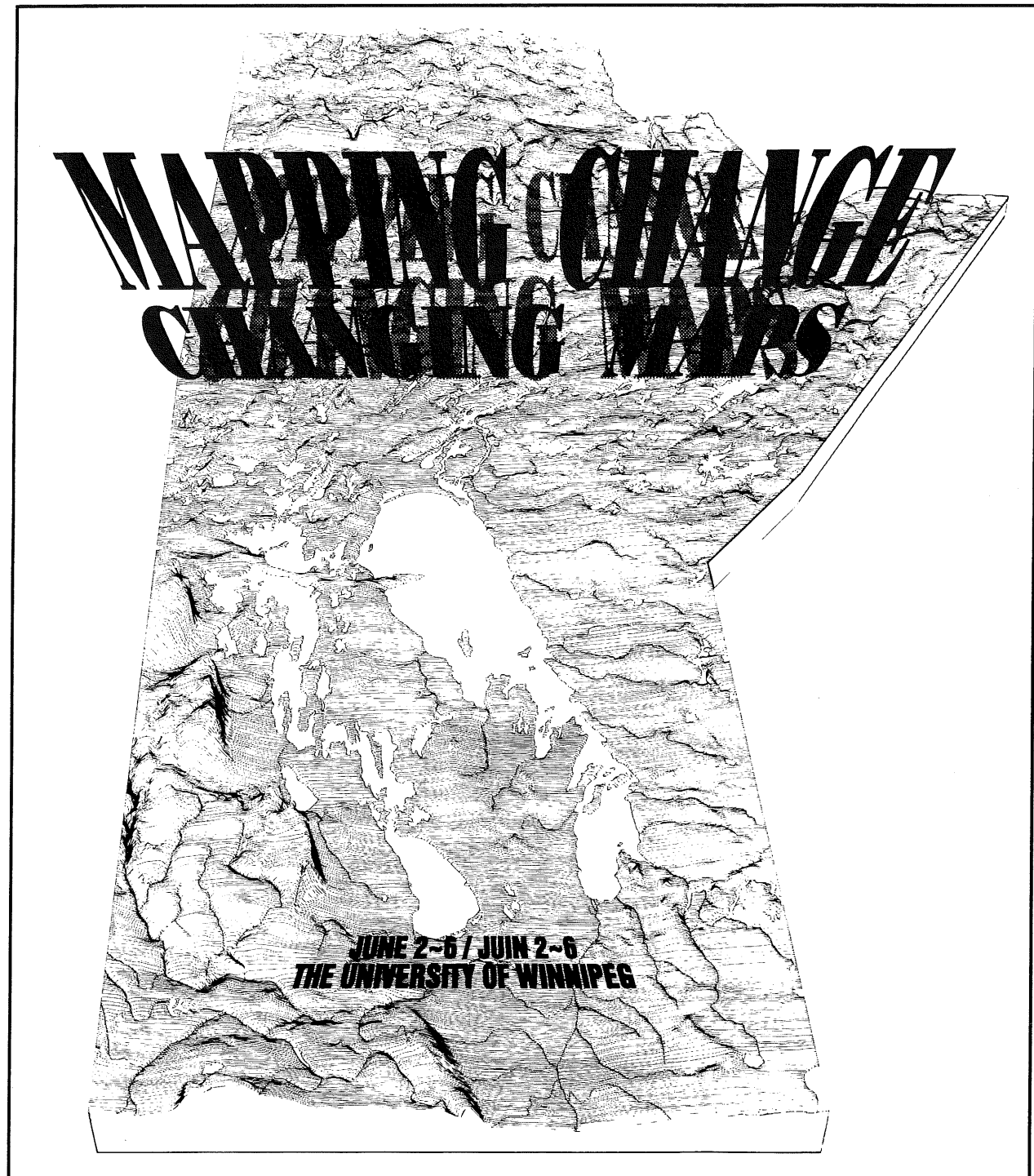


CARTOUCHE

The operational publication of the Canadian Cartographic Association
Revue de l'Association canadienne de cartographie



CARTOUCHE

Number 9. Spring, 1993

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Content Deadlines are: January 10, March 31, June 30, & September 30. (see back cover)

You are welcome (urged!) to submit items to be considered for publication. It is the current policy of the editor to provide dual language copy for editorial content and journal mechanics. All other articles appear in language of submission. While every effort is made to ensure accuracy of content, the editor (*like all cartographers!*) cannot be responsible for errors in compilation, or loss of any item submitted. Opinions expressed in the editorials and submitted articles and letters are not necessarily those of the Canadian Cartographic Association. For advertising policy, please contact the Manager, Roger Wheate.

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Les dates limites pour l'envoi d'articles ou de documents sont les suivantes: 10 janvier, 31 mars, 30 juin, 30 septembre (voir la dernière page). N'hésitez pas à soumettre des articles (vous êtes même priés de le faire!) que vous désirez publier dans le bulletin. Présentement, selon la politique en vigueur, l'éditeur doit publier en français et en anglais, l'éditorial ainsi que la description du processus de publication du bulletin. Le reste des articles paraîtront dans la langue dans laquelle ils ont été écrits. Bien que beaucoup d'efforts sont déployés en vue d'éviter de tels problèmes, l'éditeur (*de même que les cartographes!*) ne seront pas tenus responsables des erreurs de compilation ou de la perte d'articles qui leur seront soumis. Les opinions exprimées dans le cadre des éditoriaux, des articles et des lettres publiées dans le bulletin ne reflètent pas nécessairement celles de l'A.C.C.. Pour ce qui est des tarifs publicitaires, veuillez contacter le responsable de la publicité, Roger Wheate.

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Editor's Note

This issue of *Cartouche* was ready to send out for printing in late February. Unfortunately, at the last minute, a member of the election slate had to back out for personal reasons. Since this issue is our official notice for election, it had to be held up while we filled the position. After a delay we had the new candidate's profile incorporated into the journal and were ready to go again. Then yet *another* candidate had to bow out, again under very reasonable circumstances. More delays!. So, here I am finalizing things in the early days of April, looking at an April 30th. (or so) mailout. Given some of the delays encountered with the last issues of 1992, I had wanted to get a good jump on issues for this year. Circumstance has put a stick in the spokes once more. Sorry for the unavoidable delay.

Be assured, we try to get things out on time. This is easier to do if there is lots of good content available for me to choose from. Don't be bashful. Send in anything that you feel would help out other cartographers. *Cartouche* is designed to be a more informal venue for what is going on and what is interesting. As always, I ask you to feed me.

The Manager's File/ filière du gérant

by/par
Roger Wheate

New and Recently "Reconnected" Members

Alexis Goodwin	Grenada, V.I.
Saleh Alsawydani	Ottawa, ON
Wolfgang Bitterlich	Vanier, ON
Dana Philip Brown	Lawrencetown, NS
Mead Cain	New York, NY
William Dooley	Cherry Hill, NS
Brad Fay	Halifax, NS
Tyson John Haverkort	Antigonish, NS
Amon J. S. Kamanga	Toronto, ON
Brian Lamondin	Waterloo, ON
Jeffery Logan	Nepean, ON
Kathryn Miller	St. Catharines, ON
Margaret Pearce	Worcester, MA
Rod Smith	Port Moody, BC
Christina Winkworth	Roseneath, ON
Yanni Xiao	Lethbridge, AB

New Corporate Member

Universal Systems, Ltd. Fredericton, NB
designated members: Dr. S.E. Masry and
Rick Nyarady

In *Cartouche* #7, a fairly lengthy list of people appeared as new members. Some were not "new" members but were long standing members who had recently renewed. We apologise if this caused anyone embarrassment. From what we heard, it caused more belly laughs than anything else. Early renewal avoids this sort of problem.

The members who's names follow have moved without leaving a forwarding address. If anyone knows where they may be found, please send information to the ACC office in Calgary. Les membres dont les noms apparaissent ont déménagé sans laisser d'adresse. Si quelqu'un sait où les retrouver, s'il vous plaît, envoyer l'information au bureau de l'acc à Calgary.

S. Alward,	Kanata, ON
Real Beauregard,	Chicoutimi, QC
R. Beddington,	Carp, ON
A. G. Brown,	Waterloo, PQ
Roy P. O'Brien,	Orleans, ON
Helen O'Hara,	Gloucester, ON
Alena Perout	Montréal, PQ
Stuart Roxborough,	St. George, ON
R. St. Arneaud,	St Bruno, QC
Julia C. Suzanne,	Sooke, BC
Lee Chun Wah,	Hong Kong

Membership Renewals

If you have renewed for 1993, your mailing label on the envelope will indicate 1993. Thank you for renewing early. If you have not renewed yet for 1993 the label will indicate 1992. This issue of *Cartouche* is the only publication for 1993 that you will receive if you do not renew. 1992 regular members will still get *Cartographica* vol. 29, #3 and #4. Early renewal saves money, frustration, and allows us to serve you better with fewer breaks or potentially lost items. Please consider it now. You have been mailed details on renewing, or use the back page if you have lost other items. If you have a beef or feel there is something that you would like to see the CCA doing for you, write it down and add it in with your renewal. If we know what the members want, we can work towards our collective goals.

