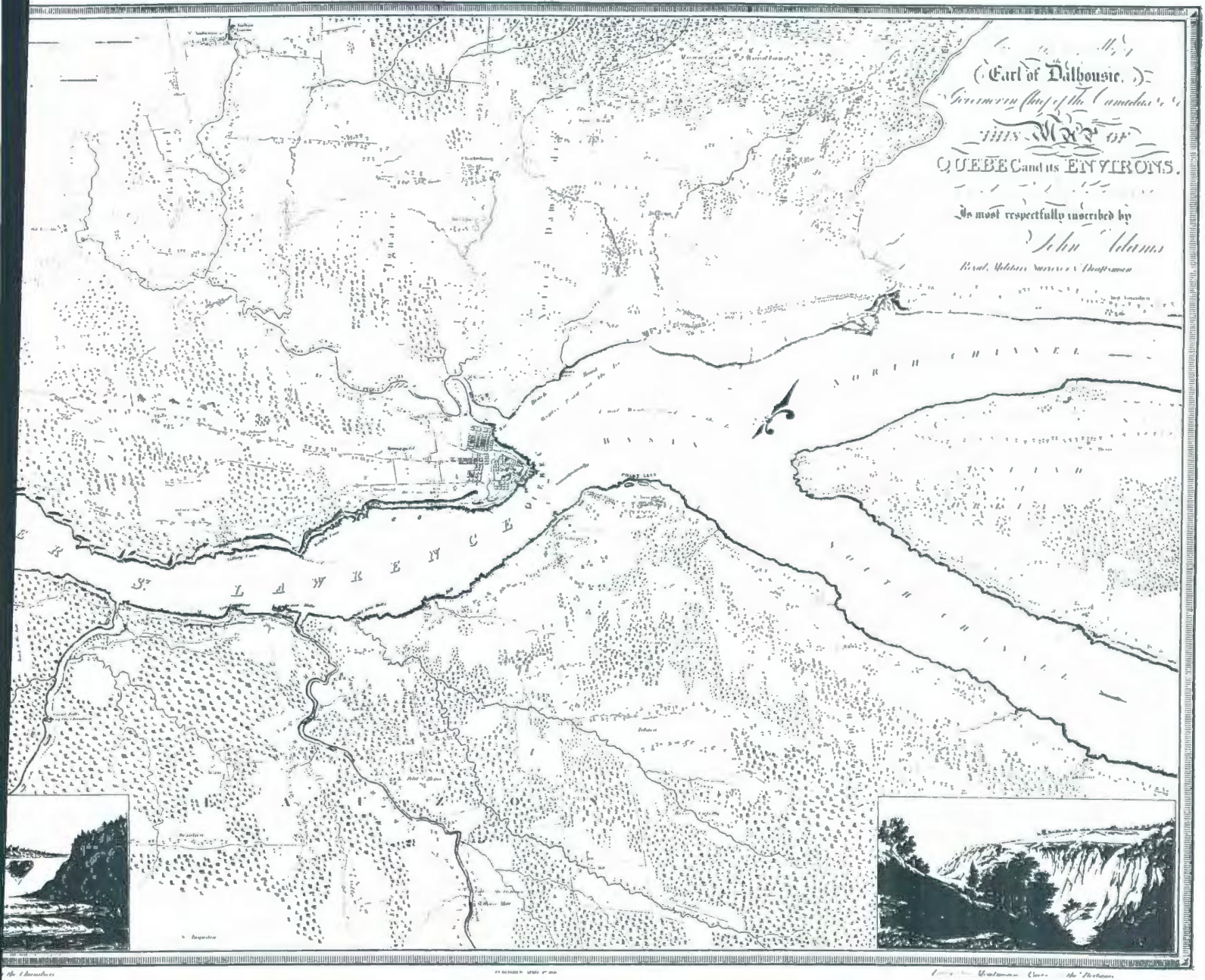
ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES

BULLETIN

ASSOCIATION DES CARTOTHÈQUES et ARCHIVES CARTOGRAPHIQUES du CANADA



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ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES / ASSOCIATION DES CARTOTHEQUES ET ARCHIVES CARTOGRAPHIQUES DU CANADA

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CONTENT / MATIERES

ON THE COVER...

TO HIS EXCELLENCY THE EARL OF DALHOUSIE...MAP OF QUEBEC AND ITS ENVIRONS, FROM ACTUAL SURVEY 1822 by John Adams, [London], 1826. It is reproduced from an original in the Visual and Sound Archives Division, National Archives of Canada. It has been reproduced as ACML Facsimile Map Series, Map No. 116 (ISSN 0827-8024).

TO HIS EXCELLENCY THE EARL OF DALHOUSIE...MAP OF QUEBEC AND ITS ENVIRONS, FROM ACTUAL SURVEY 1822 by John Adams, [Londres], 1826. Reproduite à partir d'un original de la Division des archives cartographiques et audio-visuelles, Archives nationales du Canada. Reproduite dans la Série de cartes fac-similé s de l'ACC, carte No. 116 (ISSN 0827-8024).

President's Message

Did anyone notice? The 1999 Annual Conference was the last ACMLA meeting of the century! I can't go into detail about every occurrence during the conference. I can, however, provide a personal reflection on the highlights as I saw them. Because our 1999 meeting was held in conjunction with the ICA Congress, many of the events I attended on your behalf were receptions and openings (and enough meetings to last a millennium). And yet, there was a difference. Don't get me wrong, I don't mind finger food, an open bar, and a good chance to mix and mingle. But the fact that ICA was a joint conference among a large number of related societies and associations, meant that there were many more opportunities to learn from colleagues, and to educate those within our broader cartographic community about the values and services *we* offer. This, to me, was the most beneficial outcome of the joint conference.

And then there were presentations and papers! I always enjoy listening to members talking about their work or ideas; it is the type of intense feedback I find useful. But I do want to say that this year, those presentations took on new meaning, not simply due to the quality of papers, but because the audiences were from, literally, around the globe. Judging by comments and questions after the papers, I would say presenters were very well received. Again, this opportunity to put ourselves (and our issues) on a larger stage was a wonderful chance to promote map libraries and archives as the essential entities we know them to be. The comment I will recall most was from a European delegate who stated, "I did not realize that map librarians do more complex things, and that they really understand cartography and the issues facing all of us." In short, we made our point! And because Alberta Wood was elected a Vice President for ICA, we can be certain our views will continue to be received at the highest levels (and I cannot think of a better choice than Alberta!).

And who could forget the Children's Map Exhibit; or for that matter the overall map exhibit! And then there was the opening and closing ceremonies! I don't usually wave a Canadian flag, but during the opening ceremonies, I was so proud to be a Canadian. The organizers really did a marvellous job! The poster sessions were high quality, and the commercial exhibit was excellent and a great chance to see what was happening in the cartographic and GIS fields (and did you see that great ACMLA booth!). And yet, even with all the events and keynotes, the most exciting and surprising event for me was to be asked, on behalf of all members – but in particular the organizing committee - to accept the ICA Medal for Service at the closing ceremonies. And on that note, I must say that the real story of the ACMLA 1999 Conference was work of the people who made everything possible, and who made all my positive experiences come true. To everyone on the local arrangements committee (the list is so long!); those who worked tirelessly to organize the map exhibits, receptions, CCA-ACMLA barbeque (our joint ACMLA-CCA party is now a tradition), the booth, paper sessions, and every single and subtle thing that made everything go off without a hitch, I extend my personal thanks and gratitude, but I also thank you all on behalf of all ACMLA members.

On a slightly different plane, I wanted to remind members that during our 1999 Conference, ACMLA, CARL and NRCan signed an MOU for licensing Topographic Data; an agreement that took much time, but one that represents a first step towards a period of increased cooperation. Also, ACMLA was successful in being named as one of the "Academic" members of the GeoConnections Management Board. Officially launched at the ICA opening ceremonies, it represents the national coordination of geospatial information infrastructures – including issues like pricing, access and metadata. For the next two years, I will be the ACMLA representative on the Management Board. Already, many members of ACMLA have taken up the challenge of working on several of the "Policy Nodes" that will examine and report on particular issues (see Bulletin 105). As GeoConnections is still 'new' (see: www.geoconnections.org), I will be providing a more detailed update in the next issue of the Bulletin. In the meantime, if you have any questions, please (as always) feel free to call or email me.

James Boxall
ACMLA President

Conference Report
International Cartographic Conference Ottawa 1999
Association of Canadian Map Libraries and Archives (ACMLA) and Canadian Cartographic Association (CCA)
August 14-21, 1999

Compiled by Alberta Auringer Wood
Based on reports by
Colleen Beard (CB), Trudy Bodak (TB), Marcel Fortin (MF), Elizabeth Hamilton (EH), Shirley Harmer (SH), Susan Jackson (SJ), Velma Parker (VP), Joanne Perry (JP), Martine Rocheleau (MR), Lori Sugden (LS), Frances Woodward (FW), and Cheryl Woods (CW)

Saturday, August 14th

The conference began with a workshop for International Cartographic Association (ICA) Commission and Working Group Chairs. This session provided an opportunity to compare notes about activities, as well as to be informed of ICA needs, structures and recent activities. This was followed in the afternoon by the Association of Canadian Map Libraries and Archives (ACMLA) Board meeting. One highlight was that our website was now to have the URL of http://www.acmla.org.

Sunday, August 15th

On Sunday was the first General Assembly with at least 37 countries having representatives present. In addition to the ICA Executive of President Michael Wood (United Kingdom), Immediate Past President Fraser Taylor (Canada), Secretary-General and Treasurer Jean-Philippe Grelot (France), and Vice Presidents Tositomo Kanakubo (Japan), Milan Konecny (Czech Republic), Jaume Miranda (Spain), Judy M. Olson (USA), Bengt Rystedt (Sweden), and Regina Araujo de Almeida (Brazil), there were presidents or representatives of seven international surveying and mapping societies. Membership was withdrawn from several countries due to non-payment of dues over a lengthy time period, while Estonia and El Salvador were admitted into membership. Those nominated for Vice President were introduced. Presentations were made by Commission and Working Group Chairs for activities during the next four years, as well as by delegates from South Africa and Spain in a bid for the 2003 conference. Reports were given by the President, Secretary-General/Treasurer, Honorary Auditors (myself and Vladimir Berk of Russia), and the Publications Committee Chair. A preliminary budget was tabled along with urging member nations to pay their dues (29 had not yet done so). There was a reception in the evening.

Monday, August 16th

Monday brought a spectacular Opening Session in the Westin Hotel. It began with a trumpet fanfare, bag pipers and a town crier leading in the head table with Mountie escort and volunteers carrying flags of Canada and ICA. In addition, it included a keynote presentation live by satellite from Regina by the Honorable Ralph Goodale, Minister of Natural Resources Canada, who introduced the launch of GeoConnections which also took place as part of this session. There was entertainment by native dancers and a voyager musical group. Welcomes were given by Conference Director Dave Carney, Deputy Minister Jean McClosky, ICA President Wood, Deputy Mayor of Ottawa Allan Higdon, National Capital Commission Vice President Jaap Schouten, Canadian Institute of Geomatics President Jim Simpson, and Canadian Alliance for ICA '99 President and Dominion Hydrographer Tony O'Connor. Two giant TV screens in each corner of the front of the large room provided closed-circuit TV coverage of all the events. One interesting quote which Dave Carney used to close the session was "Mankind has invented three great forms of communication: language, music and maps."

Immediately after this opening, there was another one, that for the International Cartographic Exhibition. Clifford H. Wood was the master of

ceremonies as the Vice Chairman of the conference. Brief speeches were given by Ian Wilson, the new National Archivist of Canada, and ICA President Mike Wood, who also shared in the ribbon-cutting ceremony. Those involved in preparation of the map exhibit led by Betty Kidd, including other ACMLA members such as David Brown, Louis Cardinal, Marc Cockburn, Diane Lacasse, Patrick McIntyre, Thomas Nagy, Heather Stevens, and Frank Williams, opened the doors and led tours, as well as greeting the delegates. In addition to the maps from individual countries, there was an exhibit of hydrographic charts from many countries and from the Barbara Petchenik Children's Map Competition. The latter included winners from some of the past competitions, as well as the current submissions. One ACMLA map facsimile, the bird's eye view of Vancouver, was among those Canadian maps on display in the international map exhibit.

International Cartographic Exhibit Opening. Michael Wood and Ian Wilson cut the ribbon. At left, Betty Kidd and Claire Gosson.

After the openings, there was a meeting of the ACMLA Bibliographic Control Committee at the National Archives. One concern is that the Library of Congress is not using General Material Designators. They were going to be approached regarding this situation, because some records based upon ones from LC are rejected for Amicus because they are too short, less than eight characters, without it in the title area. Support for some clean-up of map library records was going to be utilized. Libraries already having records in the database include National Archives, Geological Survey, Memorial University of Newfoundland, Carleton University, Lakehead University, University of Waterloo, University of Toronto, Queen's University, University of Alberta, University of Calgary, University of Ottawa, McGill University, Bibliotheque National du Quebec, Brandon University, Simon Fraser University, and Athabaska University. University of British Columbia, York University, and McMaster University have not loaded records yet. In terms of sheet level cataloguing, the suggestion was made to create a "dumb" barcode to use when an item circulates via an automated system. Otherwise, it was recommended that index sheets be used to record library holdings for large sets, rather than having sheet level records in the catalogue. It is expected that there will be a web version of Amicus sometime soon (it has just been announced as I write this report!). Investigating the feasibility of inviting someone to speak on metadata and pursuing offering a cataloguing workshop, perhaps on Geospatial data, was considered for the 2000 conference in Edmonton. One other thing raised at the meeting was having a "Cataloguers Newsletter" in the *Bulletin*, where cataloguing decisions and changes could get out to cataloguers, and where people could take this information back to their Central Technical Services Units.

Taking place at the same time as the BCC was a session on "Planetary Cartography" which was chaired by Phillip Stooke (University of Western Ontario). This was a survey of developments of cartographic applications for celestial objects which highlighted many of the difficulties of transferring earth-based science to objects in space. The first paper was

presented by Kira B. Shingareva (Moscow State University for Geodesy and Cartography). Her comments dealt with research to replicate data from planetary and space exploration missions in cartographic representations. Issues which arise in mapping planets include simulation of surface conditions, problems of determining appropriate projections for such remote objects, and means of creating celestial atlases in both traditional and digital forms. The second speaker, James R. Zimbelman (Smithsonian Institution), spoke about work being done by NASA and the USGS which can be seen on the USGS web site of the Planetary Working Group at http://wwwflag.wr.usgs.gov/USGSFlag/Space/space.html. Data from the Mars orbiter mission was used to highlight the type of data being captured and made public for research use. Much of the planetary data from earlier space missions needs to be updated to include the higher quality and more accurate data from recent missions; for example, the Mars Orbiter elevation data provides many more data points for evaluation which makes reproduction of the terrain clearer for mapping. The third presentation was by Manfred B. Buchroithner (Dresden University of Technology Institute for Cartography), who demonstrated the new multilingual Mars map being published by his Institute. This map was also on display at the ICA Exhibits. This is one of a series of poster maps intended to be used as a teaching tool and to popularize new information about planets. The fourth speaker was unable to present due to illness. The fifth presentation, by Maxim V. Nyrtsov, a colleague of Kira Shingareva, dealt with the mathematical basis of planetary cartography. He addressed the problems of applying spherical standards of earth-basedmeasurements to irregular bodies such as asteroids and comets. Randy Kirk (USGS), was added to the program. He spoke about the work underway at USGS using a specially developed GIS program to create a digital mosaic from the Viking mission. Thousands of images are compressed in order to develop stereo images of Mars. (SJ)

Another session that took place at the same time as the committee meetings was on "Information Highway: Web Applications." This was chaired by James Carter (Illinois State University, Normal, IL). The first paper was on "A Fully Integrated Geospatial Data Warehouse"which was a joint preparation by François Létourneau, Paul Morin, Denis Gouin, and Edric Keighan of the Defence Research Establishment Valcartier (DREV). Mr. Létourneau's discussion of the Geospatial Data Warehouse centred on the establishment, by the DREV and in conjunction with industry, of a central repository of heterogeneous and large data sets of varied sources and formats, with a special emphasis upon the sharing and the use of the data by end-users. Access to geospatial data, Mr. Létourneau argued, is often marred by format incompatibility, heterogeneity of the geospatial referentials, and the requirement for high capacity storage. The solution, which the DREV has come up with, is a fast and efficient warehouse, which can store terabytes of data. The warehouse project solves the problem of storage space, conversion, and accuracy all at once. The warehouse at the DREV uses an Oracle database, and is implemented as an Open Geospatial Database Interface (OGDI). In the warehouse concept, many data sets are processed and only the most accurate of sets are used. The data is then accessed on a regular basis for the creation of maps. Mr. Létourneau was followed by David J. Cowen's presentation on "Dynamic Visualization of Environmental Models for Web Applications." His co-authors were John Jensen and Haihong Yang and all are at the University of South Carolina. In the United States, as is well documented, geospatial data is quite often freely distributed and easily found. At the University of South Carolina this team has taken sensitive environmental data, released by the American government, and created an interactive web site. The project team integrated the data with formerly static maps in order to depict and describe on-line the environmental changes that have taken place at the Savannah River Site over the years. Mr. Cowen explained that the river had been affected by an influx of tritium into the ecosystem. The tritium originated from the five nuclear power plants built in the area in the post-war years. Using a combination of tools, HTML, Java, ActiVex, and ArcExplorer, the interactive web site creates maps according to requests put forth by users. Michael P. Peterson (Department of Geography/Geology, University of Nebraska at Omaha) spoke next on "Trends in Internet Map Use

- A Second Look." Professor Peterson's presentation centred around the distribution of maps over the World Wide Web and the increase of this distribution since 1994 when online maps were first disseminated. The web has become, since the first Internet browser was invented in 1993, one of the more popular methods of distributing maps. It has been the belief, in the cartographic community, that online map distribution had plateaued since 1997 when it had been reported at the ICA meeting in Stockholm that 10 million maps a day were being distributed over the Internet. However, Professor Peterson argues that instead, it is only individual map sites, which have leveled off in their distribution because of competition. The results indicate, according to Peterson, that map usage continues to grow dramatically. Perhaps even a four-fold increase occurred during the period between 1997 and 1999. The session concluded with "National Mapping Organizations and the World Wide Web, Challenges and Opportunities" by Menno-Jan Kraak (Division of Geoinformatics, Cartography and Visualization, ITC, Enschede, The Netherlands). He presented the current situation in which we find National Mapping Organizations (NMO). More particularly, he discussed the dissemination, by NMOs, of geographic data on the World Wide Web. Mr. Kraak explained that the Web was the perfect medium for its dissemination because of the accessibility of up-to-date data in various formats and for various platforms. It is also the most efficient way to reach as many users as possible. However, Kraak observed that NMOs must take better advantage of the possibilities that the Web can offer to display and disseminate their data. An example he gave was that many NMOs have indexes, which point to static maps exclusively. Instead, NMOs should produce sites that demonstrate fully the extent of the data. And the way to do this is to add dimensions like animation to their otherwise static maps. A discussion of the use of Virtual Reality Markup Language was brought up as a possible method of animating web-based maps. (MF)

In the evening, there was an opening for the commercial exhibition and an "Icebreaker" reception in that area in the Ottawa Congress Centre. The ACMLA/CCA booth saw quite a few visitors beginning with this evening. On sale at the booth were mugs with the ACMLA logo, "explore your map collection today" and new web address and t-shirts with the Ottawa bird's eye view on the front and "explore your map collection today" and new web address (http://www.acmla.org) on the back.

Tuesday, August 17th

Four papers were presented on the potential for automating methods of Relief Depiction in cartography at one of the early morning sessions, chaired by Roger Wheate (University of Northern British Columbia). William A. Mackaness (University of Edinburgh, Scotland) presented "Automated Relief Representation of Archaeological Monuments," jointly authored with Adrienne O'Loughlin. He discussed attempts to produce traditional looking hachures on large scale maps using GIS and computers. The Royal Commission on Ancient and Historical Monuments for Scotland has the mission to map all monument locations within Scotland and to provide this information to the Ordnance Survey as well as to make the information available on the Web, so being able to automate the mapping of the thousands of archaeological sites would be most beneficial. Soleine Kirschenbauer (Institute of Cartography, Dresden, Germany) presented "'Real' 3-D Technologies for Relief Depiction" co-authored with Manfred F. Buchroithner. She discussed three new techniques to complement the traditional cartographic techniques of relief depiction. One method, the Dresden 3-D LC Display, has good 3-D in full colour and needs no red/blue glasses but production costs are still very high and the human eye wearies after three minutes. The Lenticuclar Lens Method, developed in the 1950s, is based upon optical separation, has full colour and good 3-D impression with no need for special glasses. Despite limited resolution and costly production there is potential for this technique. The third method discussed was the Holographic Map. This exhibits excellent properties of depiction, high resolution, and tireless viewing, but is very labourious to produce and has high production costs. She was followed by Karel Kriz (Vienna, Austria) who presented "Perspective and Design in High Mountain Cartography." He discussed cartographic

communication using large-scale topographic maps with a central European perspective, pointing out stylistic differences (Swiss relief representation illustrated by Imhof's work; Alpine Club cartography; work by federal mapping agencies; and rock depiction illustrated by Brandstalter's work). An important function of these maps is to allow cartographic assessment of potential avalanche danger. The last presentation of this session was by Lorenz Hurni (Institute of Cartography, Swiss Federal Institute of Technology, Zurich) on "Digital Cliff Drawing for Topographic Maps." He pointed out that rock depiction is useful, but costly to produce so that there is a great deal of interest in developing a computer program that can automate the production of this relief method. While a program has been developed that can identify the upper and lower level of the hachure line, calculate the line weight based upon aspect, adjust for roughness of lines, trembling of lines, and cavity, they have found that it is of limited use so far (good for fast projects and large demonstrations).

The First Plenary Session was after the break on "Reflections on Cartography in the Last Millennium" by David Woodward, the Arthur H. Robinson Professor of Geography at the University of Wisconsin, and editor-in-chief of the History of Cartography Project. He was introduced by Clifford Wood as a "Renaissance Man" in the history of cartography, for his wide range of interests and numerous publications. Dr. Woodward selected five themes in cartography which illustrate the conference theme: "Touch the Past - Visualize the Future". The themes are: the fragility of the record; the development of the key concept of the digital earth; identification of the experts; what history can teach us about maps and aesthetics; and "experience the present, or what are we doing?" In terms of the "fragility of the record", several examples were outlined of old maps found by chance, such as the recently discovered papyrus map and the Juan de la Cosa map. The loss of maps has been greater than for any other historical document. Like books and other documents, they are vulnerable to fires, floods and earthquakes. References were made to the destruction of the library at Alexandria, and several archives in Germany during World War II, when the Ebstorf map was lost. More recently, Rand McNally had to advertise in 22 newspapers for a copy of their 1920 road atlas. Only one copy was found! In addition, the information soon becomes out of date. Maps are large and hard to handle and store. Digitization offers continuous revision, but also "Continuous Obsolescence". Digital tapes also deteriorate. Landsat 1 data tapes self magnetized, and are now unusable. Dr. Woodward predicts that the 21st century will be a "dark age" for cartography. He then spoke about the development of projections, and the gradual addition of Africa, Asia and the Americas to the map. He went on to talk about the improvements in science and instruments which helped improve the accuracy of mapping, from the telescope to GPS. With the digital revolution, anyone can be a cartographer, but in medieval times individuals were important. In the 14th century map authorship was assigned to an individual professional cartographer. The author's signature was as important as the map detail. By the late 15th century, responsibility for the map trade was divided. In the 16th century most mapmakers were willing to be associated with their world. "One in five Renaissance technologists engaged in cartography," according to Woodward. By the 19th century, the agency replaced the individual. The term "cartographie" was coined in 1839 by Vicomte de Santarem, but the meaning changed when it was translated into English. Now everyone makes maps, and therefore are mapmakers, but who are the

Cliff Wood with Keynote speaker David Woodward (right).

cartographers? In the past, mapmakers were philosophers, physicians, etc. Now people are experts in photogrammetry, etc., and no one takes responsibility for the map as a whole. In the past, the cartographer earned a reputation of trust, combining beauty and accuracy. The digital map is very complex, but it still requires art and aesthetics. The modern map appears to be author-less, but decoration does not necessarily mean inaccuracy. Clarity, function, etc., can be artistic. The virtual map can be like a mandala made in the sand, with no permanent record. Symbols can be beautiful, such as topography with shading. Oronce Fine derives beauty from the quality of the grid. Maps can show the dark side of life. Even the mappamundi showed such things as Gog and Magog walled up. Thematic maps are made to show the extent of crime, the spread of cholera, etc. In some cases, the performance is the product. For the Aborigine, making the map in the sand is what is important. The landscape may be copied to aid memory, such as with the stick charts of the Marshall Islands, which were made to teach the location of currents, etc. The Inca used arrangements of knotted strings for recording such information as the pathways from the main temple plaza. Making a map today from digital information is like a performance. Woodward referred to an article by Robert Kaplan in *Atlantic Monthly*, where he speaks of "the last map". The map is no longer static, but an ever mutating representation of chaos. Medieval maps made no attempt to separate the past from the present. Later, maps were static, showing the world as it is, or as it was in an historical thematic map. Digital cartography allows the creation of an animated map, such as NOAA's nighttime composite from 230 orbits in 1996/97. "Touch the Past, Visualize the Future, Experience the Present, or 'What are we Doing'?" The cultural side of cartography's history is as important as its technical side. Technological achievement has not kept step. The quality of thematic maps has not greatly improved. Dr. Woodward concluded his address with the statement that cartographers can still create beautiful maps worth keeping. (FW)

After lunch there was a session in the History of Cartography chaired by Ed Dahl, recently retired from the National Archives, but very busy with professional activities in the field. Robert B. McMaster (University of Minnesota) presented a paper on "Twentieth Century American Academic Cartography", jointly authored with his wife, Susanna A. McMaster (Macalester College). McMaster used three dividing lines within the history of American academic cartography: World War 2, the expansion of programs after the war to other universities, and lastly, cartography becoming a component of GIS. Before the Second World War, cartography was mainly concentrated amongst a few university academics. Among them were John Paul Goode of the University of Chicago who developed the Goode's homolosine projection and the world atlas which bears his name. At Ohio State University, Guy-Harold Smith, a prolific cartographer had among his students Arthur G. Robinson. A freelance cartographer for *Time* and *Fortune* magazines, Richard Edes Harrison was one of the first popular cartographers and was a master of the perspective technique. He also taught part-time at Syracuse University. After the war, cartography programs expanded across the US and the graduates from the pre-war programs started these new departments. In turn, the graduates of these programs went on to start new programs in analytical, historical and statistical cartography. Then followed the transition period during which computers became more prominent. During this period courses in cartography decreased as those in GIS increased. However, there is a growing realization that there is still a need for a knowledge of and a deeper understanding of the underlying principles of cartography and of symbolization. The next phase in the history of cartography will be to examine the ideas themselves. (VP) Next was "The Office of Coast Survey Historical Map and Chart Collection Project: Preservation and Dissemination of Historical Cartographic Images," by Curtis Loy, Rebecca Brooks, and Marcos Cole, Cartographic Technology Program, Coast Survey Development Laboratory. This paper was presented by Curtis Loy, who has spent 23 years as cartographer and chief with the U.S. Coast Survey, the oldest cartographic agency in the United states government, having been founded in 1807 by Thomas Jefferson. Loy noted that the Coast Survey is a production agency, and is not in the business of providing archival service. It was decided that an estimated 3,000 maps

and charts dating from 1700 to the 1900s be sent to the National Archives. The collection proved to be much larger than first thought. It includes landscape perspectives, which were usually destroyed once the illustration was incorporated into a chart. There are also many topographic and thematic maps of Washington State, maps of Washington, DC, and plans of Civil War battlefields. Many of the U.S. Coast survey cartographers had been recruited originally for the Civil War. The collection had never previously been inventoried, and many "treasures" have been found, such as maps from Vancouver's voyages and Wilkes' exploring expeditions. The maps are being scanned in colour at 800 dots per inch. Loy gave some technical information about the scanning and the equipment used. There was some question as to whether the scanned images would be available to the public free of charge, or for a fee. NOAA has a policy to provide material free whenever possible, and images are now available on its web site. Images are available for viewing on the web at 100 dpi, and 300 dpi gif files can be downloaded. Four locations across the US have full-sized images: Silver Spring, MD; Miami, FL; Seattle, WA; and Charleston, SC. The web site has 15,000-20,000 hits per day. Among frequent users are National Parks, for images for displays, other government departments for various purposes, and Civil War enthusiasts. The images are free for anyone to use, but they should be properly credited if published. The site has 10,000 images, and continues to grow. It is available through two URLs: http://chartmaker.ncd.noaa.gov/ and http://mapindex.nos.noaa.gov/. This has been a very expensive project, which has taken a lot of time. The black and white images were scanned by existing staff. Colour scanning required special equipment at greater expense. And the government has chosen to continue the project! Approximately $150,000 is spent annually on this project, according to Loy. This was followed by Alexei Postnikov (Russian Academy of Sciences Institute of the History of Natural Sciences and Technology, Moscow) who talked about the "Materials of the Military-Scientific Archives Fond Belonging to the Russian State Archives of Military History (Moscow), and Their Importance for Studies of the History of Cartography." In 1796 the Czar established a state archives of maps and plans. In the first year 766 maps were deposited, including the Czar's own collection of maps, plans and atlases. This is one of the most significant collections in the world, comparable to the British and French archives, but is less known and therefore much less used. Under the strict security imposed by the Soviet authorities, the maps were classified or restricted to military use. The collection includes material from explorations in Siberia and North America in the 17th to 19th centuries, some of which has appeared in a facsimile atlas. Two books on the history of science and cartography are based on these archives. The collection also includes documents from Peter the Great's reforms, and material acquired during the 18th and 19th century wars with more advanced countries. Foreign professionals brought with them survey and mapping experience. These archives contain a wealth of material to be studied. Some work has been done on the role of French professionals and the French School of Military Geography. All the records needed for the study of the sources for the topographic map of Poland are here, as well as material for other neighbouring regions such as Finland, Siberia, Manchuria, etc., as well as for regions within Russia. Because of the size of these archives, they were stored for many years in Siberia. Now the thousands of maps and records are back in Moscow where they are being inventoried, sorted, etc., and in a few years they will be ready for study. Some discussion followed Postnikov's paper. Kikkonen stated that Finland has few records of its own history as most of the records are now in Stockholm, St. Petersburg or Moscow. The 19th century is a "dark ages" with few records left from all the wars. He is amazed to find such a wealth of material available in Moscow. Postnikov replied that some records have not been found, but may well be there as so much has not begun to be processed. Many records were captured during wars, such as French records during the War of 1812. It was suggested that some of the items still missing from Leo Bagrow's private collections may turn up there. (FW)

