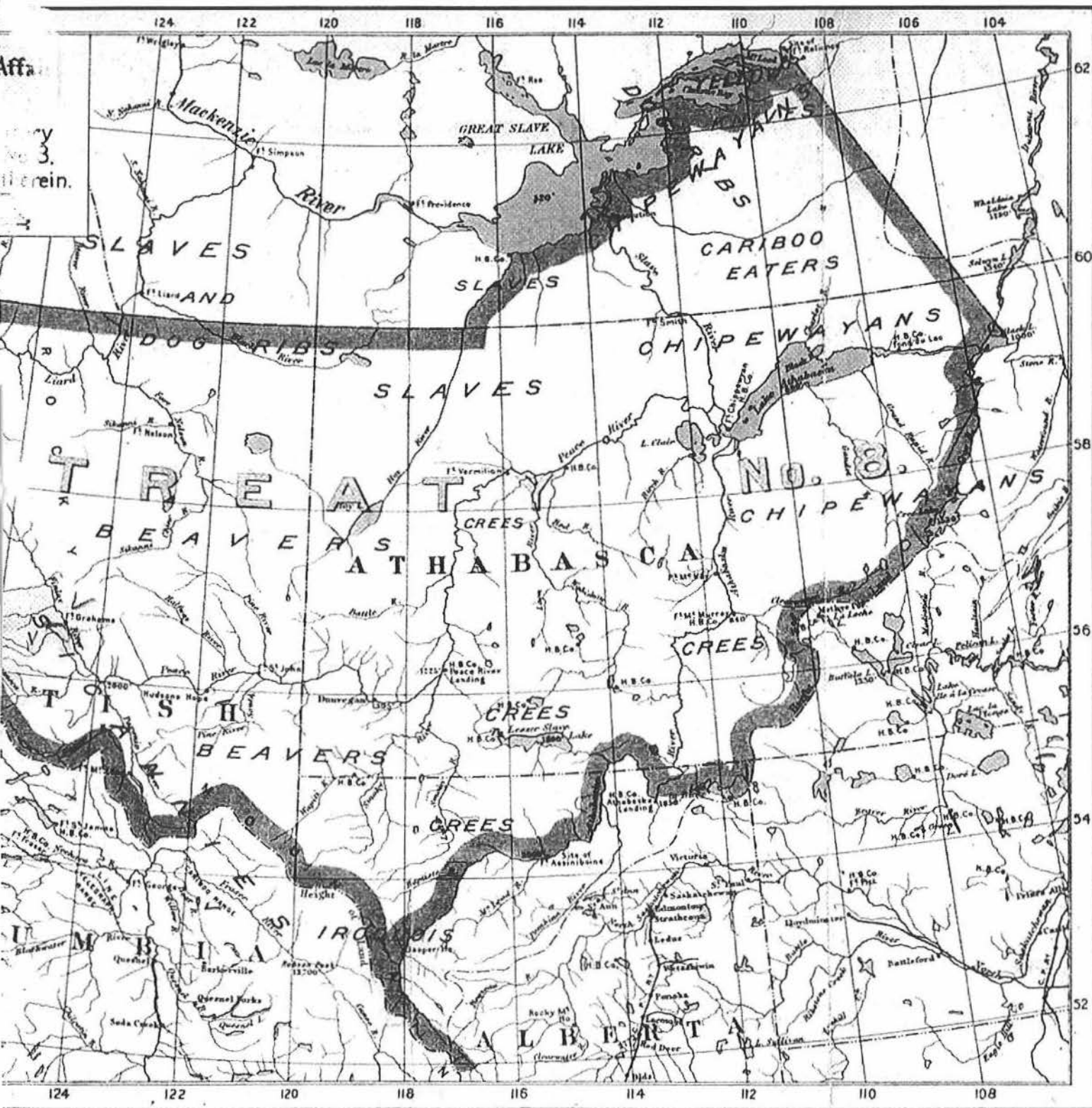


Cartouche



Newsletter of the Canadian Cartographic Association
Bulletin de l'Association canadienne de cartographie

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February 15, 2000

La date limite pour la prochaine publication est:
15 février 2000

Editor's desktop

Hopefully this is the last issue of the millennium. That statement assumes I was able to get it in the mail before midnight December 31. Time really has a way of flying no sooner is one issue put to bed and it's time for the next. I hope I am able to produce more than two issues in the next millennium. Putting these first two newsletters together has been enjoyable even if I'm still on somewhat of a learning curve. Although at times it can be a bit frustrating. I now understand what Weldon meant when he mentioned that he always had 'fun' and enjoyed putting *Cartouche* together but that it was procuring the content that was the hard part. I want to thank all those who contributed to this issue. At the last possible minute I was still a page and a half sort of twenty pages so I was forced to trim it back to sixteen pages. I hope the content is not too dated.

I want to remind all members that anyone is more than welcome to submit

anything they feel will be of interest to other members of the Association. Anything you see or find with some cartographic angle - please, send it along.

In the day of the internet, why a printed rag you may ask. Well one point might be that your cartographic news is sent to your door - you don't have to go and look for it. It just comes to your mailbox all you have to do is read it. Also paper copy is warm and friendly - you can use it to start fires, or you could always use it to line the bottom of your bird's cage. One other plus of paper copy is that you can take it along with you to those quiet places of contemplation where you can't, or wouldn't want to take your computer.

I want to wish you all a cheery holiday season and may the new millennium be prosperous no matter whether it begins in 2000 or 2001. *Long may your big jib draw.*



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THE FRONT COVER

First Nations in northern Alberta, Saskatchewan and northeastern British Columbia commemorated the 100th anniversary of the signing of Treaty 8 this past summer. Since this first map of the treaty area was published by the federal government in 1900, cartography has figured prominently in Treaty 8 land claims. (credit: National Archives of Canada, C-146149).

[Notice the lable curving and use of letter spacing on this 100 year old map. ed.]

Membership Drive 2000 - Do You Have Seven Minutes?

Dearest CCA Member - why did you join the CCA/ACC? I have a burning need to know because what prompted each of us to join should be an indication of where we should focus our attention to attract new members. With membership as one of my VP portfolios I look to you, dear members, for responses to this question. Armed with this information I can focus my membership drive in the most fruitful directions. I'm asking for seven minutes of your week to help me with this task. *Do you have seven minutes?*

Think back to when you first joined our association. Why did you join?

- Did a colleague suggest that you join?
- Did you see the association's name somewhere and make enquiries?
- Was it prompted by attending a conference held in your area?
- Did a faculty member promote it to you as a student?

What are the benefits to you at the present time? Write what you can in five minutes. Selected responses (with your permission) may also appear on our website on the membership page. I will be using this information as I prepare correspondence to send non-CCA individuals and companies, a letter outlining CCA activities, membership benefits etc. and inviting them to join.

