Cartouche

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JOIN US IN LONDON, ONTARIO FOR THE 1998 JOINT CONFERENCE

Cartouche is published quarterly by the Canadian Cartographic Association. Members are welcome to submit articles for publication. Articles and notices submitted for publication are subject to editorial approval. Please address your submissions to the editor. It is the policy of the editor to provide dual language copy for editorial content and journal mechanics. All other articles will appear in the language of submission. While every effort is made to ensure accuracy of content, the editor cannot be responsible for errors in compilation, or loss of any item submitted. Opinions expressed in the editorials, submitted articles and letters are not necessarily those of the Canadian Cartographic Association. The Canadian Cartographic Association gratefully acknowledges the financial support given by the Social Sciences and Humanities Research Council of Canada.

Cartouche *est publié trimestriellement par l'Association canadienne de cartographie. N'hésitez pas à soumettre des articles que vous désirez publier dans le bulletin. Les articles et annonces soumis pour parution sont sujets à l'approbation de la rédaction. Veuillez les adresser à l'éditeur. Selon la politique en vigueur, l'éditeur publié, en français et en anglais, l'éditorial ainsi que la description du processus de publication du bulletin. Les autres articles paraîtront dans la langue dans laquelle ils ont été écrits. Bien que beaucoup d'efforts soient déployés en vue d'eviter de tels problèmes, l'éditeur n'est pas tenu responsable des erreurs de compilation on de la perte d'articles que 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'Association canadienne de cartographie. L'Association canadienne de cartographie remercie vivement le Conseil de recherches en sciences humaines du Canada pour son apport financier.*

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Deadline for the next issue is:
May 30, 1998

La date limite pour la prochaine publication est:
30 mai 1998

Rorschack's Map

After the "unwarranted" attack on the membership, launched by our illustrious Vice President, Rorschack's Map recorded its largest response. Evidently, cartographers do not like to be insulted!. Congratulations to Craig White who sent the first correct response, the Fijian Islands of Vanua Levu and Viti Levu. Craig will receive a copy of the *Lonely Planet's Guide to Fiji.*

This issue's blot may not be as challenging as the last one, but we will try our best to stump the membership. As usual, send your responses to the editor (address above). The winner will win a valuable prize and be acknowledged in the next issue of Cartouche.

Some members have expressed their concern about the fairness in selecting the first correct response to the blot (U.S. and Overseas mail is a bit slower). As a result, ALL correct responses will be thrown into the proverbial hat and a winner will be picked at random. The deadline for receipt of your entries is April 30, 1998.

Carte énigmatique

Depuis les "commentaires ironiques" de notre illustre vice-Président, sur l'abilité (ou l'incapacité) de nos membres à résoudre les énigmes cartographiques de cette page, les réponses affluent au point d'atteindre un nombre record de réponse. Qui plus est qu'elle sont toutes bonnes! Il semble bien que les cartographes n'aiment pas trop se faire secouer les puces. Cette fois-ci c'est Craig White qui se mérite le livre "Guide to Fiji" de la collection Lonely Planet, pour avoir trouvé la réponse de notre énigme soit: Les îles Fidji de Vanua Levu et Viti Levu.

Notre énigme d'aujourd'hui ne paraîtra peut-être pas aussi ardu à résourdre (qui sait!!!) cependant, soyez certain que nous faisons tout ce qui est possible pour vous compliquer la vie. Comme d'habitude, vous faites parvenir vos solutions le plus tôt possible à l'adresse de l'éditeur mentionnée à la page 2.

Quelques membres ont manifesté leur préoccupation quant au choix du gagnant. Étant sensible à leur argumentation sur le délai de livraison du courrier (provenance des Etats-Unis et de l'étranger) nous procéderons dorénavent en faisant un tirage au sort parmi toutes les bonnes re ues avant la date de clôture qui pour le présent numéro est fixé au 30 avril 1998.

Inside this issue / *Sommaire....*

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Challenges to Come

Brian Klinkenberg
University of British Columbia

What qualifications should someone who calls themselves a GIS expert have? Can a uniform set of guidelines be established, guidelines that all can agree upon? Where does cartography fit into those guidelines? If we are to maintain our presence as a provincial / national voice for cartography and GIS, these are questions that the CCA needs to address. Organizations such as the newly formed Glengarry Group (see below) and the establishment of draft ISO certification standards for geomatics professionals indicate that the playing field is rapidly changing, and if we want to remain in the game we must meet those changes head on.

As I mentioned in my last message, the professionalization of geoscientists is an ongoing process across Canada, and cartographers and geographers are finding that areas of work that traditionally were part of their bailiwick now fall under the umbrella of a professional geoscientist. Other occupational groups, such as biologists, are also seeking (or have established) professional status. What we are seeing is, on the one hand, the blurring of professional boundaries as technology enables one group to expand its traditional duties and, on the other hand, the codification of once 'open' disciplines such as biology.

We can get a sense of where things are headed by looking at how other groups are responding to the changes. The Canadian remote sensing community is thinking of explicitly 'mapping' GIS onto its agenda. The Land Surveyors of Ontario are considering the establishment of a specialization in GIS, in addition to the current specializations of cadastral surveyor and hydrographic surveyor, among others. The Canadian Institute of Geomatics recently sponsored a workshop entitled 'Partnering for Prosperity,' from which the Glengarry Group was formed with an explicit mandate to facilitate the integration, growth and development of the Canadian geomatics community.

While, currently, such events may have little impact on the average member of the CCA, in the long run, considered altogether, they may portent more serious implications. Consider, for example, the ramifications to cartography if GIS is seen as a computer science–engineering subject with little to do with Geography *per se*. The notion that to understand GIS does not require an understanding of Geography or cartography has already been put forth in an editorial in the magazine 'GIS Europe,' so that view is not all that foreign to many. My view of GIS is different from that, but my voice is but one of the many that are echoing around the wilderness that is now GIS in Canada. Together, however, our voices can and should be heard.

'While, currently, such events may have little impact on the average member of the CCA, in the long run, considered altogether, they may portent more serious implications.'

As mentioned above, the CIG recently facilitated the formation of the Glengarry Group. The Group seeks to promote, among other activities, a national and international program of certification for Geomatics practitioners, and to provide input on core Geomatics competencies for universities and colleges (for complete information on the Glengarry Group refer to the relevant web pages maintained by the CIG at **www.cig-acsg.ca** and go to the Glengarry Group pages). The CCA will become an active participant in the Group. If you have any contribution you would like to make to this ongoing effort, please do not hesitate to contact a CCA executive member and let them know of your thoughts or concerns. Every CCA member who is at the SDI 98 Conference in Ottawa should also make an effort to attend the Glengarry Group meeting which will be held there Friday, June 12.

The Glengarry Group appears to have further significance for the CCA in that it apparently may take on the role of the steering committee for a Human Resources Development Canada 'Geomatics sector study initiative.' This initiative, if it goes forward, will examine how changes in business and technology relate to issues such as future skill requirements and education and training needs in the Geomatics sector in Canada. Again, there exists an opportunity for the cartography community to make its voice heard, and for us to emphasize the importance of cartography as a foundational element of Geomatics.