The last speaker in the session was a "no show." A similar occurrence happened in the second History of Cartography session where three out of four

of the speakers on the final program failed to appear. The one who did present his and colleagues work was Evgeni Livieratos (M. Myridis, A. Fotiou, D. Rossikopoulos, I.N. Tziavos Hellenic National Centre for Maps & Cartographic Heritage - National Map Library, and the Aristotle University of Thessaloniki, Thessaloniki, Greece) who spoke on revitalizing interest in the history of cartography. They advocated using the Internet to spread knowledge of cartographic treasures to a larger audience and to network map libraries. As well they showed how to use analytical techniques in studying and interpreting historic maps. Some of the extra time in the session was used for presentations of the two candidates for chair of the History of Cartography Commission on their ideas for its future activities. (ED)

At the same time as this session, there was one organized by the CCA on "Canadian Atlases" and chaired by Jean Carrière (UQAM, Montreal, PQ). Donna Williams (GeoAccess Division, Canada Centre for Remote Sensing, Natural Resources Canada) presented on "An Overview of the National Atlas of Canada" jointly prepared with Joanne Frappier. Donna spoke of the history of Canadian Geospatial atlas data, and the framework and organization of the information. They are using ESRI MapObjects technology for the on-line, interactive and free atlas. The interface is either basic or advanced. You can modify layers of information and save the query on their system for a month. The Table of Contents offers thematic and Canadian issues; thematic – physical, human, economic, general map; Canadian issues – Nunavut, Ecological map, Aboriginal, Resource Development. The site address is: http://atlas.gc.ca. Donna was followed by Rupert Brooks (GeoAccess Division, Canada Centre for Remote Sensing, Natural Resources Canada) who talked on his and Ken Arsenault's paper on "The New and Improved Base Framework for National Atlas Data." Rupert said that with on-line access it causes one to rethink what was not obvious to the paper atlas author. Generalization and combining datasets needs quality controls. VPMAPO may not be the only technology used as it is not up to specifications even though there are coding and connectivity problems with less than 1% error rate. Hydrology and boundary layers need updating to track changes (i.e. Nunavut). See VMAPOR4 link at http://geogratis.cgdi.gc.ca/. Next was Stefan Palko (GeoAccess Division, Canada Centre for Remote Sensing, Natural Resources Canada) who spoke on "Partnerships and the Evolution of the National Atlas of Canada" which was a joint preparation with Jeff Labonté and Eric Kramers. Stefan said that this project is a visualization of Canada's geography with 321 schools participating. The Canadian Geospatial Data Infrastructure (CGDI) is building partnerships at a variety of levels – federal, provincial, territorial government, and private and academic projects to develop geography on the Internet. GeoGratis in association with GeoConnections is providing access to geospatial data. The *National Atlas of Canada* base maps form part of the free data sets. This *Canadian Communities Atlas* project offers a network of geographic information so that schools can create an atlas of their community. Last, but not least was the chair of the session, Jean Carrière on the "Atlas of Quebec and its regions: a multimedia cartography product the tool Internet." Jean explained that there are 60 researchers working on this from a wide variety of universities. The last atlas of Quebec was done in 1957. The scale being used is 1:8,000,000. This Web-based interactive project is at: http://www.atlasduquebec.qc.ca. There are three levels to the structure – national, interregional and regional. Each of the 17 regions can create their own atlas. Seven regional atlases are now available. (CW)

During the afternoon coffee break in the commercial exhibit hall, Ms. Jean McClosky, Deputy Minister of Natural Resources Canada, announced the launch of the 6th edition of the *National Atlas of Canada*. The rest of the afternoon was occupied by the ACMLA Business Meeting in the Government Conference Centre. The minutes of the meeting appear later in this Bulletin. An important announcement was that a memorandum of understanding was going to be signed with Natural Resources Canada on a two year agreement for campus-wide access at educational institutions to digital topographic files at a 50% discount. The data are to be available as shape files beginning in September. The resolution of the Geological Survey depository of maps is mired in Treasury Board. It

was noted that the makers of the MrSID software are willing to donate it to a national level project. ACMLA is going to be asked to participate in the GeoConnections Management Board. In the evening, there was a lovely reception and official opening of the "Canada at Scale: Maps of Our History" exhibit at the National Archives. Ian Wilson, National Archivist, presided and both he and ICA President Wood spoke briefly. It was an opportunity to see cartographic treasures representing Canada from the late 16th century to the present and visit with map librarians and cartographers from Canada and all over the world.

Invited guests listen to the opening speeches at the "Canada at Scale: Maps of Our History" exhibition, National Archives of Canada.

Wednesday, August 18th

One interesting early morning paper in a session on "National and International Mapping Initiatives" was presented by Joel Morrison (Ohio State University) on "Important Initiatives in Geographic Information Science and Spatial Data Collection with Implications for Cartography" at 8:30 a.m. These three important initiatives were the digital earth, libraries and government. All three encompass cartography with digital earth providing the raw materials, digital libraries doing the archiving and disseminating, and digital government providing the user community. He noted the changing paradigm of having access to, but not owning data, as well as long standing problems such as database integration and newer ones such as time dimensions. Next was a session on "Gender in Cartography" where the first paper was by Will van den Hoonaard (University of New Brunswick). He spoke on the theoretical framework for the study of gender and cartography. Next, Alice Hudson (New York Public Library) talked about the ground-breaking women in pre-twentieth century cartography. About 200 have been discovered through her and her collaborators' research. Women were active in all areas and at all levels, often with their husbands for many years, though behind the "vale of social and cultural constraints". Approximately a third of those on their list were widows or daughters of cartographers or map publishers. She gave more details on several of the women. Alice was followed by Amir Saeed Homainejad (University of Technology of K.N. Toosi, Tehran, Iran) who spoke on the status of women cartographers in Iran. He noted that during the last twenty years there have been the greatest number of national maps, ones which are of high quality and meet international cartographic standards, resulting in satisfied users. This was while the service was under female management. He implied that the women cartographers of Iran were much more "trustable," precise, and responsible than the men! The session concluded with a description by Tamara V. Vereshchaka (Moscow State University) of the contribution of Russian women to the development of cartography. She described the work of Irina Pavlova Zaretskaya, Lubov Alvianovna Vakhrameeva, Anna Dmitrievna Kopylova, Galina Ivanovna Konusova, Valentina Ivanovna Kravtsova, and Kira Borisovna Shingareva. Some of these women have been active in the ICA, such as Ms. Zaretskaya on the commission on national atlases and Ms. Shingareva who is the current chair of the

one on planetary cartography. Ms. Vereshchaka would like to do a "who's who" for the ICA web page and suggested a structure of information to collect and present.

After the break there was a session on "Multimedia and Future Maps" chaired by Menno-Jan Kraak (ITC, Department of Geoinformatics, the Netherlands). J. Raul Ramirez (The Ohio State University Center for Mapping, Columbus, OH) was ill, so there was no presentation on "Maps for the Future: A Discussion." Andrea Terribilini (Institute of Cartography, Swiss Federal Institute of Technology, ETH Hoenggerberg, Zurich) began the session with a talk on "Maps in Transition: Development of Interactive Vector-Based Topographic 3D-Maps". She noted that the aim is the generation, visualization and administration of 3D maps. 3D maps have no limitations of topic, time or spatiality. According to her, topography with areal elements and 3D elements produce cartographic models. These cartographic models are intersected with digital elevation models and use adaptive triangulation to hierarchy with TINS. She was followed by Andreas Riedl (University of Vienna, Austria) who spoke on "Virtual Globes: A New Era for Globes?" He felt that there are advantages and restrictions to traditional globes. Their size and material change, but themes are lacking and scale is usually limited to 1:35,000,000. Yet, globes are the truest way to present 3D models without distortion and showing spatial relationships. Digital globes are easy to transport and access and have multiple scales. They allow you to visualize several topics, can be automatically updated and are interactive. Dynamic themes rather than static themes can be shown – i.e. flash scales showing lightening strikes per year. Traditional globes have been used for education, such as showing geographic places, but virtual globes can show fit and size of one area to another by overlaying – to illustrate tectonics or continental drift. Adding texture and sound to virtual globes is likely not far away was his conclusion. A paper jointly prepared by the chair and Alan M. MacEachren (The Pennsylvania State University,University Park, PA) on "Cartographic Issues in the Design and Application of Geospatial Virtual Environments" closed out this session. Dr. MacEachren gave an overview of methods and issues of geovirtual environments. By simulating the tangible world in plan view, model view or world view and integrating GIS, CAD and VR in three stages (orientation, options, simulation) of planning you can change the location of a building on a street by rotating its orientation. The factors to be considered in virtuality are immersion (simulation of cave or rainforest environment); interactivity; information intensity and intelligence. For more information see their web site at: http://geovista.psu.edu/publications/aag99vr. (CW)

J'ai assisté à la séance conjointe C6 de l'après-midi intitulée "Conception de cartes". Cette séance était constituée de trois communications (la quatrième au programme a été annulée) présentant des projets cartographiques thématiques détaillés portant sur des domaines aussi variés que l'écologie et la gestion du territoire, la culture amérindienne et l'aéronautique.

La première présentation *"Un outil d'aide à la gestion du territoire partie I : Les cadres écologiques de référence en atlas"*, donnée par M. Yves Lachance, nous offrait un apperçu d'un projet cartographique des cadres écologiques de référence (CER) pour l'aménagement du territoire et la gestion des ressources développé par la direction de la conservation et du patrimoine écologique du ministère de l'Environnement et de la Faune du Québec. Les cadres écologiques auparavant offert sous la forme traditionnelle de textes et de rapports doivent maintenant évoluer et s'adapter afin d'atteindre encore plus les décideurs d'aujourd'hui. Deux formats sont présentement offerts, les systèmes d'information sur le territoire (SIT) et les atlas. Le format des atlas écologiques permettent une plus grande visibilité des cadres écologiques de référence en exprimant les données, les connaissances acquises ainsi qu'en proposant des utilisations possibles, mais ne constituent pas en eux-mêmes des outils de décision. Deux projets ont déjà vu le jour sous forme d'atlas tabloïd : *"l'Atlas du cadre écologique de référence du bassin versant de la rivière Saint-Charles, Québec"*, gagnant du prix J. M. Ellis 1997 "Carte innovatrice de l'année" décerné par le comité technique de cartographie de l'Association canadienne des sciences géomatiques,

et "*l'Atlas écologique du bassin versant de la rivière l'Assomption. La partie des Basses-terres du Saint-Laurent*". Le premier atlas contient des textes simples, des cartes monochromes et en couleur montrant par exemple l'utilisation du sol ou les structures écologiques. Les limites du logiciel permettant l'élaboration de cet atlas ont été cependant rapidement atteintes. Le deuxième atlas, plus complet que le précédent, comprend plus d'éléments graphiques : photos, tableaux et graphiques. L'utilisation du sol est cartographiée à partir d'images satellites combinées à un traitement d'image. Il comporte plus d'informations et établit des corrélations entre les différents thèmes. Un troisième projet en préparation "*Portrait de la biodiversité du Saint-Laurent : Atlas de la diversité écologique potentielle et de la biodiversité du Saint-Laurent au Québec*" est offert pour l'instant en version préliminaire. Cet atlas se veut plus exhaustif que les deux premiers, graphiquement plus attrayant, et les concepteurs souhaitent en faire un outil d'aide à la décision.

Le logiciel d'édition CorelDraw a servi à la conception des atlas écologiques et, à l'aide d'un processus d'échange SIG - logiciel d'édition, a permis l'intégration des éléments cartographiques aux éléments d'interprétations et d'analyses sans modifier l'échelle. Ces atlas sont disponibles en format CDRom, contiennent les SIT et inclut les différentes couches d'information. Cependant, la version papier, encore très en demande, est également disponible. L'avenir de ces atlas est très prometteur et les objectifs de visibilité sont largement surpassés puisque la demande d'un public diversifié est beaucoup plus forte que prévue. De plus, le caractère évolutif des atlas est très intéressant puisque plusieurs autres données peuvent être intégrées selon la demande desutilisateurs.

L'exposé suivant intitulé "*Creating an Atlas of American Indians in the United States : Issues and Prospects*" nous a montré une toute autre application d'une cartographie thématique. L'atlas éléctronique proposée par cet équipe de chercheurs constitué de Daniel G. Cole du "National Museum of Natural History" et de William J. Gribb de l'Université du Wyoming est une combinaison de cartes historiques, d'images numérisées, de graphiques et de textes illustrant l'évolution historique des terres autochtones aux États-Unis ainsi que l'évolution démographique des tribus amérindiennes. Le produit final sera disponible sur CDRom interactif via l'internet et également en version papier afin de permettre au public en général d'y avoir plus facilement accès. L'atlas est divisé en trois parties : la période coloniale, la période fédérale et le 20ième siècle. La première partie inclut des données de population compilées depuis 1850 par le "Bureau of Indian Affairs" et depuis 1860 par le "Census Bureau". Ces données comportent cependant certaines limites principalement à cause des méthodes utilisées pour les compiler. On y compte également des renseignements sur le mode de transferts des terres pendant la période coloniale (achat, traités à l'intérieur d'un état ou entre plusieurs états, etc). La période fédérale est représentée dans l'atlas par une série de cartes et de données montrant par exemple les frontières des terres tribales. Ces cartes incluent aussi des éléments du terrain tels la végétation, le sol, la topographie afin de les rendre plus utiles et réalistes. L'ajout des données numériques s'est fait en collaboration avec le "Census Bureau" et les cartes ont été produites à partir d'images de la "Library of Congress" numérisées par balayeur optique. Cette section de l'atlas fait complément au livre de C. C. Royce : "*Indian Land Cessions in the United States*". Pour la dernière portion de l'atlas, l'accent est surtout mis sur les données de population et de distribution des terres et des tribus amérindiennes. L'atlas présente donc un contexte historique sans précédent de la distribution et de la repossession des terres amérindiennes aux États-Unis ainsi que des données de population des tribus autochtones au cours des derniers siècles. Le but de l'atlas est de favoriser la visualisation de différentes problématiques autochtones tels que la ségregation ou la décimation des tribus autochtones, les modes d'acquisition et de transfert des terres, etc.

Le dernier exposé intitulé "*Making practical and effective electronic aeronautical charts*" nous a montré comment le défi des nouvelles technologies cartographiques peut s'appliquer à un cas pratique en cartographie aéronautique. Les services

aéronautiques et techniques (SAT) de Géomatique Canada travaillent à produire les cartes aéronautiques sous forme numérique en se basant sur les cartes papier déjà existantes.

Les SAT ont commencé ce projet en 1997 en mettant l'emphase sur les cartes en route et le Canada Air Pilot (pertinente au mode d'opération des arrivés et des départs près des aéroports canadiens). L'équipe de chercheurs font face à plusieurs défis : la qualité et l'intégrité des données doivent demeurer semblable à ce que la version papier offre, les données doivent être transférables sur un réseau informatique ou un médium CDRom, compatible avec la plupart des plateformes informatiques sans que le coût d'opération soit toutefois astronomique. Le choix d'un logiciel offrant des fichiers de format PDF a été préconisé dès le départ pour ainsi favoriser l'interactivité des cartes aéronautiques entre l'usager et le produit. Les méthodes de transformation des données en format PDF ont nécessité l'utilisation de plusieurs autres logiciels. Les nouvelles technologies augmentent alors grandement les capacités de la carte aéronautique traditionnelle et les rendent encore plus utiles aux usagers. Plusieurs éléments sur la carte numérique peuvent être en effet reliés à d'autres cartes, données ou publications en utilisant les possibilités d'interaction qu'offrent la technologie des fichiers PDF. Les clients pourront visualiser ces produits sur des stations autonomes ou à travers l'internet. (MR)

Another of the Canadian Cartographic Association organized sessions occurred after the break on Wednesday afternoon and was on "Database/Map Design"moderated by Byron Moldofski (University of Toronto). The first presentation was on "Actualisation du réseau routier canadien" by Daniel Bégin (Ressources naturelles Canada, Centre d'information topographique Sherbrooke). In 1998 the Centre d'information topographique de Sherbrooke (CitS) completed the updating of all data for roads in the National Topographic Database (NTDB). This meant that all roads in 300 urban areas of Canada were now up to date. However, to this day, outside of the Canadian urban core, many outdated (some by more than 30 years) road data is still in use. The NTDB has begun its plan of updating the rest of the road network data by negotiating with provincial governments for the distribution of their road data, and for the sharing of the costs of producing the data. And when an understanding between the governments cannot be reached, such as is the case with British Columbia, Mr. Bégin noted, the province alone will undertake the road data updating. In the Northwest Territories and the Yukon, on the other hand, private companies will be contracted to update the data. He was followed by Stan Hutchinson (Legal Surveys Division, Geomatics Canada, Natural Resources Canada) who spoke on "Nunavut Territory Property Mapping: Past, Present and Future". Mr. Hutchinson presented, in this paper, the exciting challenges ahead for the mapping of the newest Canadian territory, Nunavut. He provided the audience with several photos of the new territory and explained that the challenges, following the opening of the new Legal Surveys Division office in Nunavut will be both the gathering and maintenance of property mapping in such a vast land. The next talk was on "Un outil d'aide à la gestion du territoire partie II : Le système d'information sur le territoire du bassin versant de la rivière Saint-Charles, Québec" by Jean Bissonnette et Vincent Gerardin (Direction de la conservation et du patrimoine écologique Ministère de l'Environnement du Québec). The Saint-Charles River Basin near Québec City provides the most densely populated area of the province of Québec, the Communauté Urbaine de Québec, with potable water. Because of its importance the Ministry of the Environment of the province was commissioned in 1992 to develop decision-making tools in matters of land management and watershed preservation. The result was a Land Information System which comprised of a collection of geographic data ranging from scales 1:250 000, 1:100 000, 1:50 000, 1:20 000 for the land area to a scale of 1:5 000 for the river bed. A CD-ROM was produced and contains all the data in both MapInfo and ArcView formats and also includes all textual documents relevant to the project. The CD-ROM is available free of charge from the Québec government. The last talk in this session was "The Future of Automated Map Generalization" by Brian E. Smith, Henry L. Jackson, and Reid L. Maier (Intergraph Corporation Huntsville, Alabama, USA). Mr. Smith presented this paper with the intention of getting

feedback from cartographers on Intergraph's initial attempts at creating a computer-assisted data generalization tool. He pointed out that there is a need for what he described as "smart data" because of the preponderance of sales of data sets which have been produced to be utilized for numerous representations and not for single-product applications. A data generalization tool takes the multi purpose data and converts it into more usable data according to the user's needs. (MF)

At the same time as this session was going on, there was also one on "Dynamic Maps" which was the second one on this topic and chaired by Rob Weibel (University of Zurich, Zurich, Switzerland). This session focused on four aspects of computer-based mapping. T. Alan Keahey (Los Alamos National Laboratory, Los Alamos, NM, USA) created a "fisheye nonlinear magnification" software which distorts area to reflect statistics using an area calculation based on the pixels in the original map, which creates a cartogram quickly and allows some distortion parameters to be specified by the user. Dragan Stojanovic (University of Nis, Yugoslavia) presented the work of himself and four others, a prototype to create dynamic maps and temporal GIS, to predict the state of a geographic entity before or after a special event, which could be used for such things as route planning for emergency response. P.J. Ogao (International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede, The Netherlands) is researching methodology for an expert user to explore a dataset visually through animation while retaining the ability to revisit the original data. He plans to develop a web-based prototype for a case study of Nairobi's forest issues. Bin Jiang (University College London, UK) and Ferjan Ormeling (University of Utrecht, The Netherlands) are developing the idea that mapping can be applied to "cyberspace," the global computer network, emphasizing relationships, independent of geographic space. This analysis could be done as an Internet tree or by analyzing topological structure - connectivity, local integration, and global integration, which determine the size of a node. Questions included the problem of getting Internet use data, which is often guarded by Internet companies, and the observation that it would be useful to map cyberspace in order to guide users to content. (LS)

In the evening was the Canadiana Night Barbecue, which included an interesting ride to the National Aviation Museum by double-decker bus along the Rideau River past the Prime Minister's residence and Rideau Hall (home of the Governor General) and through Rockcliffe Park with its lovely stone houses. There was an opportunity to see the largest aeronautical chart in the world which was on the floor of the entrance area to the museum.

Thursday, August 19th

It was an early morning on Thursday (ACMLA Day!) with preparations for the ACMLA Panel on the "Future of Cartographic Information from a Map Curator's Perspective" beginning the day at 8:30 a.m. Convened by Alice Hudson (New York Public Library) and moderated by me, it featured representatives of the Congress of Cartographic

Participants in ACMLA Session "Future of Cartographic Information from a Map Curator's Perspective". Front row: Chris Baruth, Linda Zellmer. Back row: Elizabeth Hamilton, Alice Hudson, James Boxall.

Signing the Memorandum of Understanding. Left to right: Francois Faucher for Natural Resources Canada, James Boxall for ACMLA, Mike Ridley for the Canadian Association of Research Libraries.

Information Specialists Associations (CCISA). The panelists were Christopher Baruth (American Geographical Society Collection, University of Wisconsin - Milwaukee), Linda Zellmer (Arizona State University), Elizabeth Hamilton (University of New Brunswick), and James Boxall (ACMLA President, Dalhousie University). Each spoke briefly leaving time for questions at the end. Chris covered the role of CCISA and the general future of map libraries. Linda spoke on the needs that map librarians feel should be addressed and providing map reference electronically. Elizabeth focused on service issues and downsizing with imaginative use of an Inspector Gadget doll to illustrate her points. James discussed the role of professional organizations. During the coffee break after the session, the Memorandum of Understanding with Natural Resources Canada was signed by Francois Faucher on its behalf, by Michael Ridley (University of Guelph Chief Librarian) on behalf of the Canadian Association of Research Libraries (CARL), and by James Boxall on behalf of ACMLA . Also on hand for the brief, though very important ceremony, was Tim Mark (Executive Director, Canadian Library Association). There were over 75 people present at this session.

The Second Plenary Session took place next with Michael Goodchild (University of California at Santa Barbara) talking about the "cartographic features on a digital earth" with a rebuttal offered by David Rhind (City University, London). Professor John Pickles (University of Kentucky) was unable to be present at the last minute. Professor Goodchild felt that interest in geography is increasing because of the devolution of central power with interest in local issues, or "think globally, act locally". He noted a paradox that a map is only one expression of geographic information and most GIS maps are awful. He thinks that the world needs cartographic skills and principles more than ever before! Professor Rhind thought that Goodchild was only partly right. He noted recent searches of the web for the following words and the results to indicate the relative preponderance of material on maps and mapping on the world wide web today.

Search Engine	cadastre	GIS	maps, mapping	sex
Excite	2,900	74,696	598,692	890,458
Infoseek	4,175	306,958	20,682,491	12,602,720
Hotbot	4,040	140,120	1,812,880	2,350,100

He also noted the Microsoft Terra Server which has experienced 5 million hits per day. The business

Participants in ACMLA session "Data Acquisition in the Electronic Age". Left to right,

aspects of cartography are extremely important today which is changing national mapping organizations. He felt that technology meant the death of privacy, and instantly available but poor data. His view on cartographic data was that small charges may enhance use.

The first session of the afternoon was chaired by Cathy Moulder (McMaster University) for ACMLA on "Data Acquisition in the Electronic Age." More than a hundred people were on hand for this session. Subtitled "Securing our past and future," the four speakers for this session dealt with issues of preservation of spatial data, and questions of access models in the United States environment, the Canadian environment, and in the United Kingdom.

David Brown, from the National Archives of Canada, put the challenge of preserving spatial data into context with a video clip highlighting the preservation problems created by the technological revolution, along with the shifting needs and expectations of consumers. The starting point for any preservation undertaking lies with the initial decision on retention and preservation, made by archivists based on the evidentiary value of the collection, the information or historical value of the collection, its intrinsic or monetary value, and/or its legal properties. Against this background, Brown spoke on the joint project by the National Archives, Agriculture Canada, and Statistics Canada to preserve spatial information collected (at considerable cost to the taxpayer) for the Canada Land Inventory (CLI) project. The partnership project proceeded on the evidentiary and monetary value of the collection. Issues which had to be addressed included the record-keeping practices of the CLI; the underlying (obsolete) data file structure; authenticity issues, as project participants endeavoured to track the organization, management and changes to the data files; and the migration process itself, moving the contents of 3,000 disintegrating nine-track tapes into a Spatial Archival Information Format (SAIF) for long-term access. The results of the project are currently available on the Geogratis site and, of the lessons learned, Brown pointed out that "deep pockets" are essential in trying to preserve the spatial data of the past, as are detailed record-keeping practices and well-thought out migration strategies.

Public policy regarding access to government-produced spatial data varies from jurisdiction to jurisdiction and the three presentations by Melissa Lamont (Woods Hole Oceanographic Institution, USA), Barbara Morris (University of Edinburgh, United Kingdom), and Richard Pinnell (University of Waterloo, Canada), provided a glimpse at the spectrum of access policies. Though the United States is often seen as the leader in terms of providing public access to government information, including spatial data, Lamont led off by cautioning delegates that the reality in the United States is that there is no means of enforcing Title 44, the legislation under which government departments and agencies provide information for public access. Using the recent dismantling of the National Technical Information Service as a springboard for discussion,Lamont raised concerns relating to public access to electronic information and particularly spatial information, citing the relative infancy of the search and retrieval technology and standards; difficulties with unusual or uncommon items and the appropriateness of what is made available electronically; and the archival, preservation and access issues

Cathy Moulder, Richard Pinnell, David Brown, Melissa Lamont, Barbara Morris.

relating to electronic information. Lamont noted that the concept of permanent access to information is not well understood by those in decision-making positions. Ending on a positive note, Lamont spoke a bit about the opportunities or advantages relating to the provision of spatial data files. Within the United States, there is opportunity for greater access to *some* data; for improvements in scholarly communication; for efficiencies in libraries and in agencies; and for access to actual datasets, not just publications. She concluded by urging the development of standards, particularly in the area of metadata, the advantages gained by partnership programs and, above all, the *appropriate* use of the technological developments in our society.

At the other end of the spectrum, Barbara Morris presented a paper on the Digimap Initiative, where it has taken nine years of negotiation, a not-insignificant amount of money, and a major commitment by the subscribing institutions to acquire Ordnance Survey digital maps data. The paper, co-authored by Jason Miller and Peter Burnhill, detailed the partnership between the Joint Information Systems Committee of the UK Institutions of Higher Education and the Ordnance Survey. The impetus for the project were costs associated with "print-on-demand" maps (particularly large scale maps), but has had the added benefit of "making data usable". Digimap has developed to the point where users will be able to use custom software to search, browse or customize their selection, view their choice and download the data file. Coming online early in the year 2000, the initiative provides subscription-based access to the digital maps data for non-commercial use to participating institutions. The distribution of files through Digimap is supported by the University of Edinburgh Data Library (EDINA) and MIMAS at Manchester University, not by the Ordnance Survey. The potential for this service is considerable; in the words of Morris, this type of initiative could mark the "second debut of the map librarian in the next Millennium".

While there is a limited amount of spatial data made available in Canada (through such products as the GeoGratis web site which provides spatial data files free of charge, and through subscription, such as the Data Liberation Initiative), Richard Pinnell chose to highlight some of the institutional issues associated with spatial data acquisitions. Pinnell addressed issues associated with the library as an organizational entity, concerns relating to collections development, opportunities and challenges of partnerships, selection, and workload. At every level, there are issues which require addressing to acquire and provide service for spatial data within a library setting. Pinnell referred to the publication of his paper in the ***ACMLA Bulletin***, where many of these issues are dealt with in depth. It was this presentation which resulted in a particularly memorable image for the session:

Will we be working with data warehouses, or data prisons as the next Millennium unfolds?