For the remaining two minutes of the seven I asked for, please ponder the list of individuals or companies you know that might be interested in becoming a mem-

ber. To prompt thought, I've provided some possible scenarios:

- Someone who might appreciate a personal invitation to join.
- Companies in your area that would have no idea that our association exists but would benefit from and contribute to the association.
- Colleagues who work extensively with mapping, but aren't geographers - it is quite possible that they don't know that our association exists and how it could enhance their endeavours!

I would appreciate receiving 1-2 contacts per member. Please indicate whether or not I should mention your name in my correspondence with them. Include their email address or postal address, a contact person and why you think they might be interested (what should my sales pitch be).

So, that's all for now folks. This seven-minute investment in your association will be a huge asset in tuning the membership drive to reach the most appropriate people. Before you put your *Cartouche* away in the next week, please write

Chalk@julian.uwo.ca with your responses to:

- Why you joined initially,
- What the benefits are currently, and
- 1-2 leads for potential new members.

With your seven minute responses I'll be better armed to attract more people like you (and some just a little different) to our association - our diversity in backgrounds, but common interest in cartography is one of our strengths.

Welcome New Members

Monkia Rieger
membership coordinator

The CCA would like to welcome the following new members to our organization. I'm happy to report that many joined after they had attended the recent ICA Conference in Ottawa. My current plan is to have the renewals for the year 2000 out in early January. Please watch for it and, as always, I appreciate getting your renewal forms back as soon as possible.

Peter Andexer	Port Moody, BC
Sean Berry	Cambridge, ON
Ed Chart	Guelph, ON
Paul Heersink	Peterborough, ON
Alex Hirnsperger	Chelsea, PQ
Danielle Jacques	Lachute, QC
Damien Morrissey	St. John's, NF
James Perly	Toronto, ON
Mark Rowsell	Nepean, ON
Lea Selley	Edmonton, AB
Sonia Talwar	Vancouver, BC
Antoine Terjanian	Gloucester, ON
Leah Vanderjagt	Edmonton, AB
Sid Witiuk	Ottawa, ON
Frances Woodward	Vancouver, BC



Cartographically Correct Maps

When a friend recently purchased a new computer, the eager salesman offered to throw in software that could make "cartographically correct maps."

(Contributed by Roger Wheate)

Canadian World Champion Thanks to Cartography

Joel Wapnick, a music professor at McGill University claimed the recent world scrabble title in Melbourne making a brilliant opening move by playing all seven tiles to form the word 'isogriv', a line joining points of equal grid variation .. pretty good for a music man. Have any cartographers out there ever seen an isogriv map? **RW**



Roger Wheate
University of Northern
British Columbia

Past-President's Message
mot du Président-sortant

Murphy's Law and Cartography

The basic premise of Murphy's Law is well-known: "If anything can go wrong, it will". The most oft-quoted example is the dropped slice of toast: despite 50-50 odds on which side will land down, it is destined to land buttered side down (degree of certainty increases with the amount of dirt on the floor). It is a law without exception; for example, should you choose to demonstrate the above principle to a skeptic, the toast will naturally land buttered side up.

Murphy's Law of maps can be easily expressed "If a place you're examining can lie on the inconvenient parts of the map, it will" (Matthews, 1997). Any map user or librarian can confirm that areas of study will invariably fall on or near the join of two or even four map sheets. The chances of needing four rather than two map sheets increases with the inconvenience of the circumstance. Matthews however shows how this results from a combination of probability and illusion. If the danger area includes the 10% around the four edges, along with the 10% down the middle around a center crease that makes road following difficult, there is a greater than 50-50 chance of any area falling within this 'Murphy zone' since although it is relatively narrow, the perimeter tracks the map's largest dimensions.

This of course was one of the great promises of GIS and computer mapping: the seamless database. Map sheet tiles however have been digitized or scanned in accordance with their hardcopy equivalents. Combining adjacent sheets invokes high probability of not all sheets being available digitally, data format or quality incompatibility and (in Canada) having to translate across UTM zones. Where the 1970s map

user might be forced to purchase four sheets or photocopy and then cut and paste, total cost = 4 x \$5, the 1990s user (in Canada), might be looking at a possible four times \$500 given bureaucratic digital data pricing.

Murphy's Law in conjunction with the great Canadian climate can add further to cartographers' woes. My first teaching year (1978-79) at the University of

and your PC will reject it as fast as a cold foot in bed.

Cold weather aside, the digital revolution has raised Murphy's Law to new heights for neophyte cartographers. With increasing complexity, there is much more that can go wrong in map creation and output. Being a new university with very limited support staff, professors mostly attempt to draw their own maps. After all, isn't it much easier now with all these computers, they naively ask. After many hours, I can hear them cursing "This would only have taken me a few minutes with pen and mylar", but of course they have confused 'ease of use' with 'more options' and hence more things that can go wrong. And if anything can go wrong, yes, it does.

Reference: "The science of Murphy's Law", Robert A. Matthews, *Scientific American*, April 1997, p.88-91. 🌐



Saskatchewan included one of the coldest winters in recent memory. I met a teary-eyed student one Monday morning, whose map assignment had just met a painful demise, survived only by a handful of wee plastic shards. Mylar does not travel well at -40 degrees, and disintegrates with very slight contact, as did hers when she brushed lightly past a lamp post. This wouldn't occur with digital data, right? Wrong! Leave a floppy disk in a car at frigid temperature



World Map Applet

Freeware Java applet showing a view of the earth's coastlines is can be found at www.davecentral.com/3605.html. The options on this applet allow the user to choose from five different map projections (Orthographic, Mercator, Sinusoidal, Hammer and Equirectangular); set the center point of the projection and toggle the grid on or off.

Education Interest Group

Following in Ute's Footsteps

As the new chair of the Cartographic Education Interest Group, I will continue to walk in Ute's footsteps in working to attract younger members, mostly students, to the organization. This effort will involve close collaboration with the student representatives on the CCA executive, Erin Kuyenhoven and Andrew Millward. Initiatives discussed at the last meeting include producing brochures targeted directly at students, printing the excellent poster designed by Ada Cheung, and distributing these materials directly to Universities and Colleges with Cartography and/or GIS programs or courses.

Cartographic Web Resources

I would like to focus on other initiatives as well. First is an archive of web resources relevant to Cartographic Education, designed primarily for educators, focusing on web sites which illustrate a topic which may be difficult to visualize or to explain. Examples might include web sites with information about colour spaces, for example:

Johan M. Lammens' thesis *A Computational Model of Color Perception and Color Naming* at <http://www.cs.buffalo.edu/pub/colornaming/diss/diss.html>

Dr. Hans Irtel's notes on *Historical Color Systems* at <http://www.uni-mannheim.de/fakul/psycho/irtel/colsys.html>

Basic primers such as the *Cyberglitz Color Primer* at <http://www.cyberglitz.com/primer.htm>

Obviously printing URLs in the Association's rag is not the best approach. Check out the Cartographic Education Interest Group Page in the CCA web page for

these links and more. **Here's where you come in.** If you have found links to sites which you use frequently in preparation or in demonstrations to students, could you please pass them along to me in an e-mail? I will include them as links in the Cartographic Education Interest Group Web Resources.

