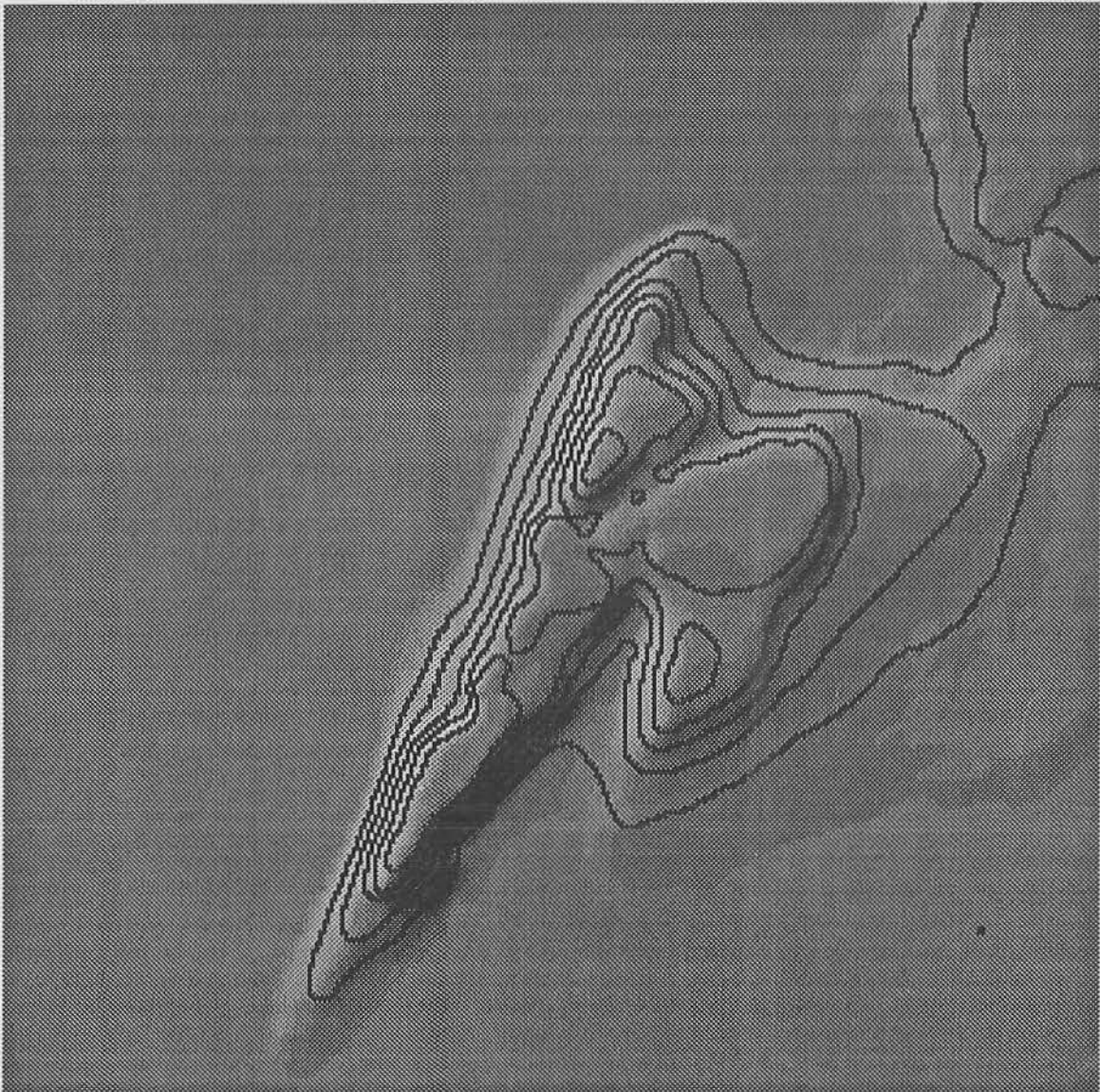

CARTOUCHE

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



CARTOUCHE

Number 7. Autumn, 1992

numéro 7. automne, 1992.

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Cartouche is produced quarterly by the Canadian Cartographic Association.

Content Deadlines are: January 31, April 30, July 30, October 31. (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: 31 janvier, 30 avril, 30 juillet, 31 octobre

(voir page 20). 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.

The Canadian Cartographic Association gratefully acknowledges the financial support given by the Social Sciences and Humanities Research Council of Canada. L'Association Canadienne de cartographie remercie vivement le Conseil de recherches en sciences humaines du Canada pour son apport financier.

Cover: Graphic representation of landform data. The Sleeping Giant, Thunder Bay, Ontario.

This data and a few other Canadian Landform datasets will be available soon through the CCA.

Watch for ordering details in the next issue of *Cartouche*.

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The Manager's File/ filière du gérant

by/par
Roger Wheate.

New members/membres nouveaux

Karen Cassel	Toronto, ON
Patricia Chalk	London, ON
Jeff Dykstra	Lawrencetown, NS
Adella Edwards	Toronto, ON
Lina Gomila	Barcelona, Spain
Val Johnson	Victoria, BC
Chantal Lapierre	Chateauguay, Qc.
Michael McDermott	Toronto, ON
Jean McKendry	Worcester, MA
Joseph Poracsky	Oregon
Duane Riehl	Edmonton, AB
Pam Sallaway	Victoria, BC
Brad Schmidt	Calgary, AB
Tina Simpson	Markham, ON
Jolie Sobie	Lynn Lake, MN
Corporate Member Idrisi	Worcester, MA

CARTOGRAPHICA

1992 (Vol 29) #2 is at the printers and should reach members' desks around the New Year. Numbers 3 and 4 will arrive in the first few months of the new year.

Editors note: Readers have been asking about the new format of *Cartographica*. The University of Toronto Press (UTP), which is the owner of *Cartographica*, made the change for a variety of technical reasons. I feel the new format is highly readable. The changes will create benefits from increased production efficiency in future issues. Bernard Gutsell has worked tirelessly in the production of *Cartographica* over the past years and deserves a lot of credit for his work. I know he would appreciate any comment on the new format and encouragement for future issues.

CARTOUCHE

Look for *Cartouche* number 8, the last issue for membership year 1992, to reach you in late January or early in February. This issue (#7) of *Cartouche* has been held up over a few items and because of the Editor's autumn teaching schedule this year. Be assured that following issues are already in production, and we should be back on track within the first few months of 1993.

Eager members may use the form on the back of *Cartouche* to renew for 1993 (some already have!); however, formal requests for renewal will not be sent out till the New Year.

President's message/ mot du président

by/par
Majella Gauthier.

Je voudrais dans un premier temps souhaiter une fructueuse année à tous les membres de l'Association canadienne de cartographie. Bienvenue à tous les nouveaux membres et particulièrement à tous ceux et celles qui ont opté pour la nouvelle catégorie de membres associés. Je suis convaincu que votre adhésion à l'ACC sera un complément de première importance dans vos activités professionnelles.

L'ACC est une organisation vivante qui regroupe des personnes et des entreprises qui ont en commun, non seulement la promotion de la cartographie, mais aussi, tous les aspects de la discipline, dont ceux reliés autant à la réflexion théorique, à la formation et à l'éducation, qu'aux applications et à la pratique.

Ensuite, j'aimerais réaffirmer que l'ACC se veut d'être un forum dans lequel les échanges d'idées, de préoccupations, d'expériences doivent être favorisés; chacun enrichissant l'autre. Il s'agit, pour s'en convaincre, de se rappeler par exemple, la richesse du contenu et la variété des communications, des ateliers et des expositions commentées qui ont toujours animé les réunions annuelles.