Information on the proposed ISO standards for geomatics professionals–TC211–can be found at **http://www.statkart.no/isotc211/.** The scope of TC211, as taken from their web site, is: "Standardization in the field of digital geographic information. This work aims to establish a structured set of standards for information concerning objects or phenomena that are directly or indirectly associated with a location relative to the Earth. These standards may specify, for geographic information, methods, tools and services for data management (including definition and description), acquiring, processing, analyzing, accessing, presenting and transferring such data in digital / electronic form between different users, systems and locations. The work shall link to appropriate standards for information technology and data where possible, and provide a frame-

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Les nouveaux défis

Brian Klinkenberg,
University of British Columbia

Que doivent être les compétences d'une expert en SIG? Est-ce qu'une série de directives, de normes doivent être instaurées et dans pareil cas, sauront-elles joindre l'aval de tous? Comment la cartographie peut-elle s'y intégre-t'elle? Si nous désirons maintenir notre présence dans la cartographie et les SIG, sur les plans national et local, ce sont là des questions auxquelles les membres de l'Association devront se poser. Des organisations comme le Groupe Glengarry, nouvellement formé (voir texte ci-dessous), et la création d'un projet de certification ISO pour les professionnels de la géomatique nous donnent déjà le ton d'un changement prochain des règles du jeu. Si nous voulons demeurer en piste nous avons intérêt à nous y mettre.

Comme je l'ai mentionné dans mon précédent mot du Président, la professionnalisation des géoscientifiques suit son cours à travers le Canada. Les cartographes et les géographes voient ou verront leurs champs traditionnels de travail tomber partiellement sous la juridiction des professionnels géoscientifiques. D'autres groupes de professionnel, tels que les biologistes sont également à la recherche de statut professionnel (ou les ont établi). Nous observons d'un côté, l'aspect aléatoire des limites professionnelles face à l'expansion du champs de travail d'un groupe et de l'autre côté la codification d'une discipline ouverte comme c'est le cas pour la biologie.

Déjà nous pouvons percevoir où vont les changements en profitant de l'expérience acquise par d'autres groupes. La communauté canadienne de télédétection songe explicitement à mettre la cartographie des SIG dans son ordre du jour. Les arpenteurs-géomètres de l'Ontario sont en train de considérer la création d'une spécialisation en SIG en plus des spécialisations usuelles dont le Cadastre et l'Hydrographie. L'Association canadienne des sciences géomatiques a récemment parrainnée l'atelier "Parteneuriat pour la prospérité", duquel le Groupe Glengarry a été formé, avec un mandat clair de faciliter l'intégration, la croissance et le développement de la communauté géomatique canadienne.

Même si ces événements n'ont actuellement que peu d'impact pour l'ensemble des membres de l'Association, à long terme, mis tous ensemble, cela présage rien de bon et pourrait engendrer des implications assez sérieuses. Dans l'hypothèse que les SIG soit perçus comme un objet des sciences informatiques-ingénierie, il a un risque considérable que les constituantes de la cartographie soient diluées de leur contenu géographique. D'ailleurs j'ai relevé dans un éditorial du périodique "GIS Europe", que les notions sous-tendant les SIG ne requèrent pas la connaissance de la géographie et de la cartographie, et ce point de vue est partagé par plusieurs. Pour ma part, je ne partage pas du tout ce point de vue sur les SIG, mais ma voix à elle seule ne peut se faire entendre dans ce désert que sont les SIG au Canada. Ensemble nous pourrons sûrement nous faire mieux entendre.

'Même si ces événements n'ont actuellement que peu d'impact pour l'ensemble des membres de l'Association, à long terme, mis tous ensemble, cela présage rien de bon et pourrait engendrer des implications assez sérieuses.'

Comme je l'ai mentionné précédemment, l'ACSG a récemment participé à la formation du Groupe Glengarry. Ce groupe cherche à promouvoir à travers ses activités, un programme national et international de certification pour ceux qui oeuvrent en géomatique et veux également fournir des informations sur le noyau de compétences en géomatique de noss universités et collèges (pour plus d'informations sur le **Groupe Glengarry** consultez les pages pertinentes sur le site Internet de l'ACSG: **www.cig-acsg.ca**). L'ACC a l'intention de devenir un participant actif de ce groupe. Si vous désirez participer aux démarches en cours, n'hésitez pas à contacter l'un des membres de l'exécutif de l'ACC pour lui faire connaître vos commentaires ou votre intérêt. J'invite tous les membres de l'ACC qui seront présents aux conférences internationales sur la géomatique-***"Infrastructures de données spatiales",*** qui se tiendront à Ottawa en juin prochain, de participer à la réunion du Groupe Glengarry, prévu pour vendredi le 12 juin.

Le Groupe Glengarry semble avoir une portée plus importante qu'il ne paraît pour l'ACC car il pourrait jouer un rôle majeur dans l'initiative du Comité aviseur pour le Développement des Ressources Humaines du Canada dans le secteur de la géomatique. Si cette initiative est poussée plus avant, il examinera comment les changements dans les affaires et la technologie pourront être liés dans le futur, en terme d'exigences pour les fins d'éducation et de formation au Canada. Encore une fois, voilà l'occasion pour la communauté cartographique de faire entendre sa voix et pour nous, d'attirer l'attention sur la cartographie en tant qu'élément fondemental de la géomatique.

Vous pourrez trouver de l'information sur la norme ISO/TC211 à l'adresse http://www.statkart.no/isotc211/. Selon l'information relevée sur le site Internet, la portée de TC211 vise à uniformiser la numérisation de l'information géographique. Elle vise à établir un ensemble de structures de normes pour l'information touchant aux éléments directement ou indirectement associés à une géoréférence. Pour les réaliser, il faudra préciser, dans le cas de l'information géographique: les méthodes, les outils et les services pour la gestion des données (incluant la définition et la descripion), l'acquisition, le traitement, l'analyse, l'accès, la présentation et le transfert des données numériques/électronique entre différents usagers et emplacements. De plus, ces normes devront permettre les liens informatiques appropriés aux normes technologiques et au types de données, tout en fournissant un cadre pour le développement spécifique d'applications utilisant les données géographiques."

Les informations sur la façon que seront appliqués les normes particulières au Canada ne sont pas encore disponibles sur Internet. Cependant, celles s'appliquant en Europe, peuvent être consultées à l'adresse http://www2.echo.lu/oii/en/eurogi.html. Le résumé de la réunion tenue les 5 et 6 mars à Victoria (C.B.), sur le sujet devraient être prochainement disponibles. Un survol de l'esprit général qui a conduit au développement des normes peut également être consulté à http://www.statkart.no/isotc211/isobulen.html. Cette page contient le texte d'un article, publié dans le Bulletin ISO de décembre 1995, intitulé "Mapping the Future of Geomatics", par Olaf Ostensen, Président de la norme ISO/TC211.

Enfin, sur une autre note, j'ai documenté la nomination de notre nouveau secrétaire-trésorier, Charlie Conway de l'université Memorial de Terre-Neuve. Au nom de l'ACC, j'aimerais remercier Claire Gosson pour son travail et nous lui souhaitons bonne chance pour les mois à venir. Enfin, j'aimerais lancer un appel spécial aux enseignants de la cartographie, pour qu'ils incitent leurs étudiants à soumettre des cartes aux Prix du Président. Nous avons simplifié les règles de participation et de jugement des cartes afin de mieux intégrer la production cartographiques d'étudiants ayant une formation d'un trimestre. Le formulaire d'inscription au concours et les détails du concours peuvent être téléchargés à partir du site **www.geog.ubc.ca/~cca-go**, à la section Prix de l'ACC.

C'est avec un profond regret que Claire Gosson, notre secrétaire-trésorière, doit quitter sa fonction au sein de l'Association. De nouvelles obligations familiales font qu'elle n'a plus la même disponibilité pour occuper son poste. Le comité Exécutif désire remercier Claire pour les services rendus à l'Association et lui souhaite toute sa sympathie.

C'est à pied levé que Charlie Conway, cartographe au département de géographie, de l'Université Memorial de Terre-Neuve, nous a offert ses services pour prendre la relève de Claire. Étant donné le caractère exceptionnel de la situation et l'importance de ce poste dans l'association, le comité Exécutif a accepté son offre lors de sa dernière réunion. Ceux qui sont venues à Saint-Jean (Terre-neuve) l'été dernier, lors de notre Assemblé générale annuelle, ont eu l'occasion de rencontrer Charlie car, c'était l'un des piliers de l'organisation qui ont fait de cet événement une réussite inoubliable. Nous souhaitons la bienvenue à Charlie dans le comité Exécutif.