New Membership Secretary

As of January 1993, Monika Rieger at the University of Calgary will maintain membership lists. Monika works in the same office as I do, so mailing and FAX data will not change (see page 2). If you have any changes to your contact data, please send them to her attention at the CCA central office. Remember: Monika will be handling membership lists only. All other requests for information should continue to come to me. Her report follows.

Norman Nicholson Scholarship Donations

For the fourth year in succession, the manager omitted to include an extra box on the renewal form for donations to the Scholarship Trust Fund. This fund provides the revenue for the scholarship. With declining interest rates, this income has been slipping. Please consider a tax deductible donation to the fund. Please send cheque payable to the *Norman Nicholson Scholarship* or send credit card number and expiry date info to: Gary McManus, Geography Dept.
Memorial University of Newfoundland
St. John's NF, A1B 3X9

Job Search for Graduates

GeoSearch Inc. announces a job-hunting program for new college graduates for 1993. JobSearch will provide key contacts in six U.S. regions and Canada, including "How to land the job" information. The service is limited to persons earning a degree during the current academic year or with less than one year of industry experience. For more information contact:
PO Box 62129,
Colorado Springs, CO 80962.
Tel: 719-260-7087

Membership Secretary's Report

As of February 15, twenty-seven members have renewed. My thanks to them for renewing so early. Members who have access to e-mail can renew by calling me (Monika Rieger) at mkrieger@acs.ucalgary.ca using their Visa or Mastercard. Members wishing to mail in their renewals can send them to me at the same address as always. Please include your card expiry date if you are using a credit card. I also ask all members to bear with me during this transition period during which I am learning to handle the membership duties. If I have made any errors in members' names, addresses or expiry dates, please let me know.

Map Design and Use/ conception et utilisation des cartes

by/par
Christine Earl

Scientific Visualization

Diane Ackerman, in her book *A Natural History of the Senses*, starts the section on vision by discussing the placement of our eyes on the front of our heads. This detail of human anatomy evolved because binocular sight was crucial to predation (prey have eyes on the sides of their heads). According to Ackerman, nearly three-quarters of sense receptors in the human body are in the eyes¹ that continue to be "the great monopolists of our senses" (p. 229).

While visual perception monopolizes sensory perception, it also dominates our cognitive processes and examples of the language for understanding such as "seeing" or "envisioning", which link knowledge to the sense of sight, demonstrate this domination. Thus, our ready grasp of visual imagery should make a picture a natural form for exploring ideas. Paradoxically, the processing of visual imagery is so central and so spontaneous an aspect of human perception that it has been, until recently, thought of as trivial – too easy and obvious to be of intellectual worth – and a bias in favour of words and numbers pervades our educational systems. The advent of the computer with its display screen and its computational power has led to an enhanced status for visual imagery, and a new curiosity "follows decades of disdain for visual depiction of data in favour of more 'objective' analytical approaches"². A large 'industry' is evolving around graphical representation of information, and cartographic methods of organizing and depicting spatial information are gaining a wider appreciation. After all, a map is probably one of the most powerful graphical representations there is; powerful as knowledge and ethos, as methodology, and as technique.

To a great extent, the development of the computer and the rapid pace of technological evolution have transformed the practice of cartography and affected the way we think about the elements of mapping and the map design process. It is certainly true that not all professionals in the field have experienced unalloyed enchantment with high technology, and many of us remain critical of the tendency to a mechanistic view of cartography. However, one area that has emerged as of interest to all who use imagery of one kind or another, and that has also attracted cartographers, is so-called "scientific visualization". The origins of

scientific visualization are in computer graphics research, and it is described as “a method of extracting meaningful information from complex or voluminous datasets through the use of interactive graphics and imaging”, and as providing “processes for steering the dataset and seeing the unseen”³. It can be more simply explained as a way of creating something we can see from an array of abstract data – something that makes a picture, so that it is spatial as well as visual and more complex than, say, the symbols for numbers. Scientific visualization is a kind of thinking “out loud” in the visual realm, an externalization of thought and it is, therefore, the latest incarnation of design, a process that has always involved seeing in the mind’s eye before realizing in physical fact.

The tools of scientific visualization are sophisticated computer graphics with capabilities for displaying multi-dimensional data as visual representations. Its methods of analysis do not require that the data be inherently spatial (like geographical datasets), only that they be able to be conceived of in visual form. P.K.Robertson has suggested⁴ a methodology for choosing visual data display strategies that uses a cartographic model where the variables are represented by the properties of natural, or realistic, scenes. Robertson states: “The methodology is based on distinguishing objectively the types of information conveyed by various visual representations and matching these to the intrinsic characteristics of data and to aims or its interpretation. This approach is directed towards developing a stronger theoretical basis for visualization in scientific computation” (p. 114). An example which Robertson uses to illustrate the realistic scene paradigm is that of the representation of non-visual scalar variables as relief-shaded surfaces in a 2D field, such as is commonly done in trend-surface mapping.

Scientific visualization seeks to invoke the natural human ability to analyze spatial patterns (maps) for the study of various non-geographical subjects. These have included: fluid dynamics, cell biology, the Doppler effect, robotics, acoustics and other research topics in science, medicine and engineering. In these types of applications, visualization is explicitly ‘hard’ science, with emphasis on the mathematics of data management and visual rendering. This is, perhaps, the reason the adjective ‘scientific’ has become attached to the term ‘visualization’ to form accepted terminology. In a general sense, however, the significance of scientific visualization, for both the cartographic community and the wider intellectual community, is not so much its technical utility but, rather, the emerging realization that “the abilities that we have in the way of memory and imagination, of symbolism

and emblem, are all conditioned by the sense of sight”⁵. For cartographers, it seems to promise a new respect for the old art of cartographic design.

Notes:

- 1 Diane Ackerman, *A Natural History of the Senses*, Vintage Books, 1990
- 2 Alan M. MacEachren and John H. Ganter, “A Pattern Identification Approach to Cartographic Visualization”, *Cartographica* 27/2, 1990, p. 64
- 3 Arie Kaufman (ed.), preface to Proceedings of the First IEEE Conference on Visualization. Visualization 90, IEEE Computer Society Press, Los Alamitos, California, 1990, p. v
- 4 Philip K. Robertson, *A Methodology for Scientific Data Visualization: Choosing Representations Based on a Natural Scene Paradigm*, Proceedings of the First IEEE Conference on Visualization. Visualization 90, IEEE Computer Society Press, Los Alamitos, California, 1990
- 5 MacEachren and Ganter, *A Pattern Identification Approach to Cartographic Visualization*, p. 66

THE HISTORY OF CARTOGRAPHY PROJECT

The Professional/Scholarly Publishing (PSP) Division of the Association of American Publishers has awarded the R. R. Hawkins Award for the Outstanding Professional, Reference or Scholarly work of 1992 to the University of Chicago Press for *The History Of Cartography*, Volume 2, Book 1: *Cartography in the Traditional Islamic and South Asian Societies*, edited by J. B. Harley and David Woodward.

This book is the second in the *History Of Cartography* series. Volume 1, *Cartography in Prehistoric, Ancient, and Medieval Europe and The Mediterranean*, received the 1987 AAP award for Outstanding Scholarly work in the Humanities. The History of Cartography Project, directed by Professor David Woodward, is located at the University of Wisconsin-Madison. Woodward’s co-editor, J. Brian Harley, who tragically died in December 1991, was Professor of Geography at the University of Wisconsin- Milwaukee. Volume 2, Book 2: *Cartography in the Traditional East and Southeast Asian Societies* will appear this year. Future books will focus on the cartographies in other non-Western

continued on next page

Technology/ technologie

by/par
Roy Doyon

Hardware Trends

1992 was a banner year for map-related technology and 1993 should see more exciting developments. Significant improvements occurred in software and hardware. While the Macintosh platform continued to mature as the foremost cartographic machine (in my opinion), the MS DOS-based (PC) platform made significant inroads. Fierce competition among PC manufacturers resulted in substantial cuts in prices. Most noteworthy was the decline in the price for a 486-based computer. Currently a basic 486 PC with 4 MB of Ram and 200 MB hard-drive with a SVGA color monitor is in the vicinity of 2000.00 \$US.

At this time it would be impudent to order a 386-based PC because for a few dollars more a faster 486 can be purchased. You'll see lots of "bargains" for 386-based PC's precisely because they're old technology. The additional speed of the 486 is necessary due to the rather slow speed of the Windows-based illustration

History of Cartography Project, continued.

indigenous societies, the European Renaissance, the Enlightenment, and the nineteenth and twentieth centuries.