Related sites:

Geogratis http://geogratis.cgdi.gc.ca
Digimap http://edina.ed.ac.uk/digimap/
(EH)

The final ACMLA session of the day was a panel moderated by Carol Marley (McGill University) on "Getting to Know Canada: From the Electronic Atlas to the Information Highway" which also drew a good crowd. The participants were Colleen Beard (Brock University), John Broome (Natural Sciences Canada's Geoscience Integration Section), and Phil Fong (Geographic Analyst, Statistics Canada). In her introduction, Marley referred to the proliferation of digital data which, in Canada, is not always freely available. The geographic information which is available is often web-based which raises issues regarding the role of libraries. (SH) Colleen spoke on "Using Canadian Geospatial Data: A Map Library's Strategy to Present, Promote and Protect" and was assisted by Sharon Barnes in the preparation of it. She made a presentation to demonstrate how Canadian digital geospatial data is used by students and faculty at Brock University. The theme of the presentation was strategies for presenting, promoting, and protecting data. Adobe Acrobat was used to simulate the Map Library's web site. The main focus was on the use of census data since this is the most accessible. The Map Library has prepared several choropleth census maps of the St. Catharines Niagara CMA using

Participants in ACMLA session "Getting to Know Canada: From the Electronic Atlas to the Information Highway". Left to right: Phil Fong, John Broome and Colleen Beard.

MapInfo GIS software. These are all available in PDF format on the web site http://www.brocku.ca/maplibrary/. Colleen indicated the preference for converting these maps to PDF files since they can be viewed and printed across computer platforms using the free Adobe Acrobat Reader. Census maps of major Canadian CMA's and census subdivisions of Southern Ontario have also been prepared to promote the use of this data to students. These examples describe what is available and the types of maps that can be created using GIS software. One of the more popular uses of the census data at Brock is in combination with the National Topographic Database (NTDB) produced by NRCan for correlating feature locations with demographic data. A project that was used by the Regional Municipality of Niagara to illustrate the relationship between the high Dutch populations in Niagara and greenhouse locations was noted. Fourth Year Business students utilized digital data by undertaking a project involving the geocoding process in MapInfo. The street network file was used in this process to plot client locations and then overlaid with choropleth census mapping of family income. A selection of outline maps produced by map library staff are also available in PDF format from the web site for downloading. These maps are very popular with students as base/location maps or for customized mapping purposes. The importance of providing frequent demonstrations to students and faculty was mentioned as a very effective effort for presenting and promoting the use of digital data. One other issue of discussion was the efforts that Brock practices for protecting digital data. This is done in two ways. One is to ensure license agreements are enforced. Licensing from data vendors and producers dictates what we can and can not do with the data. Every data set is accompanied by a different license agreement which is administered by the Map Library. As an institution, centralizing the data seems to be the most efficient means of monitoring the data loans properly without breaching agreements. A second way data is protected is through cartographic integrity. For example, by preparing census maps in the Map Library, it is ensured that the data is calculated and represented accurately. It is critical when representing census data that percentages are calculated using the correct data formula and classifications are designed properly so that the data is geographically represented the best way possible. This requires cartographic design knowledge and is also one of the reasons Map Library assistants are hired with these prerequisite skills. (CB) John Broome's topic was "Developing the Canadian Geoscience Knowledge Network: A Distributed Approach". Geoscience information is being collected digitally so there is a natural progression from producing hard-copy or CD-ROM to publicizing and distributing information via the web. Some geological surveys have been delivering dynamic maps to their customers via the web. Canadian geoscience publications are listed in a directory on the web from which they can be ordered and there are demonstration projects such as ResSources GSC, a Geological Survey of Canada component of the Canadian Geoscience Knowledge Network. The vision of the Canadian Geoscience Knowledge Network (CGKN) is one of a distributed geolibrary linking geoscience information from all agencies. Presently, an implementation committee is working on models. The CGKN will become the geoscience component of the Canadian Geospatial Data Infrastructure. Phil Fong has been working with the Gates Foundation on a project to use the web to allow non-GIS users to access information. His prototype has thematic mapping functionality

and the user would be able to do dynamic mapping, linking to the database at Statistics Canada or possibly to Data Liberation Initiative (DLI) institutions. He wondered if there are guidelines for dynamic maps on the web. The model permits searching to the postal code level of geography and has functions such as pan, zoom and identify. He has explored the option of sound for place names and for instructions. (SH)

In the evening there was a joint ACMLA/CCA Picnic at the Canadian Forces Marina at Uplands that was very well attended!

Friday, August 20th

Friday was another early morning in order to get to one of the first sessions which was on "Archives and Database Management" chaired by Susan Jackson (Carleton University). This was a mixed session which combined highly technical presentations on research in progress relating to management of spatially oriented data together with a report on the current situation at the National Archives of Canada. Lars Harrie (Lund University) opened the session with a summary of a current research project which uses a mathematical model to update spatial data in a test database for municipal mapping in Sweden. Betty Kidd (National Archives of Canada) spoke next providing a clear review of the mandate and current activities of the National Archives of Canada. She highlighted some of the management issues arising from diverse archival holdings in a wide variety of media. The differences between map curatorship and the archival mission were well addressed. Betty reminded the audience of the special nature of the historical origin of the national archive mandate in Canada which adopted a 'whole archive' philosophy as its basis of operation for many years. The final two speakers, Leena Salo-Merta and Teemu Leskinen (National Land Survey of Finland) outlined the complex database management required to develop a multilingual database using object-oriented software. The task of creating and updating a multilingual place name register for the Finnish national mapping system was described as an ongoing challenge. (SJ)

Shortly after that in a session on "Cartographic Literacy in Children" there was a paper by Jacqueline Anderson (Concordia University) on the Barbara Petchenik Children's Map Competition and where it would go in the future. She noted the web page for the collection held at Carleton University: http://library.carleton.ca/madgic/maps/children/index.htm. She recommended that the terms of reference be reviewed and clarified, that the frequency be reconsidered, that countries should be informed about it and the maps should receive archival care and dissemination on the web with the competition continuing as in the past. The morning concluded for me with attendance at an Open Meeting on the History of Cartography Commission. Terms of reference and possible projects were discussed. One that was interesting was suggesting that ICA might have a role in returning maps taken in World War II.

Session on "Archives and Database Management". Session chair Susan Jackson (left) and Betty Kidd.

After lunch there was a session on "Maps for Special Needs Users" chaired by Ada Cheung. Regina Araujo de Almeida (University of Sao Paulo, Brazil) spoke on applying results from studying use of maps by the blind to the elderly and to Brazilian Indians, with emphasis on the

latter. She noted two case studies involving particular groups and plans to visit both of them. She was followed by a presentation on the electronic atlas of Poland. Emulating the 1989 atlas of Arkansas, one was produced for Poland in 1997 (also available in paper). It primarily involved use of vector technology. Chris Perkins (University of Manchester, UK) both a map librarian and teacher, spoke on teaching design with student-led tactile campus mapping. He felt that there was little time or space for map design in the curriculum and little real world teaching of map design. In addition he noted that there was a need for group based active learning and a need to marry cartographic theory to practice. Visually impaired staff and students need guidance across his campus. His solution was to organize student groups that mapped routes across the campus in three weeks using low cost, appropriate technology. The course is in its third year, appears to be well received by students and users and won a university prize for curriculum innovation in 1998. Andrew Tatham (Royal Geographical Society, UK) gave an interesting, though brief, presentation on the use of found materials in preparation of tactile maps. He suggested avoiding the use of Braille due to the size and space it requires, giving examples. An appropriate carrier was recommended and examples of useful objects were given, such as swizzle sticks, gravel and string. When the session ended for the mid-afternoon break, I met Will van den Hoonard (University of New Brunswick) to be interviewed for his women in cartography research project. He is investigating the historical and contemporary contributions of women to cartography. In the evening there was a "Gala Dinner" at the Museum of Civilization across the river in Hull, Quebec.

Saturday, August 21st

Saturday morning began with the final General Assembly in the Congress Centre which went from about 9:00 a.m. till noon. The major highlight for me was being one of those elected as a Vice President, along with three other women - Kirsi Artimo (Finland), Li Li (China), and Elri Liebenberg (South Africa), and three men - Milan Konecny (Czech Republic), Robert McMaster (United States), and Takashi Morita (Japan). Bengt Rystedt (Sweden) was elected President, while Ferjan Ormeling (Netherlands) was elected as Secretary-General and Treasurer. Another highlight was the announcement of ICA honorary fellowships for Roger Anson, Christopher Board, Jaume Miranda, Tositomo Kanakubo, Jean-Philippe Grelot, and Fraser Taylor, as well as the Mannerfelt medal for Jacques Bertin of France for his special contributions to cartography. Voting on the 2003 conference and general assembly site resulted in Durban, South Africa, being chosen over Grenada, Spain. The budget for the next four years was approved, which includes about $2,000 for travel support for each vice president during that time period. Judy Olson (United States) and Jaume Miranda (Spain) were appointed as Honorary Auditors. The Chinese delegation gave a presentation on the 2001 meeting which will be August 6-10, 2001 in Beijing and has a web site of http://www.sbsm.gov.cn/icc2001/. They noted that they have the official approval of the Chinese government. The ICA Executive Committee will be invited to inspect the conference facilities the year before the meeting. Other business included noting that thirty national reports had been received and a second edition of ICA achievements was forthcoming. Chairs and terms of reference were approved for 17 commissions.

The Closing Ceremony began after lunch. A large screen TV was used for this, too. There was entertainment by a quartet called Presidents of the World and also by a very lively Chinese dragon dance. Dave Carney gave his final report on the conference noting that there were 1,540 registrants, including 85 students, 104 accompanying persons, and 17 children, with representatives from 79 countries. There were 1,683 items in the international map exhibit, including 160 children's maps and 50 in the Canadian Cartographic Association one, from 44 countries, plus 16 International Hydrographic Association countries. A count of visitors to the room with atlases from Tuesday through Friday tallied over 2,000, with nary an item going missing! 104 participants went on excursions and 73 attended workshops. There had been media coverage of the conference by CBC, CTV, CHRO, the Ottawa Citizen, and three radio stations in Ottawa. One couple had become engaged!

He thanked the five "gold" sponsors for the conference: ESRI Canada Ltd., Geomat International Inc., PCI Geomatics, Intergraph, and Natural Resources Canada, as well as the "silver" sponsor: Defence Geomatics, and other sponsors: Dell Canada, Magma Internet Provider, and Corporate Solutions. He had special thanks for his committee, especially Cliff Wood, Peter Keller and Lloyd Bowler. Immediate Past President Mike Wood also spoke and noted that 550 people had gone on the technical tours. He felt that there had been a greater use of the word "cartography" in papers. The new President Bengt Rystedt noted that his first ICA conference had been in Madrid in 1974. He introduced the new Vice Presidents and Secretary-General. He stated that cartography is an independent science with a great future. Betty Kidd reported on the cartographic exhibitions noting the 472 page catalogue which had been compiled by Marguerite Cummings and that 46 countries had participated. She announced the winners of the public ballots and delegates ballots on the best maps. Erin Kuyvenhoven presented the information about the results of the Barbara Petchenik Children's Map Competition. There were 87 maps from 19 countries with winning ones in the under age 9 category being from Bulgaria, ages 9-12 from Greece, Hungary, and Poland, and over age 12 from Argentina, Guinea, Japan and Sweden. Roger Wheate (University of Northern British Columbia) announced the winners of various Canadian Cartographic Association awards including the map competition. Tammy dePas of Sir Sandford Fleming College was the winner of the Norman Nicholson scholarship, while those presented with exceptional contribution awards were Michael Goodchild, Sir Sandford Fleming College and College of Geographic Sciences, and David Douglas (Ottawa).

ICA President Michael Wood presents the ICA Medal to James Boxall, in recognition of ACMLA participation in the 1999 conference.

A variety of other presentations were made, including one to James Boxall (ACMLA President, Dalhousie University) for ACMLA's participation in the conference. Special certificates and ICA medals were presented to members of the organizing committee - Dave Carney, Cliff Wood, Lloyd Bowler, Peter Keller, Betty Kidd and several others. Elri Liebenberg made a brief statement about the 2003 conference in Durban. Li Li and others from China presented prizes for travel around the 2001 meeting.

The first meeting of the new Executive Committee was held shortly after the end of the closing ceremony. All the incoming officers as well as several commission chairs attended. Assignments for liaison with commissions were made with mine being the Commission on Cartography and Children chaired by Jacqueline Anderson (Concordia) and the Commission on Internet Map Use (replacing the Commission on Map Use) chaired by Michael Peterson (University of Nebraska at Omaha). In addition, I have been asked to chair an Executive Committee Working Group on Archiving ICA materials. The next meetings of the Executive Committee will take place in Utrecht, Netherlands, December 10-12, 1999 and Beijing, China, August 4-6, 2000.

It was a very full week; this report covers only some of the activities, as there were many options each day in terms of sessions of oral presentations or posters, exhibits and meetings. This conference provided a unique opportunity for members of the Canadian cartographic community to converse with their Canadian colleagues as well as ones from 78 other countries around the world. Dave Carney and all those involved in preparations for it must be congratulated for an excellent job. Preparations will now begin for 2001 in Beijing and 2003 in Durban!

ACMLA 1999 Conference Participants: Front row, left to right: Pat McIntyre, Lori Sugden, Shirley Harmer, Velma Parker, Frances Woodward, Beth Ray, Marcel Fortin. Middle row: Bruce Weedmark, Lorraine Dubreuil, Joanne Perry, Irene Kumar, Heather Stevens, Carol Marley, Cheryl Woods, Betty Kidd, Cathy Moulder, Trudy Bodak. Back row: Frank Williams, David Jones, Barbara Znamirowski, Susan Jackson, Elizabeth Hamilton, Tim Ross, James Boxall, Marc Cockburn, Grace Welch, Dianne LaCasse, Tom Nagy, Andrew Nicholson, Richard Pinnell.

THE FUTURE OF CARTOGRAPHIC INFORMATION: PRESENT ASSESSMENT AND FUTURE NEEDS

Linda R. Zellmer
Map Collection
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Paper Presented as part of Session A1:
THE FUTURE OF CARTOGRAPHIC INFORMATION FROM A MAP CURATOR'S PERSPECTIVE
Joint ICA/ACMLA Conference, Ottawa, August 19, 1999

When dreaming of the future, it is important to examine the present status of Map Collections. To develop a view of the present and future, the Western Association of Map Libraries held a discussion on the needs of cartographic collections at the Spring, 1999 meeting in Long Beach, California. Among the topics discussed were access, services, collections, personnel, facilities and financing. This article is based on points raised in that discussion and identifies some future directions for library organizations.

Access

Most librarians who deal with cartographic materials will agree that their collections are not well known. Maps don't fit neatly on shelves; instead, they have to be stored in large, expensive map cabinets, which require a large amount of floor space. In many cases, administrators cite statistics about map use, or the lack thereof, to justify their views that maps and cartographic materials are not important. Unfortunately, there is one underlying cause for both of these problems: access. A quick survey of the map collection web pages and online catalogs in 120 ARL Libraries reveals some rather grim statistics concerning access to maps in ARL libraries. Of the libraries checked, 32% catalog their maps, 9% have partly cataloged their collections, 53% do not catalog maps and 3% have a separate database. 3% of the 120 ARL libraries have no web page about maps in their libraries, nor can maps be found doing searches in their online catalogs. When the University of Florida loaded Marcive, they saw a 400% increase in map reference (Armstrong, 1994); Colorado School of Mines had a similar increase in map circulation (643%) and use (423%) when their collection was cataloged (Phinney, 1983). These statistics indicate that maps are underused because they can't be found in online catalogs. Access does stimulate map use.

While access to maps in online catalogs improves the chance that people will become aware of cartographic resources in libraries, locating spatial information in libraries is still a difficult, time-consuming process. Access to spatial information in library catalogs is dependent on geographic subject headings. A place can be described with more than one geographic subject heading such as a political entity (municipality, county, state, province, etc.) or physiographic region (e.g. Colorado Plateau, Mogollon Rim, Bighorn Basin, Superstition Mountains, etc.). Two different library users, an engineer and a hiker, could ask for a map of a municipality or a hiking trail and be given the same map. Unless an item is cataloged by someone familiar with the locality, the commonly used local geographic subject terms may not be applied. Online catalogs need to be improved to make searching for spatial information easier. Among the possible improvements are: graphical user interfaces similar to the one used for Alexandria, built-in geographic thesauri that prompt users to search broader or narrower geographic terms and the capability to present holdings for map sets graphically.

Access to and information about local map collections is important. However, when the resources of local collections are exhausted, users may have to consult other research collections, such as those found in national libraries or archives. Access to materials in these collections also needs improvement; materials need to be cataloged so people can search for resources about a specific area. Researchers should not have to travel to major research collections to determine whether they have materials on a specific

topic and, if so, what they have. Many government agencies and research collections are beginning to provide resources digitally. However, even these digital resources have problems. Connecting to popular resources, such as online gazetteers, may be nearly impossible at certain times of the day because of network traffic in other parts of the country. Mirror sites need to be set up so that users can access the information more readily. Finally, national digital collections need to be more balanced. A search for information on the US States in American Memory shows that only 2 of the 24 states West of the Mississippi River have 5000 or more hits, while 14 of the 26 Eastern states have 5000 or more hits. The Map Collections in American Memory contain 1506 maps of the 26 Eastern states and 476 maps of the Western states.

While access to materials in local and research libraries is important, map librarians need better information from vendors to simplify collection development. At present, vendor catalogs give us basic descriptions (location and type of map), but date information is often missing, depending on the vendor. Librarians cannot purchase maps if they can't determine whether a map on a topic exists, or whether it will already duplicate an item in the collection. Vendors need to provide more information in their map catalogs.

Collections and Services

The nature of library collections is changing; more and more information is being made available electronically. This is also true for map collections. While we are still collecting paper maps, many of us are also introducing computer-aided mapping and GIS services. Our collections are now digital as well as paper. Introduction of digital mapping requires that we have computers capable of storing extremely large data sets; this is especially true in the Western US, because we have fewer, larger counties. We are faced with collecting data from a wide variety of federal, state and local government agencies and making it available to our users. In some cases, data may have to be reformatted or even imported to be used in a GIS. Finally, we must also monitor who is using our equipment, software and data, because some of the data may be copyrighted. As we add more digital resources, the nature of the services we provide is also changing. We continue to provide reference service regarding the paper map collections, often from memory. However, many of us are now providing assistance and library instruction to classes interested in using digital cartographic resources, including GIS. Based on many of the ICA presentations, this is only the beginning; as more countries develop digital national atlases, we may spend more time helping individual users with digital atlases which each have their own unique interface.

Advertising Services

A collection that includes paper maps and digital cartographic services may not be used if people don't know it exists. Providing access to paper maps in online catalogs is one way to make cartographic materials collections more visible. If we want people to know that map collections exist however, we may need to advertise. This means that we need to provide information about our collections, services and how to locate maps in the library on the library's web page. Cartographic materials librarians need to participate in local meetings of people who use cartographic materials, such as genealogists, engineers, geography teachers and GIS users. We can also inform people about our collections and services by speaking to librarians, talking to classes in library schools or participating in events such as the annual Geography Bee, Geography Awareness week or meetings of geography teachers. We need to find ways to advertise our unique resources and services.

Personnel

People who deal with cartographic materials, both paper and digital, require special skills. Many of the people who use maps, especially students who use them for general assignments, require assistance reading and interpreting the information. Personnel working with cartographic materials should be able to read and interpret maps; if a collection offers GIS services, staff should have some knowledge of GIS. People with these skills, particularly GIS skills, are in demand; library salaries cannot compete. As GIS services are added, staff must be funded for training and given time to learn about and work with the system. Library users continue to expect to see familiar products, such as maps of urban and rural population for US counties, in spite of the fact that the Census Bureau did not publish a wide variety of thematic maps based on the 1990 Census. Instead of

printing, the Census Bureau provided libraries with data that could be analyzed and manipulated with a GIS to produce maps. As a result, the skills required to provide cartographic reference services have become more demanding and complicated. Library administrators need to make sure that properly trained, experienced staff are recruited to fill positions in cartographic materials collections. At the same time, people who use cartographic materials need to continue to expect and demand services that will meet their needs and help educate administrators about the importance of cartographic materials.

Facilities

As traditional collections have grown, many library buildings have reached maximum capacity. When space is at a premium, map collections may be viewed as wasted space. Cartographic materials collections often end up with less space when buildings are remodeled to accommodate collections. Adding new services, such as GIS, requires additional space, high-end computers and color printers. Some years ago, the Geography and Map Division of the Special Libraries Association developed the ***Standards for University Map Collections***. The standards need to be updated to include service for digital spatial data and approved by and distributed through the appropriate library organizations. Information on map collection space needs should also be incorporated into accepted library space planning books.

Financing

Academic libraries are devoting large amounts of money to providing electronic access to resources such as online databases and scholarly publications. Providing access to electronic resources siphons money away from traditional print collections, such as cartographic materials. At the same time, cartographic collections are adding GIS services that require digital spatial data. As a result, the budgets for cartographic materials are being stretched to purchase digital data and paper maps.

Goals for Map Library Organizations

Now that the problems have been identified, map library organizations need to develop plans to implement solutions. At present many of our organizations are struggling to stay afloat. Regional organizations are more active, but even they have had some problems. What can map librarianship organizations do to help? Several library school students have recently attended some of the WAML meetings. Comments from these students have indicated that we are not doing enough to recruit and train future map librarians. Our organizations need to be more inclusive and less exclusive. Expensive membership fees, meetings and registrations are barriers to attendance and participation. Our organizations need to inform and invite library school students to meetings and, if needed, fund their attendance.

While these actions may help attract and educate future map librarians, it does little to assist the librarians already working with cartographic materials. Map librarianship organizations need to help educate administrators about the importance of cartographic materials and the needs of cartographic materials collections and users, such as improved access, space, and adequate funding for personnel, services and collections. Librarians who deal with cartographic materials also have a responsibility to educate the public and our colleagues about our unique services and collections.

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TRANSMUTATION? or TRANSMOGRIFICATION? [1] SERVICE ISSUES AND THE FUTURE OF CARTOGRAPHIC INFORMATION

Elizabeth Hamilton
University of New Brunswick

Revised Version of a Paper Presented as part of Session A1:
THE FUTURE OF CARTOGRAPHIC INFORMATION FROM A MAP CURATOR'S PERSPECTIVE
Joint ICA/ACMLA Conference, Ottawa, August 19, 1999

Rapidly emerging technologies, the democratization of digital resources, and pressures within our local environments have demanded changes in the role of the map curator. How much of this is simply camouflage, and how much of it is a deep-rooted fundamental change in the nature of the profession? It would seem, at first glance, that in addition to keeping all the traditional skills honed, map curators are having to develop new skills and an expanded mind-set, within an environment of more exacting user expectations. The degree of change, however, seems to have as much to do with local conditions as with the state of the profession at present. As I reviewed the sources available to shed light on the nature and repercussions of cartographic information and service provided by map curators, the image which ultimately crystallized my thoughts was Inspector Gadget, now currently available with Happy Meals at local McDonald's outlets [2]. In some respects, he looks normal – but a closer examination reveals rather startling differences.

Methodology

Where did I look to find the evidence of the state of change in the curatorial role for cartographic information? In addition to reviewing the current literature, I turned to the postings on list-servs and to regional reports from various map collections in Canada to find out what the day to day concerns of the middle-of-the-road map collection have been recently. Among my list of source materials, I referred to job postings, membership lists, and title designations from email signatures, and I also looked at conference agendas for national map library associations -- primarily in North America, since that is the context of which I am most familiar.

Findings

First of all, GIS in one flavour or another has found its way into our vision of the future. Most of the recent issues of the *ACMLA Bulletin* [3] have featured at least one article on GIS and the regional reports demonstrate the varied ways in which map collections are addressing the shadow of GIS in their doorways. In a recent ARL survey, 81% of reporting institutions reported that they now serve the needs of GIS users, with libraries high on the list of service providers within the institution [4]. The range of service spans the continuum from "canned" GIS

1 "Transmogrification: to change in appearance or form, esp. strangely or grotesquely." "Transmutation: (3) change into another nature, substance, form or condition." Random House Dictionary.

2 Since this presentation was delivered at the ICA/ACMLA session, the promotion has been discontinued. Inspector Gadget is no longer available at McDonald's Restaurants.

3 All the ACMLA Bulletins from 1994 to the present were examined and featured at least one GIS-oriented article. Articles on GIS were present before that, but on a more sporadic basis.

4 Association of Research Libraries, Geographic Information Systems Literacy Project, SPEC Kit 238, March 1999.

views on the web, to assistance in data manipulation, project planning, and instruction in using specialized software.

Many electronic discussion groups exist for those interested in cartographic information, but for the purposes of this panel presentation, I chose to look at the day-to-day issues through the combined postings from CARTA and Maps-L over the past 19 months. These are active lists, Maps_L being particularly prolific (approximately 965 postings for both lists), with membership predominately, but not exclusively, of North American map curators, geographers and cartographers, and vendors. The Maps_L is moderated by Johnny Sutherland and, while there is some duplication in the two sources, several groupings emerged in the correspondence:

Category	% of Total	Comments
Administration & associations	17.8%	Includes association business,job opportunities & issues such as copyright
Advocacy	6.3%	
GIS / emerging technologies	13.7%	Historical issues of access, etc. but with electronic media
Map Culture	5.8%	The "intrigue" and passion of maps
Organization/ cataloguing	7.7%	
Reference	14.7%	Includes instruction & questions both from map curators on behalf of clients and from clients directly
Selection & Acquisition	26.3%	Selection, sources, evaluation, acquisitions and problems, budgets, gifts & deselection
Storage, preservation	2.2%	
Web resources	5.5%	

It should be noted that these are somewhat arbitrary categories, but they were helpful in pinpointing the key areas of change. The categories of GIS and emerging technologies, for example, include all the issues of administration, advocacy, organizing, acquisition, and reference but GIS does require an additional "layer" of skills.

What is our business? What is being demanded or expected of us? After reviewing the lists, it is apparent that traditional skills are still very much part of the game. But, in addition to keeping all the traditional skills honed, we have new formats, requiring new skills and provision of service under different user expectations.

A) Selection and Acquisition

Without a doubt, collections development issues are key to providing service. If we do not have cartographic information, we cannot serve users.

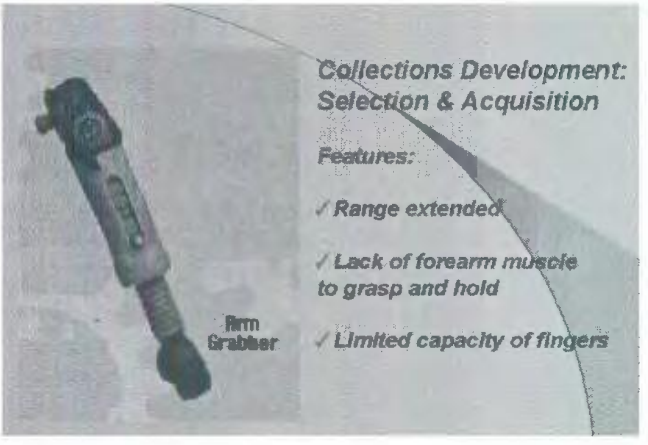


Figure 1

This is Inspector Gadget's left arm [Figure 1]. Note how Inspector Gadget's arm extends and has a special grasping function? From the evidence in the information exchanges, it is clear that we are extending our collections efforts to respond to user requests for the standard cartographic formats, as well as the electronic product.

Finding out about the existence of printed maps has always been a challenge. Though some series are as visible as the Canadian National Topographic System maps, other maps remain myths until a colleague experiences a map sighting and reports it. Spatial files are relatively new in the public eye (but, some would say, are even more hidden than print products), the costs can be exorbitant, formats variable, and often have more caveats on their use than were listed in one of the presentations at the 1998 ACMLA/CCA conference.

More and more, it is the selection and acquisition role of our business that prompts us into time-consuming advocacy and lobbying activities, those activities required to maintain depository arrangements, to ensure quality products, and into administrative activities to form consortia such as

in the current ARL proposal, negotiating (a) access, (b) licensing conditions, and (c) price, and to engage in the tedious process of chasing money, applying for whatever grant programs seem to have the word "geo" or "of the earth" or "resources" in them.

How well are we doing? While the United States would appear to be better off, it seems that in Canada, the arm is extended, trying to reach for newer materials -- but our grasp is weak. As members heard at the Annual Business Meeting of the ACMLA, we have made progress on some fronts, but more muscle is needed to acquire resources needed by our users. The functioning of the print-based depository program and the change in feature designation on Canadian topographic maps are but two of the many lobbying and advocacy initiatives which are being discussed currently.

It may be self-evident, but in addition to working on muscle tone, the adage "two is better than one" applies. Where one arm may not be strong enough to seize and hold depository systems in place, or to acquire freely available geospatial data files, several hands can make the task manageable. We are all concerned with access. We do not want to create "class" barriers to cartographic information.

(B) Administration and Associations

On the surface of a well-run map collection, a user can gaze out onto a vista of map cabinets, neatly arranged, atlas shelves, and workstations. Behind the scenes, however, lies the secret to any successes we may claim in our collections and service. Our "secret communicator" [Figure 2] is the administrative structure which underlies every successful map curator. It is made up of several channels, the first being the associations which link colleagues in map librarianship and complementary disciplines throughout the world. As map curators, we sometimes have more in common with colleagues in British Columbia than with the librarian in the next office. In addition to the training and information sessions provided at annual conferences, discussions on copyright, lobbying tactics, and other association business, administrative issues address levels of service and job descriptions.