CIG/GIAC/CCLS Merger

Another thread which I have been following is the proposed merger of the three organizations, the Canadian Institute of Geomatics (CIG), the Geomatics Industry Association of Canada (GIAC), and the Canadian Council of Land Surveyors (CCLS). In an earlier issue of *Cartouche* I reported on a meeting with a number of stakeholders, where the merger idea was first floated. Since then a committee has been struck to study the proposed merger in more detail. The report from this committee is currently in the process of revision, addressing the concerns raised by the executives of the three organizations about the draft. The next issue of the CIG publication *Geomatica* will feature an article about the current state of the proposed merger. I will ensure that reportage in some form is part of *Cartouche*. In my view, the issues involved in this merger, from the perspective of the CCA, include the following:

- The status of the Memorandum of Understanding between the CCA and the CIG, which defines the CCA's link to the ICA
- The potential loss of identity of individual organizations, manifested by the possible merging of publications
- Geomatics Practitioner certification, an issue which floated under and through the discussions at the meeting and would have a major impact on Geomatics education and employment.

Both the merger and certification will affect the CCA, cartographic professionals and students of cartography. If you have opinions on these issues please let me know. A dialogue within the Association is the first step towards a clear stance on the proposed merger and certification.

Cartographic Education Paper Sessions for the Upcoming Edmonton Conference

If you have ideas for presentations falling under the general theme of Cartographic Education, now's the time to develop them. A specific interest of mine is the how cartographic knowledge and principles can be integrated more fully into GIS and GIS education. I don't think I can be alone here, given the number of us who straddle the line, wherever it may fall, between cartography and GIS. I'd love to hear from people who like to present a paper on this topic next May 31 to June 3 in Edmonton. Send your abstracts to Roger Wheate at wheate@unbc.ca by January 31, 2000 and send a copy to me at:

broscoed@algonquinc.on.ca.

Scrolling Maps

The "Scrolling Image Map Java Applet" allows you to use very large image maps that are viewed through a narrow window in the HTML page. The large image map is scrolled by dragging a zooming rectangle across a miniature version of the full image. Instructions on how to make these scrolling maps, including the HTML code and links to sites that are using the application can be found at: http://www.serve.com/wizjd/java/scrolling_image/scrolling_image/index.html

Brief News Items

New Chief Appointed

In a recent news release, the Library of Congress announced the appointment of Dr. John Hébert as the new Chief of the Geography and Map Division. A respected historian, Dr. Hébert first joined the Library in 1969, and has held a variety of positions in Library's Hispanic Division. Most recently he directed the Library's Columbus Quincentenary Program and served on the presidentially appointed Columbus Quincentenary Jubilee Commission. Dr. Hébert will take control of the largest and most comprehensive cartographic collection in the world. First established in 1897, the Geography and Map Division is now home to some 4.6 million maps, 60,000 atlases, 6,000 reference works, numerous globes and three-dimensional plastic relief models, and a large number of electronic materials. Its full-time professional and technical staff currently numbers around 58 people.

Map Exhibition

Some 80 maps and related records from the massive holdings of the National Archives of Canada are on display in an exciting new exhibition *Canada at Scale: Maps of Our History*. The exhibition, which covers more than four centuries of Canadian mapping, was officially launched at the Archives' main facility on Wellington Street, Ottawa, during the ICA conference. It is scheduled to remain open to the public to the end of February 2000 (admission is free). In an effort to reach a wider audience, an electronic version of the exhibition has been incorporated into the National Archives' web site (www.archives.ca). "We are hoping Geography departments across the country will be able to include the web site in their cartography courses," said Louis Cardinal, the exhibition curator (and former CCA Treasurer, 1984-89).

Newsletter Expanded

The History of Cartography Project recently expanded its annual newsletter into a semi-annual. The new summer issue of the newsletter will provide a detailed look at the project's forthcoming books and the research methods used by various contributors. It will also carry news on upcoming events in Historical Cartography and will feature profiles on the project's staff. The History of Cartography Project is a interdisciplinary research and publishing venture which brings together scholars in the arts, sciences and humanities. Published by the University of Chicago Press, the award winning series was originally founded by the late J. B. Harley and is now edited by David Woodward. To date, four volumes have been published by the press and another four are in the planning stages. The newsletter offers an excellent way of keeping up to date on what has been widely hailed as one of this century's most significant publishing ventures in the History of Cartography. Further information on the newsletter may be obtained from the project's web site:

<http://feature.geography.wisc.edu/histcart>

Digital Standards

The European Commissions's INFO2000 program is supporting the development of a uniform system to make large quantities of historical geographic archives accessible in digital form via the internet. The Digital History Maps (DHM) project will develop common procedures for cataloguing, storing, and accessing historical maps and geographic information, and initially will focus on public institutions in Sweden, Germany, and Denmark. In a communiqué released last May, the Commission expressed the belief that internet access to historical collections was one way of opening ar-

chival collections to a wider number of users, in particular the multimedia industry. By making the geography of the past an important resource for the future, they hope to guarantee the future integrity of these vast archival collections. For further information on DHM, please contact Goran Samuelsson, Project Co-ordinator, National Land Survey of Sweden at goran.smuelsson@lm.se

Internet Access

Internet access to map collections will be the focus of the 12th annual conference of the European Map Curators' Group, which will be held at the Royal Library in Copenhagen, Denmark, June 27-30, 2000. The conference theme "Caught in the Web or Spinning It: the Role of Map Curators in Building WWW-Sources of Cartographic Information" will examine the creation, development, and maintenance of new virtual collections by map libraries, and will consider the problems that need to be addressed for these projects to be successful. The deadline for registration is December 1, 1999. Further information (including the preliminary program) can be obtained from the conference web site: www.konbib.nl/kb/skd/liber/12th.htm

Map Thefts

Three major libraries in Belgium have become the latest victims of a master thief. Armed with nothing more than a sharp knife, the thief has slashed his way through atlases, town books and travel logs at the Grootseminarie in Ghent, the main library at the University of Ghent, and the Royal Library of Belgium in Brussels. In a joint communiqué, the three libraries announced that they will immediately initiate tighter security measures. "These measures may result in a more difficult access to the reading rooms.... Unfortunately, it is the price we have to

pay if we want to protect our national heritage."