A panel of judges from the publishing industry and the industrial, medical, and scientific communities determined the award winner from among 324 professional and scholarly works across the spectrum of science, technology, business and the humanities. The prestigious R. R. Hawkins Award is given annually. It is named after the distinguished former head of the Science and Technology Division of the New York Public Library who served in that post for more than 40 years.

For more information contact: David Woodward,
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Department of Geography
550 N. Park St.
University of Wisconsin-Madison
Madison, WI 53706 USA
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programs. If you are serious about using a PC or even a Macintosh with illustration programs, I recommend purchasing a good video board to gain additional speed. They are well worth the rather modest investment. If you're looking at new purchases, be sure the machine has a CPU upgrade path. Some of the new 486 PC's have an easily upgradable CPU socket that will accept upgrades of the 486 chip and (most importantly) the 586 (alias Pentium or P5) chip due for release in late 1993. Some computer advertisements indicate an upgrade path, but what they actually mean is that you have to buy a new mother board! Always call before ordering to ensure that you're getting the machine you think you're ordering. Initial press releases from Intel indicate the 586 chip is significantly faster than the 486 chip and should add about 1000.00 \$US to the overall price.

In its December 28, 1992, issue, *PC Week*, a trade newsletter, printed the "Top 5 Remorse List." They polled several hundred recent buyers of PC's. In response to the question "what would you have done differently in your PC purchase", these five items topped the list: (1) greater expansion capability, (2) more memory in RAM (order twice what you think you'll need), (3) higher quality monitor, (4) bigger hard drive, and (5) another floppy drive (get both the 3.5 and 5.25 inch drives). In my experience with my own 486 PC, do not buy less than 8 MB of RAM, particularly if you're going to produce graphics larger than page size. Remember, the average Windows program is 5 MB, so order a hard-drive sufficient for your needs. I recommend a back-up system (tape or removable cartridge such as syquest) to protect your files, or as a method of archiving your map files.

This will be an excellent year for printers. Expect lower prices, more choices for larger-format, post-script-compatible, laser printers, with a host of 600 dpi printers available at last year's 300 dpi prices. There was significant progress last year in color printer technology, particularly thermal wax systems. There are a number of 300 dpi color printers available that work reasonably well for color proofing purposes. Large-format color proofing services are already available from service agencies. These service bureaus are used widely by the graphic arts industry. One excellent source of information about the present and the emerging printer technology is the November issue of *PC Magazine*. This is an annual issue dedicated to printers and includes reviews of the various types of printers and describes what features to look for in a printer. If you are considering the purchasing a new printer, obtain a copy of this valuable issue. If all you need are black and white proofs, the *HP 4 laser printer* (a *PC Magazine* editor's choice) with the

postscript option produces excellent 600 dpi copy. It has 45 built-in scalable fonts, and has a street price of about 2000 \$US. Call 1-800-LASERJET for more information.

Software

Software development and the adoption of cross-platform compatible programs were particularly noteworthy in 1992. Several PC-based postscript illustration programs, already available for the Macintosh, were introduced in 1992 and include *Aldus Freehand* and *Adobe Illustrator*. Of interest to potential atlas designers was the introduction of *QuarkXpress* for the PC. *QuarkXpress* is the premier desktop publishing program. Aldus, ever alert to the competition, will release PageMaker Version 5.0 early this year and if early reviews are correct it should draw closer to *QuarkXpress* in its ability to deal with graphic elements and other features. PC users greeted the new 3.0 version of the Canadian software package *CorelDRAW!* with enthusiasm and Micrographx, always alert to the challenge from *CorelDRAW!*, released its *Graphics Works for Windows* package. Like *CorelDRAW!*, it is an all-in-one graphics package, retailing for 295.00 \$US. Call 1-800-836-DRAW (US only) or 1(613) 728-8200 for information on *CorelDRAW!*, 1-800-733-3729 for MicroGraphx.

PC users will welcome the release of *MS DOS 6.0* from Microsoft. This upgrade, which will retail for less than 100.00 \$US, has a built-in compression utility-based on the Lempel-Ziv technique and should double the capacity of your hard disks. Other features include improved memory management, a back-up utility, virus protection, an undelete feature, and file transfer utilities. Within two years Microsoft hopes to merge *MS DOS* and Windows into a combined software package that will handle 32-bit processing. Currently IBM's *OS/2* can handle 32-bit processing but you need an EISA-based machine not an ISA-based PC to handle 32-bit processing. Current versions of *MS DOS* limit the PC to 16-bit processing. If you are planning a computer purchase and you plan to use your computer for image processing, it is worth the extra expense (\$300 to \$500) to move up to the EISA-based PC.

Macintosh users will be happy to know that ComGrafix, Inc. (800-448-MAPS) offers *MapGrafix*, a full-featured GIS that will operate on a Mac SE or Mac II. This GIS package is particularly exciting because it reads World Data Bank files and the company offers an optional module called *MapTrans* that converts its map files to fully-editable postscript files. The package consists of three modules: *MapGrafix*, *MapLink*, and *MapView* and retails for 6485.00 \$US plus an extra

910.00 \$US for *MapTrans*. A generous university discount brings the price down to 995.00 \$US and 735.00 \$US for the *MapTrans* program. Annual user fees are 500.00 \$US for regular users and 100.00 \$US for university users. At last, a reasonably priced bridge between GIS and postscript illustration packages is available on a Macintosh platform. I encourage my colleagues to investigate this innovative package.

Digital Chart of the World (DCW) is now available and several vendors have developed software to take advantage of this dataset. Strategic Mapping offers a version of the DCW that is compatible with their *Atlas GIS* and *Atlas Pro* for DOS. It is not available for *Atlas Mapmaker* for Windows or *Atlas Pro* for Mac. The DCW is stored on four Compact disks and the Atlas version sells for \$2500 US per disk or \$9000 for the entire world dataset (phone 408-970-9600 or FAX 408-970-9999). ESRI the developers of the DCW database also have a version of DCW called *ArcWorld* that can be used in *ARC/INFO*. Call (909) 793-2853 for more information. USGS sells its version of DCW for less than 250.00 \$US and it can be output as a postscript file. As soon as I receive my copy of the DCW from USGS I'll review it for a future edition of *Cartouche*.

Altsys's software package, *EPS Exchange 2.0* which converts or exchanges files between *Freehand* and *Illustrator* without losing or modifying any significant aspect of the file is sure to please *Aldus Freehand* and *Adobe Illustrator* users. The program requires *Freehand 3.0* and operates as an extension within *Freehand*. The section of the documentation that details its use consists of two pages and contains everything you need to know to successfully operate the program! We exchanged several files in our shop using this program and it worked flawlessly. The program retails for 149.00 \$US with street prices about 90.00 \$US. Call *MacWarehouse* at 1-800-622-6222 for more information.

Reference Books

Let me recommend two very helpful reference books. The first is Olav Martin Kvern's *Real World Freehand 3*, a witty and practical volume for *Aldus Freehand* users. I particularly enjoyed chapters 6 and 7 on "Color" and "Printing" that contained functional information for real-live users of *Freehand*. The section on trapping colors was particularly good

(Peachpit Press, 27.00 \$US). *Professional Studio Techniques: Design Essentials*, by Luanne S. Cohen, et al. (Adobe Press, 49.95 \$CDN, 39.95 \$US) is a practical guide for *Adobe Illustrator* and *Photoshop* users. It contains a lot of useful information easily applied to cartographic applications.

History / histoire de la cartographie.

by/par
Iain C. Taylor

If it's not too immodest, I'd like to lead off with a little contemporary cartographic history recently made. The Referendum of October 1992 (do I sense a sound of noises being made across the land?) was the occasion for a cartographic first within the Federal government. There have been a number of maps of the results of elections produced by the National Atlas over the years and rumour has had it that they have been among our most popular works adorning several walls 'on the Hill' (perhaps a case of the propaganda of the victors)! However it has usually taken several months, if not more, to await the arrival of the official returns and complete the mapping process.

This time we decided to stretch the dedication of staff and to test the abilities of new technology to see if we could speed up the process and try to get a printed result of this important national event on to the desks of the Minister and his colleagues within one or two days. I am happy to report that a digital version of the results (based on Federal and Quebec electoral districts) in two colours and six gradations was produced in 24 hours and a fully printed version at the regular large National Atlas 1:7.5 m scale was off the presses in 48 hours and ready to be distributed to all Deputy Ministers and MPs. It was cleared for full public distribution later that day.