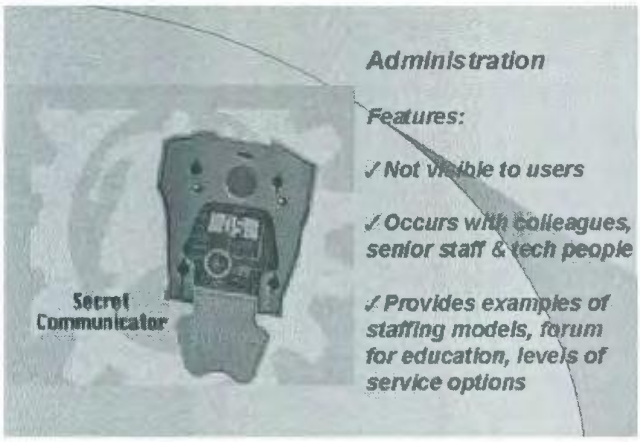


Figure 2

Another channel is internal communication. Again, it is invisible to the user, but comprises the administrative side of service delivery which addresses the needs of shifting local environments.

There are two points I would like to make here. One is the tendency which many have experienced of what is variously called "reorganization," "re-engineering," "downsizing" or "renewal," to face budgetary and service demands. Sometimes, the reworking makes sense and is staffed appropriately; at other times, logic or budgets dictate some fairly bizarre amalgamations. Government publications, data services, cartographic collections, GIS services, audiovisual resources and microforms are all thrown into the mix, layering on additional responsibilities to existing staff [5].

In recent job postings, GIS skills are appearing with some regularity as requirements for the position. A job advertisement within the past year for a Government Documents Librarian (with responsibilities for the development and management of GIS and print cartographic information services) required experience with government publications, and preferred experience

5 In the ARL survey, only three of the 79 responding institutions reported that they had a discrete GIS unit in the library to serve users of GIS.

with GIS software and geospatial files. Knowledge or experience with the broader category of maps and traditional cartographic information was not included [6].

The second point that I would make here is that many of my contemporaries, those kind souls who helped me get started in my career, are now senior administrators with broader responsibilities. *[Note that I did not say that we were aging.]* So – who is on the desk? As their experience and talents are demanded internally and externally, the front desk duties are delegated to the newest graduates who can be hired on a contractual basis. It is our local bank model: as soon as the front line acquires experience to be really helpful in advising patrons, the individuals are moved to the back room where managerial tasks take over. The transactions are dealt with, but it seems that there is less time for instruction for the user, and less time to participate in in-depth cartographic continuing education for the map curator.

(C) Reference & Map Culture

Note how Inspector Gadget's heart lights up when his head goes into action? [7] [Figure 3] It may be called a "Narvik 7 Sparker" but, in our profession, it is the head/heart interaction which marks the reason for our existence. The bulk of our business still originates with the reference question and these questions (at least, to the extent that they are shared on list-servs) are still as much about geographic place names and appropriate scale maps as they are about use of projections or complex geospatial files.

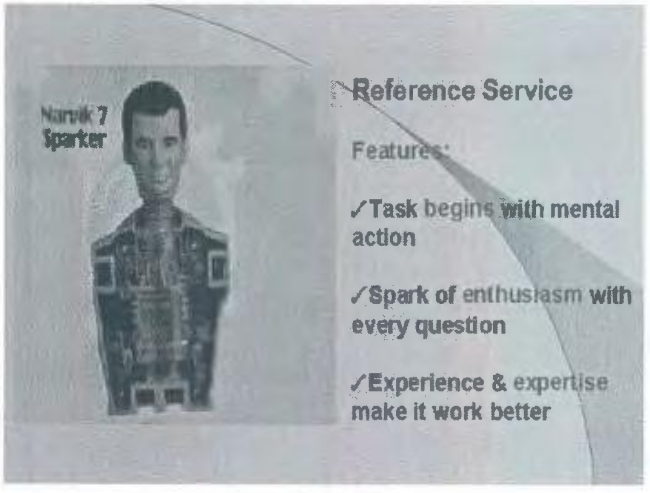


Figure 3

I will speak in a moment about where we are in terms of organization of cartographic information, but let us just say that, whatever problems there were in finding and using single map sheets, these problems are exacerbated several times over in dealing with geospatial files. As an example of this, I would point to the "ease of use" of the initial Statistics Canada file structure on the Data Liberation Initiative's FTP server for the various census geography files. However, I simply could not create a slide which would fit on one screen to explain the less-than intuitive organization of the site. The good news is that the directory structure has been revised and better Read-Me files have been provided. For those of us who downloaded files in the first few months of the program, reconciling the old structure with the new is a separate challenge.

Emerging technologies such as maps and atlases on the web do assist with the "quick reference question"—the "I need a map of..?" and "Where is ..." type of question. However the new technologies are also moving us more into "How do you use...?" questions, in which reference interviews and subsequent instruction can be extremely time consuming.

The questions received on the desk require expertise and experience, but there is also another factor I would mention which influences how we respond to user needs and which infuses our day-to-day work. It is the "map culture" which comes into play in the provision of reference service. This brings together the best of reference service with a passion for the oddities in life, an analogical mind, and a warped sense of humour. I would simply refer this audience to the exchanges on the list-serv on time

6 University of New Hampshire, posted 9 Feb. 1999

7 On the Inspector Gadget model, a light sparks in this piece when you press down on the head. It is difficult to replicate this effect in a print journal, however. Imaginations will have to be used.

zones of the north pole or on map humour as evidence of how this culture not only drives us, but makes converts of those with whom we work.

(D) Organizing, Access, and Preservation

It seems that ours has always been a hands-on profession and Inspector Gadget's left leg [Figure 4], with its sturdy thigh muscles, pliers and screwdriver, seemed perfect in describing the jerry-rigged arrangements we have adapted to house, organize and provide access to both print and electronic collections. In an early edition of the *Guide to Small Map Libraries*, reference was made to "innovative solutions" to the exorbitant cost of map cabinets, such as using cereal boxes to hold maps. What is our cereal box equivalent today to substitute for servers with the capacity to store and retrieve spatial data files?

Figure 4

If we cannot organize a collection, how can we expect a user to know what we have, or where to find it? We still use map indexes, in print or in electronic format, simply because they are effective tools for locating maps in series. We are seeing more web sites which are transferring the thought patterns behind indexes to web sites, linking individual maps to a sheet index equivalent. However, as David Jones reminded us in a session earlier this week, the search engines currently on the market do not do a particularly good job at finding cartographic information.

The transition from cataloguing a paper product to an electronic product uses similar thought patterns; asking what the item is and where the user can find it. Maps used to be at the bottom of the pile in most Cataloguing Departments; there was not much copy for records, the mathematical fields perplexed many of the novices to the game. After having risen through the ranks to the point that print maps are now found in our National Bibliography (*Canadiana*), geospatial files and electronic sources have drifted to the bottom of the heap while discussions ensue on metadata for spatial data files, on URL reliability for web resources, and descriptive standards including ISBD(ER) are examined for international or local applicability.

It is to be expected that any profession which includes queries about preserving plaster of paris relief maps in list-servs should be fairly blase about adding digital formats to their list of concerns. However, this is a very important part of our work. It has been difficult enough to schedule and acquire print cartographic materials for archival preservation, but the task of archiving geospatial files is mammoth in scope.

(E) GIS, Emerging Technologies, Web Resources

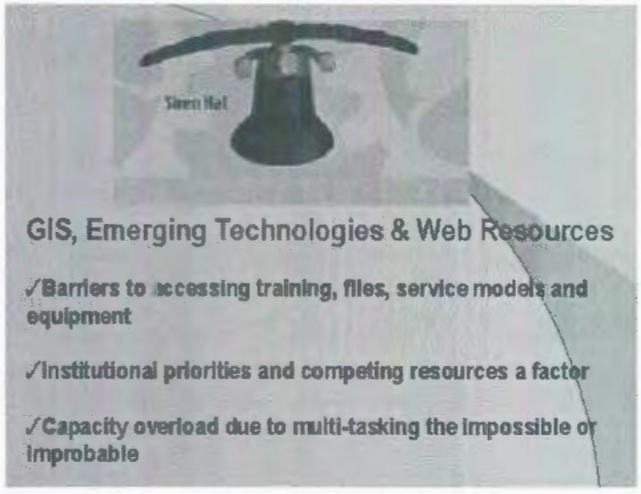
I will deal with the right leg, the Leg Circuit Signaler, the Siren Hat, and the Watch Belt in one fell swoop. To be honest, I am not even certain what a Leg Circuit Signaler is; it is not available in our local MacDonalds outlets at the moment. [Figure 5]

I am pretty sure it is a flashlight - but this is a bit how I regard the high-end GIS services and emerging technologies in libraries. There are many who are at the elite edge of offering an integrated spectrum of geospatial information, from print and globes to sophisticated delivery systems off web sites. It would be wonderful to find out more, in a perverse *[some might say sadomasochistic]* way and to introduce a broader range of services, but there are very real barriers to accessing the training, the files, equipment and the expertise in my local area. And I sense that others are in the same boat.

Figure 5
Figure 5

Geospatial data files (and GIS) are part of the cartographic information continuum, but integrating emerging technologies and cartographic information into existing staffing and service mandates, given time and budget constraints in many institutions, is more than just a challenge. It requires focus [the flashlight image is so appropriate!] and commitment, on the part of the map curator but also on the part of administrative layers which establish priorities and funding. It requires research and resources to integrate the spectrum of services appropriate to the circumstance. And it requires the time and energy for "experimentation". Emerging technologies, by their very nature, require resources and a willingness to waste time on "blind alleys" to test different approaches.

Do not get me wrong — institutions such as ours, with a relatively small collection, offer user services for the geospatial files such as those provided under the DLI, the digital side of our collection, but the services and equipment in an institution our size are not comparable to those offered by, for example, our sister institution in Halifax. That is because of institutional priorities and competing resources. Maintaining the map collection under current internal and external environments and budgets, while keeping abreast of current development in traditional map production, and taking on more responsibilities within a parent institution makes my head spin, sirens go off warning of hazards ahead, and, at times, I am convinced that my brain is not infinitely expandable — it has reached its peak



capacity. [Figure 6] *Figure 6*

And the watch? [Figure 7] The watch is a constant reminder to Inspector Gadget that there is simply not enough time to do it all — at least, not without supplementary resources. We have to make choices,

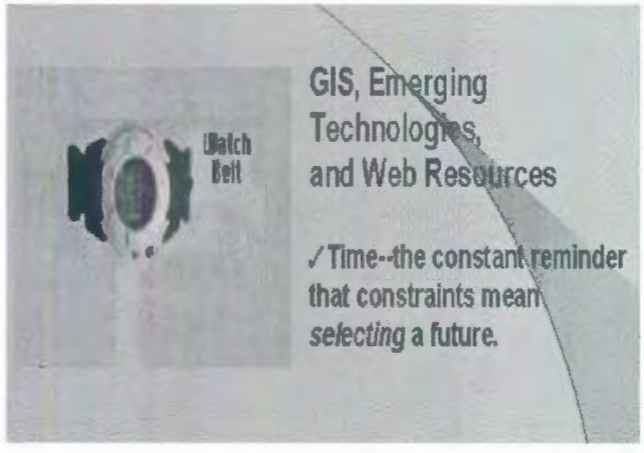


Figure 7

and select our futures based on where we are today.

Summary

So where, then, are the service issues as we look at cartographic information? They lie with the collection—will it be print/web based, or will it encompass the full spectrum of information? Will

the model used be that of a lab, with technical and software support, or will it be more along the lines of a traditional library, concentrating on helping users to find appropriate information resources. Will the information and data files be shared or uniquely held? Can we do it all with existing resources? What are our institutional priorities and do our parent bodies put the money where the mouth is? Are we facing tiered access or have we made progress towards equality of access? Is access to be the poor cousin, the metadata the last item to be placed on the table? And what about tomorrow's collection? Preserving print maps is hard enough; who is minding the digital legacy?

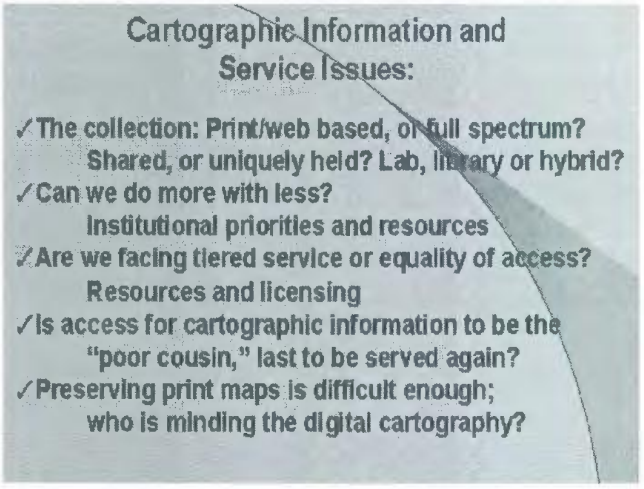


Figure 8

Do I have answers? No, not at the moment and certainly not within the time frame we have today. But when it comes to the question of transmogrification or transmutation, it is clear to me that, while we look the same on the outside, there are real shifts at an inner level, brought about by pressures of a changing environment. This is not a chameleon-like change, which shifts with the breeze of a by-passer, but an evolutionary change based on good genetic stock. As a last word, I would simply note that I have studied Inspector Gadget enough to know that he breaks easily and, of all the parts, the heart/head interaction is particularly vulnerable. Let us hope that we fare much better!

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Correction to ACMLA Membership List

(as published in Bulletin 105)

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DEVELOPING A GEOMATICS ALLIANCE AND COMMUNITY: INCREASING MAP LIBRARY ASSOCIATION STATUS, COOPERATION AND EFFECTIVENESS

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Revised Version of a Paper Presented as part of Session A1:
THE FUTURE OF CARTOGRAPHIC INFORMATION FROM A MAP CURATOR'S PERSPECTIVE
Joint ICA/ACMLA Conference, Ottawa, August 19, 1999

The following paper will explore, very briefly, several interrelated issues and trends, which the author contends are some of the most critical facing the map library and archive community. The primary goal is to seek and promote further discussion regarding the nature of our professional map library and archive associations. In short, it is hoped that this paper will form one of many rationales for enhancing and formalizing cooperation among various associations – cooperation that has existed, but is in need of a context and achievable goals. It should be noted at the outset that previous calls for extending cooperation have taken place (see for example, Wood, 1989), and there currently exists a forum (the Congress of Cartographic Information Specialists Associations) to discuss such matters, which represents a desire to seek more lasting and formal means to collaborate. However, it may be useful to look at such opportunities in light of the issues presented herein, and to seek organisational concepts based upon current developments in the field of 'cartographic information'.

Broadly categorized, the critical issues facing map librarianship are: demographics, technology, policy and organisation. First, in looking at demographic issues we must recognize that there have been no recent studies directly related to map librarianship, so it is necessary to infer from more general trends the possible implications for the profession. There is no doubt that, like other professions in the 'educational' sector, we are facing an aging workforce. We have seen over the last few years numerous advertisements for map and/or GIS library positions that have been difficult to fill. This is not due to a lack of interested people, or persons with adequate training or experience, as much as it is due to the simple fact that the total pool of persons being trained in fields associated with map librarianship (including library and archival studies, geography, cartography, and now GIS) is being courted by more lucrative employment and career opportunities. We have all come to this profession via numerous routes - and some of us are not 'librarians', but curators, archivists or, to show how things can change, GIS librarians (or is that cybrarian?). However, we must recognize that the competitive job market is having an impact.

There is another feature of demographics that we must consider. We need to be concerned and aware of the changing demographics of our clientele. This is critical when considering new types of services, or in revamping existing services and programs within our institutions. For example, we find at many universities larger numbers of students drawn from non-resident populations or from groups who have, historically, been marginalized from higher education. Such groups include students whose first language is not English or students with learning disabilities. We also see trends towards more mature, continuing and distance education students. These new mosaics of students and clientele mean adapting services and collection policies to meet the needs of these clients.

Add into this mix the obvious growth in the overall numbers of persons using cartographic and geographic information (in all forms) as a result of increased access to and use of digital technologies and the Internet (i.e. web-based mapping), and suddenly we can predict increased pressures on our resources, institutions and ourselves in the effort to

meet service needs. And let us not forget, according to recent pronouncements from Forrester Research Inc., the vast majority of youth (16-22 years) are regular users of the Internet, and computing technology and their expectations for digital work and access to information are significantly different from the norm (Weil, 1999). Therefore, we can expect the trend towards more digital access and service to increase. With an increase in digital use comes an increase in demand for traditional papers resources as well.

The next issue relates to technology. Certainly the nature of work has altered permanently to include digital technologies. Specifically in relation to map libraries, it is no longer an issue of if, why or even when such technologies are added to the plethora of resources we use and provide. It is now a question of "how best". Numerous authors have already made the case for GIS and related technologies to become part of our normal service environment (see Boxall, 1998 and 1999; Cline and Adler, 1995; Fleet, 1998; and Smits, 1999). However, we must be cognisant of the hype surrounding the inclusion of digital technologies. These 'new' methods are not replacing anything – they are adding to what already exists. We cannot become caught up in the misplaced belief that everything can be and should be digital. On the other hand, we can't ignore the transformative nature and positive opportunities offered by the proper and critical application of digital technologies to our work. Yes, it is a digital world. The problem is not the lyrics within the hype – it is the volume of the hype (mea culpa). At the same time, we need to be aware of a very important fact (one that I shall return to later) which is the fast-paced move towards creating global information infrastructures related to geospatial information (see Mapping Science Committee, 1999).

And what of training and professional development? Because of changes in GIS and cartography (not to mention other disciplines!), we need to make sure that our skills are up to the task. However, there is also an opportunity to become allied with a broader call for more solid educational opportunities for GIS and cartography students and practitioners to learn from each other (Fisher, 1998). In this way, we may begin to realize that we are part of the cartographic visualization process, rather than being the 'keepers' of the output from that process (Kraak, 1998). This point was also raised by Smits (1999) who noted that the new technologies mean that we have added analysis and representation to the list of 'jobs' we do. He goes on to suggest that in order to help with the implementation and use of such new techniques and services, we need to look towards association support and collaboration. This would allow, for example, the development of on-line resources tailored to meeting the professional development and communication needs of all of us within this sector. While such actions are already developing, we need to be aware that inter-disciplinary work remains to be done.

In terms of this paper, policy issues are seen in a different context. Here, policy refers to a number of concerns related to standards, metadata, activism, copyright, licensing and the like. A key concern should be that policy issues and changes are taking up more and more of our time, thereby taking away the time we could devote to other actions and service. Also, because so many policy issues – such as metadata standards – are international in scope, it only makes sense that associations cooperate on a broader level in order to deal effectively with such issues. We have traditionally been very good at that in the print world; now we have to become leaders in the digital world. Let us also not forget that technological and policy issues are becoming very intertwined.

Another example of why more extensive cooperation in the policy area is needed can be the issue of pricing and access to geospatial information. The issues that demand the use of geospatial information, such as environmental issues, do not respect political boundaries. Barriers that stand in the way of transferring geospatial information between nations (or within nations) must be taken down. However, such issues are not easily dealt with. Nor is one able to influence their direction easily if one is representing a small group of potential users or suppliers. The reality is that these issues require a larger lobby in order to affect policy change. Therefore, for policy reasons alone,

there is substantial reason to cooperate more effectively.

Boston et al (1998), as well as Cobb (1995), suggest that in developing new GIS-related services, it is critical to include internal institutional or agency departments as well as a multitude of external partners who can provide support, guidance and become integral collaborators for creating new products and services. Further to that, they suggest that fairly formal organisations be created in order to make sure there is a forum for discussion, work and accountability. In terms of policy issues facing our community, we should consider that collaboration and cooperation among a larger alliance within our community (including geographers, cartographers, GIS scientists, or others) will help all of us in our efforts to enhance access to and use of geospatial information – not to mention finding a larger and more powerful forum to seek further protection and preservation of our cartographic heritage from an archival standpoint.

And finally, what of organisational issues? Perhaps this could be summed up by the question "What's in a name?" Already in this paper, I have used terms that are value-laden (librarian, curator, cartographic, geospatial) in the sense that one term does not apply to each of us equally. Between nations (or even within nations), there is often a need to clarify what it is we are talking about. Are we map librarians, curators, archivists, GIS specialists, cartographers, geographers, or geomaticians? Do we work with cartographic or geographic information? Or is it geospatial, or just spatial? While such discussions are valid and sometimes very interesting, they do get in the way of coming to grips with serious organisational issues. We must begin to recognise that we, under whatever banner or name, are within a specialized group. We are in essence a policy network (Coleman and Skogstad, 1990). In this case, policy does not simply refer to the creation of 'policies', but to the broader notion of socio-political associations that seek common goals – networks as communities.

The most important aspect of the research relating to such networks has to do with their effectiveness being dependent upon the ability of those 'communities' to increase and maintain a status (high profile/respect/authority) that can be translated into political or moral power. Such power is the lifeblood of any organisation or community that seeks to influence the issues and trends that affect it.

I would also suggest that we are part of an emerging network that has a foundation in the best of cartography, geography and librarianship. We are becoming part of a global geomatics community. I use the term geomatics because it is more inclusive that cartography, geography or librarianship and it is not associated with a new term - namely, GIScience - that is too closely associated with one technology. Geomatics is defined, at least here, as the science, technology and management of geographically-referenced information, including its acquisition, storage, analysis, display and dissemination. An added benefit of a broader term like geomatics is that it relates to a field that includes areas of study and practice that go beyond mapping; areas like remote sensing, geodesy, computing, LIS, AM/FM and surveying.

Certainly the proposal of using one term to describe our 'community' or profession is full of pitfalls. However, there is an important reason for aligning oneself and associations in this manner. It does not mean that existing organisations or associations lose their identity. Cartographic societies remain 'cartographic', while map library associations remain 'library' associations. But we must be honest and recognize that we each suffer from 'acronym-itis' - we have too many associations and societies that are carrying out the same functions. Add to this, the fact that we are a very small, widely dispersed group and we are suddenly presented with a stark reality; we don't have the personnel or association resources to support as many groups, meetings, publications, training opportunities, and similar actions as we would like to support. Conversely, *because* of our small size and collegiality, we should be in a better position than most to cooperate and find new, effective means to enhance and sustain our community and our work. Again, this would not necessitate a break

from library-related organisations. On the contrary, we would be more able to bring to the fore the library and archival perspectives and traditions that are so desperately needed within the sister disciplines that have given rise to the information we work with. After all, we deal with a specialized format of information that requires a inter-disciplinary focus; a focus from library and geomatics disciplines.

As an important note, the above discussion does not mean regional or national issues and concerns are relegated to sub-concerns. On the contrary, such 'local' issues and needs stand to benefit from the development of a broader alliance among such a larger community of professionals and practitioners; alliances that would and should include creators (private sector, government, researchers) as well as users. For example, when one tries to gain resources to support a collection or library, one is often confronted with the political reality that the funding organisation may deem what you do as less than important because you are 'not part of something significant'. How many of us have heard such phrases used to block the development or implementation of new GIS-related services within libraries. By developing stronger linkages among the 'geomatics associations', we are more able to affect change and influence or support local needs and issues. In short, we raise our collective and individual profile by being part of something bigger than any one individual, group or association.

Rosenblatt (1999) clearly states that we "must develop new expertise and build strategic alliances and collaborative relationships with complimentary partners inside and outside" our institutions (p.45). This is another way of stating that we need to develop alliances among like-minded associations related to the geomatics sector. As outlined above, our numbers are small (and we are an aging group, getting smaller all the time). We are facing tremendous technological change which requires inputs of money, time and energy. Policy issues related to the access and use of geospatial information in all its forms require high-level and substantial political efforts. And organisationally, we need to remove duplication of effort and find ways to coordinate actions, services, training, communication, public and political awareness and research and teaching (i.e. providing the services we love!). As the move towards a Global Geospatial Data Infrastructure gains acceptance and support, our community of librarians and curators and archivists needs to be well positioned to work within that structure and affect its development. We cannot react to such initiatives; we must be part of their development and use. We must also be present with the power and status that comes from representing a broader community of users and creators from the library, cartography, geography and GIS communities (the geomatics community).

What next? Clearly it behoves all associations related to these fields to sit down and openly discuss what it is they want to accomplish and how they feel they can be successful. The issues we face – demographic, policy, technological, and organisational – are such that they can only be overcome or dealt with effectively through cooperation and collaboration at levels we have yet to see. As mentioned above, the ability of our community to create change is directly related to our ability to be seen as a significant force or lobby. In the simplest of terms, this requires more members within a strategic alliance of geomatics associations, that seek, as a fundamental goal, the enhancement of use, access, education and preservation of geospatial information.

[Author's note: For an extensive discussion and analysis of how interest groups and policy networks have formed into more collaborative alliances, in Canada, the United States, Australia and the United Kingdom, in order to influence the sustainability of geography as a school subject, see Boxall, J. (1999) Enhancing Geographic Education in Canadian Schools: Comparative research on the role of interest groups. (unpublished Master's Thesis: available at http://www.library.dal.ca/science/test/james/final/complete.pdf)]

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PAST, PRESENT AND FUTURE? THE QUESTION OF ACCESS TO SPATIAL DATA IN THE U.S.

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Paper Presented as Part of Session A2:
DATA ACQUISITION IN THE ELECTRONIC AGE: SECURING OUR PAST AND FUTURE
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U.S. laws requiring public access to government information have not been an unqualified success, yet it could be argued that the U.S. maintains one of the world's most open and liberal distribution systems. Librarians and other data users have maintained a vigilant watch over the government and its information dissemination policies and are, in part, responsible for the continuation and development of these policies. With the inevitable emphasis on digital information, librarians must shift their focus from traditional paper and deposit access arrangements to an electronic data future. To help preserve access to information requires a change in how librarians envision the future and how they influence the government's dissemination policies.

This paper reviews U.S. information policies and laws, discusses the challenges and opportunities of digital data, in particular spatial data, and closes with suggestions for the future dialog between librarians and the government.

I. Overview of U.S. government information policies

Title 44

The U.S. has a long and uneven tradition of free and unfettered access to government information. Through the 19th century, a series of legislation initiated the practice of depositing congressional publications into libraries. "The General Printing Act of 1895" consolidated this earlier legislation and strengthened the role of the Government Printing Office (GPO) and the Depository Library Program (DLP) as the centralized printing and dissemination mechanisms. Codified into Title 44 of the *U.S. Code* this myriad of 19th century legislation requires the federal government to distribute, free of copyright, information collected with the support of tax dollars. Basically, Title 44 assists the flow and transfer of government-produced information under the assumption that in a democracy the citizens must understand the work of the government in order to make informed decisions.

Although altered slightly in 1962 with a law creating regional depositories, the 1895 legislation was not seriously altered until nearly a century later. In 1993 Congress passed the "Government Printing Office Electronic Information Access Enhancement Act". This legislation propelled the GPO onto the Internet and affirmed the inclusion of electronic information in Title 44. Some will argue that the 1993 legislation actually saved the GPO from obsolescence (Kessler, p. 375).

Today, in keeping with legislative intent, nearly all congressional districts have at least one depository library. Thus, the geographic distribution of paper documents or computers with which to access electronic documents, is fairly successful. According to depository library rules, collections must be open to the public and comply with minimum specifications for computer work stations, including Internet capability. The legislation, depository rules, and a clutch of documents and maps librarians who monitor and advise the program, form a solid basis for the distribution of government information, free of charge, to the public.

This series of legislation and tradition of access is important to users of spatial data, whether digital or analog, because governments have traditionally been the primary gatherers of geographic information. National defense, natural resources, and administrative demands have essentially required governments to map. In addition, the expense of gathering geographic information, especially over large geographic areas prohibits some commercial or private firms from mapping on the scale and frequency of the government.

Inclusion of maps

Maps were not included in the DLP until 1983 when the Defense Mapping Agency (DMA), now called NIMA, the National Imagery and Mapping Agency, and the U.S. Geological Survey (USGS) joined the program. Previously several individual government agencies including DMA, USGS and the National Oceanic and Atmospheric Administration (NOAA), conducted their own library deposit arrangements. NOAA began working with the GPO only later in the 80's. With the GPO's series of libraries and distribution system already in place, the various agencies began to distribute maps through the DLP and abandoned their direct mailing lists.

II. Reality

Effectiveness of the DLP

For a variety of reasons, including the huge volume of information generated by the U.S. government, the dissemination of paper documents has remained problematic and many eligible documents never appear in the DLP. Title 44 gives the GPO no mandate to actively enforce the law and without means of coercion or persuasion, agency compliance with the laws remains erratic.

In the electronic age, data can be almost simultaneously gathered and distributed, and the public has come to expect such instantaneous gratification. Desk-top publishing and Web sites have nearly eliminated the need for centralized printing and distribution operations and perhaps even the need for libraries as centralized access points. As the government has moved into electronic formats, librarians have witnessed a decrease in the numbers of paper documents and a rise in the amount of information available through Web sites and on CD-ROM. Independent publication and distribution of agency materials further erodes the effectiveness of the DLP as it has been traditionally defined - a centralized dissemination point for government publications.

Impact of electronic information

In an era of government downsizing, paperwork reduction and pressure to utilize technology for savings, publishing on the Web presents an attractive alternative to traditional paper publishing for government agencies. Some government officials will argue that the Internet removes the necessity for a centralized print and distribution mechanism such as the GPO when agencies can electronically publish their own materials and disseminate them through the Web directly to the public. The press release announcing the possible closing of the National Technical Information Service (NTIS) notes that the service is not operating at a profit and that "the core function of NTIS, providing government information for a fee, is no longer needed in this day of advanced electronic technology". According to the release, the Department of Commerce will work to ensure that information from government agencies will remain available "for long periods of time". While Commerce makes such comments, federal agencies are not required to use standardized digital formats, have few or no web policies and procedures, and even within agencies and departments use a variety of formats and practices. To quote the *Report on the Assessment of Electronic Government Information Products* commissioned by the National Commission on Libraries and Information Science and the GPO:

> There is an overall lack of government information policy guiding electronic publishing, dissemination, permanent public access or information life cycle management...Also there is a lack of overall coordination of these initiatives at the governmental, branch or even agency level. (*Assessment Report*, p. XV)

In short, the Web is being used as a panacea. Agencies are failing to understand that electronic data must be managed, not simply placed on web sites.