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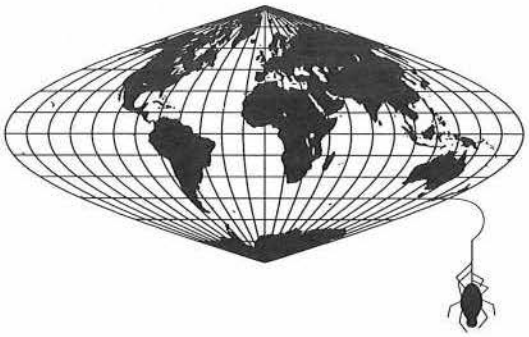
work for the development of sector-specific applications using geographic data."

Information on how the standard would specifically apply in Canada is not yet available on the net. However, information on how it would be implemented in Europe can be found at **http://www2.echo.lu/oii/en/eurogi.html**. A meeting was just held in Victoria, BC (March 5 & 6), and hopefully the results of that meeting will soon become available. A general overview of the reasoning which went into the development of the standards can be found at **http://www.statkart.no/isotc211/isobulen.html**. This page contains the text of an article entitled 'Mapping the Future of Geomatics' by Olaf Østensen, Chairman of ISO/TC 211, and was first published in the December 1995 issue of the ISO Bulletin.

In a separate note, I have documented the appointment of Charlie Conway from MUN as our new secretary / treasurer. On behalf of the CCA, I would like to thank Claire Gosson for her work and wish her all the best in the coming months. On a final note, I would like to make a special appeal to those who teach cartography to consider asking your students to submit maps to the President's Prize competition. We have streamlined the entry procedure, and we will be making changes to the judging of the maps to ensure that the constraints of preparing a map after only one term of cartography are fully appreciated. The entry form can be downloaded from our web page at **www.geog.ubc.ca/~cca**–go to the CCA Awards section for complete details.



Suite à la tempête de verglas qui a fait rage au Québec en janvier, une partie des textes traduits n'ont pu nous parvenir à temps pour paraître dans la dernière parution de *Cartouche* (#28). Nous nous excusons des inconvénients que cela aurait pu causer à nos membres.

Oh What a Relief Map!

Roger Wheate,
University of Northern B.C.

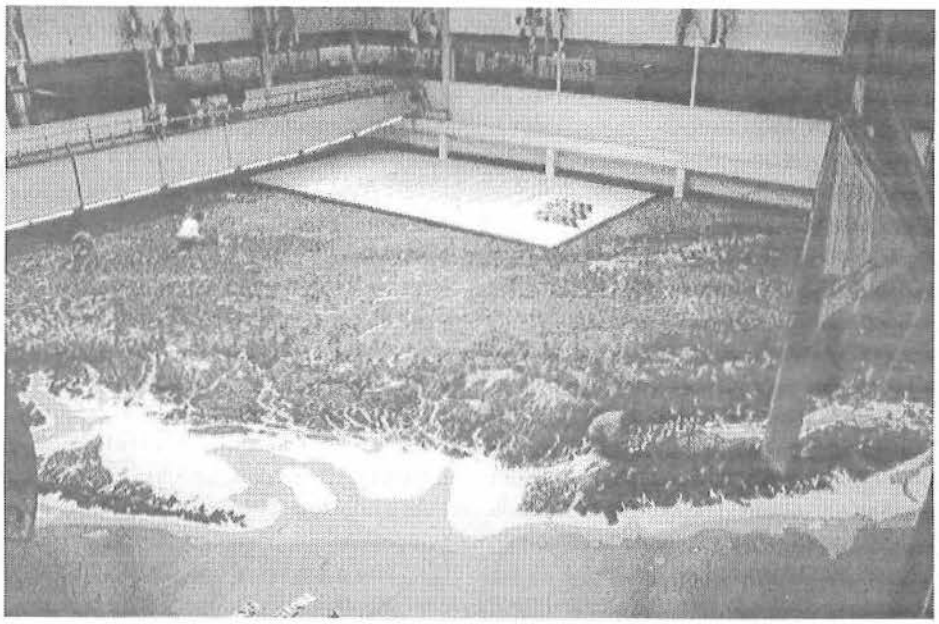
The world's largest relief map (listed by the Guinness Book of Records), is seeking a new home, following the demolition of the B.C. Pavilion in the old grounds of the Pacific National Exhibition, where it has been housed since 1954.

The map, a 80 x 76 foot three-dimensional model of the Province of British Columbia was created by George P. Challenger, part-time geographer, professional cyclist, lumber and mining millionaire. With the help of his son Robert, Challenger built the map in the basement of his Vancouver home. Over a period of seven years they pieced together the map's 986,000 plywood parts on four-by-eight foot panels.

Between 1954 and 1997, the map has attracted more than two million viewers; most of them rode the elevated moving platform that traverses the map in 3-1/2 minutes, providing the equivalent of a flight over the province at 13,000 miles an hour. The ride offered an unobstructed view of 576,000 square miles of mountains, valleys, plains, rivers and lakes, including all B.C. and parts of Alaska, the Yukon, Alberta, Montana, Idaho and Washington. It has a horizontal scale of one inch to the mile (1:63,360) and an altitude scale of one inch to 1,000 feet.

Taking advantage of this view of the province, the B.C. Electric Co. used the map to show where new power dams should be built. B.C. Packers used it to show how dams in certain locations would affect salmon runs. The International Joint Commission, studied the map for clues to best uses of Columbia River power. Vancouver school authorities and University of B.C. professors have held classes beside it for students of geology, mining, forestry, fisheries, geography, history and transportation.

Challenger became interested in relief maps because they were useful in his work. Often his fortunes depended on convincing someone of the potential wealth of some mining claim or timber stand. To demonstrate the potential of various areas, he began building 3-D maps, developing his own techniques as he went. "A relief map," he says, "is even better than standing on a mountain top where you can see for miles, because there your perspective changes with the distance."



Challenger's Map at Hastings Park

During World War II, he built maps for the Canadian Army's Western Command. In 1945, using data gathered by RCAF and U.S. Army air reconnaissance, Challenger began working on the map of B.C. - the biggest of his career. As the map neared completion, five firms offered to buy it. But Challenger preferred to sell it to the PNE for far less than the private companies would have paid. "I figured it would be more useful as an educational service for the city at large," he says. He wanted people to see how B.C.'s potential resources could be put to best use. He agreed to sell it only if it would be housed in a suitable building open to the public the year round.

George Challenger was born in Mitchell, Ont., near Stratford; by the time he was 17 he was earning up to $300 a week as a professional cyclist. One racing tour took him to Vancouver in 1896; two years later he was back to stay, intrigued by the fortunes to be made in lumbering. He branched out into mining which brought him new wealth, and the distinction of having Challenger Mountain, which straddles the B.C.-Washington border, named after him by the U.S. government in 1906.

He died in 1964 and his ashes were buried in an urn beneath the map plaque. It is inconceivable that such a monumental work will not be put back on display for all to see, but it was dismantled in February 1998 and put in storage until a new home is found. The City of Vancouver will not store it beyond March 2000. Currently there are four potential bidders to relocate the map: two

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La cartographie au Québec, 1760-1840

Michel Fournier,
Cartologique

Il est des histoires dont on ne peut se lasser et c'est le cas de la cartographie au Québec de 1760 à 1840, du moins telle que racontée par Claude Boudreau. En effet, son écriture simple et précise rend la lecture à la fois agréable et accessible au point d'avoir peine à abandonner le livre ne serait-ce qu'un instant. À sa lecture, on a l'impression de revivre une partie de l'histoire.