The project owed its success to the close cooperation of the National Atlas and E.M.R. staff with those of the Chief Electoral Officer in Ottawa, Quebec's Directeur général de élections and the services of Canadian Press in providing up-to-minute results as they were declared. The first complete riding results arrived at the National Atlas from Newfoundland at 9:15 EST (2 3/4 hours after closure of polls) and the last from the Yukon at 6:45 am EST the following morning. The class intervals were selected on the basis of 60% complete returns at 2 am at which time peel coating could commence. Fifteen or so staff were busy all night: dictating, transcribing, in-putting, calculating, peeling and checking, &c., and for some there was little rest for the next few days as they were pressed into service as mailing assistants, couriers and communications agents.

By prior arrangement all the results and working documents were carefully preserved and housed with the National Archives. For the record, there were two

versions of the 1:7.5m map printed. The first numbered and signed (for security purposes) contained some small errors affecting two ridings and were based on returns available at the time of drafting. These were corrected in the publicly distributed version re-printed a week later.

Other news: The International Cartographic Association's Commission on the History of Cartography is calling for an international effort to produce a world listing of map makers active in the past. Eighteen countries from Australia to Russia have expressed interest in participating.

This follows a world wide call for assistance in providing lists of "important" map makers with a short biography of their activities made by the Map Collector Press which under its editor, Valerie Scott and consultant John Goss is revising and consolidating Tooley's monumental works of reference on the subject. Ronald Vere Tooley's first listing, *Tooley's Dictionary of Mapmakers* (644pp.) was published by the Map Collector Press in 1979, and an addendum, *Tooley's Dictionary of Mapmakers Supplement* (116pp.) was published by Alan R. Liss and Meridian Press in 1985. Since then Tooley (the grand old man of map collecting) died in 1986 in his 89th year but the utility of his work continues to be recognized as additional names and information comes to light.

Users of the Dictionary are urged to forward corrections and additions to the *Map Collector*. Those who would like to take part in a collective effort to assist in the compilation of a definitive compendium of the biography and works of Canadian mapmakers are urged to get in touch. This column will report on these activities from time to time.

In the future, I hope to bring to your attention an exciting new venture in making available historic Canadian maps through the wonders of CD-ROM, entitled ON-Q. It has been financially assisted in its development by support from the Secretary of State. I have yet to see a demo, although I hope to soon and to bring a full report by the time I correspond again.

1993 Annual General Meeting Congrès Annuel 1993

June 2-6 juin, Winnipeg Manitoba

Information/Informations:

Maricia Faurer. (204) 786-9481

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Email: Faurer@uwpg02.bitnet

Automation/ automation

by/par
Y. C. Lee

A CASE AGAINST THE TERM "DATA MODEL"

One of the most confusing, yet most used, terms in GIS is "data model". We speak of relational data models, and we speak of relational data modelling. Does relational data modelling results in a relational data model? There are two answers to this – yes and no. In this brief discussion, we will attempt to shed some light on the cause of this confusion.

What is a Data Model?

A database is a representation of selected characteristics of selected entities in the real world. A *miniworld* is the term used to describe this subset of the real world that is of particular interest to an application. A map is an analogue database in graphic form.

Digital databases are impossible to understand without aids provided by the original designer because there are so many different ways to interpret a string (a very long one in this case) of numbers. One such aid is a template describing the data format for two-dimensional features (see figure 1). The template allows us to decipher the stored data, and it plays a role similar to that of the legend box on a conventional map.

Description	Data Type	Length
Name of Province	Characters	20 bytes
Population	Integer	4 bytes
Name of Capital	Characters	20 bytes
Position of Capital	Point	2 x 8 bytes
Outline of Province	Closed Line	Varies

Figure 1: A Data Format Template

The use of a data format template raises another concern: the interpretation of the template itself. As shown in the example above, there are parts of the template for which the database designer can exercise considerable freedom. For instance, the designer can make a collection of bytes represent anything meaningful to the application. The data in the column

under "Description" in Figure 1 record these meanings for future reference and for interpretation by other users.

The GIS is also a user of these templates, because its software modules rely on these descriptions to retrieve and process the stored data. For example, the display module must understand the differences between "Position of Capital" and "Outline of Province" so that they can be plotted correctly on the graphics terminal.

Computer software systems are not as flexible and sophisticated as human users, and they can only understand well-defined (or formal) concepts. In Figure 1, we assume that the GIS being used understands the formal concepts of characters, integers, points, and closed-lines: the GIS has provided procedures to read, manipulate, and output data of these predefined types. When designing a database, the designer matches an informal idea, such as the name of a province, with a formal data type. Therefore you can also regard a data format template as a translation table serving as the interface between the user and the software.

Matching is easier when there are more formal concepts understood by the GIS. Realize that a system recognizing more formal concepts will require a larger number of data types. Such a GIS is a more powerful, more application-oriented system. For example, relational database management systems (RDBMS), being more general purpose, do not understand the concepts of points and lines. A RDBMS cannot interpret a description such as Figure 1 unless the designer changes the type "point" into two real numbers and the type "closed-line" into a list of real numbers.

Formal concepts not only help the GIS software but also other users as well. Because they generalize the highly complex world into a small number of well-defined concepts, the use of them avoids misunderstanding between the designer and the user. As such, the data format templates based on formal concepts are very useful communication tools.

This leads to our original question? Should the term "data model" refer to the stored data, the data format template, or the formal concepts. In practice, the term means all three, thus causing an extraordinary degree of confusion among users.

What is a Model?

The word "model" may provide an answer. Minshull [1975, pp. 24-25] has identified the following meanings

of model:

1. A hypothesis.
2. A theory, a law, an explanation, a rule, a theory of the structure of something, a formalized theory, a general principle.
3. A description of phenomena in mathematical terms, a vehicle to carry information, a description, a miniature representation of a thing, a representation, an abstraction, a picture of how a system works, an abstraction of a system, a demonstration.
4. An equation, the scientific method, a way of thinking, a proposed method of research, a structured idea, something on which to work, a mental construct, a way of looking at things, reasoning about the real world.
5. A frame of reference, a framework in respect to which a subject is described, an organizational frame, an ideal.
6. A synthesis, an analogue, a set of constraints, a simplified version of reality, a psychological crutch.

This list contains all three meanings of data model mentioned earlier. If it means a simplified version of reality (item 6), the stored data is a data model. If it means an organizational frame (item 5), the data format template is a data model. If it means a set of rules (item 2), the formal concept is a data model.

The original meaning of Data Model

When Codd [1970] first used the term data model in the context of database management systems, he used it to mean the formal concepts. To him, a data model has three components:

1. A collection of objects which form the basic building blocks.
2. A collection of operators which form the means of manipulating a database.
3. A collection of general integrity rules which contain valid states of databases

This is probably not the best use of the term, as indicated by the confusion it has caused. However, current usage seems to favour the original meaning [Date, 1983; Elmasri and Navathe, 1989]. The term

database schema is used to mean a description of the data format, and database instances is used to mean the stored data forming a representation of the miniworld.

What is Data Modelling?

The prevailing meaning of data modelling is to design an organization for data in a database. The one most important product of it is a description of the database. If we adopt the original meaning of data model, data modelling does not produce a data model but a database schema instead.

Is there a solution?

There are two approaches to a solution. The first is to keep this diversity of meanings, and ask every user to define them before use. We are more or less forced to do so at the moment, and this does not always lead to congenial discussions.

The second approach is to drop the terms "data model" and "data modelling" altogether, and use "data concepts" and "database design" in their places. We can use the term "database schema" to mean a description of data.

References

- Codd, E., 1970. *A relational model for large shared data banks*. Communications, ACM, Vol. 13, No. 16, pp. 377-387, June.
- Date, C.J., 1983. *An Introduction to Database Systems*, Volumn II. Addison-Wesley, Reading, MA.
- Elmasri, R. and S.B. Navathe, 1989. *Fundamentals of Database Systems*. Benjamin/Cummings, Redwood City, CA.
- Minshull, R., 1975. *An Introduction to Models in Geography*. Longman, London.

June 8-11 juin, 1993

Canadian Institute of Geomatics

Canadian Hydrographic Service

1993 Surveying and Mapping Conference

Conférence des sciences gématique 1993

Toronto, Ontario

Info: P.O.Box 186 Station Q,
Toronto, ON M4T 2M1

Tel: (416)336-4812

Fax (416)336-8916

Education/ éducation

by/par

Marcia Faurer

Red River Community College Advanced Diploma Program in Geographic Information Systems

In September 1992, Red River Community College initiated an Advanced Diploma Program in GIS Technology. The Advanced Diploma Program, the first of its kind offered in Manitoba, is a post-graduate program of advanced studies for community college and university graduates aimed at developing high-level technical skills in GIS technology.

The program is currently being delivered from 16:00 to 19:00, Monday through Thursday, over two academic years, each academic year running from October 1 through June 30. Total program duration is 864 hours. While the program is part of the Civil Technology Department, course material is applicable to a wide range of land and resource related professions and disciplines, including surveying, engineering, agriculture, forestry, climatology, geology, and environmental and socio-economic planning.