Il s'agit aussi de parcourir *Cartouche*, le Bulletin de l'Association, pour se rendre compte des possibilités offertes à tous de faire connaître le résultat de leurs recherches, de partager leurs interrogations, ou tout simplement, de faire part de leurs impressions sur des questions liées à la cartographie. De son côté, la revue *Cartographica*, l'une des revues de cartographie les plus cotées au monde, offre la possibilité de faire connaître d'une manière plus formelle, les résultats de vos recherches. Elle est ouverte à toute la communauté cartographique mondiale. Voilà donc un moyen de s'informer sur ce qui se fait à l'échelle du globe et aussi de s'assurer une audience de premier plan.

L'Association sera à votre image. Le fait de participer à ses activités et d'amener de nouvelles idées, va bonifier l'Association; en effet, plus les membres seront actifs, plus le groupe, l'ensemble, sera dynamique, vivant et invitant au dépassement.

Je m'en voudrais de ne pas remercier ceux et celles qui ont quitté, en juin dernier, l'exécutif de l'association après avoir accompli un excellent travail. Ils laissent la place à de nouveaux membres qui sont pleins de projets et qui se joignent à une équipe solide afin de promouvoir la cartographie d'un océan à l'autre. Je

suis sûr qu'ensemble, nous accomplirons de grandes choses.

En terminant, je voudrais mentionner que plusieurs dossiers sont toujours à l'étude à l'exécutif. On parle de restructuration de l'exécutif, de la promotion de l'Association, d'un dépliant sur les carrières en cartographie, de prix de distinction, etc.

D'ici la prochaine parution, je vous invite à planifier votre participation à la réunion annuelle de l'ACC qui aura lieu à l'Université de Winnipeg sous la coordination de Marcia Faurer. Surveillez les annonces.

I would like to wish a fruitful year to all members of the Canadian Cartographic Association. Welcome to new members and particularly those coming in as associate members. You can be sure that your CCA membership will be more than complement your professional activities.

I would like to tell you that the CCA is a dynamic organization which gathers people and companies having in common, not only promotion of cartography, but also many aspects of the discipline such as theoretical issues, training and education, and technical applications.

It is important to re-affirm that the CCA wants to be a forum where there is an exchange of ideas. The sharing of questions, problems, and experiences must be encouraged. Through this interaction we make each other richer. A good reminder of this is the rich content and the variety of papers, workshops, and posters which have been presented at all recent annual meetings.

On one hand, we only have to read through *Cartouche*, the Association's Bulletin, to appreciate the potential for all to get information on new ideas and research, to share questions, or to simply express feelings on some cartographic matter. On the other hand, *Cartographica*, one of the most famous cartographic journals in the world, offers, in a more formal way, the possibility to publish research results. It is important to note that *Cartographica* is open to the whole cartographic community. It is a good vehicle to be informed on that it is happening at the global level. Contributions are sure to have a first quality audience.

The Association will be a reflection of you. Your participation in all aspects of the association will improve the Association. The more active the members, the more lively, dynamic and stimulating will be the discussion and interaction..

I want to thank people who left the executive of the Association last June. They did excellent work during their term. New members of the executive have many

new ideas and are joining a solid team in office in order to promote cartography from sea to sea, and beyond. Together, I am sure that we will accomplish great things.

Before closing, I would like to mention that the executive is discussing many topics, such as executive restructuring, promotion of the Association, a booklet on careers in cartography, honorary membership, and so on. You will be informed of our progress over the next months.

Between now to the next issue, I invite you to plan your participation to the next annual meeting at the University of Winnipeg. Marcia Faurer is the coordinator of the meeting. Look for details in this and upcoming issues of *Cartouche*.

BOOK REVIEWERS NEEDED!

I have received copies of the following books for review in *Cartographica*. If you are interested in writing a short review (about 600 words) of one of these books, please contact me. Reviews can be written in either French or English, and should be completed within three months of receiving the book. The reviewer may keep the book they review, and will receive reprints after the review is published.

Books available for review:

Introduction to Remote Sensing, by Cracknell and Hayes. Softcover, 291 pages.

Canada: 25 Years in Space, by D.H. Jelly. Softcover, 190 pages.

Coordinate Systems and Map Projections, by D.H. Maling. Hardcover, 476 pages.

Place Names of Alberta, Vol. II (Southern Alberta), by A. Karamitsanis. 152 pages.

Straight Baselines in International Maritime Boundary Delimitation, by Reisman and Westerman. Hardcover, 242 pages.

Land Registration and Cadastral Systems, by G. Larsson. Softcover, 176 pages.

Geographical Information Systems and Urban and Rural Planning, by T.W. Rideout. Softcover, 148 pages.

To receive a review copy of any of the above books, please contact:

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CALL FOR NOMINATIONS APPEL POUR LES MISES EN NOMINATION

Elections will be held in the Spring of 1993, with the results to be announced at the Annual Meeting in Winnipeg, June 3-6, 1993. Les élections auront lieu au printemps de 1993, et les résultats seront divulgués lors de l'assemblée générale annuelle de Winnipeg, les 3-6 juin 1993.

The positions up for election are:

Vice-president
Treasurer
Chair, Education Interest Group
Chair, Technology Interest Group

Les postes à combler sont:

Vice-président
Trésorier
Président du groupe d'intérêt sur l'éducation
Président du groupe d'intérêt sur la technologie

Members with suggestions for nominees are invited to contact:

Les membres ayant des suggestions pour les mises en nomination sont invités à communiquer avec:

Chair of Nominating Committee
C. Peter Keller
c/o Department of Geography
Dublin University, Trinity College Dublin
Dublin 2, Republic of Ireland
Tel: Int: 353 1 2802459 (h)
Fax: Int: 353 1 773072 (w)

The membership profile is an important factor in determining the quality of the organization. Please think about the CCA what you want it to be, and what kind of energy you want serving on the executive. Consider your colleagues and which of them you think might make good candidates. Talk to them, seek their permission to run, and nominate them for the executive. All members of the executive are willing to discuss their roles and what is involved in them. Don't just think about it. Do it!

Le profil des membres est un important facteur qui détermine la qualité d'une organisation. S'il vous plaît, pensez à l'ACC; que voulez-vous qu'elle soit, et quelle sorte d'énergie vous voulez mettre dans les activités de l'exécutif. Faites part à vos collègues qu'ils peuvent être de bons candidats. Parlez-leur en, demandez leur permission et proposez leurs noms à l'exécutif. Tous les membres de l'exécutif actuel peuvent vous informer sur leur rôle respectifs. Ne faites pas seulement y penser. Faites-le.

Montréal 1992

by/par
Gary McManus

For the third time in its history the Canadian Cartographic Association held its Annual Meeting jointly with the l'Association québécoise de cartographie. This year's meeting, held in Montréal from June 2nd to June 6th, attracted participants from as far away as Australia.

Workshops scheduled to occur the first day were held at each of the four universities in Montréal: McGill (the conference host), Concordia, Université de Montréal, and Université du Québec à Montréal. Although the timetables were tight, this format offered the opportunity for participants to visit each of these institutions. It must be said that the cooperation among these four institutions was one of the major contributing factors to the success of the conference.

The following three days of the conference were held primarily on the McGill campus. These were organized into three plenary sessions which met during the morning periods and concurrent paper sessions which met after lunch. Several excellent student papers were presented throughout the paper sessions, giving all participants the opportunity to see and hear from the future of our organization.

The first two plenary sessions addressed the topics of mapping in the government and the private sector. Dr. F. R. Taylor, president of the ICA moderated the first session which began with J. Hugh O'Donnell, Assistant Deputy Minister, Surveys, Mapping, and Remote Sensing Sector, EMR. During the remainder of these sessions a variety of government agencies and mapping related businesses were represented. Barry Costello from the Ontario Ministry of Natural Resources mentioned the importance of upgrading cartographers to keep pace with current technological changes. Others in the private industry stressed the importance of practical experience within the disciplines workforce.

During the third plenary session educators had their say. Speakers, from a fairly balanced representative sample of Canadian colleges and universities, outlined their programs in cartography, GIS, remote sensing and surveying. Peter Keller led off this group and questioned the apparent demise of the quality of cartographic design and asked who will be teaching cartography in the future.