L'auteur dresse en quelques trop peu nombreuses pages, le portrait de la cartographie au Québec, de ses origines jusqu'à un passé pas si lointain. Il fixe son regard sur les prémices de la cartographie, sur les débats quant à l'objet, la forme, le contenu, le langage ainsi que sur l'aspect temporel, la pré-histoire de la cartographie et certains chemins utilisés pour permettre son évolution. D'ailleurs, l'étude des fonctions de la carte (situer et synthétiser, délimiter, défendre, administrer et enfin légitimer le territoire) et des modèles théoriques de classification (archiver, guider et véhiculer) serviront de guide pour mieux comprendre l'importance des cartes et le rôle qu'elles ont à jouer (chapitre 5).

La production cartographique de la période 1760-1840 est le reflet des régimes politiques qui se sont succédés et de l'interdépendance entre le territoire (pays naissant) et divers intervenants : arpenteurs, géographes, le bureau de l'arpenteur général, le bureau des terres de la couronne, le grand voyer (officier qui s'occupe de l'administration des voies publiques), l'inspecteur des villes, les militaires et l'État. Subtilement les cartes nous révèleront plus que l'aspect géographique, mais également une façon de vivre, de s'adapter au milieu tant pour les nouveaux arrivants français et anglais que pour les amérindiens (chapitre 2 et 3).

Les cartes deviendront des instruments de gestion (contrôle) du territoire. Par exemple, sous le régime britannique, les occupants des terres devront faire un inventaire détaillé de l'utilisation du sol (essences présentes dans le boisé, type de culture, ...), de la topographie ainsi que du ou des types de sol. Par ailleurs, les nombreuses explorations du Fleuve Saint-Laurent permettront de dresser une carte bathymétrique d'une grande précision notamment pour les anglais qui feront pénétrer une partie de leur flotte jusqu'à Québec afin de tenter la conquête de ce territoire tant convoité. En période plus calme, ces cartes serviront à créer des routes maritimes pour l'importation et l'exportation de divers produits.

C'est grâce à sa position privilégiée d'arpenteur général de la province que Joseph Bouchette pourra établir ses fameuses cartes de synthèse à grande échelle de 1815 et de 1831. Ses cartes de la province du Bas-Canada sont définitivement les plus complètes car elles sont le fruit de ses explorationsd et de la compilation des travaux rédigés par ses collègues. Elles sont accompagnées d'un volume dans le premier cas et de trois dans le second. Ces volumes sont des descriptions générales narratives du paysage. Les deux premiers tomes de la seconde version (1831) sont consacrés à la description narrative, augmentée de notes historiques et de statistiques. Quant au troisième, c'est un véritable dictionnaire indissociable des différentes entités présentes sur la carte. Il s'agit de descriptions du milieu naturel appuyées de statistiques sur les comtés, cantons et seigneuries de la province.

La lecture de la carte de Bouchette (1831) fort révélatrice sur l'étendue du territoire et de ses principales composantes, ses frontières et limites administratives comportent toutefois quelques distorsions avec le dictionnaire d'accompagnement. En effet, plusieurs éléments ponctuels tels, les moulins à farine, les moulins à scie, les fabriques de potasse sont sous-représentés sur la carte.

La carte de Bouchette est pasé au peigne fin, un véritable chef-d'oeuvre d'analyse de carte. En effet on y retrouve un inventaire illustré et descriptif des éléments d'habillage de la carte (légende, titre, tableaux,...), des limites administratives, des éléments anthropiques, événementiels et naturels (chapitres 6 et 7). Cette partie du livre est particulièrement importante car les productions cartographiques de Bouchette ainsi qu'autres documents, serviront à démontrer l'influence de l'État (client) sur les producteurs notamment en ce qui a trait aux discours de la carte soit: le silences de la carte; le renforcement d'un point de vue (la carte revendicatrice); la réputation ou la crédibilité de l'information et de l'auteur (chapitres 8 et 9).

Cet ouvrage est inestimable pour ceux qui ont un intérêt dans la cartographie. Il serait souhaitable de retrouver ce livre dans les mains de nos étudiants universitaires en guise d'introduction au domaine. Il est illustré de 64 reproductions de cartes et d'illustrations de cette époque. Ce livre est en quelque sorte un hommage à ces pionniers, navigateurs, arpenteurs et géographes qui ont oeuvré à façonner le visage de la Nouvelle-France.

Claude Boudreau, *La cartographie au Québec, 1760-1840*, Collection Géographie historique, Les Presse de l'Université Laval, 1994, 270 pages. (29.95$) ISBN : 2-7637-7350-8

A GPS Primer

Joe Piwowar
University of Waterloo

If physics is "phun" and chemistry is "chool," and if cartographers rule the world, then geographers must surely know where it's at! Well, I cannot speak for physicists and chemists, nor do I claim to be a very good cartographer, but you can take it from me, "Joe Jogfer," that we do not always know where we are at (although we do hate to admit that we are lost)! Kudos to the developers of Global Positioning Systems (GPS) for helping me determine a position fix or two in my hours of need.

February 22 marked the 20th anniversary of the launch of the first GPS satellite, back in 1978. Heck, I never even heard of GPS until about five years ago! GPS has only become popular recently because to the U.S. Department of Defense kept the initial launch (and GPS in general) a close secret for five years. Today, GPS technology is no longer in the exclusive domain of the soldier or scientist - you can have them installed in your car as a factory option or you can simply buy a GPS receiver at most sporting goods stores for a little over $100.

In spite of their overwhelming popularity, I still encounter a lot of misinformation about GPS and its usefulness. In this article, I will address some of the more popular questions people ask.

What is GPS?

GPS is a locational and navigation system based on the concepts of triangulation. An earth-based GPS receiver can determine its geographic location from information it receives from several dedicated GPS satellites in earth orbit. There are presently 24 NAVSTAR satellites that broadcast GPS signals globally.

How does it work?

Consider graphing data on an X-Y plot (a 2-dimensional space). To position your data point correctly, you need to know its X and Y coordinates. Let us suppose that you wanted to plot the point with (X,Y) coordinates of (3,4). Starting at the origin (0,0), you would move 3 units along the X-axis and then 4 units up the Y-axis. In other words, a location in 2-dimensional space can be specified uniquely knowing distances from 2 fixed positions.

In 3-dimensional space (the real world), a position can be fixed by specifying distances from 3 known locations. For a GPS receiver, it looks for signals from at least 3 GPS satellites. Since the orbital parameters of the GPS satellites are precisely controlled, their position is known at any instant in time. Also, we know that the radio signals from the satellites travel at the speed of light (a known velocity), so if the internal clocks on the satellite and GPS receiver were synchronized, we would know how far the receiver is from the satellite by noting the time it takes for the signal to reach it. Thus, we have 3 measurements from 3 known locations at known distances so we can triangulate the position of the GPS receiver.

In reality, maintaining the time synchronization between the satellites' is impossible and receivers' clocks long enough at the necessary precision so a 4th satellite is required to provide additional data for a reasonable position fix. Thus, the general GPS operating requirement of being able to "see," needs at least 4 satellites.

How accurate are my position fixes?

Ahh, now here is a can of worms! The correct answer to this question is, "It depends." It depends on such obvious things as the number of satellites in view of the receiver, and such not-so-obvious things as atmospheric clarity. Even a timing error of 0.001 sec. can lead to location errors of over 200 km. Typically, however, you can expect a horizontal position accuracy of about 50 m when using a single receiver.

Here is a rundown of some of the things that affect positioning accuracy.