The program has been designed to produce graduates conversant with a broad spectrum of GIS technologies and concepts, rather than system-specific operators, with a strong emphasis on end-user application development.

For further information about this program, please contact:

Ralph Caldwell Department Head,
Civil Technology Department
Red River Community College
2055 Notre Dame Avenue
Winnipeg, MB R3H 0J9
Phone: (204) 632-2221 or

Richard Hayward Instructor, GIS Program.

If you are interested in learning more about this program, Mr. Hayward and others from Red River Community College will be at the Winnipeg CCA conference June 2 to 6 at the University of Winnipeg.

Elections to CCA Executive/ Élections au comité exécutif de l'ACC 1993/94

Vice President/vice-président

Marcia Faurer
Hansgeorg Schlichtmann

Treasurer/trésorier

Shelley Laskin

Interest Group Chairs/ Chefs de groupes d'intérêt

Education/éducation

Doug Banting
Nigel Waters

Technology/technologie

Patricia Chalk
Mike Shasko

Vice President/vice-président

Name:

Marcia Faurer

Professional Affiliation:

Marcia is an assistant professor in the Geography Department at the University of Winnipeg where she teaches Computer Mapping at the introductory and honours levels, GIS, and Physical Geography. Previously, she taught Cartography and Physical Geography at the University of Manitoba.

Service to CCA:

She has been a member of the Canadian *Cartographic* association since 1983, and has served as the Education Interest Group Chair since 1991.

Proposed Goal:

During Marcia's term as Education SIG her goal has been to examine the rôle of cartography courses in the university geography department environment, and to

try to generate interest in the area of raising the level of importance of these courses in the geography curriculum. In this regard, she feels that the course structure of cartography, and related courses, should

offer the student the option to major in this area in addition to the more traditional physical/human geography dichotomy.

For the past 5 years Marcia has organized a Colloquium on GIS Applications in Winnipeg which has been increasingly successful. This year, the sixth Annual GIS Applications Colloquium will be offered in conjunction with the CCA annual conference which will be held in Winnipeg for the first time.

Marcia would like to see the CCA take a more active and organized interest in promoting cartography in schools, universities, and business, and to use that avenue to promote the Association nationally and internationally.

Vice President/vice-président

Name:

Hansgeorg Schlichtmann

Professional Affiliation:

Professor of Geography, University of Regina

Education and Experience:

1967: Doctoral degree in Geography. University of Tuebingen.

1966-1970: Research Officer at the Federal Research Institute for Geography and Planning, Bonn with main duties in Thematic Cartography

1970-present: Geography department, University of Regina. Teaching manual and computer-assisted cartography, map interpretation, air-photo interpretation, and other related courses.

1977: Visiting professor, University of Adelaide, Adelaide, Australia.

Research interests:

Theoretical aspects of cartography, thematic cartography, map use in geography.

Service to CCA:

Member and active participant since 1978

Served on Nominations Committee in 1981

Member of Semiology Group

Proposed Goal:

Considers it important that the CCA continue its current course: to be a broadly based professional association that brings together cartographers from academia, government, and the private sector and which accommodates both theoretical and applied works. Would like to see stronger contacts between

specialists working in cartography and geography.

Treasurer/trésorier

Name:

Shelley Laskin

Professional Affiliation:

Globe Graphics

Relevant Education or Experiential Background:

BA., Dip. Cart., Owner of own business

Service to CCA:

Past Chair Map Design Interest Group

Co-Organizer 1985 AGM in Toronto

Paper presented at AGM in 1984 and 1992

Nominations Committee 1986

Focus Area of Proposed Program or Proposed Goals:

Shelly founded Globe Graphics in 1986 after the birth of her first child. Globe Graphics is an innovative cartographic design company specializing in academic and government publications. She recently completed a contract with the Dept. of External Affairs to design and produce the maps and graphics for the Canada - France Maritime Boundary Delimitation. Shelly's organizational ability allows her to bring most projects in within budget and her experience at running her own business provides an asset for the position of Treasurer.

Education/éducation

Name:

Douglas R. Banting

Professional Affiliations:

A faculty member in the School of Applied Geography at Ryerson Polytechnical Institute in Toronto, since 1980; teaching Physical and Environmental Geography, Cartography and GIS; in addition to the Canadian Cartographic Association, memberships and maintained in Urban and Regional Information Systems Association, Automated Mapping/Facilities Management (AM/FM), the Canadian Association of Geographers, and the Association of American Geographers.

Relevant Experience:

Ph.D. in Geography, University of Western Ontario; (M.Sc. - University of Guelph, B.A. - University of Western Ontario); Research and consulting studies are

related to GIS and digital cartography, especially the use of geographic data, data quality and educational issues in GIS.

Service to CCA:

Membership for 5 years, contributing by presenting papers and participating in panel discussion at each of the last four annual meetings.

Focus Area of Proposed Activity of the Interest Group:

Extending education activities beyond formal university programs, to ensure continuation of cartographic traditions and standards, as digital representation of cartographic information becomes more widely adopted.

Types of Activity to be Planned:

Develop curricula and encourage local workshops to be aimed at municipal and other non-university mapping operations.

Possible place of Venue of the Activity:

Begin with a special session at the AGM, to identify cartographic standards and traditions: requirements of digital systems to provide cartographers with appropriate tools; encourage membership to organize local education sessions, soliciting practitioners' needs for cartographic systems and skills.

Education/éducation

Name:

Nigel Waters

Professional Affiliation:

Professor, Department of Geography, University of Calgary.

Education and Experience:

B.A. Hons. First Class (Cambridge, 1972).

M.A., Ph.D. (University of Western Ontario, 1973 and 1977).

Appointed to University of Calgary in 1975 as Assistant Professor, promoted to Associate Professor in 1979, and to Full Professor in 1990.

Teaching Interests:

transportation, GIS, location models, operations research, computer mapping, quantitative and statistical analysis. Contributed two lectures to the Core Curriculum for GIS developed at Santa Barbara and

now used in about 1,000 institutions around the world for GIS teaching.

Guest/Visiting Lectures at the Universities of:

Carleton, Cambridge, Leeds, Leicester, Newcastle, Saskatoon, Victoria, Laurentian, Lakehead, Alberta.

Keynote Conference Addresses:

Mid-America GIS Symposium, May 1992.

Research Interests:

location of emergency and other public facilities (including fire stations, ambulance depots, garbage transfer stations, bus barns); expert systems for locating facilities and for computer mapping and spatial interpolation; knowledge engineering; transportation information systems; GIS for Antarctic environmental data; neural networks; role of GIS and computer mapping in education.

Research Funding:

from Canadian Federal and Alberta Provincial Government Departments; Canadian Federation of Mayors and Municipalities; Calgary Regional Planning Commission; SSHRC; NSERC; Imperial Oil.

Administrative Positions:

Chairperson, Institute of Transportation Studies, University of Calgary, 1991-present; President, Western Region, Canadian Association of Geographers, 1984-1985; Member of the Board of Directors, Canadian Transportation Research Forum; Member of the Board of Directors, Van Horne Institute, 1991-present; Member of the executive of the Canadian Association of Geographers, 1984-1986; Graduate Coordinator, Department of Geography, University of Calgary, 1983-1988, 1990, 1992.

Publications:

twelve books and monographs edited, co-edited and authored; six chapters in books; eighteen major refereed papers; and numerous minor papers including columns for *The Operational Geographer* and for *GIS World*.

Graduate Student Supervision:

in progress - two doctoral and two masters; completed - two doctoral and twelve masters; membership on Graduate Committees - 19 Ph.D., 52 Masters.

Honours:

Fellowship, Transportation Development Agency; McIntosh Prize, University of Western Ontario; College Prize, Downing College, Cambridge University; Scholar, Cambridge University.

Technology/technologie

Name:

Patricia M. Chalk

Professional Affiliation (1983- Present):

Head of Cartographic Services
Geography Department
University of Western Ontario
London, Ontario N6A 5C2
Phone: (519) 661-3425
Email: Chalk@sscl.uwo.ca

Relevant Education:

M.A. (Geography) *in Progress*
University of Waterloo
Thesis Subject Areas:
Animation, Visualization of Error

Service to CCA:

1991 - Cartographic Exhibit. Annual Meeting: St. Catharines, Ontario.
1989 - "Adobe illustrator 88 and the Cartographer". Annual Meeting: Halifax, Nova Scotia.
1987 - "Real Cartographers Should Embrace Computers". Annual Meeting: Fredericton, New Brunswick.
1984 - Organizing committee. Responsible for registration and local accommodations. Annual Meeting: London, Ontario.

Other Affiliations:

North American Cartographic Association (NACIS),
American Association of Geographers (AAG), Canadian Association of Geographers (CAG).