At the end of the third day, June 4th, the conference participants were invited to attend the "Festin du Gouverneur" in the historic old fort on St. Helen's Is-

land. As the honoured guests of the "Gouverneur" himself (a.k.a. Majella Gauthier) in period surroundings, we were entertained and fed a substantive meal by a band of merry lads and lasses. I might add that the Governor in his omnipotence also let us keep our heads. The evening was a great success, even though Murphy Brown (a.k.a. Carolyn Weiss) refused her hand in marriage to one of the Governor's henchmen (we all know she was holding out for Dan Quayle).

Friday night, a few baseball diehards found their way to an Expos -vs- Cubs double header and spent five hours of hat twisting excitement, hot dogs, popcorn, ice cream, pretzels and beer. We all learned that some-

times the Montreal fans in the seats can be as entertaining as the players on the field. Of course not everyone paid full attention to the game, using the time more intellectually: reading a novel or two!

The last day, Saturday, was really a day of rest and a day to enjoy the wonderful city of Montréal to its fullest. The weather, as it was throughout central Canada this summer, was not the best; but Montréal's hospitality, in celebration of her 350th year, more than made up for any cool temperatures and dampness. The final send off was a breath taking fireworks display on the river. A suitable conclusion to an explosive meeting.



"Gouverneur" and Madame Gauthier preside over le Festin



Murphy Weiss breaks the heart of another admirer

Technology/ technologie

by/par
Roy Doyon

A quick note about the annual meetings in Montréal. They were a resounding success; our colleagues at McGill deserve thanks for their organizational talents and their hospitality. The annual meetings provide a welcomed social and vocational setting for meeting old friends and becoming acquainted with new ones. I'm always impressed by the collective breadth of knowledge available at the annual meetings; cartographic colleagues have always been my best source of information. I encourage students especially to attend the meetings to discover all the dimensions of cartography which makes it such an interesting and dynamic discipline. And of course the meetings are a good place for students to make contacts and to discover job prospects.

Speaking of new information, the Executive Council had the opportunity to see Alun Hughes' preliminary draft of the soon-to-be published vocational pamphlet on Cartography. Alun as done his usual exemplary job of weaving together the disparate details of cartography into a cohesive piece. He deserves our heart-felt thanks for his superb work.

PostScript Graphics

The expanding PostScript graphics technology continues to make significant inroads into the cartographic community. Graham Allsopp in a recent SUC (Society of University Cartographers) Bulletin article outlined the results of a British survey conducted in late 1991. The survey was directed at "small drawing offices" (he doesn't define this) and 56 higher education geography departments. Over two-thirds of the respondents were using computer illustration programs. The Macintosh (IIfx and IICI, SE30, and IIfx in that order) was the preferred computer platform by 88% of the respondents with the remaining using PC's.

Adobe Illustrator, Aldus Freehand, and CorelDRAW (PC only) were the preferred PostScript drawing programs. The most popular software package on both PC and Macintosh machines was Aldus PageMaker, which, as the author correctly pointed, indicates the expanded role of the cartographer in the area of page layout and design. (Does this mean cartographic education should place added emphasis on page layout, within the context of book design, and on typographic principles?) Although the survey was not limited to PostScript based cartography, the results clearly indicated the general acceptance of computer-based cartog-

raphy for presentation graphics. I'll be surveying the membership later this year and we'll see how Canada compares with our brethren across the sea. Surveys, though they may often seem to strangle the obvious (a favoured past-time of some academicians), are useful tools. They can help us to keep track of the evolution of our discipline, and alert us to items worth incorporating into the cartographic curriculum. If, for example, you're interested in presentation cartography and you don't understand the significance of PostScript, you're on the verge of obsolescence. If you're teaching and not incorporating PostScript cartography into your curriculum, "get off your backside."

Software News

Good news in the area of software. CorelDraw's Version 3.0 is a major upgrade, with full color editable preview mode and on-screen text entry. The new version is a full feature graphics program with the addition of CorelChart, CorelPaint and CorelSHOW (Slides and animation) included with the CorelDraw package. The upgrade lists for \$169 (\$149 US). A CDROM reader is recommended to take full advantage of this new release. Recent PC Windows versions of Adobe Illustrator and Aldus Freehand should be welcome by our colleagues unable to move into the Macintosh platform. In my experience using both PC and Mac versions of the software, the primary difference is in handling fonts, with the Macintosh being the more friendly platform. There are an increasing number of software options for reading files between platforms, such as Apple File Exchange and SoftPC, which greatly mitigate the problem of transferring files between platforms. I recently created some digital map files using Voxland's World Projection Program (MSDOS) and converted them to Illustrator (Mac) to do some quick editing and then converted the files back to DOS to be imported into Freehand (MSDOS Version). All conversions were done using the Apple File Exchange program and all were flawless.

Geocart

I've spent the last four days going through a new Macintosh based projection program called Geocart. The program takes advantage of the friendly Macintosh interface and purports to be the most versatile and powerful drawing program ever introduced for the Macintosh computer. The program is innovative and reasonably easy to use, especially compared to Voxland's World Projection Program. It offers over 100 different map projections and if you're interested in small-scale maps, particularly world maps, the program works reasonably well. Results can be viewed quickly and, using the "show status" option, relevant information pertaining to each projection can be readily displayed. Scale error and Tissot's Indicatrix can be

quickly displayed. I fully expect this program will find a receptive audience in academe, especially for use in an introductory course. The program does have some serious flaws, but these, I would hasten to add, are problems one might expect of a first edition. The instructions don't always mirror the results produced by the program. I had difficulty getting the program to plot international boundaries after I zoomed into an area on the projection although it plotted them when I viewed the projection in a small-scale world view. The documentation was less than specific in explaining how to export files for use in a postscript program. I found the examples in the back of the manual somewhat helpful in filling in for the lack of explanation in the body of the manual, but I accomplished several tasks by trial and error, despite the software documentation. For anything other than small-scale maps I found the data sets to be woefully inadequate, the digitizing was both over-generalized and in several places incorrect. It should be mentioned that the data sets along with the entire program is included on two high density 3.5 inch disks. Compared to World Data Bank ... well, there just *is* no comparison. If you want good quality digital files, I recommend Voxland and World Data Bank files. The Geocart program has the feel of a program rushed into production, which is too bad, given the obvious talent of the software developer. I expect, and look forward to vast improvements in subsequent editions of this software. However, as an educational tool, the program has much to recommend it (Terra Data Inc., Bramblebush, Croton-on-Hudson, NY 10520, 212-675-2971).

Digital Chart of the World

Those of us anxiously awaiting the release of Digital Chart of the World (DCW) were disappointed by the recent delay. The new release date is now December 1992 or January 1993. The data, in CDROM format, is to be distributed by United States Geologic Survey. The new data set includes increased topological coverage with the addition of the transportation network, urban coverage, and some as yet unspecified intra-national boundaries to the three data layers (coastlines, international boundaries, and hydrography) available in the World Data Bank. I expect that coincident with or shortly after the release of the DCW, software vendors will include filters for importing the data into GIS and illustration programs. Since ESRI (ArcInfo) has the contract for developing DCW you can bet the data will be easily imported into their software package. As I mentioned in an earlier issue, World Data Bank One and Two data can now be exported from Voxland's exemplary World Projection program (Version 4.05) into an Illustrator (EPSF) file thanks to the recently added "Outadobe" file export option developed by Dave DiBiase of the Deasy GeoGraphics Lab at Penn State. I've

imported map files created this way into CorelDraw as well as into Freehand and Illustrator and it works really well.

Conversations with a Geographer, at the U.S. State Department, a Beta site for Digital Chart of the World, indicate that although DCW comes in CDROM format, its performance on a CDROM reader is prohibitively slow. They recommend reading the data to a large, fast hard disk. And don't even think of running DCW or using World Data Bank Two files with Voxland's Projection Program without a math coprocessor, unless you're looking for time to meditate.