III. Challenges

1. Indexes or search and retrieval mechanisms for digital information are still in development. Search engines that work across platforms and domains and that drill down into a database are not yet fully operable, and reliable rating of retrievals for relevance and quality is not yet resolved. Without centralizing gateways or infrastructures to pull information together, users will not know what information exists.

A subset of search and retrieval issues is metadata. Metadata provides information about

- Technical specifications
- Rights management
- Integrity and authenticity
- Allows for resource discovery

Efforts such as the Federal Geographic Data Committee (FGDC) and the Dublin Core have had success, and federal agencies are required to create FGDC compliant metadata for geospatial data. The *Assessment Report* states that only 27% of the products they surveyed had a corresponding metadata record. It would have been interesting to note what percentage of the products with metadata records were geospatial; unfortunately those statistics were not part of the report.

2. Unwieldy or obscure data are at much greater risk of being lost in an unregulated electronic dissemination system. In a world where success will be defined by the number of hits or downloads on a web site, obscure, esoteric and highly specialized data will be at a disadvantage. Users will likely have no trouble locating socio-economic data accessed frequently by a variety of professions and disciplines, however will bathymetric data of a square mile of the Antarctic Ocean, used by a few scientists, warrant space on a web site or server? Maps and data of large urban areas have a greater chance of being accessed than rural areas for another example. Likewise, large, complex datasets such as topographic data layers, orthophotography, and census divisions, may be perceived as too difficult for the diverse Web audience. The necessity of generating traffic for products on a web site may relegate less accessed, though not less important data, to offline storage and will make those products more difficult to identify and retrieve.

Tiger Line files from the Bureau of the Census are a case in point. When in the early 90's they first became available, the Census did not intend to distribute Tiger data through the DLP. Librarians argued for their distribution and they were eventually included. Most libraries could not manipulate or display the data, but many of their users could. Users of geographic information systems came to the library to borrow data for use in their own computers and labs.

3. Publications and data may be removed or replaced. The Web is in a constant state of change and publications and data are easily removed or relocated. As the *Assessment Report* notes among government agencies: "The concept of permanent public access is not well understood". Currently the U.S. has few regulations for archiving electronic government publications. The National Archives and Records Administration has responsibility for the collection of government records. However, who or what agency will act as the archive for superseded, updated or just older information? Relying on each agency to archive its own material is risky.

4. Migration is another factor in electronic publishing and dissemination. Physically, CD-ROMs will not survive, nor will the hardware to spin them. The fate of nine track tapes is a case in point. In the same way, data on the Web must be migrated to new systems and new media as technology develops. As yet, few institutions have policies in place to handle technology migration. The government, however, disseminates information vital to the democracy and our national heritage and as such could lead the way for state and local governments as well as corporations to develop policies and procedures.

5. Issues of authenticity, privatization and commercialization. With the government failing to address these issues, companies will likely move into the void and provide indexes and for-fee archives. In May of 1999, the NTIS partnered with Northern Light, a for-profit company, to create an

Internet search site for government information. While the information found might be free of charge, the search service is fee based. The resulting controversy has NTIS reviewing policy issues and Northern Light has revised the fee schedule. Yet, the issues remain. How will librarians help to insure the integrity of the information and keep costs to a minimum? Repackaging of U.S. government information is an old issue. However, if the government fails to come to terms with issues such as archiving, migration, indexing and documentation, commercial ventures will stand to profit by filling the gaps at taxpayer expense.

IV. Opportunities

Electronic publishing does present opportunities along with all those caveats.

1. Electronic distribution of government produced information is proliferating and agencies have little excuse to withhold documents. Without the cost of paper, printing and mailing, agencies will reduce those tangible costs. Agencies could also increase on-demand services, and place documents or data on Web sites for download upon request.

2. Electronic publishing could also facilitate scholarly communication. Electronic distribution may hasten the delivery of data, and a web site equipped with a message center could provide a central point for discussion.

3. Electronic distribution is fairly efficient from the library view. Only documents related to the interests or curriculum of the community or institution would be acquired (downloaded or linked). Rather than take deposit of documents that may be of marginal value to the clientele, libraries may selectively choose to download, print or link to documents and data within defined collection development policies.

4. Librarian and users will be able to argue for appropriate access to actual data, rather than just PDF versions of documents. A PDF document and links to the actual dataset could prove much more valuable than just a paper copy of the document on the library shelf. Shifting resources from the production and distribution of paper documents to Internet accessible data. For instance, the *Statistical Abstract* online is simply an electronic copy of the paper version. Access to the data behind the tables would be a much better and more efficient use of the technology. (http://ww1.access.gpo.gov/GPOAccess/sitesearch/su_docs_statabstract/97statab.html) Likewise, topographic maps in paper will always be needed, but access to the data layers used to build the map could prove invaluable. In short, electronic dissemination allows librarians and government data produces to negotiate and provide data in formats appropriate to the uses and content of the data.

V. Shaping the Future

Librarians in the U.S. can help shape the future of government information products through a renewed vision of the digital future and the promotion of creative ways to use new technology.

1. Press for metadata standards and start to use them ourselves.

2. Encourage data standards and format standards. Currently agencies may publish data in any format and any software applied. For transfer, migration and eventual reuse, the more simple the format the better. Instead of pressing for better software for data, we should be pressing for formats and file structures for which we can build interfaces.

3. Partner with the government to insure that data is available now and archived for the future. Programs such as PASDA at Penn State, (http://www.pasda.psu.edu) the University of Connecticut's work with the state (http://magic.lib.uconn.edu) and University of Illinois at Chicago with the U.S. Department of State (http://www.uic.edu/depts/lib/collections/govdocs/fpframe.html) are three examples of partnerships to collect, document, and distribute government information important to the local community. Agencies only rarely look beyond their immediate operational needs. Pressed by budgets and the need to address day-to-day responsibilities, government agencies cannot be held responsible for the systematic and long-term archiving of data. Libraries are equipped to organize and manage data and these partnerships are proving successful.

4. Promote the library as a gateway to information. The physical deposit of tangible documents and maps will dwindle as librarians become intermediaries for electronic information. Until sophisticated search engines can perform much more complex inquiries, until standard or transferable electronic file formats are more commonly used, and until methods for migrating and archiving data are more straightforward, libraries and librarians will be needed. Librarians must market and promote their skills to the government, emphasizing solutions rather than problems.

In short, the electronic situation changes every day and librarians still have an opportunity to influence the direction of our government. To meet the information demands of an increasingly electronic society, the U.S. depository system will see striking changes in the next few years. By promoting areas of common concern, and the potential convergence of the roles of the library and the government, increased electronic data does not necessarily mean a decrease in the availability of data.

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ACMLA booth in the Commercial Exhibition area, ICA Conference, 1999. Shirley Harmer and David Jones adjust the merchandise.

RESTORATION OF THE CANADA LAND DATA SYSTEM

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Introduction

The primary purpose of this paper is to discuss some of the issues related to the archiving of records that have been created using geographic information system (GIS) technology. To date, the geographic and archival literature is virtually void of empirically related information about conserving historical GIS applications.[1] This paper attempts to fill some of that void, and to provide information that others can expect to experience when attempting to deal with GIS applications that are no longer operational, but contain a wealth of information that can be used for comparative research. The example provided is how various organizations from both the public and private sector are helping the National Archives of Canada to archive the Canada Land Data System (CLDS) and make the information available to researchers.

The Canada Land Data System: Background

The CLDS was a geographic information system that was primarily designed for the purpose of mapping information related to the Canada Land Inventory (CLI). The Canada Land Inventory program was originally proposed by the Senate Committee on Land Use in 1958 and was endorsed by the Resources for Tomorrow Conference in 1961. The objective of the CLI was to develop a nationwide land database as the basis for multidisciplinary land use planning. Acting on these recommendations, the federal government, in cooperation with the provinces, began the CLI program in 1963 (Order-in-Council, P.C.-1963) under the auspices of the Agricultural and Rural Development Act [1960 (C-30) and amended by 1966-67 (C-11)]. The 1963 Order-in-Council authorized the expenditure of twenty-five million dollars over a ten year period to develop the CLI program and a computerized mapping system.

Under the Agricultural and Rural Development Act (ARDA), the CLI was administered by the Department of Regional and Economic Expansion. With the passing of the Government Organization Act, July 1, 1971, (P.C. 1971-958) responsibility for the Canada Land Inventory was transferred to the Lands Directorate, Canada Geographic Information Systems Branch, Department of the Environment. Not only was the Lands Directorate given primary operational responsibility for administering the CLI, but also responsibility for developing and managing a computer system to provide geo-spatial computer services.

By 1979, the Canada Geographic Information Systems Branch's activities were being administered by the Canada Land Data Systems Division, Land Research and Data Systems Branch. This division was given responsibility for implementing various components of the Land Management Data Program which had three different objectives; 1) develop, maintain and operate a computerized national data bank; 2) provide data processing and

1 In 1981 Dorothy Ahlgren and John McDonald published a paper entitled "The Archival Management of a Geographic Information System", Archivaria, Winter 1981/82, Number 13, pp. 59-65. The emphasis was upon how to manage information within the Canadian Geographic Information System while it was still operational.

advisory services; and 3) provide systems research designed to improve the effectiveness of spatial information services. These three objectives were met through the operation of the CLDS which was to serve a variety of federal, provincial and private clients. The federal government, through the Lands Directorate, was the largest user of the system, but because of the close link between the CanadaLand Inventory and provincial land use planning authorities, provincial agencies were also very active customers. In terms of federal government clients, the largest users of the system were staff from the Atmospheric Environment Service, Canadian Wildlife Service, Canadian Forestry Service, Environmental Protection Service, Inland Waters Directorate, Lands Directorate, and Parks. In 1988, the Environmental Information Systems Division (EISD), State of the Environment Reporting Branch managed the system until March 31, 1994 when the use of the CLDS was discontinued by Environment Canada because program review led to a reorientation of the Department's primary business functions relating to land use research and resource management activities.

Canada Land Data System: Manual and Automated Procedures

As has already been mentioned, the largest single source of data managed by the CLDS was the CLI. During the early stages of the Canada Land Inventory, cartographic work outlining the geography of the country was accomplished manually. It was also apparent that due to the large volume of data that were being accumulated, the inventory would be extremely limited if conventional cartographic methods were applied. As a result, various tests were conducted to provide a computer solution for data management and cartographic representation.

In 1965, IBM Canada was awarded a contract to develop an information system that would meet the needs of the CLI and also allow the graphic representation of other types of thematic data. This contract led to the development of the Canadian Geographic Information System (CGIS) which was delivered in 1968 and became fully operational in 1972. The CGIS was the first geographic information system to be developed anywhere in the world. By 1976, all of the CLI data had been input to the system and maps were retrievable at a scale of 1:250 000. By the end of 1979, approximately 3,500 maps were available from the system.

Although the primary computer application is known as the Canada Land Data System, it is comprised of the CGIS and various data collections. The CGIS was the information analysis system that was designed to store, manipulate and retrieve the spatial data in either tabular or graphic form. Being an IBM product, it was developed to be used on an IBM mainframe computer using the PL/1 computer language, batch processing and nine-track magnetic tape technology. The geographic data associated with the system were handled by utilizing two different data sets for each thematic coverage, an imagery file (IDS - Imagery Data Set) and an attribute file (DDS - Descriptor Data Set). The IDS file contained boundary data describing the graphic composition of a geographic feature and the associated DDS file contained classification data for each geographic feature or area. The two data sets are complementary in that each contains distinct data to fully describe a thematic coverage and produce a map.

Role of the National Archives of Canada: Appraisal Process

Under Section 5 (1) of the National Archives of Canada Act, no record under the control of a government institution and no ministerial record, whether or not it is surplus property of a government institution, shall be destroyed or disposed of without the consent of the National Archivist. Under this process, archivists assess a collection of records to determine whether they are of national significance and should to be transferred to the legal control and custody of the National Archives of Canada because of their archival value. In regards to the CLDS, this process was completed in 1974 when appraisal work was completed by archivists from theMachine Readable Archives Division and the Public Records Division, Public Archives of Canada. In the archivists' archival appraisal report, they identified the records as having archival value only if the main CGIS associated with the records was transferred to the National Archives as well. Consequently, the submission was approved with the caveat that "... a copy of the machine readable Canada Land Inventory

File be transferred with necessary support documentation ... to the Historical Branch, Public Archives of Canada ...". This decision was agreed to in a Records Disposition Authority (74/019) which was approved by both departments in December of 1974.

In June of 1995, the National Archives of Canada (NA) was contacted by the last operational manager responsible for winding down the activities of EISD. The primary objective was to arrange for the methodological transfer of the records identified as being of archival value. Under Section 6 (1) of the National Archives of Canada Act, this transfer not only includes the physical transfer of the records (care), but the transfer of 'crown copyright' and the intellectual property rights associated with them (control). During the summer of 1995, the 1974 appraisal decision was reexamined and research indicated that the CLDS was still of archival value and that, in accordance with the original appraisal decision, the design and program documentation should be transferred to the NA, as well as all of the digital map files that were managed in the system. The reappraisal decision indicated that the original CGIS software component of the CLDS should not be transferred because it was obsolete and would have required considerable effort and resources to make operational. It, however, has been transferred to the NA, but no effort has been made toward its restoration.

Transfer and Restoration Problems

The first transfer of records occurred during the summer of 1995 when the Intera SPANS version was transferred. The SPANS data contains generalized CLI, Canada Land Use Monitoring Program (CLUMP), National Parks and AVHRR (Advanced Very High Resolution Radiometer) land coverage maps and imagery. The transfer of the paper system documentation was completed in March of 1996. At the time of writing, Environment Canada has not transferred any of the administrative files associated with the program, but it is expected that this will occur at some point in the near future. In February of 1997, the intellectual control associated with the complete set of CLDS tapes being stored in the Ottawa Federal Records Centre tape library by Environment Canada was transferred to the Visual and Sound Archives Division (VSA). The physical transfer of the complete set of digital data files should have commenced in November of 1996 to ensure there would be no technical impediments associated with the transfer of the data. This did not occur until December however, because of difficulties in obtaining a copy of the tape management system that was used to manage the nine-track tapes. The transfer of the tape management system was delayed because all the employees who had worked in the area were deployed to other positions in the federal government, or had left the government entirely, prior to the closing of the program and the individual responsible for it could not be located.

With the transfer of the system documentation, program files and tape management system, it immediately became apparent that the CLDS was a very complex system that contained collections other than the Canada Land Inventory. In order to provide some context about the nature of the data that were managed by the CGIS, the Canada Land Inventory consisted of multiple coverage land use capability maps for agriculture, forestry, recreation, wildlife and 1968 land use activity. The wildlife coverages included information about the ability of various geographic regions to support waterfowl, ungulates and sport-fish. In terms of geographic coverage, the CLI was never intended to cover the entire land area of Canada. It was, however, intended to cover the settled portion of rural Canada and adjoining areas which affect the income and employment opportunities of rural residents. To this day, the CLI remains the largest single land capability assessment ever taken in any country. After its completion, most of the Canadian land mass below the 60th parallel was included at the 1:250,000 scale. There are, however; selective coverages at the 1:50,000 and 1:125,000 scales.

The CLDS also contained information about urban land use change collected under the auspices of the Canada Land Use Monitoring Program (CLUMP). In 1978, CLUMP was established by the Lands Directorate to provide researchers, planners, land resource managers and policy makers with information to assess land use change. The program was developed to complement the CLI and, in fact, did use the 1968 CLI land use data as the primary base from which

comparative land use analysis was conducted. Information on land use change was classified according to various land activity criteria through the use of aerial photographs and LANDSAT imagery interpretation. These data were then augmented by information that was collected in the field, or obtained through other primary sources. The objectives of CLUMP were to improve the awareness of the state of the land resource; identify land use trends of national and regional importance; identify areas of rapid change; and, analyze land use changes in terms of causes and consequences, particularly with respect to government policy and programs. The thematic coverage of CLUMP was directed toward urban-centred regions; prime resource lands; various rural areas surrounding urban centres; and, wetlands. Similar to the CLI, the land use data were mapped at the 1:50,000 and 1:250,000 scales.

In total, CLUMP collected land use information for seventy-two urban-centred regions, twenty-three of which contained population densities in excess of 100,000 people, and forty-nine places with densities of 25,000 people or more. In terms of temporal coverage, information was recorded for the 23 largest urban centres for the years 1971 and 1976. The program included all 72 urban-centred regions for a 1981 study.

The CLDS also contained the 1971 (172 maps) and 1976 (283 maps) census enumeration boundaries for Canada at the 1:250,000 scale. There is also coverage for 1976 census enumeration areas at the 1:500,000 scale. The 1976 districts were input as part of the 1976 Census of Agriculture by Enumeration Area study. There are maps for the Yellowknife area that were completed under the Northern Land Use Service Information Map Series Program. Federal land maps were also placed in the system depicting the legal description of federal lands and properties. With these maps it was possible to identify opportunities for selecting, planning and managing sites for federal occupancy, including locating sites that could be acquired by the Canadian Wildlife Service because of their wildlife habitat suitability; or, the Department of National Defense as possible military sites. Biophysical map sets were created for various Canadian National Parks. The data base also includes numerous types of information for special projects such as ecological land surveys, land parcel files, watershed boundaries (e.g., CanadianWatershed Report), administrative boundaries, and numerous other holdings. In essence, while the system was extant, it represented one of the largest digital land resource cartographic data collections in Canada.

The bulk of the collection resided on 2,964 nine-track tapes. By using the tape management system, it was estimated that the CLI and CLUMP coverages were on 487 of the tapes, 829 tapes included special project and overlay coverages. The overlay maps represent multiple land capability coverages that have been combined into single IDS and DDS data sets. The remainder of the tapes represented backups.

Prior to transferring the entire collection of nine-track tapes to the National Archives, various attempts were made to salvage the CGIS software in order to restore the CLI data sets. One such attempt was conducted during the 1994/95 fiscal year when Agriculture Canada attempted to migrate the CLI agricultural data and load the CGIS software on an IBM mainframe. This initial attempt was not very successful. As was indicated earlier, the CGIS software was written in PL/1 and was dependent on obsolete JCL and IBM 370/380 subroutine libraries by the time the migration was attempted. Not only was there an operating system obsolescence problem, it would have been difficult to find the appropriate PL/1 compiler. In any case, Agriculture Canada was unable to read the tapes because of tape security problems at the service bureau they were using. Apparently, the service bureau tape management system was unable to pass Environment Canada tape ownership rights to Agriculture Canada. This initiative did; however, determine there was sufficient documentation about the map data structure so a future attempt could be made. At the time, Agriculture Canada was experimenting with the viability of initiating a project to collect current agricultural land use capability data. They were hoping to compare the current data against the historical CLI agricultural data in order to determine how agricultural policy decisions made by Agriculture Canada had impacted on the current land use patterns of agricultural lands.

Using the information supplied by Agriculture Canada, further tests to determine the feasibility of transferring

the system to another platform were conducted by the NA and Statistics Canada in December of 1996. Early in the assessment stage, the decision was made to abandon the use of the CGIS software and concentrate on the actual data. This new testing indicated that many of the tapes were in poor condition and required extensive cleaning because the polyester base of the tapes was beginning to disintegrate. The preliminary series of tests were conducted by Statistics Canada on an in-house Amdhal mainframe computer, using high speed nine-track tape drives.

This attempt was a failure as well because of tape 'stiction' problems and the fact that the tapes were falling apart. With the use of the high speed tape drives and the fact that the CLI data were stored on tapes that were manufactured during the mid-seventies to the late 1980s, one should probably have expected this problem. Tape stiction occurs when the magnetic tape sticks to the read-write head of the tape drive. In terms of the oldest tapes that were used to store the data, it happened because the tape probably could not stand up to the frictional heat that was created when it passed the tape drive head. Hence, the tape became physically bonded to the head. With the newer tapes, the problem is probably the result of hydrolysis and occurred because the tape failed to pass smoothly across the read-write head, causing it to become bonded to the area of friction. During the testing process by Statistics Canada, the incidence of stiction did not occur evenly, suggesting the read problem was the result of the effects of hydrolysis on specific areas of the computer tape.

The problem of tape hydrolysis has been investigated by the laboratories of numerous companies that supply tape technology for the storage of data, and 3M Canada offers the following information as an explanation for its occurrence. "The magnetic coating of ½ inch computer tape is primarily a polyurethane based binder system. All eurethane based binder systems experience hydrolysis when they are exposed to high humidity for extended periods of time. Chemically, hydrolysis is a reaction between the moisture in the air and the binder system which results in degradation of the tape. Elevated temperatures will accelerate this reaction. In addition, once the process of hydrolysis begins, the problem is further aggravated by the effects of tape tension and hug pressure. Typical drive rewind tension is about 11 to 13 ounces, and when combined with high storage temperature and humidity, acts to place excessive radial pressure on the tape surface, especially near the hub. This increased pressure can cause low molecular weight components within the magnetic coating (the by-products of the hydrolysis) to exude, or be squeezed out to the tape surface. These components can then be transferred to the read-write heads during operation. Also, during operation, normal friction will develop at the point of head-to-tape interface which produces a localized heating effect that facilitates the transfer of the tape components from the tape surface to the read-write head. Typically, no problems are encountered until the drive stops and these components have a chance to cool. The surface residue sometimes stays on the tape, sometimes transfers to the read-write head, and sometimes (worst case) bonds the tape to the read-write head." All of which happened when Statistics Canada attempted to read the tapes.

The key to preventing the occurrence of this problem is to control the handling and storage of the computer tape and implementing proper data refreshing procedures. This is true regardless of the chemical composition of the tape. As many organizations find out the difficult way, the expense of maintaining proper tape handling and storage conditions is insignificant when compared to the cost of replacing or attempting to recreate lost data. The following ANSI guidelines for computer tape storage environments are provided as a general reference point for data managers (40 ° F to 90 ° F, 20%-80% RH). However, tape technology conservation studies have shown that the hydrolysis reaction is minimized when the storage environment is restricted to the optimal condition of 65 ° F to 70 ° F and 40%-50% relative humidity. This is the environment in which the NA places its computer tape holdings. While these controls can extend the life of tapes currently in storage, they do not always deal with the environments in which they are recorded in the first place.

By the end of December, Statistics Canada finally transferred a copy of the CLI shoreline coverage from tape to disk, but verification procedures indicated the files were filled with data errors. Continuous attempts

by Statistics Canada did not appear to resolve the migration problems and it appeared as though the environment in which the tapes had been stored would be the final demise of all the data.

In January of 1997, a group of tapes were transferred to the National Archives so they could be tested. At the time, it was decided that if this testing phase indicated that none of the data, or a small percentage of the data, could be migrated, then a destruction memo would have to be written to destroy all the tapes in accordance with NA record disposition policy and procedures.

The first attempt to read the tapes resulted in the use of an OVERLAND DATA nine-track tape drive that was connected to a PC. Similar to the Statistics Canada situation, it was found that when the tape drive was run at normal speed it was virtually impossible to extract the data because of tape stiction problems. This problem lead to some experimentation, including reducing the drive to its slowest speed, and implementing tape cleaning procedures. Once the tape drive was reduced to its slowest speed, the tape only periodically stuck to the read-write head of the tape drive. However, the read-write head had to be cleaned after each successive pass because of tape residue. What was even more surprising was that verification of the record and blocksize counts indicated the majority of the files were being extracted with no errors.

Until the spring of 1998, the NA extracted the CLDS maps with financial assistance from Statistics Canada. The NA and Statistics Canada partnership was created in an effort to restore the complete set of data associated with CLI, CLUMP and the Northern Land Use Service Information Map Series Program. Under the terms of reference for the joint project, Statistics Canada provided the services of an employee, on a part-time basis, until March 31, 1998. The NA was responsible for project management. During the course of the partnership, the CLI and CLUMP data were extracted from the nine-track tapes in their original IBM EBCDIC code and CLDS data structure. When the data extraction exercise became fully operational, there were suggestions that the data should undergo an EBCDIC to ASCII data conversion process. However, it was pointed out by SpatialAnalysis, as the consultant for the migration exercise, that the IDS data set was structured on the theory of compact notation which consisted of packed EBCDIC binary code. It was also pointed out that only a small portion of the DDS consisted of non-binary data; as a result, any conversion would destroy the map records.

At present, all the map coverages have been migrated by the National Archives in their original CLDS data structure and EBCDIC code. In total, it took approximately 200 working days to extract the files and place them on 8 mm helical scan tape. At time of writing, the extraction of the overlay maps is nearing completion.

Once all the data have been extracted, custom software is required to reproduce the map sheets using current GIS technology. Some software has been written that can convert the files into ARC/INFO Generate, Digital Line Graph (DLG) or SPANS vector files. Although the extraction software has been developed and appears to work, the ultimate plan is to place the map sets on the internet in ARC/INFO format, and make them available free of charge.

Data Conversion

This section deals with the conversion of the original CLDS binary data to a format and structure which is acceptable and readable by modern-day desktop GIS software. At the outset, there were two different choices that could have been made to perform the conversion. As indicated earlier, the first method was to attempt to restore the CGIS software in the hope that there was a module, or routine that would allow the migration of the maps without having to have a full understanding of the original data structure. The second approach was to ignore restoration of the CGIS software and attack the data directly with a custom written translation software. The primary objective of either approach was to ensure that the records could be migrated and used in the ArcInfo GIS environment.

In the CGIS software, there was indeed a module that could produce what is known as "Arc Generate Format", though it was somewhat cumbersome to utilize this format and later re-construct the proper

polygon structure in ArcInfo GIS. The main drawback to this approach was that it could only be attempted on an IBM mainframe, using technology and compilers that were extant when the software was originally created. This was the approach utilized by Agriculture Canada in their first attempt to restore the CLI agriculture data. Although Agriculture Canada was successful at restoring the software, their attempt to recover the data failed due to service bureau incompatibilities. Statistics Canada, who still operate a mainframe of their own, were thinking along the same lines when they first considered the recovery of the entire data collection, but it was decided to abandon this approach and concentrate upon writing some software that would ensure the successful migration of the records.

It was somewhat by luck of matching excess government funding and people skills that a preliminary conversion software was developed quickly and without complication. This happened at the end of fiscal year 1996/97, when the National Archives took over the responsibility for downloading the data from the nine-track tape, thus freeing development funding retained by Statistics Canada. The conversion software was developed by Mignot Informatique Graphique Inc. of Montreal, who were well acquainted with CGIS data concepts and structures from previous work. Although not yet an active player in the recovery effort at the time, Natural Resources Canada co-funded the development of this initial conversion software. Perhaps the best part of the custom written conversion software was that the recovery of the data could be attempted on a PC computer.

The conversion of GIS data from one system to another is not an easy task. It is not simply a matter of reformatting the data from one format to the other. Statistics Canada will attest to this fact having recovered only part of the main CLI data collection after more than one year's effort using the custom written conversion software. Although another part of history, in the sense that it will never have to be repeated, the text which follows describes in more detail the work that was required to perform this transition.

CGIS Data Structure and Contents

Although the CGIS was acclaimed to have a seamless and continuous GIS data base all across Canada, the physical tape storage capacity did not always permit this. The seamless quality of the data only applied to data of the same theme, and there were many datasets comprised of records containing information for many different themes in the entire CLDS map collection. This section of the article focuses on the recovery of the seven major CLI themes, or"coverages" are they were called in the original CGIS. There are approximately 2,000 such coverages in the entire data collection.

A large part of the success, and failure, in this recovery effort has been in getting a good understanding of which coverages belong to which themes, which themes belong to which data collections, and which tape serial number contains the correct and latest version of the data. There are multiple versions of each dataset, backup volumes of most tapes, with only a four character coverage code to make the link. Fortunately, someone at Environment Canada had the foresight to save an improvised copy of the controlling database which makes the link between tape reel and coverage code; otherwise, the recovery of the data would never have been possible.

In the case of the CLI data at the 1:250,000 scale, the records were stored in nine 8-degree longitudinal strips, more or less following the National Topographic Series (NTS) numbering scheme. Hence, each CLI theme is stored in nine coverages, for a total of approximately 72 coverages for the CLI data at this scale. Within each coverage, the data is seamless in the sense that map sheet boundaries have been removed and that some resultant polygons span more than one map sheet.

Within each coverage, the data are "tiled", in the sense that it is stored in smaller and more manageable spatial units called "frames". For faster spatial access, the frame numbering and sequencing was based on a quadtree data structure, or "Morton numbers" as it was coined from its inventor. One of the unique features of the CGIS data structure is that the tile boundaries are maintained with the data, with full polygon topology within each frame. In writing the

conversion software, this unique aspect was taken advantage of, sometimes with success, other times with failure of its full understanding.

Fortunately, and by no coincidence, the component map sheets are an even and integral number of frames. In the case of 1:250,000 data, each map is made up of 16 frames horizontally and 8 frames vertically. The data being stored in latitude/longitude coordinates, each frame in thus 7.5 by 7.5 minutes in extent and it takes 128 frames to re-constitute each NTS map sheet. The exact correspondence between frames and map sheets is what made the extraction by map sheet feasible. The extraction of an entire coverage has been considered and attempted, but the interim data volumes are often too great and the output is often too large for any practical purpose. For data dissemination, the map sheet basis is also better suited.