Cartographic Editorial/Consultant Service:

Geographic Snapshots of North America, 1992;
Resolving Conflicts and Uncertainty in Water Management, 1992; Ontario Geography, 1983 to present;
Canadian Geographer, 1984-88.

Proposed Chair of Technology Objective:

To encourage interaction of members with complementary technological interests.

The Reasons:

Our working environments are characterized by regular technological changes. A network of individuals with expertise in complementary software, hardware and media types is essential to take full advantage of the opportunities provided by the technological advances.

The Recommendations:

I propose a technological session at the annual meeting which would focus on cartographic options available through movement of the data or files through several software and/or hardware environments.

Particulars of the file or data transfers, the hardware choices and the benefits/disadvantages of the particular production procedure would be discussed.

One or more themes would provide the common ground for those participating.

Articles in the technology column of *Cartouche* would have a similar focus as a logical follow-up to the technological issues raised at the conference session.

Technology/technologie

Name:

Mike Shasko

Professional Affiliation:

President, Clover Point Cartographics Ltd., Victoria, B.C. (1990-present).

Education:

B.Sc. Geography (Hons), University of Victoria, 1985.
M.Sc. Geography, University of Victoria, 1989.

Service to CCA:

Member since 1981.

Proposed Activities:

Make note of recent cartographic technologies and examine their impact (good and bad) on map production and cartographic representation.

To evaluate potential of new technologies in solving specific cartographic problems and/or advancing cartographic understanding.

I would like to work towards challenging the vendors of mapping technologies to present a particular product in an open forum or publication that solves or fills a specific cartographic need as described by membership inputs. This would serve the membership by illustrating new technology sources and ideas, and services the vendors in presenting their products to clients with a real interest in using them.

President's message / Mot du président.

par/by
Majella Gauthier

L'Association canadienne de cartographie (ACC) continue à jouer un rôle très important dans la promotion de la cartographie et dans la planification des activités professionnelles tant à l'intérieur des frontières qu'au niveau international.

D'abord je voudrais féliciter les responsables, de la revue *Cartographica*, Bernard Gutsell et Edward Dahl, pour l'excellent travail qu'ils réalisent à la préparation et à l'édition de chaque numéro. Ils ont aussi la tâche de produire le Bulletin de l'Association internationale de cartographie (AIC) qui est acheminé aux membres de cette association mondiale et notamment aux membres de l'ACC. Nouveauté: la revue *Cartographica* a agrandi son format pour s'ajuster aux besoins d'édition; ceci va favoriser davantage la reproduction de cartes, principalement les cartes anciennes (facsimilés). De plus, nous apprécions vivement le travail de professionnel effectué par Les Presses de l'Université de Toronto qui publient la revue. Nous sommes assurés que cette dernière demeurera, comme elle l'est depuis le début de son existence, soit, une revue canadienne de niveau international. C'est à vous tous de continuer à enrichir son contenu en soumettant des articles et des compte-rendus de publications.

Le Canada sera-t-il l'hôte de la réunion générale de l'Association Cartographique Internationale? Voilà la question à laquelle on aimerait recevoir une réponse positive. Afin de mousser la candidature du Canada pour que la réunion ait lieu ici en 1999, la communauté canadienne de cartographie est en train de former un Comité de direction qui aura à présenter la candidature officielle du Canada particulièrement lors du prochain congrès de Cologne. La décision finale pour le choix du lieu se fera à Barcelone en 1995. D'ici là, nous souhaitons bon succès aux membres de notre délégation pour vanter les mérites de notre offre à cette prestigieuse organisation.

Marci Faurer, l'organisatrice de la réunion annuelle de l'ACC est en train de concocter un joli menu pour juin prochain à Winnipeg. Ce sera un moment privilégié pour échanger: communiquer ses préoccupations et ses résultats de recherche, recevoir et faire des suggestions, se tenir au courant des nouveautés, établir de nouveaux contacts, voir de nouveaux équipements et un coin de pays merveilleux, &c. Je vous invite à y

venir nombreux et à participer activement à l'événement.

En terminant, je m'empresse à inviter les membres de l'ACC à promouvoir l'adhésion à notre association. Plusieurs catégories d'adhésion sont disponibles, certainement que l'une d'entre elles vous convient.

The Canadian Cartographic Association (CCA) continues to play a very important rôle in the promotion of cartography and in planning of activities at both the international and national levels. With the changes in technology we are experiencing, the importance of representing the interests of cartography has never been greater than it is now.

I would like to express my appreciation for the excellent work done by Bernard Gutsell and Edward Dahl, both in charge of preparing and editing each issue of the journal *Cartographica*. They also edit the International Cartographic Association (ICA) Newsletter; This bulletin is distributed to CCA members. The journal *Cartographica* is now published in a larger format in order to respond to publishing needs. This change, among others, will permit the printing of larger maps, especially older maps. We appreciate the professional work of the University of Toronto Press who publish *Cartographica*. We are convinced that *Cartographica* will continue to be a great Canadian cartographic journal of international standard. The quality of its content depends on all of you; don't hesitate to submit articles and book reviews.

Will Canada host the 1999 ICA Conference? In order to promote the selection of Canada, the cartographic community is forming a steering committee who will present the official invitation in Cologne. The final decision will be made at the ICA general conference in Barcelona in 1995. We wish success to our delegation..

Marci Faurer, the annual meeting organizer, is preparing a delectable menu for June in Winnipeg. It will be an excellent opportunity to discuss research issues, activities and results, make suggestions on improving the Association, examine innovations, make new contacts, and, for some of you, it will be a good opportunity to visit this beautiful region for the first time. I urge you to participate in this meeting.

Before closing, I ask all members of the CCA to promote membership in the Association to other cartographers. We offer a range of membership levels, and I am certain that one of them will suit anyone connected with this discipline. Support us yourself by renewing your membership right away. If we have not met your needs over the last year, let us know why?

Cartographica Report

by/par

Ed Dahl

Associate Editor

Subscribers to *Cartographica* should recently have received Volume 29, Number 2 of the journal, and are doubtless awaiting the next. This will be a double issue — Volume 29, Numbers 3 & 4 (Autumn & Winter) — and we hope readers will be pleased by the large number of articles and reviews.

The following articles will appear in this issue: Denis Wood (North Carolina State University), *How Maps Work*; Daniel Hopkins (University of Missouri - Kansas City), *A Cartographic Cul-de-Sac: An Early Map and the Cadastral Survey of St. Croix, Danish West Indies, 1734-41*; Cynthia A. Brewer (San Diego State University), *Review of Colour Terms and Simultaneous Contrast Research for Cartography*; Jeremy Crampton (Portsmouth University), *Expert and Novice Map Understanding: Cognition in Spatial Problem Solving*; James C. Saku (University of Saskatchewan), *Map Use Teaching and Experience: An Experiment with Cartographic Lexemes*; J.-P. Donnay (Université de Liège), *Détermination en mode maillé du champ d'intervisibilité dans un modèle numérique de terrain*; Darren Scott and Micha Pazner (University of Western Ontario), *Image Processing of Space-Time Graphs: An Example Using the Toronto-Montreal Schedule*; and Pike, Blades and Spencer (University of Sheffield), *A Comparison of Two Types of Tactile Maps for Blind Children*.

In addition to approximately 30 reviews of books and atlases, this issue includes two review articles: Barbara Belyea's commentary on Denis Wood's *The Power of Maps* (with a reply by the author), and Matthew Edney's examination of Richard Helgerson's *Forms of Nationhood: The Elizabethan Writing of England*.

The first two issues of *Cartographica* for 1993 will be monographs. The first, going to press in March and tentatively titled *Cultural and Social Perspectives in Contemporary Cartography*, has been edited by Bob Rundstrom. The titles of a selection of the eleven papers Bob has brought together for this issue give an idea of the diverse topics covered: *A Cross-Cultural Cosmographic Interpretation of Some Korean Geomancy Maps* (David Nemeth); *The Ethnography of Maps: The Cultural and Social Contexts of Cartographic Representation in Peru* (Benjamin Orlove); *An Eighteenth-Century Cosmographic Globe from India* (Joseph Schwartzberg); *The Patronage of Science and the Creation of Imperial Space: The British Mapping of India, 1799-1843* (Matthew

Edney); *Nation or Estate?: Ideological Conflict in the Early Modern Mapping of England* (Richard Helgerson); *Metrics, Geometries, Signs, and Language: Sources of Cartographic Miscommunication between Native and Euro-American Cultures in North America* (Malcolm Lewis); *The Role of Ethics, Mapping, and the Meaning of Place in Relations between Indians and Whites in the United States* (Robert Rundstrom); and *Maps and Mapmaking* (Denis Wood).