Canadian Map Directory

Our colleagues in the Association of Canadian Map Libraries and Archives (ACMLA) recently announced the publication of the 7th revised edition of their *Directory of Canadian Map Collections* = *Repertoire des collections canadiennes de cartes* is now available (ISSN 00705217). Copies of the directory costs \$20.00 (CAN) each, plus \$3.00 for postage. They may be ordered from Louis Cardinal, ACMLA Publications Officer, c/o National Archives of Canada, 395 Wellington Street, Ottawa, Ontario, Canada, K1A 0N3; telephone: (613) 9967619; fax: (613) 9956226; e-mail: lcardinal@archives.ca

Scholarships

This year's closing date for applications to the J. B. Harley Research Fellowships in the History of Cartography was November 1, 1999. The Harley Fellowship - the only one of its kind in Europe - provides financial support (normally at £250 per week for a maximum of four weeks) for researchers from any discipline doing the equivalent of postgraduate level research in the map collections of the London (UK) area. For details of past applications and awards, and comments from previous Fellows, see: www.ihrinfo.ac.uk/maps/harley.html

Recent Publications

IMAGO MUNDI: THE INTERNATIONAL JOURNAL FOR THE HISTORY OF CARTOGRAPHY, Volume 51 (1999): Easter Tables and the Pseudo Isidorean Vatican Map, by Leonid S. Chekin; An Early Thirteenth Century Map in Dublin: A Window into the World of Giraldus Cambrensis, by Thomas O'Loughlin; The Pinchbeck Fen Map: A Fifteenth Century Map of the Lincolnshire Fenland, by Rose Mitchell and David Crook; Francesco II Gonzaga and Maps as Palace Decoration in Renaissance Mantua, by Molly Bourne; Cartography, Autocracy and State Powerlessness: The Uses of Maps in Early Modern Russia, by Valerie A. Kivelson; Map-

ping Relationships: Allegory, Gender and the Cartographical Image in Eighteenth Century France and England, by Franz Reitinger; The Ordnance Survey's Nineteenth Century Boundary Survey: Context, Characteristics and Impact, by David Fletcher; Mapping Mussolini: Ritual and Cartography in Public Art during the Second Roman Empire, by Heather Hyde Minor.

CARTOGRAPHICA HELVETICA: THE SWISS JOURNAL ON THE HISTORY OF CARTOGRAPHY, Issue 20 (June 1999): Augustin Hirschvogels Stadtplan von Wien, 1547/1549, und seine "Quadranten" [The city plan of Vienna from 1547/1549 by Augustin Hirschvogel and its "quadrants"] by Karl Fischer; Karte der Britischen Inseln von 1513 eine der ersten farbig gedruckten Karten [A map of the British Isles, 1513 an early example of colour map printing] by Rodney W Shirley; Karten für den Schulgebrauch von Johann Sebastian Gerster (1833-1918) [School maps by Johann Sebastian Gerster (1833-1918)] by Urban Schertenleib; Schweizer Schulatlanten ab 1843 [Swiss school atlases from 1843 onwards] by Samuel Wyder; Manuskriptkarte von WestEuropa, um 1200 [Manuscript map of Western Europe from ca. 1200] by Arthur Dürst. Summaries in English and in German are available at: www.stub.unibe.ch/dach/ch/ch/chindex.html

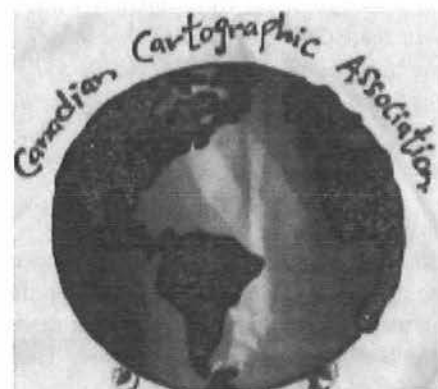
MERCATOR'S WORLD: THE MAGAZINE OF MAPS, EXPLORATION, AND DISCOVERY, Volume 4, Number 5 (September/October, 1999): Room Service: The New York Public Library's Map Division, by Susan Ludmer-Gliebe; Lone Wolf of the North: Vilhjalmur Stefansson's Unorthodox Explorations, by Bill Warren; Plainly Visible Patterns: Erwin Josephus Raisz and the Art of Cartography, Joseph Garver; More to Life than Maps: The Accounts of a Victorian Gentleman, by Peter Whitfield; High End, Soft Sell: New York Map Dealer Richard B. Arkway, by Cheri Brooks.

MERCATOR'S WORLD: THE MAGAZINE OF MAPS, EXPLORATION, AND DISCOVERY, Volume 4, Number 6 (November/December, 1999): "In the Most Faithful Manner": George Vancouver's Great Voyage, by Stephen R. Brown;

Pilgrim's Progress: Spiritual Maps of India, by Brinda Gill; The Language of Representation: French Enlightenment Geography, by Anne Marie Claire Godlewska; Mountains under the Sea: Marie Tharp's Maps of the Ocean Floor, by David Lawrence; Maps of Christmas Past: In Memory of a Bygone Tradition, by Angus Carroll; Divide and Conquer: The Making of a Classical Atlas, by Richard Talbert. ☉

CCA T-SHIRTS

Still time left to place your order



The CCA will be producing a second run of its t-shirts that were sold at this summer's August ICA conference in Ottawa.

COST: \$25 if picked up at the Edmonton CCA meeting; \$30 if mailed.

DEADLINE: Orders must be received by Andrew before January 15, 2000.

TO ORDER: contact Andrew Millward
Department of Geography
University of Waterloo
Waterloo, Ontario N2L 3G1
aamillwa@fes.uwaterloo.ca

Cheques ONLY made payable to the CCA. All profits from the shirt sales will go to support the Norman Nicholson Memorial Scholarship.

SIZES: M,L,XL. Constructed of unbleached 100% cotton.



Phil Dodds
Intergraph Corporation

Analytical Cartography and GIS/
Cartographie analytique et SIG:

Digital Cartographic/GIS workflows in large mapping agencies

Before I start on this article I would like to thank all those who organized an excellent CCA meeting in Ottawa. The Orienteering was lot's of fun and I believe will help the membership drive. Unfortunately I had to miss the CCA barbecue since my sister had the nerve to plan her wedding the following weekend in London. Judging by the latest Cartouche pictures, everyone had a great time. Looking forward to the next one.

Introduction

Since most of the large State agencies are going digital there is a misconception that all they have to do is crank out their digital graphics from their GIS database. These

evaluate, such as the page / paper layout and the maps internal characteristics in terms of content and form. How is the graphic going to be positioned on the paper? What information will be on the map and what form will the presentation take? These are questions that are often answered through product specifications and style sheets.