The Data Conversion Process

The data conversion process from the original CGIS binary data to what is now an acceptable format for most GIS technology (ArcExport format) has now evolved into a systematic 16-step GIS procedure which makes principal use of the custom written conversion software and the PC ArcInfo GIS software. The procedure is data base driven in the sense that batch files and macro procedures are generated from a data base which records and maintains the processing status of each map sheet within each coverage and within each primary data collection. The procedure is largely automated with very little or no user intervention between each of the 16 steps. Some manual editing of the resulting data is at times required at the end of the procedure to remedyminor faults in the original data; apart from the setup of the controlling database, this is the only major manual effort required for the conversion process.

The conversion of the data is map sheet based; that is, each map sheet is run through each of the 16-step procedures. The first part of the conversion procedure is the running of the custom conversion software, which itself is a two-phased procedure. This produces a Digital Line Graph (DLG) format output for each map sheet, which is then imported into ArcInfo for further processing. In ArcInfo, the polygon topology is then re-constructed and checked for errors. Once all topology errors have been rectified, DLG polygon numbers are mapped to ArcInfo polygon numbers and the original CGIS attribute tables, which are extracted separately, are attached to the final results. The ArcInfo results are then exported to a format that is legible by most other desktop GIS software.

The above is an over-simplification of the actual procedure; there are other consistency checks and error correction routines implemented throughout. There is also a visual edge-matching process at the end of the procedure to correct what was a blind automated procedure in the original CGIS software. Some of the error and consistency checking is to guard against topology errors introduced as part of the processing and manipulation. Others are to correct for faults or in-consistencies in the original data. These include minor line merges and self-intersecting arcs which were tolerated, to some extent, by the original CGIS software. The conversion software takes care of most of the line merge problems; self-intersections are detected by the ArcInfo software and repaired manually.

The conversion process from CGIS to ArcInfo has not always been as easy as it is today; it also has not been without its challenges. The first version of the custom conversion software had its fair share of oversights and it took considerable testing and experimentation before this software was capable of handling all data situations. The conversion software is now in its second version, with many interim sub-versions generated throughout it's evolutionary development. Like any other software development of this nature, a lot of volume testing must be done before the translation software can be perfected.

There were two cases in the CLI recovery effort where the corresponding tape datasets, and their backup, were non-existent. This was the case for Wildlife Waterfowl in BC and Land Use in the Eastern Townships. In both of these cases, overlay tape datasets were resorted to. These overlay datasets contained the required theme, but it was embedded with four other thematic layers. The volume of data almost exceeded the 100,000 polygons per map limit of the interim format being used. Never-the-less it was possible to recover some of the lost data in this way,

utilizing a GIS dissolve operation to get back at the original theme of interest.

The Initial Converted Results

In the first release of the CLI maps, the data were distributed on an "as is" basis; that is, as originally stored by the CGIS. This meant that the data were stored in latitude/longitude coordinates, that the thematic layers (except wildlife, waterfowl and ungulates) were purposely extended into the water, and that the polygon attributes retained their original coding structure. The data were complemented with text files containing scanned documentation (metadata) which was left behind as part of the paper archives, and a list of the map sheets contained in individual coverages. It was hoped that after having copied the original data, end users could take care of the rest by using the conversion software to migrate the maps into whatever GIS software they supported. The National Archives is maintaining the original CGIS structured IDS and DDS datasets in its archival holdings bundled together with the metadata and map sheet text files. As a partner in the development of the extraction software, the NA is also maintaining a copy of the original data to allow researchers to extract and process thematic coverages other than CLI. The National Archives is also keeping copies of the first generation ArcInfo coverage files.

After the maps were converted to the ArcInfo format, they were distributed on an as is basis; that is, unprojected and using shoreline overlay techniques for each of the different coverages. The notion of extending thematic layers past the shoreline is a well known GIS concept, but it is not always clear to users of desktop mapping software. The idea is that the shoreline is digitized separately and then used as "cookie-cutter" for the other thematic layers. This is a great saving in digitizing effort in that the shoreline need only be digitized once. It also ensures that the shoreline is the same for each thematic layer. The drawback is that the shoreline has to be physically overlaid onto the thematic layer before it is utilized. And this requires the use of true GIS software; not simple desktop mapping technology.

Another consideration for keeping the shoreline separate is that it allows end users to use the thematic data with their own shoreline. The shoreline layer which originates from the CGIS is based on older edition NTS maps. They are not always current and do not have the same accuracy specifications of modern digital base maps. It was assumed that most users would want to make use of their own digital base maps when using the CLI thematic layers, but again the original shoreline and watershed shed coverages are available.

Two noted exceptions to the above GIS concept are CLI Waterfowl and CLI Ungulates. The capability rating for waterfowl applies to both land and water areas, so shoreline in this case must be treated differently. In many cases the coastline is also the boundary of the capability rating, so one must pay special attention to the slivering which will occur along the coast. For some unknown reason, the separate shoreline concept was only partially applied to CLI Ungulates. This theme contains its own coastline and those for major lakes. As one might expect the overlaying of the two shorelines differ. The smaller lakes and double line rivers have been excluded; therefore, the embedded shoreline is far from complete. To make things worse, the coastline is not complete in some offshore areas where a group of islands have the same capability rating. This theme, in its current state, has limited usage and value.

Although the original maps were printed in a UTM projection, the data were not projected for input into the CGIS, but were retained as latitude/longitude coordinates to overcome the problem related with the 16 UTM zones that span Canada. Although the data were stored in latitude/longitude coordinates, the CGIS had the facility to compute polygon areas without making any projection change to the data. These were approximations based on the geometric centroid of the polygon which were often contested, never proven, but never-the-less stood thetest of time. Unfortunately, the area statistics could not be carried through as part of the conversion process because the topology of the data was changed.

The polygon attribute structure of the printed CLI maps is not simple; it is even more complicated when stored in a computer. The polygons are 'complexed" in the sense that one polygon or land unit may be composed of up to three separate class ratings for a thematic coverage. Most CLI thematic coverages are composed of up to eight different classification ratings. For the agricultural capability maps, the classification of the mineral soils were grouped into seven classes on the basis of soil survey information. As a result, for these maps some of the polygons in the database may contain soil information for three different classes. This happened as the data were compiled from the original 1:50,000 scale working level map sheets and then the information was converted to publishable sheets at the 1:250,000 scale. In fact, some of the smaller polygons could not be shown at the smaller scale. In these cases, their boundaries were removed from the map sheet even though their attributes were retained as part of the thematic description for the larger polygon that surrounded them. In other cases, multiple adjacent polygons were grouped into one.

In general, CLI polygons or land units have three ratings, with a percentage indicator saying what proportion of that land unit is in that rating. The first stated rating is, in most cases, the dominant rating; that is, the rating of the proportion of the land unit which occupies most (more than 50%) of the land unit. It is therefore correct to use the first rating to portray the color of the land unit, as was done with the printed maps, but there is much more to the data than this. The percentage proportion of this rating should also be a consideration, especially if area statistics are to be derived. The secondary and tertiary ratings should also be considered when compiling area statistics.

No effort was made in the initial release of the data to enhance the coding structure of the polygon attributes, or to provide other statistics which would simplify the use and understanding of the data. Again, it was assumed that the end user would do their own research and use the data in the way in which it was intended to be utilized.

Lessons Learned from the First Release of the Data

It is with the above concepts and limitations in mind that the bulk of the CLI digital data were released to the public in early 1998, with the hope and aspiration that end users could make use of the data on an "as is" basis. With the conversion of the original CGIS data to the ArcInfo format, the response for access to the CLI maps has been overwhelming. The maps are currently available on the Canadian Geospatial Data Infrastructure, GeoGratis web site http://geogratis.cgdi.gc.ca/, where the maps are available free of charge. The success, it is believed, is largely due to the previous fame of CLI; but, there is no doubt that its popularity is also due to the fact that the maps are available freely. Between January 1 and March 31, 1999, almost 13,520 individual CLI map sheets were downloaded from the web site.

What was perhaps under-estimated in the first release of the data is the wide audience of unsophisticated users that still have interest in these data. While many users are grateful for having access to the data in any form, others are struggling with the somewhat incomplete nature of the data. Based on many user responses and a re-evaluation of the first results, the following enhancements are envisaged for the next release of the data in the summer of 1999:

- The thematic layers will be fully integrated with the CLI shoreline maps, thereby removing the need for a "cookie-cutter" overlay procedure for use with desktop mapping technologies.

- The data will be projected to UTM to facilitate the computation of area statistics.

- The attribute structure of the data will be revised, simplified in some cases, and enhanced with some more user-friendly statistics which will enhance the understanding and use of the data.

The integration of the shoreline layer, as it turns out, is not an easy process and one which is best done once by experts to ensure consistency across maps and across layers. The integration of the shoreline layer is more than a simple GIS overlay of two themes. The overlay must first be performed to detect undershoot areas between the shoreline and the thematic layer. The thematic layer must then be edited to correct this situation before the final overlay takes place. A constrained small area dissolve operation must then be performed after the overlay to eliminate the hundreds of redundant sliver polygons that result from the GIS overlay process.

The integration of the shoreline layer adds a lot of volume to the resulting thematic layers. To combat against this and to keep the output to a reasonable and downloadable size, a limited coordinate reduction procedure will also be applied to the end results. Finally, the data are projected to UTM and this introduces yet another complication. In many cases along the coastline, the shoreline collapses onto the thematic layer, forming new sliver polygons or splitting larger polygons into two. Again these must be edited manually, depending on the case at hand.

The bigger challenges in the creation of this new release is with CLI Waterfowl and CLI Ungulates. In the case of waterfowl, the coastline in the thematic layer must be replaced with that of the corresponding shoreline layer. Some of this can be automated but there is still need for a lot of manual editing. In the case of Ungulates, there is no choice but to remove the existing shoreline features from the thematic layer, before the standard overlay, dissolve and projection procedures are applied.

To enhance the user-friendliness of the data, new attribute variables are being added so that the data can be interpreted according to the way it was interpreted by the CLI experts. The percentage of "prime land", based on total proportion of capability classes 1 to 3 in each sector, is being added to each capability layer in hopes of curtailing the use of only the dominant capability rating. A percentage of "marginal lands" is being added using the same rationale. A "dominant sub-class group" is being added to aid at the understanding of why the land unit is not in a higher rating. For the more sophisticated users, a secondary attribute table is being compiledwhich will be compatible with GIS analysis tools developed by Agriculture Canada. This will offer the same capability that soil scientists have on soils maps to analyze the CLI.

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GETTING TO KNOW CANADA: FROM THE ELECTRONIC ATLAS TO THE INFORMATION HIGHWAY - AN INTRODUCTION

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Paper Presented as Introduction to Session A3:
GETTING TO KNOW CANADA: FROM THE ELECTRONIC ATLAS TO THE INFORMATION HIGHWAY
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The theme of our conference is Touch the Past, Visualize the Future. In first thinking about this session, exploring the evolution of Canadian urban atlases came to mind. In no other grouping of atlases has the increased role and sophistication of computer databases and computer mapping played such a major role. Much of the pioneer work for the early electronic atlases was done in Canadian universities. It began with the *Computer Atlas of Ottawa-Hull* (1970), developed by D. R. F. Taylor and David Douglas, to illustrate the potential of the computer in producing maps and to draw attention to the growing field of computer graphics. During the next two decades a spate of socio-economic atlases were published, for cities across Canada, culminating in Statistics Canada's *Metropolitan Atlas Series* (*Mapping a Northern Land: The Survey of Canada, 1947-1994*, 1999).

Almost without exception these atlases relied heavily on data produced by Statistics Canada. Sadly, the *Metropolitan Atlas Series* was discontinued because of cutbacks. However, much of the data that was included in these atlases has since been incorporated into E-Stat. Initially published as a CD-ROM, the Web-based version of E-Stat is provided as part of the Data Liberation Initiative. With the DLI has come data, data which can be stored and manipulated in geographic information systems to visualize our environment.

"We are buried in data," said Ian McHarg, in his introduction to a recent history of GIS (*The History of Geographic Information Systems: Perspectives from the Pioneers*, 1998). McHarg commented that our ability to understand and manage our environment has been enormously expanded "by the prostheses - environmental science, sensors, satellites, and not least, computers... Computers can assist triumphantly in the quest [to integrate this data]."

Mary Larsgaard has echoed the same sentiment, in the context of libraries, in her introduction to the third edition of her classic, *Map Librarianship* (1998). "There was a time when libraries were places in which sedate ladies and gentlemen worked. There were settled, traditional methods of performing collection management. Persons working with spatial data had fairly rigid patterns of publication...with which to work - maps, remote-sensing images, book-format materials...But that was then and this is now, and we are up past our eyeteeth in digital data".

That is as much true in Canada as in the United States, although the question is, is this data available for the use of our citizens? Mike Ridley, Director of Libraries at the University of Guelph, addressed the Association of Canadian Map Libraries and Archives and the Canadian Cartographic Association at last year's joint conference (*ACMLA Bulletin,* Fall 1998). After acknowledging the accomplishments of the DLI , Ridley contended that "with GIS we have the infrastructure, but without the data, without the content...we have nothing to see...The failure to secure Canadian geospatial data and the inability to incorporate that data into effective services is undermining research, teaching and learning capabilities of [Canadian] universities." Ridley goes on to suggest turning the situation around by establishing partnerships with various government data providers that seek mutual benefit.

Is the answer to "Feed the Web," as Robert Barr has suggested in a recent article (*Sustaining Spatial Momentum*). Free availability of geographic information creates opportunities. Barr recommends, as an essential first step, an international agreement that prevents geographic names, coordinates and geographic objects and collection of such information from being protected by copyright.

Is the way of the future a system of distributed geolibraries on the Internet? This was the topic of a recent workshop sponsored by the U.S. National Science Foundation, the proceedings of which were published in 1999. Applications on the Web have captured the popular imagination and spawned entire industries of electronic commerce and information dissemination. The workshop framed discussion by referring to the functions, services and institutional arrangements of the library for two reasons: "First, to engage the library community with its long experience in providing access to information, in the development of a vision of a new kind of library, and second to provide a familiar and concrete starting point for the discussions." Will libraries be the principal means whereby citizens gain access to the services of distributed geolibraries, or will they play no significant part in the process?

The panelists who have come together today are well qualified to consider these issues. All are involved in innovative initiatives to deliver geographic information in Canada. Each of our speakers will share highlights of various projects in which they are engaged. Each will speak for approximately twenty minutes. I would encourage you to hold questions and comments for discussion at the end of the presentations. There will be ample time for audience participation. We are interested in your ideas about the future of spatial data in Canada.

It is my pleasure to introduce the panel in their order of appearance. Colleen Beard is a map librarian at Brock University. The title of her presentation is "Using Canadian Data: A Map Library's Strategy to Present, Promote and Protect". Beard has been creating customized maps using Canadian data. John Broome, Head of the Geoscience Integration Section, Natural Resources Canada, has been involved with the Geological Survey of Canada's initiative to deliver geospatial data via the Web. The title of his talk is "Canadian Geoscience Knowledge Network: A Distributed Approach". Phil Fong is manager, Dissemination Services, Geography Division, Statistics Canada, the agency involved in a dynamic partnership with the academic community in Canada to "liberate" our government data. He'll be speaking about his work with interactive Web-based mapping.

ACMLA Executive in action at the Annual General Meeting. Left to right: Lori Sugden (Secretary), Grace Welch (1st VP), Pat McIntrye (Treasurer), James Boxall (President), Alberta Auringer Wood (Past President), Shirley Harmer (2nd VP).

DEVELOPING THE N.G.S.C. CANADIAN GEOSCIENCE KNOWLEDGE NETWORK: A DISTRIBUTED APPROACH

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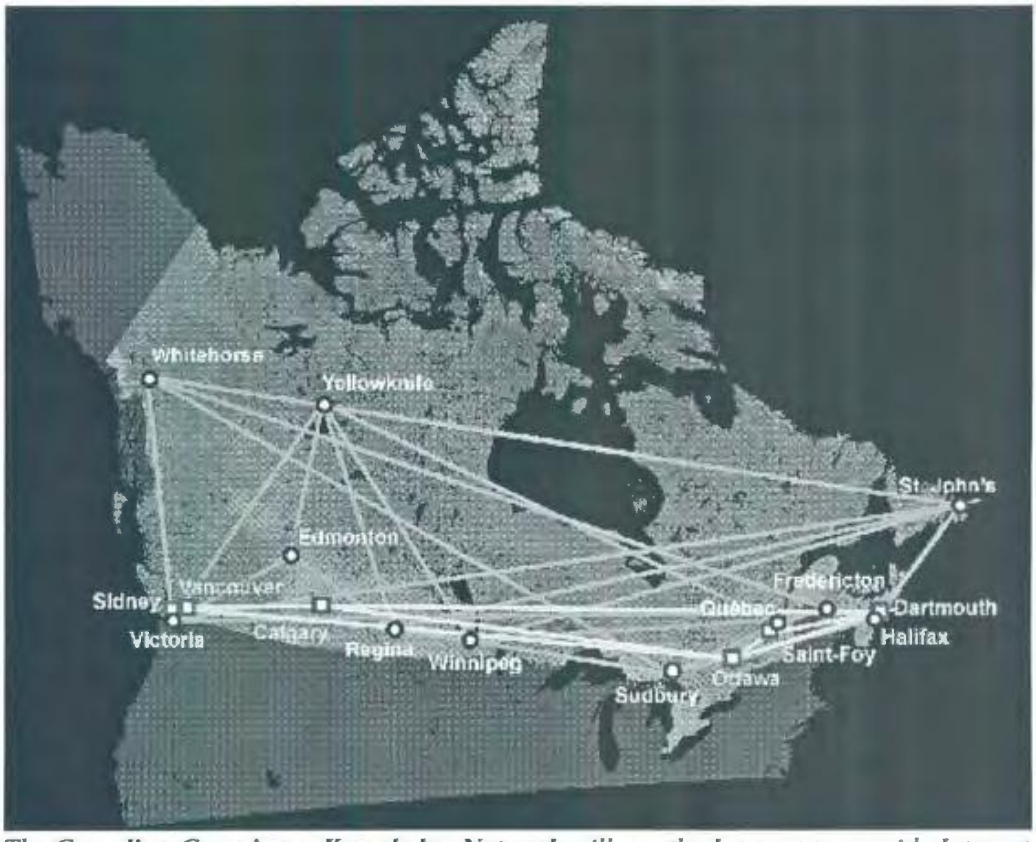
Paper Prepared for Session A3:
GETTING TO KNOW CANADA: FROM THE ELECTRONIC ATLAS TO THE INFORMATION HIGHWAY
Joint ICA/ACMLA Conference, Ottawa, August 19, 1999

Introduction

Dramatic changes in digital information and communications technology over the past decade are completely transforming the way in which geological surveys throughout the world manage and disseminate their geoscience knowledge. Geoscience data now typically remain in the digital domain from collection in the field, through analysis, to publication using digital cartography, CD-ROM, and the Internet. The need for improved access to digital geoscience data was identified as a top priority in a number of workshop and agency reports and led to discussions on development of a geoscience knowledge network.

Canadian Geoscience Publications Directory (CGPD)

During initial discussions of the knowledge network concept, the need to develop comprehensive Canadian bibliographic geoscience metadata and access systems was prioritized. In early 1997, a proposal by a team of GSC and provincial survey technical experts to develop an Internet-based Canadian Geoscience Publications Directory (CGPD) was endorsed by the NGSC. The CGPD (http://ntserv.gis.nrcan.gc.ca/) allows access using popular web browsers to distributed metadata describing all Canadian geoscience publications, as well as graphical viewing of these metadata, on a backdrop generated from regional geological maps. The CGPD is considered a prototype geoscience



*The **Canadian Geoscience Knowledge Network** will use the Internet to provide Internet access to geoscience data located in geoscience agencies across Canada and provide the geoscience component of the Canadian Geospatial Data Infrastructure.*

network project, as it involves creation of consistent metadata for all 12 Canadian geoscience agencies and provision of distributed access to those data. Standardized publication metadata are now on-line for the GSC and 9 provinces and territories.

Related Federal/Provincial Initiatives

In addition to the CDPG, a number of individual agency initiatives have demonstrated how geoscience data can be effectively delivered using the Internet. A few examples include: The Map Place (http://www.em.gov.bc.ca/mining/Geolsurv/Map%20Place/), a British Columbia Geological Survey initiative demonstrating the integrated deliver of geoscience data, mineral deposits, and claims data. And ResSources GSC (http://rgsc.nrcan.gc.ca/), a program of the Earth Sciences Sector of Natural Resources Canada focusing on Internet delivery of federal geoscience data. During 1998/1999 the program supported development of 14 projects demonstrating how different types of geoscience data can be delivered over the Internet.

CGKN Workshop

In response to these changes and client needs, a National Geological Surveys Committee (NGSC) workshop was held in Ottawa, December 10th and 11th, 1998, to investigate the creation of the Canadian Geoscience Knowledge Network (CGKN). Representatives from all twelve Canadian government geoscience agencies attended the workshop. The general objective was to refine the CGKN concept and investigate how federal, provincial, and territorial agencies could cooperate on its development. Issues discussed included: what information the CGKN will contain, how data will be structured, formatted, and accessed, the role of standards, how the CGKN be managed and funded, and prioritizing development steps.

The workshop was an outstanding success and the CGKN concept received strong support from all participants. The results of the workshop have been compiled in report form and serve to guide future CGKN development. The NGSC has initiated the design of a CGKN that will include federal, provincial, and territorial geological surveys, as well as other participants in the Canadian geoscience community

The Canadian Geoscience Knowledge Network (CGKN) Vision

The vision is that the CGKN will become the geoscience component of the Canadian Geospatial Data Infrastructure and will provide client-focused network access to distributed geoscience information maintained locally by participants. Key components of the CGKN initiative are: development of the partnerships and policies required to foster an alliance of geoscience information sources; adoption, development; and use of appropriate national and international standards; and development of client-focussed interfaces to CGKN data.

A summary of the guidelines for CGKN identified in the workshop report follows:

- The CGKN will be managed by the NGSC. NGSC will control the schedule for participation in CGKN by other parts of the Canadian geoscience community, actively investigate sources for funding the CGKN, and keep clients and potential partners informed of all CGKN developments. Each survey will participate in the CGKN at its own rate using its own resources, manage and maintain its information holdings locally, and decide on priorities for incorporation of its information in the CGKN Key data sets, for which the CGKN will provide consistent national coverage, will be identified through consultation with custodians and users.

- CGKN will adopt international standards and methodologies for incorporation of important data layers in CGKN where possible.

Implementation

In July 1999, the NGSC established a CGKN Implementation Committee to proceed with the task of designing and building the CGKN. The CGKN Implementation Committee has designed a draft architecture for CGKN and prioritized a number of key requirements. The draft architecture is based on use of a geoscience data model to facilitate exchange of data between agencies. Data will continue to reside with the owner in its native format and be dynamically translated into the data model when requested and delivered to the client in the selected format and projection.

HONOURS AWARD 1999 - ALBERTA AURINGER WOOD

Presented by Grace Welch

The ACMLA Awards Committee has unanimously selected Alberta Auringer Wood to receive the ACMLA Honours Award for 1999. It is particularly fitting that ACMLA should honour Alberta on this the occasion of the joint meeting with the International Cartographic Association (ICA) in Ottawa, since Alberta's many achievements have included distinguished map library and cartographic service and publication in the United States as well as in Canada. Simply put, her contribution to the broader profession as well as to ACMLA itself has been outstanding.

Alberta Auringer Wood

Alberta has been actively involved in the field of map librarianship since the completion of her Master's degrees in Library Science (1965) and Geography (1973) when she specialized in the history of cartography. Her early employment involved map librarianship positions in the Library of Congress, the University of Michigan, the University of Wisconsin, Detroit Public Library and the World Bank. Since 1978 she has been Map Librarian at Memorial University of Newfoundland where, over the years, her titles have included Special Collections Librarian, Information Services Librarian, Head of Information Services Division, and Head of the Maps, Data and Media Division.

Wherever she worked, Alberta pursued the development of her profession. In the early days, she was chair of the Geography and Map Division of the Special Libraries Association (1974-5), Chair of the Cartography Division of the American Congress on Surveying and Mapping (1979-80), and President of the American Congress on Surveying and Mapping (1987-1988).

Throughout the years, her service to the Association of Canadian Map Libraries and Archives has been outstanding. She has been untiring in her participation in ACMLA committees such as the Canadian Committee for the Bibliographic Control of Cartographic Materials (CCBCCM) (from 1984 to the present), meticulous in her reports and contributions to the *ACMLA Bulletin*, and an active and excellent member of the executive of ACMLA.

In addition to her regular writing for the *ACMLA Bulletin*, Alberta has produced numerous articles and books which have contributed significantly to our profession, ranging in topic from the indispensable *Index to the Library of Congress "G" Schedule: A Map and Atlas Classification Aid*, with James C. Coombs to the *Professional Papers, Correspondence, etc., of Raleigh Ashlin (Peter) Skelton (1906 - 1970)*.

Alberta has in recent years served the Association as Vice President, President (1995-1998) and Past President (1998 on). In this capacity we would particularly like to commend her attention to detail, responsiveness to communications and openness in dealing with others. She reported regularly and specifically to members on her actions as President. In addition, her wide experience has benefitted the external relations of the Association by providing her with a broad understanding of wider issues, an ability to pursue mutually beneficial developments, and the capacity to cooperate effectively with related organizations. She is currently very involved in representing Canadian interests in various international groups such as the International Cartographic Association (ICA) and the Congress of Cartographic Information Specialist Associations (CCISA). We wish her every success in these endeavors and very much look forward to her keeping us informed of future international developments by way of her lively reports.

Presented at the Annual General Meeting of the Association of Canadian Map Libraries and Archives, August 17, 1999

ACMLA HONOURS AWARD

The Awards Committee invites nominations for the ACMLA Honours Award. According to the guidelines for the award, the nominee should be a person who has made an outstanding contribution in the field of map librarianship. The contribution may either be for a specific activity or for general services and contributions such as continued membership in the Association with active participation either as an executive officer, committee chairperson, or committee member. Normally, membership in ACMLA is a prerequisite, however, that does not preclude considering outstanding non-members.

Nominations close on March 31, 2000.
Please send your nominations to:

Grace Welch,
Chairperson, Awards Committee,
Map Library, Morisset Library
University of Ottawa
Ottawa, Ontario K1N 9A5
or via email at:
gwelch@uottawa.ca

COMITÉ DES PRIX ET MÉRITES

Le comité des prix et mérites invite les membres de l'ACACC à soumettre la candidature du membre qui, à leur avis, est admissible au Prix d'excellence. Selon les règles du concours, l'heureux(se) élu(e) sera toute personne dont le nom a été retenue en vertu de sa participation considérable au développement de la profession de cartothécaire. Sa contribution peut se quantifier de différentes façons: activitiés particulières ou générales, participation soutenue au sein de l'Association en tant que membre d'autres comités. Bien que ce concours s'adresse surtout et avant tout aux adhérents de l'Association, les non-membres dont le dossier s'apparente á celui des membres réguliers de l'ACACC auront droit á une nomination analogue.

Date d'échéance du concours: 31 mars 2000.
Veuillez faire parvenir vos suggestions de candidats à:

Grace Welch, Présidente,
Comité des prix et mérites, ACACC
Cartothèque, bibliothèque Morisset
Université d'Ottawa
Ottawa, Ontario K1N 9A5
ou via le courrier électronique a:
gwelch@uottawa.ca

ACMLA PAPER AWARD

The Awards Committee invites nominations for the ACMLA Paper Award. To be nominated for the Paper Award, which carrries a $200.00 monetary prize, a feature article by one or more authors consisting of at least three pages in length, must have appeared in issues 101-103 of the ACMLA Bulletin. We are looking for articles that make a solid contribution to map librarianship, including cartobibliographies. Originality, uniqueness of subject matter and depth of research will be taken into consideration.

Nominations close on March 31, 2000.
Please send your nominations to:

Grace Welch,
Chairperson, Awards Committee,
Map Library, Morisset Library
University of Ottawa
Ottawa, Ontario K1N 9A5
or via email at:
gwelch@uottawa.ca

PRIX DU MEILLEUR ESSAI

Le comité des prix et mérites invite également les membres de l'ACACC à soumettre la candidature du membre qui, à leur avis, est admissible au Prix du meilleur essai. Selon les règles du concours, l'heureux(se) élu(e), qui recevra une bourse de 200 $, devra avoir publié un article d'au moins trois pages au sein d'une édition du Bulletin de l'ACACC (no. 101 à 103). Le comité recherche principalement les articles ou les carto-bibliographies, qui alimentent et soutiennent le développement de la discipline. Les articles seront jugés selon les critères d'originalité du thème choisi et du niveau de recherche.

Date d'échéance du concours: 31 mars 2000.
Veuillez faire parvenir vos suggestions de candidats à:

Grace Welch, Présidente,
Comité des prix et mérites, ACACC
Cartothèque, bibliothèque Morisset
Université d'Ottawa
Ottawa, Ontario K1N 9A5
ou via le courrier électronique a:
gwelch@uottawa.ca

ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES

MINUTES OF THE ANNUAL BUSINESS MEETING AUGUST 17, 1999

Recorded by Lori Sugden

The thirty-fourth Annual Business Meeting of the Association of Canadian Map Libraries and Archives was held at the Congress Centre, Ottawa on August 17, 1999.

1. Establishment of quorum; call to order
It was established that a quorum was reached so the meeting could proceed.

2. Minutes of the Previous Annual General Meeting
The minutes of the thirty-third annual general meeting held May 29, 1998 as previously circulated and published in *Bulletin* No. 104 were approved as published.