GIS Instructional Package Available

A small instructional package providing an introduction to GIS is available from Brock University. It consists of three lab exercises using the IDRISI program and a St. Catharines/Thorold database. The exercises comprise two workshops that introduce the basic capabilities of IDRISI, and one assignment that introduces GIS problem-solving. The workshops provide a step-by-step procedure for the students to follow, interspersed with questions for them to answer, and incorporate an illustration of the use of GIS for emergency planning. The assignment poses the problem of identifying those parts of the study area that are deprived of urban amenities. Each exercise requires 2-3 hours of lab time for completion.

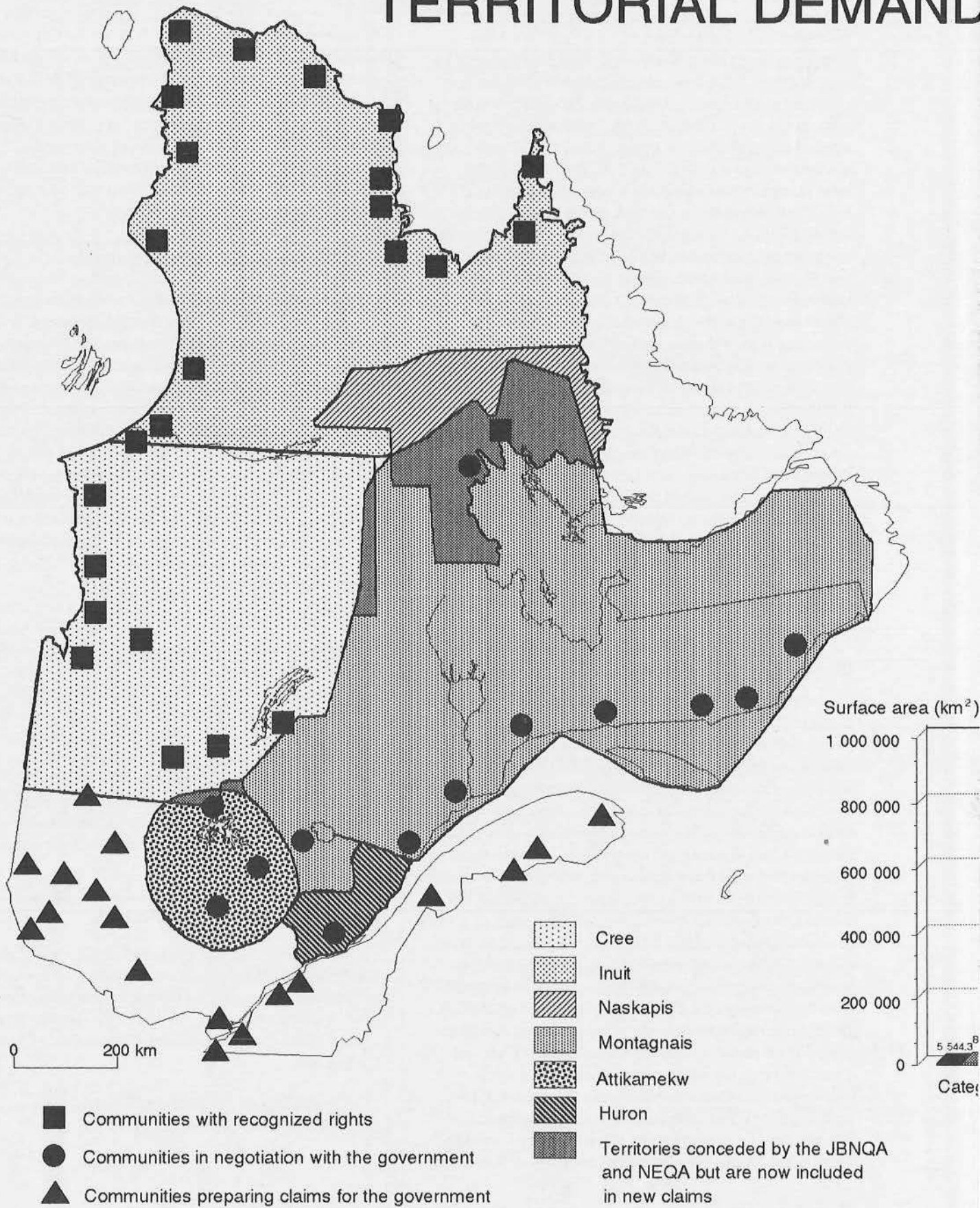
The package comprises: a PC disk containing a set of raster and vector data files, a Macintosh disk containing the exercises and corresponding answer sheets in the form of Microsoft Word documents, laser printouts of the exercises and answer sheets, colour printouts of maps produced in the assignment, flowcharts, and other supporting materials. The package was developed by Alun Hughes and David Flack, and can be obtained by writing to either at: Department of Geography, Brock University, St. Catharines, Ontario, L2S 3A1. Orders must be accompanied by a cheque for \$20, payable to Brock University.

President's Prize Winner Feature

Pages 10 and 11 feature a reduced rendition of Dave Néron's map, "Territorial Demands of Native Nations of Quebec", winner of the Monochrome Map (Introductory Course) category in the 1992 President's Prize Competition. Dave attends the Université de Québec à Chicoutimi.

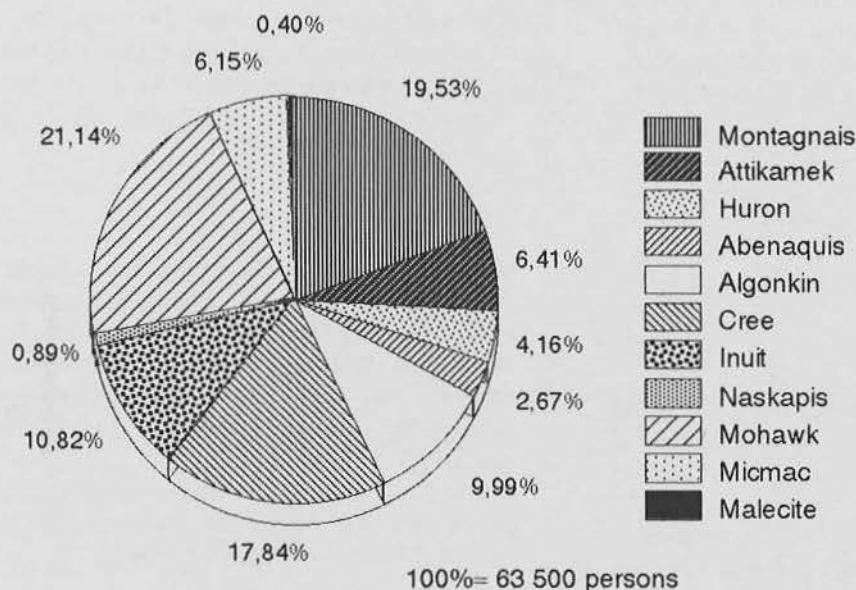
Look for details of the 1993 competition in the next edition of Cartouche. Start thinking!