Another aspect that will impact the workflow is the origination of the data. Are the primary graphics scanned raster separates or vector cad files? Perhaps a combination of both? Is the entire layout going to be digital, or a mix of manual and digital?

put graphic design. Information regarding printed and trimmed paper size, folding requirements, overall layout in terms of marginalia placement, and inset and / or image characteristics should be reviewed. This information is necessary for the production process as finalized layouts are constructed and file processing begins.

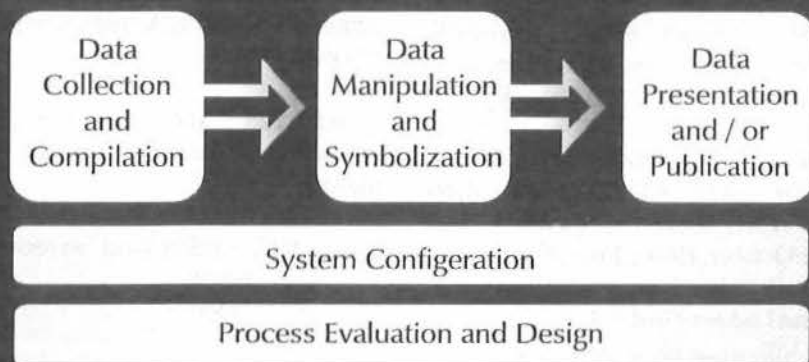
Content and Form

Content and form address what graphic features will be contained on the printed map and what cartographic characteristics will be used to define their representation. In production environments that are responsible for constructing and maintaining a particular product, such as a quadrangle series, or a street guides, the specifications are usually already defined. A given product, by definition will contain information that define the product, such as a topographic map.

The cartographer's role is to reproduce the map using a stated set of map specifications, allowing for very little artistic license. From a production perspective, the cartographers job is to compile or convert the previous product specifications into a digital facsimile that flows along Map Publisher production lines. This requires compiling all information that describes the maps content (features, such as divided highway), and what the cartographic symbolization is for each feature (divided highway is portrayed as a dual-cased road with a centerline, measuring .040 inches across [5-8-5-8-5], printed in process black and containing orange fill, measuring .026 inches, printed as 50% process magenta, 100% process yellow). In a production environment, where there are no product specification, the cartographer needs to begin creating them.

For example, the map contains a forest, but how will the forest be portrayed? A screen

Map Production Architecture



agencies would be well advised that the traditional cartographic workflows still hold true in the digital world. The following describes the preferred cartographic workflow based on personal observations at several state agencies.

Map Designs and Production Workflows

The first step in the Map Publishing workflow is to identify the map design and define necessary production workflows. There are several design considerations to

Will the map be processed in software, then have the layout performed manually using conventional layout and stripping techniques? Before we can understand the extent of the workflow, we must identify where the data is coming from and what processes are required to make the data a suitable candidate for a digital workflow.

Page Layout

One of the initial steps in the Map Publishing process is the examination of the out-

tint, a pattern, or both? Does the map contain banded tints, vignettes? At a minimum, the content must be defined and the basic lithographic characteristics should be identified; what features will appear on the map and what basic inks will be used? Modifi-

tern have foreground and background? If so, what is the screen percentages? Is the pattern a custom symbol? How thick is the outline, 0.25mm? If it is dashed, what is the line style pattern? This level of detail must be defined for all cartographic ele-

physical characteristics, and are typically grouped according to a common theme or category. Cartographic elements, on the other hand are defined in terms of their graphic symbology, and are grouped according to their common lithographic charac-

Basic Map Production Workflow

PHASE 1: MAP DESIGN AND PRODUCT SPECIFICATION

Establish Overall Map Design

- ▀ Identify page layout
- ▀ Identify map content
- ▀ Identify cartographic form

Establish Publication Specifications

- ▀ Lithographic inks, screens, and patterns
- ▀ Cartographic symbology
 - symbols, lines, patterns, tints

Identify Source Materials

- ▀ Derived from vector applications
- ▀ Derived from raster applications
- ▀ Hybrid / Word Processing / Analog

PHASE 2: DATA PRE - PROCESSING / CARTOGRAPHIC RENDERING

Incorporating Vector Data

- ▀ Geographic / cartographic relationship
- ▀ Feature association / symbolization
- ▀ Vector to Raster conversion

Incorporating Raster Data

- ▀ Data conversion / translation
- ▀ Raster scale and orientation
- ▀ Rectification and registration

PHASE 3: LITHOGRAPHIC PROCESSING

Lithographic Pre-processing

- ▀ Construct masks and spreads
- ▀ Assemble raster separations
- ▀ Construct insets and graphic arts

Color Reproduction / Separation

- ▀ Define lithographic color model
- ▀ Define feature priority / masking depth
- ▀ Assign lithographic specifications

Checkplots / Film Generation

- ▀ Generate WYSIWYG color checkplot
- ▀ Process for 3rd party film recorders

cations to color definitions and intensities can be solidified later in the workflow as the final graphic emerges, allowing for significant artistic freedom in the production process.

Publication Symbology and Specifications

Publication symbology and specifications deals primarily with final output characteristics of the graphic. All map features must be identified to ensure that a output specification has been assigned. The specifications include ink color(s), line thickness, line styles, linear patterns, area patterns, screen tints, etc.

Later in the workflow, it will become necessary to refer to product specifications when making symbology assignments. For example, the map product may contain forested lands. The cartographic representation includes a green area pattern, and a linear outline. It is necessary to identify how green will be made; is it process CMYK or a pre-mixed green ink? Does the area pat-

terns portrayed on the map. The workflow will essentially transform analog specifications into assorted digital files and tables that can be re-used to produce a given graphic product.

Data Sources

Once the graphic characteristics have been identified for the map, it is necessary to identify what data sources are available for the production process. Advancements in digital technology have made data access easier. Data may now be available for purchase reducing some of the staggering cost associated with data collection. Many production shops still prefer to use their own data, whether it is currently digital, or in the form of film separations in a map file drawer.

Establishing Geographic / Cartographic Relationships

The relationship between geographic features and cartographic elements varies based on product specifications. Geographic features have fixed definitions based on their

characteristics. This usually takes the form of one to one, one to many, and many to one relationships. Some examples follow:

Drainage
 shoreline
 perennial river
 intermittent river
 lake outline
 Road Casing
 divided highway
 primary highway
 secondary highway
 road under construction
 Red Road Fill
 divided highway
 primary highway
 secondary highway

The general idea at this point in the workflow is to identify all of the unique cartographic elements contained within the map product based on their lithographic characteristics. The characteristics include

Continued on page 10

ink specification, screen percentage or intensity, and masking relationships. Cartographic elements essentially mimic traditional cartographic separations, such as stick-up, scribes, and peels. The breakdown is further extended to provide the ability to apply the appropriate priorities in order to facilitate masking operations, that may have traditionally been performed with an opaque brush or pen.