GPS receiver capabilities: Obviously, the better the receiver is at picking up the weak GPS signals, the longer the receiver will be able to "hold on" to a particular satellite and the better your chances will be at getting good position fixes. Also, up-scale receivers do not just use the first 4 satellites which they find, they will try to optimize the constellation in use by selecting 4 satellites which are widely distributed in the sky. In general, the better the spacing between the satellites, the more accurate the location readings will be.

GPS receiver location: The GPS satellites transmit signals at 20 cm wavelengths, which facilitate accurate distance measurements but do not readily pass through solid objects. In other words, the satellite and receiver cannot have too much between them if you expect to get a clear signal. Follow the general rule: If your eyes do not have a clear view of the sky, neither does your GPS receiver.

Selective availability: Selective Availability (SA) means that the most accurate GPS satellite signals are available only for a selected few - namely the U.S. military. Essentially, random errors are programmed into the satellite's data which limit the position accuracy of a single receiver to about 50 m. For comparison, with SA turned off (so the masses can receive the more accurate signals) getting sub-centimetre accuracies is possible (with very expensive equipment). Well, it is a U.S. military system, so I guess they can make the rules. The U.S. Govern-

ment will review the need for SA in the year 2000.

Atmospheric effects: As the satellite's signal passes through different atmospheric layers (e.g., troposphere), its speed changes slightly. The receiver's computer can model most of these changes, but there is still a margin of error. Storms and other disturbances in the lower atmosphere can create random errors in the timing of the satellites' signals.

Orbital errors: Although the GPS satellites are in very precise orbits, the gravitational pull of the earth, moon, and sun can unexpectedly alter their positions which will result in the report of an incorrect satellite location and an incorrect terrestrial location. The U.S. Department of Defense corrects the orbits when necessary, but the very need for a fix implies that incorrect locations were being transmitted before the correction.

Can I improve my accuracy if I leave my single GPS receiver in the same location for a long time?

Unfortunately, the answer to this one is no. Since the errors returned by each satellite are random, they cause random location errors on the ground. If your receiver constantly received data from the same satellite constellation, then these random errors would converge concentrically around the true location. The GPS satellites are in a moving orbit, however, so as your receiver is busy collecting data, one of its satellites may begin to get too close to the horizon so a different one will replace it, with its own set of random errors. These new errors may skew the location of a "concentric location" or may establish a new one.

What is Differential GPS?

Differential GPS is the civilian response to selective availability. In the quest for finding ways to get more accurate position fixes than SA allowed, the idea was hatched to use two GPS receivers instead of one. A "base-station" receiver is installed at a fixed spot where the geographic coordinates are accurately known. The second "roving" receiver is used normally and location measurements are made. However, since the base receiver is at a known and fixed position, it can read the same "inaccurate" GPS signals received by the roving receiver and determine how much adjustment is required on each satellite's signal to have it provide the correct position. These correction factors are either transmitted directly to the roving GPS or saved for later correction of the data acquired by the second receiver. Using differential GPS, typical horizontal position accuracies of around 1 m are possible.

What's in store?

There are a couple of notable enhancements which will be finding their way into a GPS system near you within the next year or two. The first is known as "carrier-phase" GPS. This system is already employed by surveyors using

very expensive equipment. A carrier-phase GPS receiver determines an approximate position fix in the usual way, but then fine tunes that location by locking in on a different component of the satellite's signal. Using sophisticated equipment, surveyors can obtain sub-centimetre precision. While this is likely beyond the accuracy requirements (and expense!) for most other applications, parts of this technology are slowly migrating down into the mid-price GPS receivers.

A second notable development is courtesy of the U.S. Federal Aviation Administration (FAA). As you might imagine, GPS has led to a navigation renaissance in the airline (and other transportation) industry. The FAA reasoned that if differential GPS is so good, "why don't we establish our own base station to improve the position accuracy of all the GPS systems in aircraft use?" And so the Wide Area Augmentation System (WAAS) was born. The WAAS base station is carried by another satellite parked in a geostationary orbit over the continental U.S. From this location, it can transmit differential correction information to anywhere in its view, including much of southern Canada. Best of all, the signal is not scrambled and is freely available to any roaming GPS that wants it (and can receive it). Let me know what you think

Confused? Want more information? Check out the many good GPS sites on the web (try *http://www.gpsy.com/gpsinfo/* as a starting point). In particular, the GPS manufacturer, Trimble Navigation, has an excellent interactive (noncommercial) on-line introduction at *http://www.trimble.com/gps/index.htm*

Now that you know what I think, let me know what YOU think! E-mail me at *piwowar@watleo.uwaterloo.ca*

Postscript from my previous column ("Remote Sensing: The Next Generation")

The launch of remote sensing satellites has been problematic as of late. Some of the sensors mentioned in my previous article have either failed on launch, or experienced other problems:

* Lewis was launched on Aug. 22, 1997 but experienced a slow spin in orbit. This prevented the solar panels from gathering enough energy from the sun to power the satellite. It reentered the earth's atmosphere on Sept. 28.

A replacement system is not planned.

* IRS-1D was launched on Sept., 1977. A fuel leak in one of the booster rockets caused a premature shutdown and placed the satellite into the wrong orbit. The IRS-1D satellite does have a small amount of its own fuel for precise orbit control which was used to raise the system into its proper orbit, but this will shorten its operational life considerably. The system is presently functioning and sending back some great imagery.

* EarlyBird 1 was launched on Dec. 24, 1997 into a perfect orbit. On Dec. 28, however, all communication with the satellite was lost, possibly due to a power supply failure. Contact has not been reestablished.

Sigh

Where Have All the Atlases Gone?

Byron Moldofsky,
University of Toronto

One of the major vehicles for the production of maps has been the atlas. As the title explains, this column began with my preconception that there has been a significant decrease in the number of printed atlases produced over the last several years - say since the beginning of the 90's - particularly in Canada. This supposition arose from anecdotal experience in my own cartographic production office, and from conversations with others. The idea also was raised that this recent dearth of published atlases was due to technological reasons - electronic media replacing conventional printed atlases, just as this replacement is occurring in so many other contexts.

I decided to do some investigating of this question for this column. Like many of us, I depend on the local map librarian as my first contact for all cartographic inquiries - in my case, the chief map librarian at U of T, Joan Winearls. Joan indicated she had not studied the question, but her impression was just as many atlases were being produced now as in the past, but that more of them were special-interest, or special-purpose. I was also reminded by Joan that Iain Taylor, long time CCA member, had done a survey of Canadian atlas production since 1945 and reported it at the CCA meeting in 1996.

Contacting Iain, he informed me that the listing he had compiled was on the Internet at the National Atlas web site and gave me permission to use this information. Since his listing was done in 1995, I did some updating to capture the atlases published since then. I searched the National Library of Canada data base for title keywords ATLAS and CANADA, and then all the provinces. I presume this will have caught most the additional atlases produced between 1994 and 1996. I also slightly modified the categories created by Iain, to classify the atlases by type. Although this methodology is not rigorous, it should give us some basis for discussion.

The results appear in the accompanying chart. What comes across most clearly is how prolific atlas production has been since the late 1970s, compared with earlier times. Regarding types of atlases, if we look at 'General reference' atlases as those classed as G, S and R, the proportions produced in the 90s seem comparable to those produced in earlier time frames - there have always been many special-interest atlases published. There is also a pattern of atlas production peaking in the few years following a census year, as one would expect as census data becomes available. Seeing whether this pattern is sustained in 1997-98 will be interesting.

The perception of a decline in atlas production in the 1990s seems unsupported. In fact, if we look at 5-year periods beginning in 1950, 1990-94 outstrips all others. There has been a marginal drop-off during 1995-96, although it is clearly within the usual expected range. If this rate of production were maintained, it would represent a significant overall decrease. The next couple of years will tell the tale.