(Elizabeth Hamilton, Irene Kumar)

3. Approval of Agenda
Item 7.2.1 was moved to beginning of the meeting. Item 10 was moved before item 9.

7.2.1 Awards Committee Presentation
Grace presented the ACMLA Honours Award to Alberta Auringer Wood on behalf of Barbara Farrell, Chair. Grace praised Alberta's many accomplishments and contributions to the world of map librarianship, both in Canada and the international community. Alberta expressed her appreciation of the approval of her peers, and emphasized the importance of everyone's contributions to the field, and the example they set.

4. Business Arising
All is covered in the agenda.

5. President's report (James Boxall)
5.1 Previously circulated
All reports for the Annual General Meeting were posted on the ACMLA internet site (http://www.mun.ca/library/maps/acmla/commrpts.html), with notification to members via Carta. James had asked the members to read them, and e-mail him with any questions or comments.

5.2 Natural Resources Canada – GeoConnections (announcement)
Ed Shaw, Assistant Deputy Minister of NRCan/ Geomatics Canada, and Jeff Labonté, head of GeoConnections Secretariat, permitted James to announce that, as President of ACMLA, he would be on the Geoconnections Management Board, with John McLaughlin from University of New Brunswick. Together they will represent research/ education and try to find ways to communicate more effectively with other associations involved in education, research and training in Canada. The first meeting is scheduled for Sept. 23rd. James will communicate GeoConnections Board information to the membership. In the interim, there will be policy networks and policy groups to be formed under the Board, which is an opportunity for individual members to be involved. These working groups will be called upon to create actual policy on issues such as metadata, user interfaces, access policy, and pricing policies.

5.3 Canadian Cartographic Information Specialists Associations (CCISA)
Representatives of these North American associations will meet August 21st. James requested input on issues to bring up on a North American scale. Earlier recommendations for map collections and archives on staffing, technology, etc. will be revisited.

5.4 English Review
The ACMLA brief for Dr. English's review of the National Library and National Archives, and response to the review, were on the ACMLA web page. The challenge was made for future co-

operation between a variety of organizations. James will respond to the review and send copies to the National Library and National Archives. He was invited to meet with Ian Wilson, the new National Archivist, and will talk to Betty Kidd and other Archives colleagues. Grace found it encouraging that a number of recommendations from the Association and Archives staff had been given weight and included in the recommendations, and hoped for an opportunity to bring together the specialists in maps in a more united area.

5.5 News/FYI
November 19th is GIS Day (part of Geography Awareness Week).

James has discussed with ESRI, the possibility of extending the current agreement on data and software. James spoke with other companies as well, in particular, LizardTech, which owns MrSID, the software used by the Library of Congress for its American Memory Project. They expressed willingness to donate MrSID to a national level project for scanning Canadian cartographic images online.

The Association purchased the url: www.acmla.org. It was difficult to get a bilingual version of the acronym.

The National Science Foundation is meeting in Washington in November on digital gazetteers. James might attend, through the GeoConnections Management Board, and asked for any suggestions and concerns.

5.6 National Archives Report
Betty Kidd was thanked for producing the report, in addition to all of the conference and exhibit preparations. Questions and concerns may be directed to Betty. Betty announced that Hugo Stibbe retired as of Aug. 3.

Action: A retirement card will be circulated and sent.

6. Treasurer's Report (circulated on site) (Patrick McIntyre)
The budget was certified by the auditor. Patrick offered to give copies of the certification to the members of the Board and anyone else who asked. Patrick reviewed the income and disbursements. A SSHRC grant of over $3900 was received this year, and may be partly for administration and partly for travel costs, as in the past.

It was moved to accept the Treasurer's report. (David Jones, Elizabeth Hamilton) CARRIED

It was moved to use the same auditor as this year for next. (Elizabeth Hamilton, Richard Pinnell) CARRIED

7. First Vice-President's Report (Grace Welch)
7.1 Previously circulated: the report was posted via ACMLA's internet site (see 5.1)
Grace thanked the National Archives for hosting the reception at the Canadian Mapping Exhibit, and all members who were participating in the conference. She announced several ACMLA conference activities. The University of Ottawa and Carleton University donated funds to subsidize the barbecue with CCA, so there will be no cost to the ACMLA members.

7.2 Committees reporting to 1st VP
Grace thanked the committee members for all their hard work.
• ARCHIVES COMMITTEE – no further report.
• AWARDS COMMITTEE – The Papers award was not presented, due to the *Bulletin* schedule. Barbara has completed her term, and Grace replaces her as Chair. The members were encouraged to inform the committee of papers and members deserving recognition.
• BIBLIOGRAPHIC CONTROL COMMITTEE - Trudy – As there has been no cataloguing workshop recently, the Committee was considering one at Edmonton, with WAML. The MAGERT website had a primer for metadata, and the Committee was considering a paper or presentation on metadata at next year's conference.
• COPYRIGHT COMMITTEE – no further report.
• MEMBERSHIP COMMITTEE – Grace thanked Bruce for his hard work on behalf of the Association. The report does not include recent new members. Full members had increased to 70. The response to the membership survey on publishing e-mail addresses on the ACMLA homepage was quite close, so the Board decided not to proceed.
7.2.2 Conferences

• CONFERENCE 1998 – Cheryl Woods was thanked. This was the biggest profit of any ACMLA conference.
• CONFERENCE 2000 - CCA confirmed they will meet with ACMLA. The conference will be at the end of Learned Societies, in conjunction with CAPDU. David brought information on Edmonton to the ACMLA booth, and sheets for suggesting program ideas and requesting information.
• CONFERENCE 2001 - CCA is also interested, and is thinking of Montreal. Members were asked to bring ideas to Grace or Susan.

7.3 GCLI-MOU with NRCan, CARL and ACMLA
Grace announced that Natural Resources Canada (NRCan) will be signing a memorandum of understanding with the Canadian Association of Research Libraries (CARL) and ACMLA, for licensing digital topographic data to educational institutions. At the signing there will be copies of the model license which could be signed by individual institutions to purchase all types of topographic data at a 50% discount. This 2 year agreement, ending June of 2001, would give a campus-wide multi-user site license. Previous purchases on campus, which NRCan offered to help identify, could be grandfathered. The National Topographic Database (NTDB) has bulk pricing arrangements available as well, which cannot be combined with this. Participants will have to keep track of which files are used, but not provide names of individual users. The patron may not make the data available to anyone off campus. Files will be provided via ftp or CD-ROM. This is a good start and there may be scope for expansion under GeoConnections.

7.4 Depository issues
The recommendation for deposit of Geological Survey of Canada (GSC) maps was still with Treasury Board.

8. Second Vice-President's Report (Shirley Harmer)
8.1 Previously circulated: the report was posted on ACMLA's internet site (see 5.1)

8.2 Committees reporting to 2nd VP
• PUBLICATIONS COMMITTEE - The Directory has been completed and Fire Insurance Plans is expected by Fall 2000.
• *BULLETIN* EDITOR: Cathy Moulder is the new editor. The online index was published on paper, and updating continues. The *Bulletin* is almost back on publishing schedule. Members were encouraged to submit articles.
• HISTORICAL MAPS COMMITTEE – The facsimile map program and bird's-eye views are doing well. Two more views will be published next year.
• PUBLICATIONS OFFICER - Louis Cardinal, Publication Officer's report is in the Treasurer's report. Louis was praised for his work. T-shirts, mugs and publications including the Bird's-eye View of Ottawa are being sold at the ACMLA booth.

10. Past President's Report (Alberta Auringer Wood) (previously circulated, see 5.1)
10.1 ICA request for support.
Alberta was nominated as one of nine candidates for the seven Vice Presidents' positions in the International Cartographic Association (ICA) and if elected, would represent Canada on ICA. She asked for travel support, from ACMLA, other associations, agencies and her library. ICA gives exposure to the mapping agencies and raises the level of awareness for ACMLA. Other agencies have offered support: NRCan, Canadian Hydrographic Service (CHS) and Canadian Institute of Geomatics, and, possibly, CCA and Memorial University Library. The Board endorsed Alberta's request.

> It was moved that the Association accept the travel budget estimate as proposed in the document presented to the meeting, up to $1000 per year for 4 years, should Alberta be elected to ICA. (Tom Nagy, Elizabeth Hamilton) CARRIED

[Postscript: Alberta was elected as Vice President at the ICA meeting.]

10.2 History of Cartography Project:
The History of Cartography Project is about to embark on a volume on 20th century North American cartography. Donations are usually matched by the U.S. National Endowment for the

Humanities. This series has balanced worldwide coverage.

The Board moved further support of the project, up to $250.00. (Alberta Auringer Wood, Frances Woodward) CARRIED

10.3 Nominations and Elections
Alberta introduced the incoming new Board members, who were acclaimed to office: Susan Jackson as First Vice-President and Marc Cockburn as Secretary.

9. Proposed Budget (Patrick McIntyre)
Additions and changes: Cost of Directory was increased to $2000. GIS in Libraries, an ongoing budget line, has never been used. Alberta's ICA travel, $1000, was added as a separate line item. This left a balance of $9,114.13.

It was moved that the proposed budget be approved. (Patrick McIntyre/Velma Parker) CARRIED
Discussion: There will be no income or expense for this conference, and the booth was provided free to CAFICA members.

11. Any Other Business
David Jones attended the Commission on Map Use, now called web map use, and was on their e-mail list. Alberta said that if she should get elected to the ICA executive, she would indicate an interest on the Association's part in doing liaison with that commission.

James thanked everyone for their best wishes last year for his surgery, and the map.

Grace and Lori were thanked for their contributions to the Board, and presented with small gifts of appreciation.

12. Next Meeting
Saturday, June 3rd 2000 (to be confirmed) at the University of Alberta, Edmonton

The meeting was adjourned at 4:45 p.m.

ACMLA Board Members: Standing, left to right: Pat McIntrye (Treasurer), Susan Jackson (incoming 1st VP), Alberta Auringer Wood (Past President), James Boxall (President), Marc Cockburn (incoming Secretary), Shirley Harmer (2nd VP). Seated: Lori Sugden (outgoing Secretary), Grace Welch (outgoing 1st VP).

REGIONAL NEWS

Pierre Roy

Newfoundland

Memorial University of Newfoundland
Alberta Auringer Wood
awood@morgan.ucs.mun.ca

Joanne Costello, Library Assistant VI in the Map Library, gave birth to her second child (Declan) on July 29th. She is expected back to work around the end of January. Suanne Reid, Library Assistant VI in the Map Library, is back at work part-time (20 hours per week) since September 7th having returned from maternity leave after the birth of her daughter Laura. This semester, we have two MUCEP (Memorial University Career Enhancement Program) students (Ken Green and Jennifer Smith). We have one regular student assistant (Mike Stacey) while we will share another one (Danny Chippett) with the Media and Data Centre. Bonnie Stevenson of Bibliographic Control has been doing copy cataloguing of maps since September. At this point, she is just getting started, but has done about two dozen titles. The help in this area is much appreciated, as Map Library staff have not been able to spend as much time on copy cataloguing as usual. Because of reduced usage and to save money in a very strapped budget, the Map Library will not be open nights or weekends this academic year. However, the summer months were busier than last year in the Map Library, though both winter and fall to this point are less busy. There were interesting uses of the materials available through the Data Liberation Initiative. These included providing the Postal Code Conversion File so that Continuing Education can prepare a map showing locations of their distance education students. Alberta did a presentation to some members of the Geography Department on applications that might be of particular interest to geographers. The Map Library served as the location on October 10th for filming of a scene in the forthcoming movie "Violet" starring Mary Walsh. She resigns her job in the library as part of the plot of the story. It was quite something to have about 50 crew members, actors, directors, producers, along with large cameras, camera tracks, lights and other equipment on hand for the day. Mary Walsh was particularly taken with the fact that one of our computers is named after her! Alberta, Dawn and an electrician served as "extras" in the scene, as well. While the room was rearranged to some extent for their purposes, they very efficiently put everything back in order before they departed. An announcement will be made on CARTA when the movie is released, providing we make it into the final product! In addition to having been awarded the Honours Award of ACMLA and being elected as a Vice President of the International Cartographic Association in August, Alberta has been awarded an Earth Sciences Sector Merit Award by Natural Resources Canada for her work on the 1999 ICA conference. The ceremony will be on November 30th.

Quebec

Université du Québec à Montréal
Pierre Roy
roy.pierre@uqam.ca

The 1st of October 1999, the map library of the Université du Québec à Montréal moved. We are pleased by this change because the map library, occupying a room in a rented building for ten years, was too distant from the main campus. Initially, we were told that we will lose from 30% to 40% of the occupied area. Drastic scenarios were considered. Finally, we moved inside the Central Library, the service of which we are part, with a surface area greater than our previous site. We are thus in the middle of the action. A new computer was ordered to replace the station being used for visualization and extraction of spatial databases. The unit specifications are: Pentium III 450 MHz,graphic board with 32 Meg of memory on the card, 128 Meg of SDRAM, a Zip drive of 250 Meg and a connection on the network of the campus. Our students do not process the data here, but they can see and select them with ArcView and

Photoshop. The selected and compressed files are downloaded later by FTP on the departmental servers or recorded on portable disc Zip.

The university having acquired a timbered land in the lake Duparquet region (Abitibi), we bought recent air photographs of this sector. We intend to supplement this collection with photographs of 1972 and 1926. We also bought the numerical orthophotographs of this sector. During the removal, our collection grew richer by more than 400 wall maps that the documentation technician, Maryse Héon, catalogues and classifies at present to facilitate their access. The map librarian will be invited to the meetings of the Department of Geography concerning the purchase of numerical documents, with an aim of harmonizing our respective collections. The map library could buy the documents of general interest for the whole academic community and would ask for institutional licences.

Our library clerk is on sick-leave since September and will not return before February 2000. Her working week was of 25 hours. Only eleven of them are filled by two different clerks. Moreover, the spectrum of the loss of space is not completely raised, the removal being only temporary. For the next three or four years, the Service of the libraries wishes to refit its spaces of the East Campus to which we belong.

ONTARIO

University of Ottawa
Grace Welch
gwelch@uottawa.ca

During the first half of August, Map Library staff were fully occupied with the ICA/ACMLA Conference which was held in Ottawa, August 14-21. Frank Williams, as a member of the ICA Exhibits Committee, helped to mount some of the maps displayed in the Government Conference Centre. Grace Welch, as local arrangements organizer for ACMLA, was involved in the ACMLA program and the joint ACMLA/CCA picnic. Martine Rocheleau assisted with the picnic, preparation of the display in the Map Library and in the provision of several translations. Thanks as well to all the ACMLA members who staffed the ACMLA Booth.

It was our busiest fall ever - reference and information statistics in September increased by 40% over the previous September. And, after five years, we have finally received a workstation for our library technician, Martine Rocheleau. The workstation has access to OCLC's PRISM, Bookwhere and a variety of online cataloguing resources.

With Data Services staff, Grace Welch delivered two GIS workshops related to using census data with ArcView. Held in the Geography Department GIS lab, the workshops were attended by faculty and students in Geography, Biology, Epidemiology, Canadian Studies and Sociology and Criminology. Seven digital topographic maps (1:50,000) of the South Nation River have been purchased under the new NRCan agreement. Civil Engineering and Environmental Studies contributed a third of the cost of the digital data. Because of the increased interest in geo-spatial data on campus and the need to coordinate acquisitions, the Map Library is initiating the creation of a Spatial Data Advisory Committee.

Carleton MADGIC and the University of Ottawa Map Library are cooperating to host GIS Day events on November 19 with Carleton University's Department of Geography and Environmental Studies and the ESRI local office. Open houses, demonstrations, posters and a panel discussion on "Careers in GIS" are being planned to increase awareness of GIS. Posters, press releases and invitations have been prepared to publicize the event.

Grace Welch attended a three day meeting of the Canadian Permanent Committee on Geographic Names in Charlottetown, September 28-30. She is now a member of the Advisory Committee on Canadian Digital Toponymic Services, replacing Barbara Farrell as the representative for the public and academia. A report on the meeting will be prepared for the next *Bulletin*.

University of Western Ontario
Cheryl Woods
cawoods@julian.uwo.ca

Over the summer, all of our foreign topographic series records were input to the database and are now accessible on our URL catalogue. Another summer project that was completed was to transfer all of the historical maps into acid-free folders. The supplier who had been used previously is no longer in business. For the size of folder that was needed, the bulk order was sent through Woolfitt's to Gaylord. In June, Cheryl spoke to a group of 55 Elderhostel attendees and they spent the day in the map library doing genealogical research. Late in the summer, our historical collection of Great Lakes hydrographic charts was used to provide a chart of Lake Ontario which will be used in a TV documentary about Marilyn Bell.

Melissa Leitch is on maternity leave until next summer and Dale Smith has returned on contract for that time period. Five OSAP work study students have been hired to assist in the map library. All of the ONC and JN charts in our holdings were updated in September. Members from the International Joint Commission Steering Committee on Canadian water resources visited the campus and held public meetings for a week in October. A special display of maps and charts was set up for them to see when they had their tour of the map library.

Cheryl represented ACMLA at the first meeting of the National Atlas Advisory Committee held in Ottawa on November 5. The topics discussed over the day were: content, frameworks and technology for the National Atlas "hands-on" version; GeoConnections; funding, promotion and performance indicators for the atlas. The committee will likely meet twice a year over the next two years, with a third year renewal option. The next meeting will be in May 2000.

SASKATCHEWAN

University of Saskatchewan Map library
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Fire Insurance Plans

One interesting collection of maps our library has acquired this past year are Fire Insurance maps of Saskatchewan. Probably many know of the Fire Insurance maps recently offered for sale by Doug Coulthard of London, Ontario. University of Saskatchewan acquired all maps for Saskatchewan. This amounted to about two thirds of those listed in the directory "Fire insurance plans in the National Map Collection = Plans d'assurance-incendie de la collection nationale de cartes et plans" by Robert J. Hayward (Ottawa,1977). What makes these maps remarkable in Saskatchewan is that in the history - library - archives world they are virtually unknown. The Saskatoon City archives holds a complete set for the city and has made an effort to make reproductions for ongoing current use in a number of city departments like Planning and Building, and Transportation and has digitized the maps for a future plan to produce a CD-ROM of these maps. Presumably the City of Regina and some other municipal governments have copies of internal use. However, they have only been used as internal working documents and have never been used for example in a local Saskatchewan history publication and I have looked through over 1,000 local histories. The Provincial Archives of Saskatchewan also does not hold any copies. Our University Library plans to make a special display of the Fire Insurance maps and to publicize their existence so that students, historians and interested individuals may know off and exploit this interesting resource.

Boggs and Lewis Classification

Apart from a few geology maps, all our maps are catalogued using Boggs and Lewis. This has served us and our clients very well and we have no interest in changing. However, Boggs and Lewis is now a creaky old system that has never been properly updated. We are looking carefully at making modifications to some of the schedules so that they better reflect the current state of political geography, newer scientific endeavours and incorporate the greatly expanded knowledge of the universe. I have looked for libraries using and modifying Boggs and Lewis classification and it seems that the leader in change is University of Melbourne Map Library

Section in Australia
<http://www.lib.unimelb.edu.au/ird/cbp/POL68.HTM> which has, on its own, made modifications and changes that modernize the schedules and better meet their interests and needs. Has anyone else made major changes or updates to Boggs and Lewis? Please let me know. I am interested in communicating with anyone who has similar interests in Boggs and Lewis.

ALBERTA

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Edmonton Map Society

The Edmonton Map Society held its fall meeting on October 23rd. Following the new tradition started for our spring meeting, we met on a Saturday, starting with brunch at the Faculty Club and then adjourning to the Library to hear two presentations. The first, "Medieval Cartography - From the Fall of Rome to the Fall of Constantinople" was presented by Dan Duda, maps assistant and free-lance historian here at the University of Alberta. The second presentation was "Cartographic Methods for Mapping Salinity Within the Agricultural Areas of Alberta" presented by Gerald Stark, Cartographer Food and Rural Development, Conservation and Development Branch, Alberta Agriculture. This was an expansion of a poster session presented in Ottawa at the ICA Conference in August. Gerald also very kindly donated a set of the Alberta Soil Salinity Maps to the William C. Wonders Map Collection.

William C. Wonders Map Collection

As well as a move of the Archival map and atlas collection (reported in *Bulletin* no. 105), the map collection is seeing some staffing changes. Anna Linetsky is retiring after 18 years with the map collection - her presence will be sorely missed by those of us who soldier on. We hope to be able to refill the position by the spring. David Jones has been seconded for 2 years from his position as Collections Coordinator, Science & Technology Library, to assume the new position of Maps Librarian. David had already been quite involved in the collections aspects of the Map Collection. The map collection participated in the University's 'Saturday Sampler' an open house event held in conjunction with home-coming weekend. A selection of maps illustrating a wide range of cartographic products - from the map of Narnia though prairie grain elevators to the hockey map of Canada (identifying the birthplaces of NHL players) - accompanied a Internet workstation linked to map databases. The W.C. Wonders collection was also on the itinerary of Vladimir Kotzy, Ambassador of the Czech Republic during his visit to the University of Alberta and especially its Centre for Austrian and Central European Studies. He and his wife, Michela Kotzyova, a geographer, were fascinated by a selection of maps of Bavaria and Czechoslovakia which were on display.

Conference 2000

Planning continues for Conference 2000. Our committee has been meeting monthly. We have established a web page: http://www.library.ualberta.ca/maps2000/ which will be growing in content as our webteam builds it. Please check it out - and revisit it regularly. An icebreaker/donor recognition reception is being planned which will be sponsored by the University of Alberta Library to welcome delegates, officially open our new map archives room, and honour donors to the collection. This will be Wednesday evening, May 31, 2000. So mark it in your calendars - ACMLA/CCA/WAML - Annual Conference May 31 - June 4, 2000 here in Edmonton. We're looking forward to seeing you all here!

Some Recent URLs of Interest

- Campus maps
  http://www.lib.uwaterloo.ca/discipline/Cartography/namapcam.html
- Map libraries
  http://www.lib.uwaterloo.ca/discipline/Cartography/namaplib.html
- Library Catalogues with map records
  http://www.lib.uwaterloo.ca/discipline/Cartography/namapcat.html

(submitted by Amy Chan)

NOUVELLES REGIONALE

Pierre Roy

Terre-Neuve

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Joanne Costello, commis à la cartothèque, a donné naissance à son deuxième enfant (Declan) le 29 juillet. Elle reviendra au travail vers la fin janvier 2000. Suanne Reid, commis à la cartothèque, est de retour au travail à temps partiel (20 heures par semaine) depuis le 7 septembre 1999, de retour de son congé de maternité. Ce semestre, nous avons obtenu deux étudiants du MUCEP (programme d'emploi étudiant) (Ken Green et Jennifer Smith) pour travailler à la cartothèque. Nous avons un commis étudiant régulier (Mike Stacey) et nous partagerons le temps de travail d'un autre étudiant, Danny Chippett, avec le Centre des médias et des données. Bonnie Stevenson du service de contrôle bibliographique fait du catalogage de cartes pour nous depuis septembre. En ce moment, elle a traité environ deux douzaines de titres. Cette aide est très appréciée. Pour épargner de l'argent dans le cadre d'un budget réduit et par suite d'une diminution de la clientèle, la cartothèque sera fermée le soir et les fins de semaine durant l'année universitaire en cours. Cependant, la période estivale a été plus occupée que l'an dernier, bien que les sessions d'automne et d'hiver, à ce point, soient moins occupées. Les fichiers obtenus de l'initiative de libération des données de Statistique Canada ont donné lieu à des utilisations originales dont la préparation d'une carte, à partir du fichier de conversion de codes postaux, montrant la provenance des étudiants du Service de formation à distance. Alberta a fait une présentation sur les applications qui pourraient être d'intérêt particulier pour des géographes.

Le 10 octobre 1999, la cartothèque a servi d'emplacement pour le tournage d'une scène du film "Violet" mettant en vedette Mary Walsh. C'était impressionnant d'avoir sur place 50 membres de l'équipe de tournage avec tout l'équipement nécessaire. Mary Walsh a été particulièrement touchée par le fait que nous avons donné son nom à un de nos ordinateurs! Alberta, Dawn et un électricien ont servi de figurants dans une scène. La salle avait été réarrangée dans une certaine mesure selon leurs besoins, mais ils ont tout remis en place avant leur départ. Une annonce sera faite sur CARTA quand le film sortira.

En plus d'avoir reçu un prix de l'ACACC et d'avoir été élue vice-présidente de l'Association cartographique internationale en août 1999, Alberta recevra une récompense du secteur des sciences de la terre de Ressources naturelles Canada pour sa contribution à la conférence 1999 de l'ACI. La cérémonie aura lieu le 30 novembre 1999.

Québec

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Le 1e octobre 1999, la cartothèque de l'Université du Québec à Montréal déménageait. Nous nous en réjouissons étant donné que nous occupions une salle en location depuis dix ans, trop isolée et trop éloignée du campus principal. Dans un premier temps, il était question d'amputer de 30 % à 40 % la superficie occupée. Des scénarios drastiques ont été envisagés. Finalement, nous nous retrouvons à l'intérieur même de la bibliothèque centrale, le service dont nous faisons partie, avec une superficie supérieure à notre ancien emplacement. Nous sommes donc au coeur de l'action. Unnouvel ordinateur a été commandé pour remplacer la station servant à la visualisation et à l'extraction des bases de données spatiales numériques. L'appareil est à la fine pointe de la technologie (pour un mois ou deux): Pentium III cadencé à 450 Mhz, carte graphique avec 32 Mo de mémoire sur la carte, 128 Mo de SDRAM, un lecteur Zip de 250 Mo et un branchement sur le réseau campus. Nos usagers

ne font pas de traitement de données sur place mais ils peuvent les visualiser avec ArcView et Photoshop. Les fichiers choisis et compressés sont ultérieurement téléchargés par FTP sur les serveurs départementaux ou enregistrés sur disque portable Zip. L'université ayant acquis un boisé au lac Duparquet, en Abitibi, nous avons acheté des photos aériennes récentes de ce secteur. Nous comptons compléter cette collection avec des photos datant de 1972 et de 1926. Nous avons aussi acheté les orthophotos numériques de ce secteur. Lors du déménagement, notre collection s'est enrichie de plus de 400 cartes murales que la technicienne en documentation, Maryse Héon, catalogue et classifie pour en faciliter l'accès. Le cartothécaire sera invité aux prochaines réunions du Département de géographie concernant l'achat de documents numériques, dans le but d'harmoniser nos collections respectives. La cartothèque pourrait acheter les documents ayant un intérêt général pour l'ensemble de la communauté universitaire et se pourvoir de licences institutionnelles.

Du côté des moins bonnes nouvelles, notre commis est en congé maladie depuis septembre et ne reviendra pas avant février 2000. Sur les 25 heures/ semaine que comportait son poste, onze seulement sont comblées par deux commis différents. De plus, le spectre de la perte d'espace n'est pas complètement levé, le déménagement n'étant que temporaire. D'ici trois à quatre ans, le service des bibliothèques désire réaménager ses espaces du Campus Est dont nous faisons partie.

ONTARIO

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Pendant la première moitié d'août, le personnel de la cartothèque a été entièrement occupé avec la conférence de l'ACI/ACACC qui s'est tenue à Ottawa, du 14 au 21 août 1999. Frank Williams, en tant que membre du Comité d'exposition de l'ACI, a préparé le montage de certaines cartes affichées au centre de conférence du gouvernement. Grace Welch, en tant que coordinatrice locale, a été impliquée dans la préparation du programme de l'ACACC et du pique-nique commun ACMLA/ACC. Martine Rocheleau a participé à l'organisation du pique-nique et à l'affichage des présentations dans la cartothèque. De plus, elle a contribué à de nombreuses traductions. Nous remercions aussi les membres qui ont bien voulu assurer une présence au kiosque de l'ACACC.

À la cartothèque, nous avons connu notre automne le plus occupé depuis longtemps. Les statistiques de référence et d'information ont augmenté de 40 % par rapport aux mois de septembre passés. Après cinq ans, nous avons finalement reçu un poste de travail pour notre technicienne en documentation, Martine Rocheleau. Le poste de travail est branché à PRISME de l'OCLC, à Bookwhere et à une variété de ressources de catalogage en ligne.

Avec l'aide du personnel du service des données, Grace Welch a présenté deux ateliers sur l'utilisation d'un SIG, ArcView, avec des données de recensement. Tenus dans le laboratoire de SIG du Département de géographie, les ateliers ont été suivis par le corps enseignant et les étudiants de différents départements: géographie, biologie, épidémiologie, études canadiennes, sociologie et criminologie. Sept cartes topographiques numériques du secteur de "South Nation River" ont étéachetées aux termes du nouvel accord avec RNCan. Le département de génie civil et d'études environnementales a contribué au tiers du coût d'achat des données. En raison de l'intérêt accru pour les données géospatiales sur le campus et la nécessité de coordonner les acquisitions, la cartothèque a initié la création d'un Comité consultatif sur les données spatiales.

Le service MADGIC de Carleton et la cartothèque de l'université d'Ottawa préparent une journée dédiée aux SIGs avec l'aide du département de géographie et des études environnementales de l'université Carleton et du bureau local d'ESRI. Cette journée "portes ouvertes" se tiendra le 19 novembre et comprendra des démonstrations, des affiches et un panel de discussion sur les opportunités de carrière reliées aux SIGs. Des affiches publicitaires, communiqués de presse et invitations ont été préparés afin d'annoncer l'événement.
Grace Welch a assisté à une réunion de trois jours du comité permanent canadien des noms

géographiques à Charlottetown, du 28 au 30 septembre 1999. Elle a été nommée membre du Comité consultatif sur les services canadiens de données toponymiques numériques, en remplacement de Barbara Farrell comme représentante pour le public et le milieu universitaire. Un compte rendu de la réunion sera présenté dans le prochain bulletin.