Marginalia Generation

The placement of marginalia information on the map is usually one of the last steps in the vector construction process. The amount of information placed varies for each map product, but essentially includes a map title, scale bar, north arrow, legend and assorted textual information to assist the map reader. Cartographic products that involve the generation of a map series, where several maps are constructed using the same map design, are good candidates for the use of symbol cells for bar scales, north arrows, etc. In some cases, it may even be advisable to generate "style sheets", which are templates that have all of the marginalia already placed. All the operators need to do is modify title blocks, sheet numbers and similar items that change from map sheet to map sheet. This approach provides an excellent method for maintaining consistency between map sheets and assists in the quality control process.

In summary, this phase is responsible for analyzing and defining what is required to transform existing data into a published product. Specific workflows will vary based on data sources, however, the specifications should remain the same, and must be established in order to proceed. Each map product must address the following:

- Page Layout - paper size, marginalia placement, insets / additional graphics, etc.
- Content and Form - geographic features and cartographic representation.
- Symbology Specifications - lithographic inks, screens, patterns, linear and area symbology.
- Data Sources - vector or raster.



Second Call for Papers and Sessions CCA Annual Meeting, 2000

Edmonton, AB, May 31- June 3, 2000

Canadian Cartographic Association
Association of Canadian Map Librarians and Archivists
Western Association of Map Librarians

The 2000 (and 25th) CCA annual meeting will be a joint meeting between the CCA, ACMLA and WAML and will immediately follow the Learned Societies meeting at the University of Alberta (Edmonton). Sessions will cover all aspects of Maps and Cartography. Presentations on changes in Cartography over the last 25 years are particularly encouraged.

Paper titles and abstracts (200 words) should be sent by January 31, 2000 to: CCA sessions / further info: Roger Wheate, wheate@unbc.ca
ACMLA conference organizer: David Jones: david.jones@ualberta.ca

Cartographica News

As the next issue of *Cartographica* is about to hit the presses—the first under my editorship—I would like to thank all of those who have contributed to this issue—the authors, the anonymous reviewers, the book review editors, the translators, the Press, my editorial assistants—without all of you, it would never have been possible. One of the major changes to the journal will actually be unseen by most of you—in cooperation with U of T Press, we have initiated an Author's contract. Contracts such as this are the norm, nowadays, and having one in place should clarify the roles that the Press and the Author play in the publication process. One of the conditions of the contract stipulates that the Press will provide to the Author final proofs of the article, and that the Author will be given a limited time within which to read, correct the proofs if necessary, and return them to the Press. While such arrangements are typically in place with other journals, this will be the first time

that *Cartographica* has formalized them. It is hoped that, with these new guidelines in place, we will streamline the publication process. Don't forget to keep those articles, book reviews, and ideas coming!

Brian Klinkenburg
Cartographica editor
UBC



On-line and Interactive

OTTAWA — The sixth edition of the National Atlas of Canada is only available on the Internet and is a key component of GeoConnections, a new program that brings all of Canada's geographic information together in one place on the information highway. The Atlas features a comprehensive array of maps dealing with the country's physical geography, geology, history, society, demographic characteristics and economic activities. As additions are made to the Atlas, it also provide information on a

wide variety of subjects, such as the exploration of Canada, climate, Aboriginal peoples, resources and socioeconomic patterns.

Although the National Atlas is no longer a set of conventional printed maps, familiar components of a map, such as a legend and table of contents, have been maintained. However, the electronic Atlas offers many advantages over traditional mapping. Users will be able to zoom in on a particular area of a map, create, save and print customized maps, download National Atlas of Canada base maps, and access educational resources. Also, the atlas is flexible enough to meet the needs of all Canadians, whether they are first-time map readers or seasoned researchers.

The National Atlas of Canada was first published by the Department of the Interior in 1906 and was one of the world's first national atlases. Updated editions were then published in 1915, 1958, 1974 and 1994. The National Atlas of Canada is produced by Geomatics Canada, which is part of NRCan.

Source: GeoAccess Division, Natural Resources Canada

On-Line Information

I could not help but browse the new National Atlas of Canada web site, like I am sure many of you have all ready done. One set of pages which particularly caught my attention were the pages titled: "Colour Design and Tools" (<http://atlas.gc.ca/english/carto/colour.html>). This well organized and written page focuses specifically on the issues of using color in graphics designed for use on the web. It begins with a basic primer on color theory and progresses through to HTML color palettes and color progression tools with links to examples.

One topic which especially caught my attention was the section titled "Computer monitors and cross-platform issues". This section contains an excellent explanation of screen resolution and how it can effect your designs. The following excerpt will give you an inkling of what is contained here:

"... In regard to screen resolution, there are differences between PC and Mac

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Canadian Mappers on Top of the World



Photo: Southam Newspapers

Lou Sebert, CCA co-founder and honorary member and one of Canada's pioneer cartographers is shown in the photo and was featured in a Shoutham Newspaper column promoting the new 2000 70th edition of *Canadian Geographic*, a special issue on the mapping of our land. Other CCA members featured in the issue include: Mike Goodchild, the Digital Earth project; Phil Stooke, planetary mapping; Micha Pazner, GIS imagery (<http://publish.uwo.ca/~pazner/patternimages/>); and our President, Michel Fournier, on his pet peeve: 'shoddy mapmaking'. The issue as usual has many examples of Steve Fick's excellent cartography, and lists the page for map-folding basics: <http://www.learn2.com/06/0652/06523.html>

Southam Newspapers - Every year from 1947 to 1955, Louis Sebert led a team of six men on horseback up the treacherous Rocky Mountains in the Yukon - without a map. The group took photos from the peaks and measured angles, plotting the landscape between the Alaskan Highway and the Pacific Ocean. In the process, he encountered heavy storms, hungry bears, and saw four fellow topographers killed. "They were trying to cross a harsh space and they didn't quite make it," Sebert now 83, said in an interview from his Ottawa home. Sebert is one of the many men who according to Rick Boychuck, editor of *Canadian geographic* magazine, "either walked, climbed, paddled or flew their way across this entire country - and helped define the way we see ourselves today". The 70th anniversary edition of *Canadian geographic*, celebrates Canadians as being among the world's most accomplished mapmakers. "We've been forced to become pioneers in mapmaking because of the huge size of this country", said Steve Fick, who designed the wall-sized map of Canada included in the new issue [and CCA award winning member!].

This story was adapted from a column by Heath Jon McCoy, *Southam Newspapers*, November 1999, describing the prominence of Canadian cartographers as an introduction to the current issue of *Canadian Geographic*.