To say that atlas production in Canada is decreasing is a precarious assumption. There is some anecdotal evidence to support the idea, however. I can only offer from my own experience, based in the University of Toronto Cartography Office. Within the last two years, we have submitted proposals for two Canada-related general atlas projects. One had a large international component, and I subsequently learned that the job was awarded to a company based in Britain, which specialized in doing 'National' editions of their 'International' atlas, thereby taking advantages of economies of scale. The other, a Canadian school atlas, we were successful in bidding on. However, after significant start-up work had been done, the agreement was withdrawn, due to a change in the market-orientation priorities of the company. Another negative indication is that two proposals to government funding agencies for atlas projects, with which we have been involved, have been rejected.

If we do make the leap and assume that Canadian atlas production is decreasing, then there may be explanations that are NOT related to cartographic technology.

The NON-TECHNOLOGY BASED explanations that first comes to mind are economic. I was told by a publishing company representative that the usual 5 or 6-year 'life-cycle' of school reference atlases were being extended to more than 10. Why? Cost. Even if cartographic production costs have been reduced, these have always been a minor proportion of atlas publishing costs. The lion's share of the cost to the publisher are printing costs - these, and administration and photomechanical expenses, have increased. In the arena of government-funded cartographic production, budgets have been slashed as well, both within mapping agencies and for funding of research-related activities.

Another non-technological explanation could be a perception of decreased need for atlas publication, i.e., a decreased demand for geographic context. One would hope that the ongoing efforts of the geographic and cartographic communities to promote this necessity will succeed. We need to convince people that mapping, especially thematic mapping, is useful and necessary for understanding the geography of their problems.

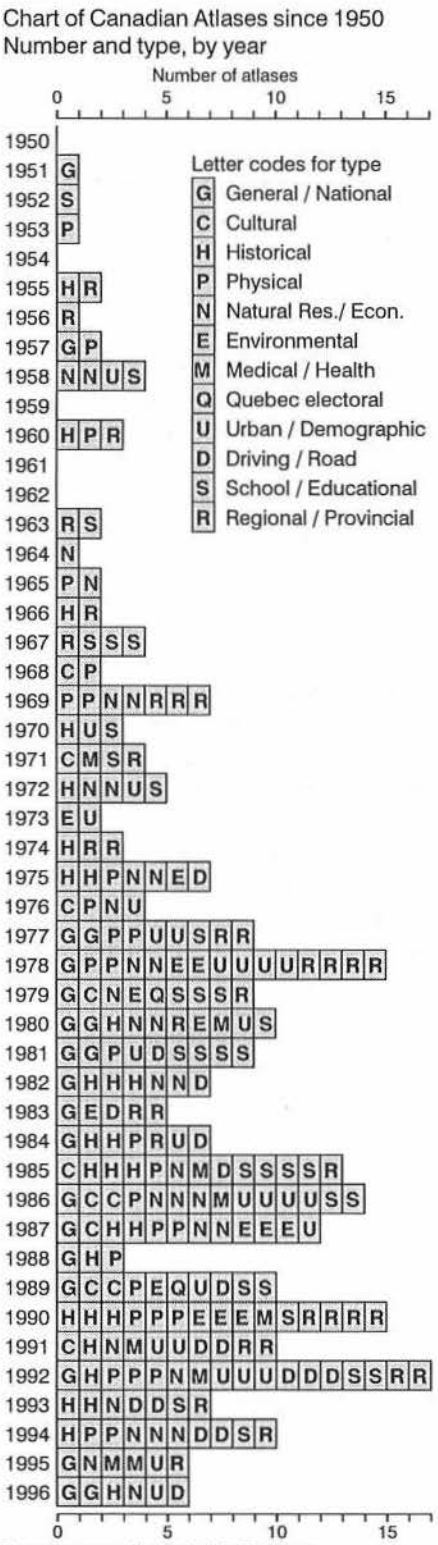
TECHNOLOGY BASED explanations for decreasing atlas productions are many, all related to alternative electronic media filling the needs for published atlases - or promising to. There have been major strides in desktop mapping software, CD-ROM publishing, and Internet-based publishing, which may be seen as competing with printed atlases. For special-purpose (work-related) users, the creation of customized mapping systems and data sets increases functional-

ity and flexibility of mapping compared to a printed atlas or map series. For more general users, the Electronic Atlas still has not reached its potential - but is getting closer all the time. Recent CD-ROM products (eg. Encarta98-Virtual Globe) are leagues ahead of their predecessors. Web-based publishing now promises the addition of true interactivity as mapping software vendors tackle Internet mapping solutions in earnest (eg: Arcview Internet Map Server, Mapinfo MapXtreme.)

My opinion is that for a number of years, however, printed atlas projects have been competing not with the ACCOMPLISHMENTS of the electronic atlas, but with its POTENTIAL. In publishing, as life, timing is everything. Canadian publishers have been afraid of missing the boat, and bringing out a printed atlas at the same time their competitors bring out a much superior electronic version. They have been investigating CD-ROM versions of their printed atlas products, but could not bring themselves to commit to the risk (and up-front costs) of a whole new technology. The result has been 'atlas chill.'

What are the implications for the future, regarding production technology and atlas production? Well, looking at the chart, the present is not as bleak as some of us thought. Printed atlases continue to be produced at a reasonable rate. There are a number of atlas projects underway such as the Atlas of Saskatchewan, which bode well for the future. I was contacted recently by Claire Gosson to sit on a committee to discuss the future of the National Atlas of Canada - which I was happy to see, at least presupposes a future for it. In terms of software development, there are products being created by third-party companies (eg Avenza MapPublisher) to make it easier to get high-quality printed cartographic output from the GIS and desktop mapping programs.

In the long term, however, there are two things I personally hope we can do. First, concentrate more effort on supporting and influencing electronic product development (especially the web-based products), as this is where the growth potential for the future lies. Secondly, continue to propose and lobby for creation of atlas projects by private publishers and government bodies alike. The costs for creating atlases are large; we should be able to show that the benefits are even larger.



Based on compilation by Iain Taylor, at
www-nais.ccm.emr.ca:8000/wwwnais/wwwmisc/atlas_ls.html
Additional compilation by Byron Moldofsky

Next issue: How to Make Your Map Look Like Someone Used it as a Napkin!

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Careers in Cartography

Ute Dymon,
Kent State University

During the Spring Semester I teach my Advanced Cartography class, very enjoyable, because of the students in it who usually like cartography so much that they choose to go on to make it their careers. Often, in this class, the question is raised, "what do cartographers do, and what type of jobs do they hold?" As the person in charge of the CCA ***Career's in Cartography*** booklet, I have been mulling over this question quite a bit. I have pondered what kinds of careers cartographers pursue now.

In recent years, those graduates from Kent State University with cartographic certification have all found jobs either in the profession or in a closely related field. Students are working as cartographers in all levels of government. Many recent graduates find themselves managing GIS's at various city and county government levels. Others are involved with research, especially students with specializations in other areas that use cartography and GIS as tools.

So if you as a student would ask me what preparation would be helpful for a professional position in cartography, I would suggest the following. First, decide if you want to be the person making maps or would you like to be the person who is using maps as a tool to solve problems? If you fall into the first category, identify places where a great deal of mapping is going on. It may be at the federal government, provincial or local governments or at colleges and universities. Also, more opportunities arise in the private sector every day. There is also the option of starting yourown business. Several of my former students chose to be entrepreneurs and started their own desktop mapping businesses. Some are very successful. They discovered a need to find their niche.

If you fit into the second category and like to solve or manage problems with your knowledge, you may find yourself in a totally different job market with some of the following cartographic challenges. Map overlays are a common technique used in just about any profession. Analyzing environmental suitability studies, or route selections, solving emergency response problems, mapping health problems or mapping for marketing, are some of the challenges facing entry level cartographers today. The good news is that many companies and businesses have adopted mapping as part of their business operations in the current market. Insurance companies, banks, and utilities are some of the many private sector firms that have adopted mapping as a part of their endeavors in recent years.