The second monograph issue, edited by Barbara Battenfield (State University of New York - Buffalo) and tentatively titled *Mapping Data Quality*, consists of contributions from Mark Monmonier, Kate Beard & William Mackaness, Matt McGranaghan, and Peter Fisher, as well as an introductory paper by Barbara Battenfield. This issue will be in press early in April, to be followed by two journal issues later in 1993.

New Contributing Editors

Readers may already have noticed the appearance of two new Contributing Editors in the last issue — Matthew Edney and Robert Rundstrom. Two more will be added to the list for the issue now in press — Barbara Belyea and Anne Godlewska. All four have contributed to the running of the journal: finding authors, suggesting books for review, giving advice, and refereeing and editing papers. Anne Godlewska (Geography, Queen's University) has been a member of the Editorial Advisory Board since 1986; in 1988, *The Napoleonic Survey of Egypt: A Masterpiece of Cartographic Compilation and Early Nineteenth-Century Fieldwork* was published as *Cartographica Monograph* 38-39. Barbara Belyea (English Department, University of Calgary) is the author of the lead article in the issue just published. Belyea has recently completed editing David Thompson's journals (1800-1812), to be published by McGill-Queen's University Press later in 1993. Matthew Edney (Geography, State University of New York - Binghamton) has been one of the journal's most active book reviewers of late, as well as writing several articles. He will be the guest editor of a monograph issue for 1994 based on papers at a session he has organized at the AAG annual meeting in April 1993. The session, titled *J.B. Harley and Cartographic Theory: Review and Commentary*, includes papers by Anne Godlewska, David Woodward, Jeremy Crampton, Denis Wood and Matthew Edney. Bob Rundstrom (Geography, University of Oklahoma) will be given a short break after editing the monograph issue mentioned earlier, but we will continue to expect reviews and articles as soon as he has caught his breath. Bernard Gutsell and I welcome these four hard-working and generous individuals; the journal depends heavily on contributions such as theirs.

International Notes

by/par

Norman Drummond

International Affairs.

Unlike organizations like the *Canadian Cartographic Association* (CCA) or the *Canadian Institute of Geomatics* (CIG), individuals do not join the *International Cartographic Association* (ICA) as individual members. The ICA is made up of delegations from different countries. The ICA appoints one organization within each country to act as a representative for cartographic interests within that country. Canada is represented at the ICA by the CIG.

Individuals who have been nominated and/or chosen to serve on one of the 16 international working groups or commissions do the actual work of the ICA. These groups or commissions deal with topics such as education, standards, tactile maps, marine maps, marketing, atlases and gender issues. Currently, the chairs or co-chairs of five of these commissions are Canadian. We will have reports from them in future issues of *Cartouche*.

The CIG has formed the *Canadian National Committee for Cartography* (CNCC) to act as a forum for cartographic concerns and activity in Canada. The CNCC has representation from six Canadian cartographic organizations: Norman Drummond (CIG, Chair), Claudette Leblanc (CCA), David Douglas (OICC), Gilles Grégoire (Association québécoise de cartographie), Peter Keller (Pacific Institute of Cartographers Society), and Louis Cardinal (Association of Canadian Map Librarians and Archivists).

Cologne, Germany.

One of the tasks of the CNCC is to ensure Canadian participation at the biennial and quadrennial ICA conferences. The next conference is in Cologne in May, 1993. The international map exhibit will feature a selection of Canadian maps. Four Canadians will present technical papers. Peter Keller of the University of Victoria will discuss atlas design. Concordia's Jackie Anderson is giving a presentation on children and maps. Michael Coulson of the University of Calgary is giving a paper on tactile location map, and Jean Raveneau from the Université de Laval will present the St. Lawrence River environmental atlas. It is important that the CNCC be aware of all Canadian participation in the Cologne conference. Please advise the CIG main office or Norman Drummond at McGill

University if you are planning to attend .

Canada 1999

Canada is preparing a bid to host the 1999 ICA congress. A broadly-based steering committee under Cliff Wood is planning a variety of promotional activities and events for the conference in Cologne and for the 1995 Barcelona congress where final voting on the 1999 bids will occur. Good luck to our team in their efforts to bring the ICA congress to Canada.

Children's maps

The ICA is conducting a map contest for children under 16 years of age. The aim is to encourage the understanding and use of maps among young people by inviting them to express their views of the world in map format. Canadian entries are being channeled through the CNCC and the five best maps will be sent to Cologne for the international competition. The international winners will be submitted to UNICEF for possible reproduction as greeting cards. Other Canadian entries will be on display at cartographic conferences in Canada. The competition is the initiative of Carleton University's Fraser Taylor, the President of ICA, and is dedicated to the memory of the late Barbara Bartz Petchenik, a pioneer in research on maps for children.

Cartographic Awards

Readers should be aware of cartographic competitions and awards for members and students. This issue of *Cartouche* carries inserts outlining the Intergraph Award and the J.M. Ellis Award. The last issue of *Cartouche* contains information about the 1993 CCA President's Prize and the Norman Nicholson Scholarship. Carto-Québec has a special notice for its extensive new competition. If you have missed this year's deadlines, start planning now for next year. For further details write to:

Norman Drummond,
Chair CNC
Dept. of Geography
McGill University
805 Sherbrooke Street West
Montreal, QC
H3A 2K6
Telephone: (514) 398-4939;
fax (514) 398-7437

SORSA CONFERENCE 1992

SORSA'92 SYMPOSIUM AND WORKSHOP

About a hundred delegates from 15 countries attended the annual SORSA (Spatially Oriented Referencing Systems Association) conference in Ottawa last July. Proceedings have been compiled from the Papers and Workshops presented. The Proceedings feature the following:

SURVEYING, MAPPING AND REMOTE SENSING SECTOR WORKSHOP

CHRISTINE PARENT, SMRSS/EMR
"Creating Clean Digital Data Bases" . 1
BERT GUINDON and DOUG O'BRIEN, CCRS
"Extraction and Requirements of Digital Elevation
Models in Remote Sensing. "
SYLVAIN LATOUR, SMRSS/EMR
"Interchange Standards for Digital Maps"

WORKSHOP ON OPERATIONAL RESEARCH AND ANALYSIS

GILBERT LAFOND, A/DGGA, ORAE
"Opening Remarks"
TONY KELLETT and NORBERT GASS, ORAE
"Creating A Geopolitical Data Base for Contin-
gency Operations"
WOLFGANG BITTERLICH, University of Ottawa
"Preserving and Representing Key Landscape
Elements in a GIS"
ROGER ROY, DLOR
"Tactical Spatial Decision Support Systems"
CAPT. JIM SAWATZKY & DAVE MCKELLAR, DND
"GIS and Defence"
PETER YOUNG & DAVE MASON, ORAE
"Digital Terrain Requirements for Low Level
Combat Simulations"
ROBERT LAURINI & FRANCOISE
MILLERET-RAFFORT, University of Lyon, France
"Pre-Applicative Spatial Reasonings: How to Get
Well- Done Data Bases Able to Support Consistent
Application Reasonings"
CHRIS TUCKER, (D Strat A), & ROGER ROY, (ORAE)
"Spatial Systems for Geostrategic Analysis"

SORSA '92 SYMPOSIUM

MANU ONAKUPT, and ANAN PITAYARAK,
Land Development Department, Thailand
"Natural Resource and Land Use Planning of

Thailand"

ESSID TIJANI, Topography and Cartography, Tunisia
"National Report on Tunisia's Most Pressing
Needs in the Areas of Cartography and Spatially
Referenced Data"

R.S. ROSTOM, University of Nairobi, Kenya
"Spatially Oriented Reference Systems in Kenya:
the State and Needs"

DAVE MCKELLAR, DND, Canada
"The Digital Chart of the World: A Global GIS
Information Infrastructure"

WILLIAM RANDOLPH FRANKLIN,
Rensselaer Polytechnic Institute
"Map Overlay Area Animation and Parallel Simu-
lation"

DAVID H. DOUGLAS, University of Ottawa
"Challenge and Achievements in Representing
Mount Logan for Timely High Quality Publication"

JAN P. VAN EST, IRIS International, Netherlands
"Coding Networks and GIS"

DEZSO NAGY, Geological Survey of Canada
"PostScript and Cartography"

MARTIN FEUCHTWANGER,
Simon Fraser University
"Towards a High Level Geographic Database
Models"

WILLIAM RANDOLPH FRANKLIN,
Rensselaer Polytechnic Institute
"Tutorial on Curve Fitting for GIS"

GORDON DEECKER and LARRY LI,
Statistics Canada
"Geomatics in Support of the National Statistical
Program"

In addition, many of the papers are amplified by
informative discussion and comment.