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Au cours de l'été, toutes nos notices de cartes topographiques étrangères en séries ont été versées dans notre base de données et sont maintenant accessibles en ligne. Un autre projet réalisé fut le transfert de toutes nos cartes historiques dans des chemises désacidifiées. Notre fournisseur habituel n'étant plus en affaires et compte tenu de la taille de la chemise nécessaire, la commande a été placée par Woolfitt chez Gaylord. En juin, Cheryl a donné une conférence à un groupe de 55 participants d'Elderhostel qui ont ensuite passé la journée dans la cartothèque à faire des recherches généalogiques. À la fin de l'été, notre collection historique de cartes bathymétriques des Grands Lacs a été utilisée pour produire une carte du lac Ontario qui sera présentée dans un documentaire télévisé sur Marilyn Bell.

Melissa Leitch est en congé de maternité jusqu'à l'été prochain et Dale Smith est revenu travailler à forfait pour cette période de temps. De plus, cinq étudiants ont été engagés pour aider à la cartothèque. Toutes nos cartes ONC et JN ont été mise à jour en septembre. Les membres du Comité de coordination internationale de la Commission sur les ressources en eau du Canada ont visité le campus et ont tenu des réunions publiques pendant une semaine en octobre. Une présentation spéciale de cartes et de plans a été prévue lors de leur passage à la cartothèque.

Cheryl a représenté l'ACACC lors de la première réunion du Comité consultatif de l'Atlas national tenu à Ottawa le 5 novembre 1999. Les sujets discutés au cours de la journée furent: le contenu, la structure et la technologie de la version électronique, GeoConnections, la promotion et les indicateurs de performance de l'atlas. Le comité se rencontrera probablement deux fois par an au cours des deux prochaines années, avec une option de renouvellement d'une année. La prochaine réunion aura lieu en mai 2000.

Saskatchewan

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Plans d'assurance-incendie

L'an dernier, notre cartothèque a acquis une intéressante collection de plans d'assurance-incendie de la Saskatchewan. Beaucoup d'entre vous avez probablement entendu parler des plans d'assurance-incendie récemment offerts en vente par Doug Coulthard de London, Ontario. Nous avons acheté toutes les cartes disponibles pour la Saskatchewan. Ceci représente environ les deux-tiers des cartes énumérées pour la Saskatchewan dans le répertoire "Fire insurance plans in the National Map Collection/Plans d'assurance-incendie de la collection nationale de cartes et plans" (par Robert J. Hayward, Ottawa, 1977). Ces cartes sont remarquables et elles sont pratiquement inconnues en Saskatchewan dans le milieu de l'histoire, des bibliothèques et des archives. Le service des archives de la ville de Saskatoon en possède une série complète pour la ville et en a fait des reproductions pour un usage continu dans un certain nombre de services comme la planification du bâtie et le transport. La série complète a été numérisée dans le but de produire un cédérom. Vraisemblablement la ville de Régina et quelques autres municipalités ont des copies de certains plans pour usage interne. Cependant, ils n'ont été utilisés qu'en tant que documents de travail interne et n'ont jamais servi dans une publication quelconque sur l'histoire de la Saskatchewan. J'ai pu le vérifier en consultant environ 1 000 documents traitant de l'histoire de la province. Les archives provinciales ne possèdent aucune copie de cette série. Notre bibliothèque projette de faire une présentation spéciale de ces plans et de les publiciser de telle sorte que les étudiants, les historiens et les individus intéressés puissent connaître et exploiter cette ressource intéressante.

Classification Boggs and Lewis

Exception faite de quelques cartes géologiques, toutes nos cartes sont cataloguées selon Boggs and Lewis. Ce système nous a bien servis ainsi que nos clients et nous n'avons aucun intérêt à le changer. Cependant, Boggs and Lewis est maintenant un vieux système qui n'a jamais été correctement mis à jour. Nous envisageons de faire des modifications à certaines classes de sorte qu'elles reflètent mieux l'état présent de la géographie politique, des nouveaux acquis scientifiques et incorporent les connaissances récentes sur l'univers. J'ai recherché des bibliothèques qui utilisent et modifient la classification Boggs and Lewis et il semble que le chef de file dans ce domaine soit la cartothèque de l'université de Melbourne en Australie <http://www.lib.unimelb.edu.au/ird/cbp/POL68.HTM> > qui a, de sa propre initiative, fait des changements pour moderniser les classes et répondre à ses besoins. Si quelqu'un d'autre a fait des modifications ou des mises à jour majeures au système Boggs and Lewis, S.V.P., faites-moi le savoir. Je souhaite communiquer avec toute personne qui a des intérêts semblables aux miens sur le système Boggs and Lewis.

ALBERTA

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La société de cartes d'Edmonton

La société de cartes d'Edmonton a tenu sa réunion automnale le 23 octobre 1999. Suivant une nouvelle approche amorcée lors de notre réunion du printemps, nous nous sommes retrouvés un samedi, commençant par un brunch suivi de deux conférences. La première, " Cartographie médiévale: de la chute de Rome à la chute de Constantinople" a été présentée par Dan Duda, vendeur de cartes et historien à l'université d'Alberta. La seconde conférence était intitulée"Méthodes cartographiques pour délimiter la salinité dans les zones agricoles d'Alberta" et était présentée par Gerald Stark, cartographe au Ministère de l'agriculture d'Alberta. C'était en fait le développement d'une présentation faite à Ottawa en août 1999, lors de la conférence de l'ACI. Gerald a également donné un ensemble des cartes de salinité à la Collection de cartes William C. Wonders.

La Collection de cartes William C. Wonders

En plus du déménagement de la collection de cartes anciennes et d'atlas (voir le numéro 105 du Bulletin), des changements dans le personnel sont survenus. Anna Linetsky se retire après 18 ans à la cartothèque - son absence se fera sentir parmi nous. Nous espérons pouvoir combler le poste au printemps. David Jones a été secondé pendant 2 années dans ses responsabilités de coordonnateur des collections de la bibliothèque des sciences et technologies, afin d'assumer le poste de cartothécaire. David avait déjà été impliqué dans l'aspect développement des collections de la cartothèque. La cartothèque a participé à une journée "portes ouvertes" de l'université. Une sélection des cartes illustrant un grand éventail de produits cartographiques - de la carte des silos à grain des Prairies à la carte illustrant les lieux de naissance des joueurs de hockey de la LNH - a été présentée. Un micro-ordinateur branché sur Internet servait à naviguer vers différentes bases de données spatiales.

La collection de cartes W.C. Wonders était également sur l'itinéraire de Vladimir Kotzy, ambassadeur de la République tchèque pendant sa visite à l'Université d'Alberta et particulièrement de son Centre d'études autrichiennes et de l'Europe centrale. Lui et son épouse, Michela Kotzyova, une géographe, ont été fascinés par une exposition de cartes de la Bavière et de la Tchécoslovaquie présentée à la cartothèque.

Conférence de l'an 2000

La planification de la conférence de l'ACACC pour l'an 2000 continue. Notre comité s'est réuni mensuellement. Nous avons créé une page Web: Http://www.library.ualberta.ca/maps2000/ dont le contenu croîtra dans les mois à venir. Pour plus de nouvelles, visitez-la régulièrement. Le mercredi soir du 31 mai 2000, on projette une réception, commanditée par la bibliothèque de l'université d'Alberta, qui sera aussi l'ouverture officielle de notre nouvelle salle d'archives cartographiques et qui honorera les donateurs de la collection. N'oubliez pas d'inscrire à votre agenda la conférence annuelle conjointe de l'ACACCC/CCA/WAML du 31 mai au 4 juin 2000, ici même, à Edmonton. Nous espérons vous y rencontrer!

NEW MAPS

Amy Chan

$3.2 trillion, the world construction market. Scale [ca. 1:33,000,000]. Toronto : McGraw-Hill, 1998.

Americae sive qvartae orbis partis nova et exactissima descriptio / avtore Diego Gvtiero Philippi Regis Hisp. etc. cosmographo ; Hiero. Cock excvde 1562 ; Hieronymus Cock excude cum gratia et priuilegio 1562. Scale [ca. 1:17,500,000]. Washington, D.C. : Library of Congress, 1999.

The Balkans : relief / Central Intelligence Agency. Scale 1:2,500,000 ; Lambert conformal proj. [Washington, D.C. : Central Intelligence Agency, 1999]. "802626 (543674) 2-99".

Cambridge starfinder, the complete astronomy map & guide pack, northern USA and Canada latitudes north of 37° : moon map, star chart, planisphere. Scale not given. New York, NY : Camgridge University Press, [1998]. (5 maps on 2 sheets and 1 plastic disc)

Cartographic map projections of the world. Scales differ. Edmonton, Alta. : Axion Spatial Imaging, c1998.

Characteristics of Alpine region in Canada / compiled by J.M. Ryder, 1995 ; digital cartography by M. Hudon. Scale 1:7,500,000 ; Lambert conformal conic proj., standard parallels 49° and 77°. [Ottawa, Ont.] : Natural Resources Canada, 1998.

Estonia : administrative divisions. Scale [ca. 1:2,500,000] ; Lambert conformal proj. [Washington, D.C. : Central Intelligence Agency, 1999]. "Base 802569 (R02563) 1-99".

Estonia : relief. Scale [ca. 1:2,500,000] ; Lambert conformal proj. [Washington, D.C. : Central Intelligence Agency, 1999]. "Base 802570 (R02563) 1-99".

The glaciers of Canada / cartographer, Steven Frick ...[et. al.] Scale [1:2,500,000]. Vanier, Ont. : Canadian Geographic, 1998.

Gró urkort af *íslandi 1:500,000*, yfirlitshort / teki saman af Gu *mundi* Gu jónssyni og Einari Gíslasyni ; tölvuverkstjórn og Kortager -- Hans H. Hansen = Vegetation map of Iceland 1:500,000, general overview / compiled by Gu *mundur* Gu jónsson and Einar Gíslason ; GIS management and cartography -- Hansen, H. Scale 1:500,000 ; Lambert conformal proj. Reykjavík : Náttúrufræ tstofnun íslands : Mál og menning [distributor], c1998. ISBN 9979933526.

Jar fræ ikort af íslandi 1:500,000, berggrunner / teki saman af Hauki Jóhannessyni og Kristjáni Sæmundssyni ; tölvuverkstjórn og Kortager -- Hans H. Hansen = Geological map of Iceland 1:500,000, bedrock geology / compiled by Haukur Jóhannseeon and Kristján Saemundsson ; GIS management and cartography -- Hansen, H. Scale 1:500,000 ; Lambert conformal proj. Reykjavík :Náttúrufræ tstofnun íslands : Mál og menning [distributor], c1998. ISBN 997993350X.

Jar fræ ikort af ísland 1:500,000, höggun / teki saman af Hauki Jóhannessyni og Kristjáni Sæmundssyni ; tölvuverkstjórn og Kortager -- Hans H. Hansen = Geological map of Iceland 1:500,000, tectonics / compiled by Haukur Jóhannseeon and Kristján Saemundsson ; GIS management and cartography -- Hansen, H. Scale 1:500,000 ; Lambert conformal proj. Reykjavík :Náttúrufræ tstofnun íslands : Mál og menning [distributor], c1998. ISBN 9979933518.

[Map of the Far East (Asia)] produced by Millitary Survey, Ministry of Defence, United Kingdom 1998. Ed. 5-GSGS, Mar. 1998. Scale [ca. 1:45,000,000]. [London?] : General Staff Map Section, c1998.

Millennium in maps, the universe ; Millennium in maps, the milky way / produced by National Geographic Maps for National Geographic Magazine ; Allen Carroll, chief cartographer. Scale not given. Washington, D.C. : National Geographic Society, c1999. Supplement to National Geographic, October, 1999.

Monde politique : ave index des noms / réalisé et édité par l'Institut géographique national. Ed. 1-1998. Scale 1:33,700,000. At equator ; I.G.N.'s modified Aitoff-Wagner type proj. Paris : L'Institut, c1998.

Poland. Scale [ca. 1:5,000,000].[Washington, D.C. : Central Intelligence Agency, 1999]. "748608al (R00812) 1-99".

Polska--mapa samochodowa : sie dróg krajowych drugiego i trzeciego standardu zimowego utrzymania / opracowanie Polskiego Przedsi biorstwa Wydawnictw Kartograficznych S.A. Warszawa ; redaktorzy--Krystyna Jawecka, Krystyna Zalewska. Wyd. II. Scale 1:750,000. Warszawa ; Wroc aw : Polskie Przedsi biorstwa Wydawnictw Kartograficznych im. E. Romera : generalna Dyrekcja Dróg Publicznch [distributor], 1998. ISBN 8370004407.

Principal mineral areas of Canada / Geological Survey of Canada. 48th ed. Scale 1:6,000,000. Ottawa, ont. : Geological Survey of Canada, 1998.

Standard time zones of the world. Scale 1:85,000,000, at 0° ; Miller cylindrical proj. [Washington, D.C. : Central Intelligence Agency, 1998]. "802597 (R02183) 6-98".

World 2000, a millennium keepsake map / National Geographic Maps. Special collectors ed. Scale 1:43,257,000. 1 in. = 683 miles. At equator ; Winkel tripel proj., central meridian 0°. Washington, D.C. : National Geographic Society, 1999.

World map in equal area presentation / English version by oxford Cartographers Ltd. Scale [ca. 1:18,000,000] not "1:635,500,000. 1 square in. = 158,000 square miles. 1 square cm. = 63,550 square km. At equator ; Peters proj. Oxford, UK : Oxford Cartographers, [1998?]

Members of ACMLA's Bibliographic Control Committee at work. Left to right, Frances Woodward (University of British Columbia), Trudy Bodak (York University), Lorraine Dubreuil (McGill University), Alberta Auringer Wood (Memorial University of Newfoundland), Velma Parker (National Archives of Canada), Grace Welch (University of Ottawa).

NEW BOOKS AND ATLASES

Frank Williams

Atlas of Saskatchewan. 1999. Fung, Ka-iu, ed. Saskatoon: University of Saskatchewan. 336 p. $125.00 (CAN). ISBN 0-88880-387-7.

Atlas of the world. 1999. 7th ed. New York: Oxford University Press. 416 p. $75 (US). ISBN 0195215656 (hc).

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REVIEWS

Tim Ross

A GUIDE TO MAPS OF AUSTRALIA IN BOOKS PUBLISHED 1780-1830: AN ANNOTATED CARTOBIBLIOGRAPHY. Compiled by T. M. Perry and Dorothy F. Prescott. Canberra : National Library of Australia, 1996. viii, 315 p., ill. ISBN 0-642-25237-8 $75 AUS (+ $6 AUS shipping)

Some of the more common and yet most difficult maps to identify are maps removed from the books in which they were published. There are few catalogues of maps appearing in books, and those generally give very minimal information, often insufficient to identify the map in hand. Often the first maps of a region appeared in books such as journals and reports of explorations. The authors intend this volume as a guide to such maps of Australia.

Dr. T. M. (Tom) Perry was a Reader in Geography at the University of Melbourne, specializing in historical geography, with particular interests in the discovery, mapping and settlement of Australia. His publications include: *Australia s First Frontier* (1963), *Drawings by William Westall ... 1801-1803*, with D. H. Simpson (1962), and *The Discovery of Australia: The Charts and Maps of the Navigators and Explorers* (1982). Dorothy Prescott has been Map Curator at the National Library of Australia, the University of Melbourne Library, and the University College Library, Ibadan, Nigeria. She has published many articles on maps and map librarianship, and is on the Anglo-American Cataloguing Committee for Cartographic Materials, which has been working for some time on the revisions to *Cartographic Materials: An Interpretation of AACR2*. She now works as an information specialist on maps and map libraries, consulting to educational institutions, government and industry in Australia and overseas. She gives lectures on librarianship and cartography, and is a Commonwealth-approved valuer of maps and cartographic literature for taxation purposes. Both authors are eminently qualified to produce a cartobibliography of maps of Australia.

The authors write: "in compiling this guide we hope to assist those attempting to identify the source of 'fugitive' maps, and to direct those seeking maps depicting Australia (or a part of it) at a particular time to appropriate books". An index number is given for each map, composed of the year of publication plus a serial number for the year. The *Guide* covers the period from 1780 to 1830, excluding the charts of Dutch navigators, which have been well documented. The authors have chosen to include a few very important earlier maps, which they have called "precursors", which served as sources for many maps published later. They have also included the first editions of Cook's charts, with references to later editions listed in the second edition of Beddie's *Bibliography of Captain James Cook* (1970), and for the original charts, to David's *The Charts and Views of Captain Cook s Voyages*, volumes I and II (1988, 1993).

The *Guide* covers maps in three groups of books: "Australiana", which includes narratives of voyages, journeys of discovery, accounts of settlements, travellers tales, and official reports; East India, Oriental and country trade pilots; and histories of navigation and discovery, geographical grammars and systems of geography, and some school textbooks, particularly those published before 1800. Grammars and systems were very popular, often going through multiple editions, and sometimes issued in parts. Only maps with information of substance are included for the post-1800 period. Entries are arranged alphabetically within the year, and include the identifying number for Ferguson's *Bibliography of Australia*, e.g. F19a. Works not in Ferguson are cited as NIF with the year of publication and a letter, e.g. NIF1798a, with full bibliographical information given in Appendix III.

Under the heading, "Explanation of Map Descriptions", the arrangement of information given for each map is outlined. The data is presented largely according to the cataloguing rules in *Cartographic Materials*. Some groups of maps,

because of their importance, are introduced by a note on the work in which they appear, and about the maps in general, such as Bankes's *Geography*.

The authors have included a brief essay by A. A. Wilcock on "Geographical grammars and systems", such as Moll's *A System of Geography*, which explains what they are, and how they were published. This is a very informative chapter for anyone trying to identify maps of this period. The date printed on your map is not necessarily the year in which it was published. Another useful chapter, "The depiction of the Australian continent in the late 18th and early 19th centuries", gives standardized descriptions for geographic areas, such as Nuyt's Land, in order to shorten notes in the map entries. Also included are a list of abbreviations, a glossary of cartographic terms, and a three-page bibliography of references.

Descriptions for fifteen precursor maps precedes the cartobibliography proper, which, in turn, is followed by three appendices: "Appendix I: Some separately published maps"; "Appendix II: A list of all works cited" (a brief author/title list with entry numbers and Ferguson or NIF numbers); and "Appendix III: A list of works cited but not in Ferguson's *Bibliography*" (the "NIF" bibliography).

The authors have provided six indices: Map Titles; Titles of Inset Maps; Map Makers and Map Publishers, which actually includes anyone with anything to do with the map; Geographical Areas, which includes references from obsolete forms to current names; Subjects, which includes people treated as subjects, but excludes ships; and Ships, which refers to maps showing ships' tracks. At first, six separate indexes seemed unnecessary, but there are slight differences in arrangement, and the separation is helpful. The long lists of entry numbers, particularly in the Geographical Areas and Subjects sections can be a bit daunting.

This *Guide* has been put together with considerable thought and care in both its design and its binding, to provide a useful reference tool which will stand up to heavy use. The hardcover binding allows the book to open easily and to lay flat for consulting with a book or map to be catalogued. The cover design is attractive and suitable, being a reproduction of *Mappe monde ou description du globe terrestre* by Janvier, corrected by La Marche, and published in Venice in 1804, printed on a coated-paper cover over boards. A note on the verso of the title page identifies the original of this map as being in the National Library of Australia, and gives the reference numbers to earlier versions and related maps, but there is no entry for this map in the *Guide*.

My main complaint about this cartobibliography is the shortage of illustrations. There are only nine black-and-white illustrations in the book, and none in colour. Indeed, the only colour appears on the cover map. The reproductions include two whole maps, and seven details of maps. Three of the illustrations are on pages with text, and six might be termed full plates, although there is a considerable amount of white space around the illustration. A simple reference map would have been very helpful, and would have complemented the chapter on "The depiction of the Australian continent".

A Guide to Maps of Australia in Books Published 1780-1830 should be a welcome reference work in any collection of maps of this period, whether an institutional or a private collection. I look forward to using this book both at work and at home.

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University of British Columbia Library
Vancouver, Canada

Mark Your Calendar for the ACMLA Year 2000 Conference

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REPORT ON THE CANADIAN COMMITTEE ON CATALOGUING MEETING

September 17, 1999

The meeting of the Canadian Committee on Cataloguing was held at the National Library of Canada, Hull, Quebec on Friday September 17, 1999. Below is a summary of the main items on the agenda.

Harmonization of AACR2 with ISBD(ER)

Since the issue of ISBD(ER) in 1997, there has been much discussion on harmonizing AACR2 with it. To this end, American Library Association has done a lot of work in identifying changes in terminology should the Joint Steering Committee (JSC) adopt the ISBD general material designation (GMD) "electronic resources". Reservations about the term being too encompassing were voiced, however, the term is likely to be approved. The definition will be similar to that used in ISBD(ER). The Library of Congress (LC) and others have noted that there are other provisions in ISBD(ER), which have yet to be discussed, which will have a major impact on chapter 9, namely regarding rules 9.0B1, 9.0B2, 9.1F, 9.3, and 9.5B.

Logical Structure of the Anglo-American Cataloguing Rules

The future of AACR2 has been under discussion for sometime, more recently at the Conference on the Principles and Future Development of AACR2 in Toronto. Tom Delsey of the National Library of Canada was asked to analyse the current structure of AACR2 "to assist in the re-examination of the principles underlying the code and in setting directions for its future development". The document may be found at the following internet site: Part 1: http://www.nlc-bnc.ca/jsc/aacrdel.htm and Part 2: http://www.nlc-bnc.ca/jsc/aacrdel2.htm. These are very long documents, so if you wish to print them consider just printing the text summaries.

Foremost among the recommendations is to restructure Part 1 to better facilitate the integration of new forms of expression and new media as they appear. This goes to the heart of AACR2 which is rule 0.24 that the form of physical carrier determines the class of material. He points out that this is in fact not consistent within the current AACR2, for example for cartographic materials, graphic materials, three dimensional artifacts and realia where the determining factor is the intellectual or artistic content. The most notable gap at present is that the code does not deal adequately with non-physical items such as networked electronic resources. He suggests that reorganizing the code according to the ISBD(G) areas of description would be one option towards providing greater flexibility and consistency.

In its response, CCC will point out that the code does not adequately accommodate material falling within more than one class which is a problem that will escalate as new media and forms emerge. This problem has been of concern to the archival and cartographic communities resulting in a re-examination of the GMD where the physical form is considered a qualifier much as the term "braille" is currently (see 1.1C1).

For example:

[cartographic material (electronic resources)]
[cartographic material (manuscript)]
[cartographic material (microform)]
[cartographic material (tactile)].

It was further noted that changes to 0.24 and the GMD would also require some changes to area 5 physical description.

Another problem identified was that of the notion of "publication" as it concerns networked electronic resources. Can the concepts of publication, release and copy ... "be extended to encompass on-line or networked dissemination of digital objects ... or whether, as in copyright legislation, communication effected through electronic transmission needs to be treated as something other than 'publication'". However, the report does not indicate that the problem is wider and should address the issue of "grey literature" as well.

The lack of rules to deal with "continuing" publications (e.g., serials) which are not issued in

successive parts but rather are totally replaced as they are updated as is the case with some networked serials needs to be re-examined. However, it should be noted that the problem is not limited to electronic documents but is encountered with some looseleaf publications where the update sheets replace the preceding ones.

In Part II of the report, Delsey points out that the rules need to be assessed against the functions of the catalogue as outlined in the Paris Principles. Following from this, the concepts of authorship, work, and edition, along with the citation form for a work and the rules for choice of entry need to be reviewed. In particular, the rule of three as it applies to authors and also to works in an item should be re-assessed. The report fails to mention that this would require changes in part 1 as well. Also, there are relationships other than authorship between persons, corporate bodies and the item (e.g., provenance) which need to be explored. Inconsistencies in the code regarding the citation form for a work need to be re-evaluated with the view of arriving at a more effective way of making work-to-work relationships in the catalogue. Lastly, the rules for choice of access point need to be simplified.

Revising AACR2 to accommodate seriality

Jean Hirons of the Library of Congress was asked by JSC to prepare a report on seriality and how AACR2 should be revised to accommodate it. Her report may be found at http://www.nlc-bnc.ca/jsc/ser-rep0.html.

She supports Delsey's recommendation to reorganize AACR2 by the ISBD areas of description thus eliminating having to identify the type of publication before cataloguing begins. As this means that there will no longer be a chapter on serials, the concept of seriality could be adequately explained in an expanded introduction or within the descriptive section. After discussion, we agreed that we preferred to place this in the introduction.

Both she and Delsey think that publications would be redefined as being finite or continuing. Within these, the full range could be accommodated rather than the rather restricted set now provided for in the rules. For example, there are serials, series, multipart items, monographs with supplements, and integrating resources such as databases, loose-leaf publications and web sites all of which exhibit some aspect of a continuing publication.

A more controversial concept is the elimination of the chief source of information for continuing resources. The CCC does not entirely agree with this, as chief source is the source upon which is based the choice and form of name in addition to being the primary source for use in preparing the description.

The recommendations for the prescribed source of information for title and statement of responsibility are much more helpful than the existing ones. For remotely-issued continuing resources, the prescribed source would remain much the same, being the title screen, home page, main menu or other prominent pages. However, for direct access electronic resources (e.g., CD-ROM), the eye-readable labels would be preferred to internal sources. Since these often do not have title screens but only the millisecond "splash" screen, this will be an improvement. It will also mean that producers will have to make sure that they put a clearly identifiable title on the label which, unfortunately, is not always the case currently. For electronic journals, the entire source could be used to select the title proper with preference given to the source that gives the most complete representation of the title.

She also makes a number of recommendations concerning the title which are summarized below. She advocates using the title and statement of responsibility from the latest piece in hand or iteration for not only integrating resources but also for successively issued serials. Thus, each time there was a change, the record would be revisited and corrected. To create some stability in the record, the earliest title of the successively issued serials would become the uniform title. Also proposed is a list of major and minor title changes which will expand what is considered minor changes. Also, there would be provisions for correcting obvious typographical errors in titles rather than having to consider them as changes to the title proper. For web based serials, it is also recommended that introductory wording (e.g., Welcome to ... or Disney presents ...) not be considered part of the title proper.

CCC disagrees with the using of the latest piece in hand or iteration for successively issued serials. Since a stable description is admitted to be necessary, the current rule should stand. Variations in title and in responsibility may be added to the record. As regards the introductory wording, CCC

agrees that it will be useful for web sites, films and sound recordings, but cautions that this may not be applicable for other media. Although having a list of what would be regarded as major and minor changes is good, care would be required in applying them to all continuing cartographic materials. Most would not apply to cartographic series, whereas they might to cartographic serials.

Because other title information is highly volatile, Hirons recommends that it be restricted to the recording of information about acronym/initialism or full form rejected as title proper, and when the statement of responsibility is imbedded in the other title information. CCC feels that this is too severe. There may be cases where the other title information is needed to properly identify the item and the cataloguer should be free to make this judgement.

Some interesting solutions to coping with changes of place of publication and name of publisher are suggested. The latest place and publisher would be given followed, in square brackets and with introductory wording the earliest: New York, NY : Elsevier. – [originally Princeton, NJ : Prentice-Hall], 1998- . This results in a very odd looking area. Other methods for recording this information should be investigated such as making the field repeatable, and in MARC have indicators for the introductory wording.

Another controversial item is to omit dates when the first and/or last issue is not held. CCC does not agree, as this will create further inconsistency within the code. The further recommendation to use angle brackets in notes for known dates is not agreed to as the meaning of the angle brackets is not likely to be understood by the users of the catalogue.

Appendix of initial articles

As an aid to cataloguers, the Library of Congress requested the inclusion in AACR2 of an appendix listing the initial articles for the languages most frequently encountered by cataloguers. There is general support for this, so we will likely see this in the near future.

Terms of honour and titles of nobility

British Library has proposed that terms of honour and titles of nobility in name headings entered under surname be eliminated. The rules governing names not entered under surname would remain as they are now. This change affects rules 22.1C, 22.5F1, 22.12, 22.16 , and 26.2A. Proposals for their revision have been circulated and will likely be approved. The Library has concluded that these titles, etc., are of "small value for identification", people outside Britain are treated differently, and the placement of the non-filing term or title before the forename cannot be successfully handled by some systems which has resulted in the Library of Congress and the National Library of Canada, for example, placing the term/title after the forename(s).

Terms of address for married women

Further in the cause of consistency, the non-filing element in the heading for a married woman identified only by her husband's name should be moved to the end, for example: Ward, Humphry, *Mrs.* However, there is a difficulty as yet unresolved. If the woman's given name(s) are known they may be added according to 22.18A. Should the term of address be added after the husband's name and before the addition, or should it be added at the end? For example: Miller, J., *Mrs.* (Anna) or Miller, J. (Anna), *Mrs.*

1.4C3 Jurisdiction

CCC will be forwarding a rule revision request received from one of the universities. The option not to include the jurisdiction results in inconsistencies in the recording of place of publication. The request will be to always record the jurisdiction.

Definition of main entry

A request to amend the definition of main entry has been formulated so that the AACR2 definition will match more closely that in the *ALA Glossary*. It is proposed to add as the first definition:

> The access point to a bibliographic record by which the bibliographic item is to be uniformly identified and cited.

The current definition will become the second definition.

Respectfully submitted,
Velma Parker
ACMLA representative

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