So to all students graduating this year, there are many cartographic opportunities out there, but it is up to you to ferret out the appropriate places where they exist. Many positions with cartographic opportunities have new sorts of titles. So rather than pursuing a pure cartography position, a job as a planner or research analyst in a marketing firm may give you the experiences you seek.

Calendar / *calendrier*

May 4-7 *mai* 1998
1998 MidAmerica GIS Symposium
Lincoln, Nebraska USA
For information / *pour renseignements:*
Ms Vickie Damm
Tel / *tél:* (913) 551-7247
Fax / *téléc:* (913) 551-7863

May 27-30 *mai* 1998
CCA/l'ACC & ACMLA/l'ACACC
London, Ontario
For information / *pour renseignements:*
Ms. Patricia Chalk
Tel / *tél:* (519) 661-3425
Fax / *télec:* (519) 661-3750
E-mail / *courr. élect:* chalk@sscl.uwo.ca

June 9-11 *juin* 1998
Spatial Data Infrastructure
Ottawa, Ontario
For information / *pour renseignements:*
Fax / *télec:* (613) 224-9577
E-mail / *courr. élect:* cig_acsg@inasec.ca

July 18-22 juillet 1998
URISA 1998 Annual Conference and Exhibition
Charlotte, NC USA
For information / *pour renseignements:*
Tel / *tél:* (847) 824-6300
Fax / *télec:* (847) 824-6363
E-mail / *courr. élect:* wfrancis@urisa.org

July 19-26 *juillet* 1998
XXI International FIG Congress
Brighton, England
For information / *pour renseignements:*
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Fax / *télec:* 44 (171) 872-0045

September 15-19 *septembre* 1998
Int'l Map Trade Association 18th Conference and Trade Show
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For information / *pour renseignements:*
Tel / *tél:* (815) 939-4627
Fax / *télec:* (815) 933-8320
E-mail / *courr. élect:* imta@maptrade.org

Candidates for Election to the 1998/99 CCA Executive

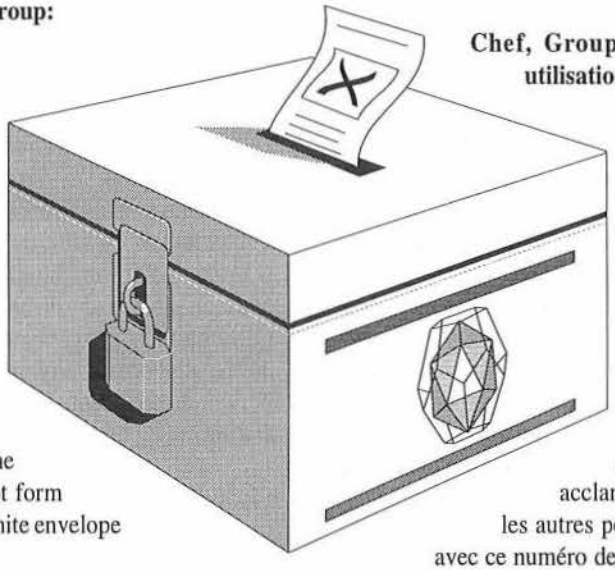
The CCA Nominating Committee is pleased to present the following slate of candidates:

Vice-President:
Michel Fournier, Cartologique
Eva Siekierska, Geomatics Canada

Secretary-Treasurer:
Charles Conway, Memorial University

Chair, History of Cartography Interest Group:
Jeffrey Murray, National Archives of Canada

Chair, Map Use and Design Interest Group:
Ada Cheung,College of
Geographical Sciences
Ken Francis, Geomatics Canada



Nominations are now closed. Since there is only one candidate for Secretary-Treasurer and History of Cartography, Charles Conway and Jeff Murray aredeclared elected by acclamation. Elections will be held for the other positions, and a ballot form is enclosed with this issue of *Cartouche*. Vote for one candidate in each category, seal the ballot form in the brown envelope and mail it in the white envelope to:

Gary McManus
Chair, Nominating Committee
Department of Geography
Memorial University of Newfoundland
St. John's, Newfoundland
A1B 3X9

Ballots must be received by **May 20, 1998**. Alternatively, bring the ballot form with you to the annual meeting in London, Ontario.

Personal profiles supplied by the candidates follow.

Candidats aux élections au Comité exécutif de l'ACC 1998/99

Le Comité de nomination de l'ACC a le plaisir de soumettre la liste de candidats suivante aux élections au Comité exécutif de l'ACC 1998/99.

Vice-président:
Michel Fournier, Cartologique
Eva Siekierska, Geomatique Canada

Secrétaire-trésorier:
Charles Conway, Memorial University

Chef, Groupe d'intérêt sur l'Histoire de la cartographie:
Jeffrey Murray, National Archives of Canada

Chef, Groupe d'intérêt sur la Conception et utilisation des cartes:
Ada Cheung, College of
Geographical Sciences
Ken Francis, Geomatique Canada

L'appel d'offre de mise en candidature est maintenant terminé. Puisqu'il y a seulement un candidat au poste de Secrétaire/trésorier et l'Histoire de la cartographie, Charles Conway et Jeffrey Murray est déclarée élue par acclamation. Des élections auront lieu pour les autres postes et un bulletin de scrutin est inclus avec ce numéro de *Cartouche*. Votez pour le candidat de votre choix dans chaque catégorie, placez le bulletin dans l'envelope brune et cachetez l'envelope, et postez le tout dans l'envelope blanche à:

Gary McManus
Président, Comité de nomination de l'ACC
Department of Geography
Memorial University of Newfoundland
Saint-Jean (Terre-Neuve)
A1B 3X9

La date limite pour réception des bulletins par la poste est le **20 mai 1998**. Alternativement, apportez le bulletin de scrutin à l'assemblée annuelle à London (Ontario).

Une courte biographie pour chacun des candidats suit.

Vice-President / Vice-président

EVA SIEKIERSKA:

Education and Work Experience:

Eva emigrated to Canada in 1980 after completing her PhD in computer-assisted cartography at the Swiss Federal Institute of Technology, Zurich, Switzerland. Her Masters degree, in geography with a specialisation in cartography, is from Warsaw University in Poland. After finishing her degree, Eva worked as a research assistant in the Polish Academy of Sciences. Financial support from UNESCO's Man and the Biosphere Program allowed her to continue her studies abroad.

Eva's Canadian professional experience ranges from a research position in the Research and Development Section of the Mapping Services Branch (MSB) at Energy, Mines and Resources to Assistant Director of the Applied Research and Technology Service of MSB to teaching cartography part time at the University of Ottawa and Carleton University. She also held a one-year overseas teaching assignment at the International Institute of Aerial Surveys and Earth Sciences (ITC) in the Netherlands.

At present, Eva works as a manager in Mapping Services Branch of Earth Sciences Sector, Geomatics Canada, Natural Resources Canada, where she is responsible for projects on the formulation of a Science and Technology Strategy for Mapping Services Branch, and the development of Raster Map Products. In cooperation with Carleton University, she is participating in an international project on "Digital Mapping and Geographic Information Processing in Latin America" conducted by the Pan American Institute of Geography and History.

In the last ten years, Eva has been actively involved in the International Cartographic Association, as Chair, consecutively, of the Task Force on Women in Cartography, the Working Group on Gender and Cartography and, currently, the Commission on Gender and Cartography. During this time she also co-chaired the ICA's Commission on National and Regional Atlases, electronic mapping being her primary professional interest. Her work on Electronic Atlases has been widely published both in Canadian and international journals. Eva's professional contributions have also been recognized by the Earth Sciences Sector Merit award for exceptional job dedication, and by a commemorative medal for the 125th anniversary of Canada's Confederation, conferred for "significant contributions to compatriots, community and to Canada."