TERRITORIAL DEMAND

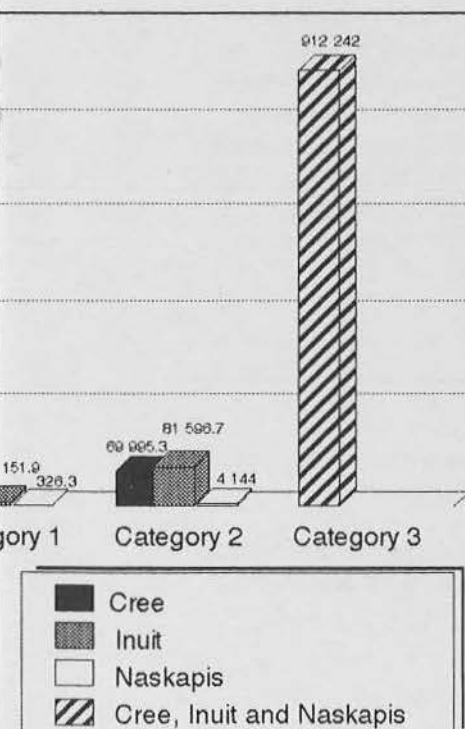


S OF NATIVE NATIONS OF QUEBEC

DISTRIBUTION OF NATIVE PEOPLE OF QUEBEC BY NATION AS OF DECEMBER 1991



Distribution of categorized lands conceded by the JBNQA and NEQA to native nations



The 1 082 000 km² of land given to the Cree, the Inuit and the Naskapis in accordance with the James Bay and Northern Quebec Agreement (JBNQA), as well as the Northeastern Quebec Agreement (NEQA) is distributed into three categories:

- Category 1 lands are set aside for the exclusive use and benefit of native people and their communities. The self government clause constitutes one of the most important characteristics of this category.
- Category 2 lands belong to the Crown, however the Native People have the exclusive right to hunt, fish, and trap on these lands. The Native People do not own these lands.
- Category 3 lands are a special category of Quebec public lands where native peoples have exclusive rights to harvest certain species.

Source: Indian and Northern Affairs Canada

Map Design and Use/ conception et utilisation des cartes

by/par
Christine Earl

In the past issue of *Cartouche*, a list of the winners of the President's Prize map design competition for 1992 was published. There were a tremendous number of entries, and they were high quality work which was very gratifying for the President and the CCA executive although somewhat agonizing for the judges. In the colour map category, the winner was Marcel Morin of the College of Geographical Sciences (Lawrencetown, Nova Scotia) for a multi-colour map of Vancouver in topographical style. The cartographer's rationale for his design choices is carefully stated in the following resume which accompanied his submission of the map:

Vancouver British Columbia

The intent of this project is to show that it is possible to produce a topographic map that is more economical without sacrificing important detail and readability. The original manuscript used was at a scale of 1:50,000 and, by reducing it to a scale of 1:100,000, the production costs have been reasonably reduced. With this scale reduction, space becomes a major factor, making generalization very important. Character retention will be emphasized in maintaining important detail. The elimination of spot colours will be another economic factor in the production of this map. The use of process colours: cyan, magenta, yellow, and black (CMYK), allow for future possibilities in digital reproduction.

Because the chosen area is a large city centre, information becomes hard to read and confusing. To overcome this problem, colour choice became quite important. For the built-up area, a 35% yellow background was chosen. It was felt that not only would yellow enhance the readability of cultural features, but it would create a crisp contrast between text and all road networks. Compared to the vegetated areas, a darker green tint was chosen for the parks. This enabled these areas to hold their own as a symbol, and makes locating them much easier.

Some map symbols have been changed because it was felt there was some room for improvement; these symbols were done digitally, laser-printed, photographed and incorporated with the rest of the set text.

The idea for the natural legend originated from the Queensland Topographic Map Series (Queensland, Australia). This legend, if properly designed, works

well and is easy to read. By placing features in the legend where they appear naturally, this makes for less searching. The legend should also appear as a single unit with a sensible order. A folding scheme was incorporated into the overall design of the map so that important information such as title, bar scale, key map and index number are contained in the front folded panel.

Overall, this map is designed in comparison with the current National Topographic Series, 1:50,000. It was felt that there was much room for improvement, especially with economics being a major factor in the quality of Canadian maps today.

Marcel Morin

It is clear that the excellence of Morin's design is no accident as he has carefully considered his objectives as well as production values. Unfortunately, due to the technical limitations of *Cartouche*, we are unable to print this map here. It was felt that a monochrome rendition of the map would not do justice to the original map or the excellent planning work of Marcel. Many thanks to all of the students who submitted their work for the President's Prize competition, and to the instructors who encouraged them to do so.

I think it would be interesting and appropriate to publish examples of maps designed for various uses in *Cartouche*, and I would like to establish a regular feature for this purpose which may be called something like "Gallery" or "Art à la carte" (I'm open to suggestions here). I will undertake to receive submissions and to select and arrange them, in consultation with our hard-working editor. I would, therefore, like to invite members to send me maps, preferably monochrome ones (Large-format maps will probably have to be excerpted). Send anything you think may amuse, delight, inform or interest readers – and don't be shy, send some of your own work, we'd like to see it. Encourage colleagues, students and others to send maps or charts. Something previously published may have to be released for re-printing, so beware of this constraint. Looking forward to hearing from you.

Could *you* have helped fill this space with something interesting to share with your colleagues?

See back page for contribution information and instructions. Help make *Cartouche* a better publication!

Automation/ automation

by/par
Y. C. Lee

ON THE DEFINITION OF GIS

After decades of GIS development, the most asked question is still the definition of GIS. I have a feeling that

*the task of defining GIS should be left
to psychics and historians.*

There are, in fact, no lack of definitions of GIS- Here are two examples:

"A set of powerful tools for collecting, storing, retrieving at will, transforming, and displaying spatial data from the real world for a particular set of purposes." Burroughs P.A. (1986). Principles of Geographical Information Systems for Land Resources Assessment. Oxford.

"A computer-based system that provides the following four sets of capabilities to handle georeferenced data: 1. input; 2. data management (data storage and retrieval); 3. manipulation and analysis; and 4. output." Aronoff, S. (1989). Geographic information systems: a management perspective, WDL Publications.

It is quite clear from these definitions that a GIS is really a spatial database management system (SDBMS) enhanced with functions to analyse and model geographic data. A SDBMS is a traditional DBMS extended with capabilities to handle georeferenced data.

These are futuristic definitions of GIS - they tell us what the ideal GIS should be. They are not working definitions of GIS because it is impossible to use them to tell a true GIS from imitations on the market today.

We can probably arrive at the definition of the *best possible* GIS we can produce (not necessarily available) today by combining the functionalities of all "GIS" and related software. Such a list appears in the 1991-92 International GIS Sourcebook published by GIS World Inc. The problem, then, is "How many of these functions should a system satisfy to qualify as a GIS?"

An answer to this question perhaps can be found from a historical perspective by looking at the origin of the term GIS. The term was coined in Canada to name CGIS, the Canada Geographic Information System (Land Management Information Systems, 1973). It was therefore the first GIS, and it was a computer system to read, store, and analyse maps consisting entirely of closed areas (polygons). There was no graphic output

capability in the early version of CGIS, but this was added later to support interactive analysis.

The maps were in the UTM projection with scales ranging from 1:10,000 to 1:250,000. Design of CGIS started in 1963 and the system was in full production in 1971. The original system was designed for the IBM S/360 with at least 512K bytes of memory, and the programs were written in PL/I and assembler.

There are many innovative aspects of CGIS which have become the basic characteristics of a GIS. They include

Seamless database:

The original objective of CGIS was to manage resource information for Canada. An important aspect of it was to provide efficient storage for data covering a wide geographical area. In order to achieve this objective, the entire country is segmented into frames which are squares in the geographic coordinate system. Each square is an independent storage unit and is logically complete in itself. The method of numbering the frame has become known as the Morton code. In order to provide the illusion of a seamless, continuous database, the frames are somewhat hidden from the user.

Aspatial data:

CGIS recognized the importance of aspatial (non-spatial, or attribute) data in a GIS. They were provided in the form of simple codes which are part of the data structure.

Topological data structure:

CGIS provided a topological data structure for polygons, and implemented procedures to process and convert raster data to topological vector data.

Overlay:

One of the most important analytical operations in CGIS was overlay which combines two to eight layers of polygonal data to produce a composite.

Whether these characteristics would constitute the minimum requirements of a GIS is a rather academic and political matter. The problem remains that the definition of GIS can only be found for the future and the past. For the time being, it seems that we can only determine a system's degree of "GISness".