If you wish to order a copy please send a cheque or
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Other	Cdn\$20.00 + Cdn\$9.00 (postage and Handling)

to Prof. David H. Douglas
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FAX 613-564-3304

Back to School: GIS at the Banff Centre for Management

by/par
George Hegmann

Few of us have ever been in a classroom ringed by mountains, but at the Banff Center for Management, you never forget their presence. What better place to upgrade your knowledge and skills on the use of Geographic Information Systems (GIS)? The Banff Center now offers seven GIS courses, ranging from "Structuring Multi-participant GIS Projects" to "GIS as a Corporate Management Tool". In January of this year I participated in the first course offering of "GIS for Resource Conservation and Environmental Management". Focusing on the applications of GIS to the management of environmental issues, this course represents a new direction in recognizing the power of GIS tools in the design of the natural landscape. This article provides a review of this course, from which hopefully you may decide if such a course would be of value.

The course is divided into three modules: Introduction to GIS (1 day), Fundamentals of GIS Applications (the 3 day core program), and Spatial Modelling (2 days). You may take any module; the full 7 days takes you from basic GIS principles to more complex applications. Progression through the modules involves increasing depth of material. The course emphasizes GIS management, issues in obtaining quality data, construction of databases, and representation of real life processes through modelling (such as soils evaluation). The three instructors, each with broad backgrounds reflecting the multi-disciplinary nature of the GIS practitioner, provide many valuable anecdotes and tidbits in implementing GIS programs.

GIS is like a game of snakes and ladders – you must recognize its fundamental pitfalls and opportunities before launching forth. The course material (including the virtual library of handouts) ensures that you are exposed to the more sobering side of GIS, such as spatial correlation of data sets, hardware compatibility, data base design, and model construction. The curriculum paints a broad swath through the world of GIS, and often dips from the high level of GIS management into, for example, the intricacies of operating systems, before speeding off into another field. However, the daunting task of trying to explain GIS in seven days is handled well. It is not easy to cover the subject of GIS in such a short time, so do not expect to emerge an expert. You will instead learn what you

will realistically face. Perhaps this can be the most valuable lesson of all.

The course really comes together in the last two days, where in smaller workgroups, the class participants are challenged with designing GIS models. These workshops and case study reviews make one more aware of the capabilities of GIS.

However, do not expect to sit in front of a computer and flail away on the keyboard. There is no hands-on. Do not expect too detailed a coverage of specialized areas such as the use of remote sensed imagery. You'll have to corner the Profs. at Banff's infamous "Buffalo Bills" later at night and ply them with beers for more information...The course fee is \$1,485, plus \$100 per night accommodation and meals at the amply equipped campus. The module prices are \$195 for the Introduction, \$695 for the core seminar, and \$595 for the modelling workshop. There were 21 students in the class, and most took all the modules (you do not have to take all modules to benefit; however, the modules are closely integrated). You can call the Banff Centre at 403-762-6133, or fax at 403-762-6422.

I highly recommend the course, not as much for the GIS or computer guru, but for the manager, scientist, engineer, or geographer who is interested in checking out the potential of GIS to help them make decisions on natural resource issues. You will meet many other people similarly interested during the breaks provided; and after class, it's off for skiing or hiking in the schoolyard.

Corporate News

CORPORATE MEMBERS

Bell Canada,	Toronto, ON
DATAMAP	Scarborough, ON
Defense Mapping Agency,	Washington, D.C.
J. M. Ellis,	Metcalfe, ON
ESRI Canada	Don Mills, ON
Idrisi Project,	Worcester, MA
Intergraph Canada,	Calgary, AB
Intergraph Corp.,	Huntsville, AL
Map Art,	Etobicoke, ON
Micro-Boutique,	Montréal, QC
National Atlas Info. Services,	Ottawa, ON
PAMAP,	Victoria, BC
Projections Mapping Group,	Calgary, AB
John Wiley and Sons,	Toronto, ON
Universal Systems, Ltd.	Fredericton, NB

Rand McNally's New Digitally Produced Atlas Will Help You Find Your Way

The 1993 edition of the Rand McNally Road Atlas – the nation's most popular travel guide – is the first the company has produced with digital technology. The atlas contains 350 maps, including 44 newly added city insets – the largest printed volume of US maps ever produced using automated mapping techniques. Computers from Intergraph Corporation of Huntsville, Ala., helped Rand McNally cartographers produce more precise maps than they previously produced by hand, said Dr. Michael Dobson, vice president and chief cartographer of Rand McNally. "Sharper type styles make the atlas more legible, while newly designed symbols make the maps easier to read and to use."

Computers help make the entire mapmaking process, as well as the maintenance of maps, more efficient. "Each year, thousands of changes must be made to keep the atlas current," said Dobson. "Changes made to the information in the database are automatically updated and shown in the graphics file, saving work-hours and money by reducing maintenance time. Manual changes were never as accurate as those done by computer."

Rand cartographers extract information about a particular area from their database and make any needed changes to the data. MGE Map Publisher then performs digital color separations, which go to Intergraph's MapSetter 5000 for film plotting. More than 312 films were plotted to create the atlas.

Rand McNally's new mapmaking process is fully automated, from compilation of map data through to generation of print-ready films for publishing maps. Map data is entered and maintained on Intergraph workstations using MicroStation-based software designed to handle large volumes of precise map data. As maps are ready to publish, the cartographer can view the map on the computer screen just as it will appear on paper.

Automated techniques provide consumers with more precise and current publications, Rand McNally's Publishing Group President Henry Feinberg said. "The efficiencies of electronic map-making reduce lag time between data collection and publication." Intergraph's MGE (Modular GIS Environment) software is a set of tools used to store, analyze, interpret and display geographic information.

Geomatics International Inc. Signs Eastern European Technology Transfer Contract

On behalf of the Canadian Department of External Affairs Task Force for Central and Eastern Europe, the Canadian Commercial Corporation (CCC) has awarded GEOMATICS INTERNATIONAL INC. a \$900,000 contract for the procurement of several Remote sensing/geographic information Systems for the Czech and Slovak Federal Republic (CSFR). GEOMATICS INTERNATIONAL is a Canadian company, located in Burlington, Ontario, that specializes in the use and applications of remote sensing and GIS technologies. The company also has offices in the USA and Germany.

The CSFR project involves the design, implementation and training of GIS and remote sensing systems using Canadian software and hardware at four sites in the CSFR. GEOMATICS INTERNATIONAL will provide ongoing support in the CSFR for 4 pilot projects including: forest decline and environmental degradation in the Czech Republic; establishment of remote sensing capability within the Slovak Centre for Aerospace Environmental Monitoring; education and curriculum development at two university sites. GEOMATICS INTERNATIONAL will also implement a program of technology transfer for sustained development of GIS and remote sensing capabilities within the CSFR.

Ontario Lot Polygon Maps

DATAMAP introduces affordable, off-the-shelf electronic maps showing, for the first time, 120,000 Ontario lots as polygons.

One of the major advantages of electronic mapping is the ability to link attribute data (addresses, values, &c.) with the positional components of the data. Datasets that permitted this kind of linkage were quickly produced for urban areas. Rural agricultural areas had to wait for detailed polygonal boundary data at large scales to become available. Required are datasets that use the lot as the basis for polygons in this area.

DATAMAP's Ontario Lot Polygon Maps offer immediate availability to more than 120,000 Southern Ontario Lots in the form of polygons ready to accept any form of attribute data connected to those lots. The potential uses of this data are endless. The acquisition of this data framework on which GIS and Map analyses can be built has typically been beyond the means of many groups. It is now available at a reasonable

cost and with minimum time and effort taken up through data conversion.

Introductory prices are from 800.00 \$CDN to \$1,900 \$CDN per County or Region. Prices depend on the dataset size and number of features.

Technical Description

Geographic reference points of the coverage are based on the 1:50,000 National Topographic Series Maps

Geographic Information is derived from the Ontario Ministry of Transportation 1:100,000 County Map Series.

Contains new county, region, and township boundaries based on current Ministry of Municipal Affairs maps.

Lots, concessions, roads, county and township boundaries, labels, &c. are represented in 11 separate layers for good control and flexibility.

Complete road and highway network in 4 categories or layers, including all local roads.

Developed and produced by DATAMAP with the cooperation of the Ministry of Transportation, Ontario.

Files are available in several formats including DXF, ARC/INFO, Intergraph, and MapInfo.

For more information contact:

DATAMAP,
58 Oakmeadow Blvd.
Scarborough, ON M1E 4G1
(416) 287-3240

CCA E-mail 1993

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Content Deadlines are: January 10, March 31, June 30, September 30.

Les dates limites pour l'envoi d'articles ou de documents sont les suivantes: 10 janvier, 31 mars, 30 juin, 30 septembre.

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ASCII text files in all PC or Mac diskette formats

Also acceptable: MS-DOS (Format 5.25/3.5") Wordperfect (4.0-5.1), Multimate, Wordstar (3.0-5.5).

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De format Macintosh. MS-Word

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