Report from the Chair of the Canadian National Committee for Cartography and the CIG Technical Councillor for Cartography

C. Peter Keller

It has been a few months since the crazy August days of the big conference in Ottawa. It was great to see so many of you there, and it was great to see all the Canadian sibling associations with an interest in cartography rally together behind the cause. Canada and especially the Canadian cartographic and geomatics community can take great pride in how they hosted the world – "Ottawa ICA 1999" will go down in history as a great event of many firsts. Well done David Carney for your excellent leadership, well done Lloyd Bowler and everybody else directly involved for dedicating a chunk out of your lives to the cause, and well done everybody else for your support and participation.

A note of thanks and congratulations to Fraser Taylor for reaching the end of a long and very dedicated time on the Executive of the ICA. Congratulations also to Alberta Wood for being elected to one of the Vice Presidential positions of the ICA, maintaining Canada's presence on the Executive.

The term of Canada's Chair of the Canadian National Committee for Cartography is up for renewal every four years, coinciding with the official full meeting of the ICA General Assembly. The ICA General Assembly met in August. My hopes to hand over the baton as outgoing chair in order to sail happily into the sunset as a free man were dashed when I found myself re-occupying the chair that I had just vacated. Thank you for placing the trust in me to handle the portfolio for another term.

Now I must confess that I still sailed into the sunset, taking up residency in Auckland for a year while on a sabbatical study leave from the University of Victoria. Just to inform those of you who know me well, the America's Cup had absolutely nothing to do with my going to Auckland. Thanks to modern commu-

nication and a great support system, you can still reach me via my old e-mail and address. I may just be a little slow replying.

My duties as incoming chair so far have focussed primarily on appointing Canadians to the various ICA commissions. My reading is that ICA formalities require ICA Commission Chairs elected during the General Assembly to form their own commission teams. The process encouraged by the ICA is for ICA Commission Chairs to identify individuals with whom they wish to work, and to approach National Committees officially to nominate these individuals to their commissions. Follow that? In reality, some ICA Commission Chairs side-step approaching National Committees for official nominations, and in other cases individuals simply ask to be part of a commission without going through their National Committee. As far as I am con-

cerned, I will do my best to handle any official requests for nominations. I also am aware that there are some of you out there who are doing excellent and in many cases ongoing work with ICA Commissions without formal nomination through your national committee. Formalities should not get in the way of dedication to ICA business and the pursuit of excellence in cartography. However, I would appreciate the courtesy of letting me know if you are involved in an ICA Commission so that we can officially recognise and acknowledge your efforts. All it takes is a simple e-mail to me.

The Table on the preceeding page is a list of ICA commissions for 1999-2003, including name and country of each commission's chair, and names of Canadian Members where there has been an official nomination. My apologies if I omit names or otherwise make a slip-up – I am

ICA COMMISSION ON:	CHAIR (COUNTRY)	CANADIAN MEMBER
Cartography and Children	Jacqueline Anderson (CANADA)	
Census and Cartography	Tim Davis (CANADA)	
Education and Training	Vladimir Tikunov (RUSSIA)	Peter Keller (vice-chair)
Gender and Cartography	Eva Krzywicka-Blum (POLAND)	
History of Cartography	Christopher Board (UK)	
Marine Cartography	Ron Furness (AUSTRALIA)	
Map Generalization	Robert Weibel (SWITZERLAND)	
Mapping from Satellite Imagery	Serge LeBlanc (FRANCE)	
Map Production	Sjef van der Steen (NETHERLANDS)	
Maps and Graphics for the Blind and Visually Impaired	Andrew Tatham (UK)	Monika Rieger
Maps and the Internet	Michael Peterson (USA)	
Mountain Cartography	Lorens Hurni (SWITZERLAND)	
National and Regional Atlases	Timothy Trainor (USA)	Philip Stooke
Planetary Cartography	Kira Shingareva (RUSSIA)	Varerie Hume
Spatial Data Standards	Harold Moellering (USA)	
Theoretical Cartography	Alexander Wolodtsenko (RUSSIA)	Hasgeorg Schlichtmann
Visulization and Virtual Environments	Alan MacEachren (USA)	

working on memory since all my files pre September 11th are happily asleep in my office in Canada.

If you are interested in working with any of the commissions, please feel free to contact me about additional information, or get directly in contact with the relevant chair. Just remember, if you should find yourself becoming an official member of one of the commissions, please let me know.

On to some other business:

I encourage you to look at the websites of the Canadian Institute of Geomatics (CIG) at <http://www.cig-acsg.ca/main/cigframe.html>, the Geomatics Industry Association of Canada (GIAC), and the Canadian Council for Land Surveyors (CCLS) to stay informed about their amalgamation activities.

Canada's initiatives with respect to a quest for ISO standards in qualifications and certification of geomatics and geographic information sciences personnel continue. I understand that Bob Maher continues to be actively involved in these efforts, and I encourage you to get in touch with him if you have questions or thoughts on the matter.

G'day from down-under, a Merry Christmas to you all, may the Y2K bug miss you, and all the best wishes for 2000.
December, 1999 🌐



from page 11

monitors. First, screen resolution is measured and expressed as PPI (Pixels Per linear Inch); often mistakenly expressed as DPI (Dots Per Inch). (DPI is used to express printer and scanner resolution). A pixel is the basic unit of measurement in computer screen resolution and is also, the smallest unit constituting a bitmap (raster) image. The Macintosh display system has true WYSIWYG (What You See Is What You Get) and uses the 72 DPI typographic measurement system, so there are 72 PPI. On a Mac screen each pixel is one point

square and each square inch of a graphic contains 72 x 72 (5 184) pixels. The PC display system operates on the basis that an inch is represented by 96 pixels. An inch on a ruler displayed in a PC drawing, or paint application (possibly used to create Web graphics), will measure 1.3 inches on the screen. This difference between the PC and Mac display systems has a direct effect on the design of Web pages in the desktop environment. If a Web page or graphic has been designed on a PC it will appear wider and higher on a Mac screen. In regard to typography for example, text with a point size of 9 produced on a PC, will look like 12 point type on a Mac screen."

Besides explanations like the above there are also a discussions on GIF vs JPEG bitmap formats, the effects of anti-aliasing, and your monitors gamma setting, plus much much more. I believe all the information published in these discussions would be useful to any cartographer (either novice or professional) who may be considering publishing their maps on the web.

editor

Reviewer(s) Wanted

Iain Taylor has suggested and I agree that maybe the New National Atlas could be reviewed. So I am seeking volunteers to critique the site. The reviewer or reviewers may wish to consider just one aspect of the site like the above article, or the whole thing. I am sure NRCAN would like to hear from us as well. The CCA has several members who are working on or in association with the National Atlas so perhaps we could use *Cartouche* to set up a forum and hear from both sides about the issues that involve Canada's first line of cartographic information.