The lack of a working definition for GIS allows every vendor to define GIS to their advantage and to sometimes grossly misuse the term. Hence

*The first GIS was made, not sold.
GIS today are sold, not made.*

Education/ éducation

by/par
Marcia Faurer

It was quite enlightening for me to find out at the conference in Montréal that I was far from being alone in my concerns over the rôle of Cartography courses in Geography Department curricula. In my discussions with our curriculum committee I have made a little headway in trying to convince the department that Cartography can be a third stream besides Human and Physical Geography - that it should not be a service course to augment the other two, or a hoop that Geography majors have to go through. However this takes time and a lot of patient give and take. In an earlier edition of *Cartouche* I mentioned that perhaps the business sector would eventually provide the 'push' to universities to enhance their cartography courses and I was very pleasantly surprised to see the beginnings of this trend in a letter that I received from Carrie Brown, the Manager of CAD Applications for Bell Canada in Toronto. Ms. Brown has given permission to reprint excerpts from the body text from her letters in this column. It is refreshing to see this sort of attitude within an organization like Bell Canada.

"We have in our Corporate Offices here, a department which is responsible for mapping our serving territory in Ontario and Québec. Our mapping is maintained on a CAD-based system. While there are a variety of courses for CAD and PC applications in Toronto, I am not aware of any ... which deal with Cartography itself."

"As I described on the phone, there are many levels of map use in our company. Our department currently has a mandate to fulfill the regulatory rôle of clearly identifying our serving territory. Over time, we may also be involved in creating planning maps (schematic and presentation style, as well as georeferenced to existing data) and with co-ordinating and maintaining mapping files with other utilities and municipalities."

From a training point of view, our needs are to identify and maintain a consistent understanding of quality and reliability in our product; to define the parameters of our products and their limits; and to better convey the information deemed necessary by ourselves and our clients. These are skills which, as you suggested, be developed over time, in class and in practice. I would hope that a workshop (or series of training sessions) would begin to develop these general goals into practical applications."

In my subsequent written and telephone communications with Ms Brown, I was very encouraged to hear

that Bell Canada appreciates that there is more to mapping than software manipulation. It was an indication that business realizes the importance and complexity of cartographic principles and theory in producing their maps and in organizing and maintaining their georeferenced databases. Perhaps if business and government began to demand that our graduates knew more than how to work the software, we would then have the support needed to enhance the cartography component of university curricula.

Bell Canada is just one corporate member of the CCA, but it would be very valuable to hear from the others, as well as from governments, either through letters to myself or, better still, directly to *Cartouche*.

Until next time.

News/nouvelles

Cartographers Honoured

The cartographers of the geography department's Memorial University of Newfoundland Cartographic Laboratory (MUNCL) were recently honoured by being awarded the first J. M. Ellis Innovative Map of the Year Award for 1991. The award, sponsored by J. M. Ellis Limited and the Cartographic Technical Committee of the Canadian Institute of Surveying and Mapping, is made to promote interest and to recognize excellence of creative design in cartography. The award highlights a single map that exhibits significant design advances, with competition open to all Canadian residents, private firms, federal, provincial, and municipal agencies producing and publishing maps. In addition to a cash award, the winner is presented with a certificate.

The winning submission was a map, titled "The Fishery: Management and Landings", published in the *Atlas of Newfoundland and Labrador*.

People and Places

Richard I. (Dick) Ruggles, Professor Emeritus of Geography, Queen's University, was the recipient of the 1992 *Regional History Certificate of Merit for the Prairies and Northwest Territories* region of the Canadian Historical Association at the Charlottetown meetings of the learned societies this May for his book *A Country So Interesting. The Hudson's Bay Company and Two Centuries of Mapping 1670 - 1870*, McGill-Queen's University Press, 1991.

Availability of Computer Source Code for Map Projection Transformations

by/par

Mark J. MacLennan

Have you ever needed computer source code to perform forward or inverse map projection transformations? Although there are many good commercial software packages for computing and displaying map projections, there is still a need for computer source code especially for research or instructional purposes. While it might be a good exercise to write the necessary code from scratch using the appropriate equations, most researchers don't have either the time or the inclination to do so.

The following compilation is intended to be a fairly complete, although certainly not comprehensive, inventory of available map projection source code. Much of the software is both free and in the public domain (although do note the exceptions). Some of the code is even available via "anonymous ftp" over Internet and where applicable these Internet addresses have been listed. These are valid as of August 1992. Of all the software, the GCTP and MAPGEN packages are the most extensive and therefore probably the most useful code for most applications.

CAM (Cartographic Automatic Mapping program)

CAM is a multi-purpose mapping package which includes the ability to perform 18 different cartographic transformations. It was part of AUTOMAP, an earlier automated mapping system developed by the CIA. CAM includes the ability to handle the World Data Bank II cartographic data base. A 9-track tape of this software can be purchased from NTIS.

Language: Fortran IV (IBM), Assembler (IBM)

CATCH (Computer Assisted Topography, Cartography, and Hysography)

CATCH is a set of computer programs/subroutines for performing geographical data map transformations and display that were originally developed at the Oak Ridge National Laboratory to support regional modeling. A 9-track tape of this software can be purchased from NTIS. Language: Fortran IV (IBM)

Projections: Albers Equal Area, Lambert Conformal, Polyconic, Transverse Mercator, Universal Transverse Mercator, State-Plane Projections.

Edwards, R. G. and R. C. Durfee. 1976. *Digitizing Geographic Data with GRIDOT: A Generalized Program for Drawing Overlay Grids in Various Map Projections.*

Oak Ridge National Laboratory, Tennessee.
NTIS ORNL/RUS-17.

Stevenson, R. L. 1976. *CATCH: Computer Assisted Topography, Cartography, and Hypsography. Part II: ORGRAT - A General Subroutine for Drawing Graticules.* Oak Ridge National Laboratory, Tennessee.

NTIS ORNL-TM-3790-Part 2.

Tucker, T. C. and L. J. Campbell. 1976. *CATCH: Computer Assisted Topography, Cartography, and Hypsography. Part I: MAPROJ - A Subroutine Package for a Number of Common Map Projections.* Oak Ridge National Laboratory, Tennessee.

NTIS ORNL-TM-3790-Part 1.

Tucker, T. C. and L. J. Campbell. 1984. *CATCH: Map Projection Subroutine Package.*

NTIS DE83048872, magtape T11.

GCTP (General Cartographic Transformation Package)

GCTP is a software package that can compute the forward and inverse transformation for a wide variety of map projections. The package was originally developed at the U.S. Geological Survey in 1980 to support the needs of a variety of other computer cartographic systems. All of the map projections and their mathematical formulations are described in Snyder (1982). It was later enhanced (GCTP/II) by the U.S. National Oceanic and Atmospheric Administration including conformance to Fortran 77. The most recent version of GCTP/II can be purchased on 9-track tape from NOAA's National Geodetic Survey.

Language: GCTP: Fortran IV (IBM), GCTP: Fortran 77 (IBM)

Projections: Universal Transverse Mercator, State Plane, Albers Conical Equal-Area, Lambert Conformal Conic, Mercator, Polar Stereographic, Polyconic, Equidistant Conic, Transverse Mercator, Stereographic, Lambert Azimuthal Equal-Area, Azimuthal Equidistant, Gnomonic, Orthographic, General Vertical Near-Side Perspective, Sinusoidal, Equirectangular, Miller, Van der Grinten I, Oblique Mercator (Hotine).

Elassal, A. A. 1987. *General Cartographic Transformation Package (GCTP), Version II.* NOAA Technical Report NOS 124, CGS 9, U.S. Department of Commerce.

Snyder, J. P. 1982. *Map Projections Used by the U.S. Geological Survey.* U.S. Geological Survey Bulletin 1532.

Internet: GCTP: isdres.er.usgs.gov (USGS)

GCTP/II: charon.er.usgs.gov (pub), csu.org
(COGS/mapping)

GEOPLOT

Geoplot is a Unix-based advanced graphics package which includes a wide variety of map transformations. Although originally developed for use on a DEC PDP-11/70 computer running Unix and likely no longer supported, the map projection software could probably be implemented on any Unix system without too much difficulty.

Language: C

Projections: Equirectangular, Mercator, Miller, Transverse Mercator, Universal Transverse Mercator, Equal Areal Azimuthal, Equal Distance Azimuthal, Gnomonic, Orthographic, Perspective azimuthal, Stereographic, Lambert conformal, Ptolemy equal interval, Kavairskiy IV, Albers equal-area, Polyconic, Sinusoidal (Mercator equal-area).

Schultz, M. E. 1986. Plotting Azimuthal Stress Data on Standard Map Projections using Geoplot. U.S. Geological Survey Open File Report 86-398.

Ward, P. L. 1983. *GEOPLOT, An Advanced Graphics Package for Minicomputers. Part I: User's Guide*. U.S. Geological Survey Open File Report 83-807-A.

Ward, P. L. 1983. *GEOPLOT, An Advanced Graphics Package for Minicomputers. Part II: Computer Source Code*. U.S. Geological Survey Open File Report 83-807-B.

GMT (Generic Mapping Tools)

GMT is a set of Unix-based software tools that can be used to manipulate and display columns of tabular data, time series and gridded datasets. Among the tools are a program (map_project) to compute forward and inverse map transformation of 2-D coordinates and another (project) to project data along a line or great circle and to translate coordinates. These programs can be used independently of the other tools in this package.

Language: C

Projections: Lambert Azimuthal Equal-Area, Lambert Conformal Conic, Oblique Mercator, Transverse Mercator, UTM, Stereographic, Mollweide Equal-Area.

Wessel, P. and W. H. F. Smith. 1991. *Free software helps map and display data*, EOS, 72:41, 441,445-446.

Internet:kiawe.soest.hawaii.edu [128.171.151.16]
(pub/gmt)

GSDIG

GSDIG is a PC DOS-based computer program that uses a digitizer to determine latitude/longitude coordinates and outputs the values to an data file. This program was developed to expedite the digitizing of points from maps and for inputting this data to Lotus 1-2-3, dBase, GSMAP and other programs.

Language: Basic (IBM PC)

Projections: Albers Equal Area, Lambert Conformal Conic (one standard parallel; two standard parallels), Universal Transverse Mercator, Mercator.

Selner, G. I., C. L. Smith and R. B. Taylor. 1990. *GSDIG Version 3.0; A Program to Determine Latitude, Longitude Coordinates or X,Y Coordinates Using a Microcomputer (IBM PC or Compatible) and Digitizer*. U.S. Geological Survey Open-File Report 90-0080, 28 p., one 5.25 inch diskette.

MAP

Frederick Pearson II has published several documents/books on map projections which include computer source code. An earlier publication (Pearson, 1977) includes a program MAP written in Fortran which handles a variety of map projections. A thorough review of the map projection equations in Pearson (1977) including the identification of errors in some of the equations can be found in Snyder (1980). His subsequent book (Pearson, 1990) includes some code in Basic, Pascal and Fortran. An IBM PC diskette of Basic programs is also available.

Language: Fortran IV (CDC 6600)

Projections: Equal Area Azimuthal, Equal Area Conical (one standard parallel; two standard parallels), Equal Area Cylindrical, Bonne, Parabolic, Sinusoidal, Mollweide, Hammer-Aitoff, Mercator, Stereographic, Lambert Conformal (one standard parallel; two standard parallels), Gnomonic, Azimuthal Equidistant, Orthographic, Simple Conical (one standard parallel; two standard parallels), Miller, Polyconic.

Language: Basic (IBM PC)

Projections: Polar Azimuthal Equal Area, Albers (two standard parallels), Cylindrical, Sinusoidal, Mollweide, Parabolic, Stereographic, Lambert Conformal (two standard parallels), Equatorial Mercator, Gnomonic, Azimuthal Equidistant, Polyconic.

Pearson, F. 1977. *Map Projection Equations*. Naval Surface Weapons Center TR-3624, Dahlgren, VA. NTIS AD/A037 381.

Pearson, F. 1990. *Map Projections: Theory and Applications*. CRC Press, Boca Raton, Florida.

Snyder, J. P. 1980. *Reviews*, The American Cartographer, 7:2, 178-179.

MAPGEN (MAP GENERator)

MAPGEN is a UNIX-based software system developed by Gerald Evenden that facilitates production of cartographic displays. It includes basic tools for transforming digital geographic data into a map, including map projection transformations and a device-independent graphic subsystem to control a variety of different plotting devices. The MAPGEN program PROJ is a standard Unix filter function that performs the cartographic transformations. Many of the map projection routines were derived from GCTP.

Language: C (Unix)

Projections: Mercator, Transverse Mercator, Universal Transverse Mercator, Oblique Mercator, Central Cylindrical, Transverse Central Cylindrical, Miller, Lambert Cylindrical Equal Area, Gall (Stereographic), Transverse Cylindrical Equal Area, Equidistant Cylindrical, Cassini, Sinusoidal, Mollweide, Robinson, Eckert I, Eckert II, Eckert III, Eckert IV, Eckert V, Eckert VI, Goode Homolosine, Hatano Asymmetrical Equal-Area, Loximuthal, McBryde-Thomas Flat- Polar Parabolic, McBryde-Thomas Flat-Polar Quartic, McBryde- Thomas Flat-Polar Sinusoidal, Putnins P'2, Putnins P5, Quartic Authalic, Winkel I, Boggs Eumorphic, Collignon, Denoyer Semi- Elliptical, Craster Parabolic, Lambert Conformal Conic, Equidistant Conic, Perspective Conic, Albers Equal Area, Lambert Equal Area, Bipolar Oblique Conic Conformal, Polyconic, Rectangular Polyconic, Bonne, Stereographic, Universal Polar Stereographic, Gnomonic, Orthographic, Airy, Near-Sided Perspective, Lambert Azimuthal Equal Area, Azimuthal Equidistant, Hammer, Wagner VII, Aitoff, Winkel Tripel, August Epicycloidal, Bacon Globular, Nicolosi Globular, Fournier Globular I, Apian Globular I, Eisenlohr, Ortelius Oval, Van der Griten (I), Van der Griten II, Van der Griten III, Van der Griten IV, Lagrange, U.S. State Plane Coordinate Systems.

Evenden, G. I. 1983. *Forward and Inverse Cartographic Projection Procedures*. U.S. Geological Survey Open-File Report 83-623, 76 p.

Evenden, G. I. and J. M. Botbol. 1985. *User's Manual for MAPGEN (UNIX Version): A Method to Transform Digital Cartographic Data to a Map*. U.S. Geological Survey Open-File Report 86- 706.

Evenden, G. I. 1987. *The MAPGEN cartographic system*, in Proceedings, International Symposium on Marine Positioning, M. Kumar et al. (eds.), D. Reidel, Dordrecht, 285-294.

Evenden, G. I. 1990. *Cartographic Projection Procedures for the UNIX Environment - A User's Manual*. U.S. Geological Survey Open- File Report 90-0284, 63 p.

Evenden, G. I. 1991. *Technical Manual for a UNIX-Based Device- Independent Vector Graphic System*. U.S. Geological Survey Open- File Report 91-0002, 35 p.

Grim, M. S. 1992. *An Introduction to MAPGEN*. U.S. Geological Survey Open-File Report 92-0004, 74 p.

Hampson Jr. , J. C. and E. L. Wright. 1988. *GLORIA Atlas Preparation: A Basic Application of the MAPGEN Mapping System as a Publishing Aid*. U.S. Geological Survey Open-File Report 88- 287, 27 p.