If you are interested contact:

Gary McManus at
gmcmanus@netcom.ca



Calendar / calendrier

April 04-08 april 2000

AAG Annual Metteing

Pittsburgh, PA, USA

enquires Tel: (202) 234 1450,

Fax: 1 (202) 234 2744

March 9-10 mars 2000

**Géomatique 2000: Le millénaire
de l'excellence / Geomatics 2000:
Excellence in the New Millennium**

Palais des congrès de Montréal
Montréal, Québec

March 18 - 23 mars 2000

ACSM 2000

Little Rock, AR, USA

For information / pour
renseignements:

ACSM, 5410 Grosvenor Lane, Suite
100, Bethesda, Maryland USA
20814-2122

May 9-10 mai 2000

**Northern B.C. GIS and Mapping
annual conference** (in conjunc-
tion with Forest Expo)

University of Northern British
Columbia, Prince George, BC
Contact: Roger Wheate,
email: wheate@unbc.ca
Tel: 250-960-5865

May 31 mai to June 3 juin 2000

CCA ANNUAL MEETING

(Joint with ACMLA and WAML)

University of Alberta, Edmonton

Conference Web address:

[www.library.ualberta.ca/maps2000/
conf.html](http://www.library.ualberta.ca/maps2000/conf.html)

CCA Contact: Roger Wheate,
email: wheate@unbc.ca
Tel: 250-960-5865



Everybody Loves Surfing surfing CCA

(Lyrics from pre-Web Beach Boys song)

What do other CCA members (or their companies) do? This partial list was compiled from the membership list; no doubt many are missing, either because their address does not list company, the search did not find their company page, or my list is not up to date. This list will be added to the CCA Web page, with live links to the companies /departments listed. In the next issue, we will add anyone missed who sends in their web page address, along with educational departments. If you wish to have your department (e.g. Cartography Lab, Geography or GIS Department etc..) please send me your address before Jan 31 (I likely will not search for departments otherwise)

GIS AND MAPPING SOFTWARE

Avenza Software, Ted Florence, Chris Iwanowski, Ottawa, ON, www.avenza.com
Geodysey, Hrvoje Lukatela, Calgary, AB, www.geodysey.com
Intergraph, Phil Dodds, Jeff Hyatt, Huntsville AL, www.intergraph.com
Clark Labs (Idrisi), Jean McKendry, James Toledano, Ron Eastman, Worcester, MA, www.clarklabs.org
ESRI, Edith Punt, Clint Loveman, Redlands CA, www.esri.com (Canada: www.esri.ca)
Geo/SQL Corp., Gary Thomas, Calgary, AB, www.g5.com
Caliper Corp., Peter Van Demark, Newton, MA, www.caliper.com

MAP PRODUCTION AND DISTRIBUTION

Canadian Cartographics Ltd, Lou Skoda, Coquitlam, BC, www.canmap.com
Canadian Geographic Magazine, Bill Constable, Steve Fick, Ottawa, ON, www.cangeog.ca
Chrismar Mapping, Mark Smith, Uxbridge, ON, www.chrismar.com
Morgunbladid (newspaper), Reykjavik, Iceland, Gudmund Ingvarsson, www.mbl.is
Clover Point Graphics, Mike Shasko, Victoria, BC, www.cloverpoint.com
World of Maps, Brad Green, Ottawa, ON, www.magi.com/~maps
Nystrom, Christine Bosacki, Chicago, IL, www.nystromnet.com

GOVERNMENT DEPARTMENTS

Municipal and Provincial

Region of Waterloo, Planning and Culture, Brian Lamondin, Henry Leung, www.region.on.ca
Archives of Ontario, Carolyn Gray, Toronto, ON, www.gov.on.ca/MCZCR/archives
Conservation and Development Branch, Gerald Stark, Edmonton, ON, www.agric.gov.ab.ca
Natural Resources Ontario, Glenn Holder, Wendy Craig, Peterborough, ON, www.mnr.gov.on.ca
Ontario Ministry of Transportation, Judith Marion, Toronto, ON, www.mto.gov.on.ca
Newfoundland, Tourism Parks, Damien Morrissey, St. John's, NF, www.gov.nf.ca/tourism/tm.html
New York Public Library, Map Division, www.nypl.org/research/chss/map/map.html

Federal

Natural Resources Canada, Ken Francis, Claire Gosson, Ottawa, ON, www.nrcan.gc.ca
National Archives of Canada, Jeff Murray, Mark Cockburn, Ottawa, ON, www.archives.ca
United States Geologic Survey, Charles Hickman, Rolla, MO, www.usgs.gov
Geol. Survey Canada, Bryan Ortman, Paul Wozniak, Calgary, AB, www.nrcan.gc.ca/gsc/calgary/gscclh.htm

Send your updates and College/University Cartography/GIS page address to: wheate@unbc.ca

All members are encouraged to send details of their company or unit's activities in Cartography or GIS for inclusion in subsequent issues of *Cartouche* ... Hey, it's a New Millenium !

CCA Awards of Distinction...

The awards of distinction, begun in 1994, recognize individuals or groups who have made exceptional contributions in the field of Cartography in one of three categories:

1. *Exceptional professional contributions to the practice of cartography*
2. *Exceptional scholarly contributions to the practice of cartography*
3. *Exceptional contributions to the CCA.*

Here are the past winners in each category prior to the year 2000: nominations for the next millenium may be forwarded by all CCA members to the Past-president.

1. Professional contributions:

- 1994 - Lou Skoda
- 1995 - Claire Gosson
- 1996 - Paul Pugliese
- 1997 - *not awarded*
- 1998 - Steven Fick
- 1999 - College of Geographic Sciences and Sir Sandford Fleming College (*two awards*)

2. Scholarly contributions:

- 1994 - Historical Atlas Project
- 1995 - Ron Eastman and the Idrisi Project
- 1996 - J. Ross Mackay and Henry Castner (*two awards*)
- 1997 - Lenard Guelke
- 1998 - Arthur Robinson
- 1999 - Michael Goodchild

3. CCA contributions:

- 1994 - Fraser Taylor
- 1995 - Norman Drummond
- 1996 - Barbara and Bernard Gutsell
- 1997 - Carolyn Weiss and Michel Coulson (*two awards*)
- 1998 - Clifford Wood
- 1999 - David Douglas

The Norman L. Nicholson Memorial Scholarship In Cartography

The Canadian Cartographic Association is proud to offer the Norman L. Nicholson Memorial Scholarship in Cartography for the year 2000 in honour of our late colleague. The scholarship, valued at \$500, is intended to recognize and encourage exceptional student achievement and ability in any aspect of cartography. Applicants need only be Canadian Citizens or landed immigrants who propose to continue full time studies with a concentration in cartography either: (a) entering the final year of a college, CEGEP or undergraduate honours program or, (b) entering or enrolled in a graduate program.

For further information see the CCA web site (www.ubc.geog/~cca) or email Roger Wheate at wheate@unbc.ca

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Interest Group Chairs and Appointees

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Technologie de production cartographique:

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History of Cartography /

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