Robb, J. M. 1989. *A Collection of MAPGEN Command Files Suitable for Hacking*. U.S. Geological Survey Open-File Report 89-0653, 41 p.

Internet:MAPGEN: charon.er.usgs.gov (pub)
MAPGEN: moon.cecer.army.mil (grass4.0)
modified MAPGEN: lamont.ldgo.columbia.edu

NOAA Geodetic Software

A variety of geodetic software for IBM mainframe computers are available from the U.S. NOAA's (National Oceanographic and Atmospheric Administration) National Geodetic Survey. Computer programs related to map projections are listed below. The programs are distributed on 9-track computer tape.

Language: Fortran IV

Projections:

UTMDIR	computes UTM coordinates for a given geodetic position.
UTMINV	computes geodetic positions given UTM coordinates.
DIRECT	computes the geodetic position of a survey point, given the distance and azimuth from another point.
INVERS	computes the distance between two survey points and the forward and back azimuths, given the latitude and longitude of each point.
GPPCGP	computes state plane coordinates from geodetic positions, or vice-versa.
SPCUTM	computes UTM coordinates from state plane coordinates.

Transverse Mercator map projection of the spheroid using transformations of the elliptic integral.

This computer program produces the Gauss-Kruger (constant meridional scale) Transverse Mercator projection which is used to construct the Universal Transverse Mercator (UTM) grid system. The method is capable of mapping the entire (Northern or Southern) hemisphere accurately with respect to a single meridian. This software is copyrighted. Language: Fortran 77 (IBM PC)
Program Number NPO-18086 (COSMIC)

MISCELLANEOUS MAP PROJECTION SOFTWARE IN JOURNALS AND TECHNICAL REPORTS

- Adams, B. R. 1984. *Transverse cylindrical stereographic and conical stereographic projections*, The American Cartographer, 11:1, 40-48. Language: Fortran
- Bame, P. D. 1990. *Albers equal-area conic map projection* in Graphics Gems, A. S. Glassner (ed.), Academic Press, New York, 321-325, 726-729. Language: C
- Barton, B. 1976. *A note on the transformation of spherical coordinates*, The American Cartographer, 3:2, 161-168. Language: Fortran
- Berls, N. J. 1987. *A program for American Polyconic projections*, Geobyte, 2:2, 15-17. See also pp 18-29 for Lambert Conformal and TM projections.
- Dozier, J. 1980. Improved Algorithm for Calculation of UTM and Geodetic Coordinates. NOAA Technical Report NESS 81, U.S. Department of Commerce. Language: C
- Floyd, R. P. 1985. Coordinate Conversion for Hydrographic Surveying. NOAA Technical Report NOS 114, Charting and Geodetic Services Series CGS 7. Language: Fortran 77
- Johnston, W. D. 1979. *Computer generated maps: Part 1*, BYTE, 4:5, 10-12, 76-101.
- Johnston, W. D. 1979. *Computer generated maps: Part 2*, BYTE, 4:6, 100-123. Language: BASIC
Projections: Mercator, Transverse Mercator, Oblique Mercator, Lambert Conformal Conic, American Polyconic, Azimuthal Equidistant.
- Nagy, D. 1990. *The Lambert conformal conic projection: A short algorithm to calculate the direct and inverse transform*, Canadian Institute of Surveying and Mapping Journal, 44:2, 158-164. Language: Fortran

Newton, G. D. 1985. Computer Programs for Common Map Projections. U.S. Geological Survey 1642. U.S.

Geological Survey Bulletin 1642. Language: Fortran 77 (Prime 750)
Projections: American Polyconic, Lambert Conformal Conic, UTM

O'Brien, L. P. 1986. Universal Transverse Mercator Grid Formulas for Cartographic Applications Programmers. Defense Mapping Agency Inter American Geodetic Survey, Miami. (NTIS AD- A176 624/5/HDM) Language: BASIC

Rutledge, A. T. 1989. A Computer Program for Converting Rectangular Coordinates to Latitude-Longitude Coordinates. U.S. Geological Survey Water-Resources Investigations Report 89-4070. Language: Fortran 77

Snyder, J. P. 1985. Computer-assisted Map Projection Research. U.S. Geological Survey Bulletin 1629. Language: Fortran 77

Snyder, J. P. 1990. *The Robinson Projection - A Computation Algorithm*, Cartography and Geographic Information Systems, 17:4. Language: Fortran 77

SOURCES / ADDRESSES

BYTE on Disk One Phoenix Mill Lane
P.O. Box 809
Peterborough, NH 03458-0809
800-258-5485

COSMIC The University of Georgia
382 East Broad Street
Athens, GA 30602
404-542-3265

U.S. Department of Commerce
National Technical Information Service (NTIS)
Springfield, Virginia 22161 703-487-4650

Books and Open-File Reports Section
Branch of Distribution
U.S. Geological Survey
Box 25425, Federal Center
Denver, Colorado 80225 303-236-7476

National Geodetic Survey/NOAA
National Geodetic Information Branch
N/CG174, Rockwall Bldg, Room 24
Rockville, Maryland 20852 301-443-8631

Sigma Scientific
903 Myers Place
Blacksburg, Virginia 24060

Corporate News

CORPORATE MEMBERS (1992)

Bell Canada,	Toronto
Defense Mapping Agency,	Washington, D.C.
J. M. Ellis,	Metcalfe, ON
Idrisi Project,	Worcester, MA
Intergraph Canada,	Calgary
Intergraph Corp.,	Huntsville, AL
Map Art,	Etobicoke, ON
National Atlas Info. Services,	Ottawa
PAMAP,	Victoria
Projections Mapping Group,	Calgary
John Wiley and Sons,	Toronto

PROJECTIONS MAPPING GROUP ANNOUNCES RELEASE OF NEW DESKTOP GIS-SPATIAL ANALYST

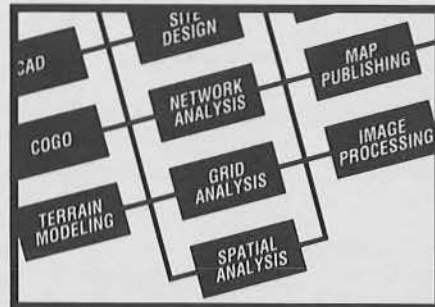
Projections Mapping Group Inc. has announced the release of its flagship product, *Spatial Analyst for AutoCAD*. Spatial Analyst is a desktop mapping system which provides the capabilities of a full-function GIS, but at a lower cost than traditional GIS packages.

Targeted at a broad range of users and applications, Spatial Analyst focuses on decision support tools more than the simple database linkages which have characterized AM/FM and GIS systems in the AutoCAD world. Capabilities include multi-layered polygon analysis, network chasing, zone buffer generation and coordinate transformations. Import and export facilities are provided for ARC/INFO, Geo/SQL and most public data formats. Spatial Analyst is written using the AutoCAD Development System (ADS) and is designed to integrate with other AutoCAD applications. The product also features a comprehensive Programmer's Toolkit, which allows it to be fully integrated with vertical applications. According to President Bill McKenzie, "Spatial Analyst" will fill a large void in the GIS market which leaves many users without the option of an easy to use, low-cost, powerful and intuitive GIS toolkit. AutoCAD provides the ideal platform to combine this type of spatial analysis with a rich set of graphic operators."

Spatial Analyst for AutoCAD will sell for \$1495 and begin shipping in August 1992. The product will be available through the AutoCAD dealer channel, as well as being available to third party developers on an OEM basis.

Projections Mapping Group is a Calgary-based GIS software and consulting firm specializing in integrating GIS with the AutoCAD environment. For more information call Lori-Ann Knee, Tel: 403-263-3311 Fax: 265-0884.

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Content Deadlines are: January 31, April 30, July 30, October 31.

Les dates limites pour l'envoi d'articles ou de documents sont les suivantes: 31 janvier, 30 avril, 30 juillet, 31 octobre.

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