Eva's Plans for the CCA:

In the upcoming years, we should further strengthen cooperation between CCA and the international cartographic community, and increase the number of the CCA Commissions, Working Group and Special Interest Groups. We should also initiate joint research projects based on cooperative agreements and partnerships between academia, industry and government. Working together, we can accomplish more, more easily. Last, but not least, we should continue to have fun together during the AGMs (eg: , orienteering events)!

MICHEL FOURNIER

Affiliation professionnelle:

Entreprise Cartologique

Association canadienne des sciences géomatiques (ACSG), secrétaire de la section de Montréal, (7 ans) et responsable des communications pour le colloque de Géomatique IV et V (4 ans).

Formation:

D. E. C. en cartographie (1977) Collège de Limoilou, Québec.

B. Sc. en géographie (1985) UQAM, Montréal.

Stage en télédétection/cartographie thématique, (1985-86) EHESS, Marseille.

Expériences:

J'ai débuté ma carrière en cartographie, sur le projet *"Atlas régional du Saguenay/Lac Saint-Jean"* à l'Université du Québec à Chicoutimi (1977-78). Puis, j'ai oeuvré pour diverses entreprises privées et publique dont la firme André Marsan et ass. (Lavalin) où j'ai successivement travaillé à la conception, la réalisation et la supervision de divers documents cartographiques accompagnants les études d'impacts environnementaux (1978-82) ; Ministère des ressources naturelles-Service du cadastre, mise à jour d'opérations cadastrales (1982-85) ; Photosur géomat, mise à jour de la matrice graphique de la Ville de Montréal sur IGDS (1987-88) ; ADS, réalisation d'une multitude de travaux cartographiques et graphiques pour les études de décontamination de site (1988-91) et enfin Cartologique (1991-98), une entreprise de cartographie thématique qui a réalisé des travaux aussi variés que : répertoire socio-écologique pour urgences environnementales, carte de base, cartes techniques et d'infrastructures.

Contribution à l'Association canadienne de cartographie (ACC):

Je suis membre de l'Association depuis 1985 et je collabore au bulletin Cartouche depuis l'automne 1994. J'y effectue une bonne part de la traduction en français, de divers textes, et je rédige des résumés sur des publications touchant la cartographie. J'ai également effectué, en 1995, la traduction en français de la Charte et des Règlements de l'ACC. J'ai également organisé un atelier sur les cartes de mauvaises qualités, lors de nos conférences tenues à St-Jean (août 98). Expérience que je renouvellerai à London (Ontario) en mai prochain.

Énoncé:

L'Association a toujours su faire montre de professionalisme à travers ses activités et malgré cela, elle semble peu connu auprès de ses pairs et surtout auprès du public. L'association comme beaucoup d'autres souffre de ses pertes d'adhésion. Afin de permettre de remédier à cela, nous nous devrons d'établir une stratégie qui permettra d'accroître sa visibilité. Pour cela, nous devrons modifier notre image afin de la rendre plus dynamique et nous devrons profiter

de toutes les occasions qui nous seront offertes afin de nous mettre en évidence.

Malgré l'utilisation croissante de la cartographie, particulièrement dans les médias et la publicité, la qualité des cartes quant à la conception et la réalisation n'est pas toujours garante du résultat souhaité ou souhaitable. Dans ce secteur, nous devrons susciter des réflexions sur l'utilité de s'adjoindre d'une façon ou d'une autre un cartographe, dans le double but de maximiser l'impact du ou des message(s) à véhiculer et de nous donner une meilleure visibilité.

L'image de la cartographie ayant tendance à se confondre, souvent trop largement, dans la géomatique alors qu'elle en est une constituante fondamentale, se doit de montrer le plus clairement possible son apport dans cette science multi-disciplinaire. Je prendrai des actions pour mieux faire connaître l'Association et je soutiendrai tous les efforts qui permettront à celle-ci d'effectuer des gains. C'est dans ce sens que je désire entreprendre un mandat à la vice-présidence de l'Association.

Professional Affiliation:

Entreprise Cartologique

Canadian Association of Geomatics Sciences (CAGS). Secretary of the Montréal Section for the past 7 year. Also responsible for Communications for the Geomatics Conferences for the past 4 years.

Education:

Diploma in Cartography, 1977. Collège de Limoilou, Québec. Bachelor of Science (Geography), 1985. Université du Québec à Montréal. Courses in Remote Sensing/Thematic Cartography. 1985-86, École des Hautes Études en Sciences Sociales à Marseille, Marseille.

Work Experience:

University of Quebec at Chicoutimi, Regional Atlas du Saguenay/Lac Saint-Jean, 1977-78.

Supervised production of cartographic documents for André Marsan and Associates, 1978-8).

Updated cadastral maps for Ministry of Natural Resources, Cadastral Services, 1985-92.

Photsur géomat, updated the graphic framework for the City of Montreal on IGDS, 1987-88.

Prepared cartographic and graphic documents for ADS (Consulting-Engineer, Environment Division), 1988-91

Formed Cartologiques, a thematic cartography company preparing various cartographic and other services for Provincial departments, municipalities and private industry, 1991 to present.

Previous Involvement with the CCA:

I have been a member of the Canadian Cartographic Association since 1985. I have prepared a large part of the French translation for the CCA publication *Cartouche* since 1994. I have also prepared reviews of new cartographic publications. In 1995, I prepared the French translation of the Charter and the Rules and Regulations of the Canadian Cartographic Association (CCA). I have also organize a workshop on "Poor maps" in our last conference meeting, held in St. John's (August 97). And I will renew this experience in our next conference meeting in London (Ontario).

Goals as Vice President:

Like most professional organizations, the Canadian Cartographic Association has had to deal with a membership decrease. As an organization, we must be more dynamic in our activities. We must devise ways to attract new members, by becoming more visible, with, perhaps a new image.

Despite the popularity of cartographic products, particularly in the media, the quality of the maps from the conceptualization to final production does not always guarantee the best result. In this area, we might promote the union of cartographers in the the graphic mapping process, following two goals, by increasing the impact of the message it carries and by giving us a better visibity.

The role of cartography in the geomatics sciences seems confuse a lot people. Cartography represents the basics of geomatics and we have to demonstrate clearly the contribution and the necessity to merge cartographers in this multidisciplinary science. As Vice-President, I will encourage and support any and all members of the Association with this kind of merger, whose contributions will surely be beneficial to the Canadian Cartographic Association.

Chair, Map Use and Design/ *Président du groupe d'intérêt sur la conception et l'utilisation des cartes*

ADA CHEUNG:

Professional Affiliation:

Instructor, Mapping Department, College of Geographic Sciences, Nova Scotia Community College.

Education:

Cartographic Technologist Diploma, Sir Sandford Fleming College, 1983. Bachelor of Arts with Major in Geography, University of Toronto, 1993. Recipient of the CCA President's Prize in 1983.

Work Experience:

1983-1984	Energy, Mines & Resources, National Atlas Project
1984-1990	Cartography Department, University of Toronto
1990-1991	Ontario Geological Survey
1991-1993	Historical Atlas of Canada Project
1994-1995	Instructor, Sir Sandford Fleming College
1995-1998	Instructor, College of Geographic Sciences

Position Statement:

The use of digital mapping has greatly affected the way maps are designed today. Often, the design is compromised because the

choices are secondary to the latest whiz-bang version of the software used to make the maps. It is the integration of the fundamentals of cartographic design and the optimization of the tools at hand that will ultimately produce the superior map. The focus of this group should be to understand the relationship between the data, the design of the map, and the success (or failure) of the communication in the digital arena.

KEN FRANCIS:

Professional Affiliation:

Map design specialist, currently in the Young Scientists Program at Mapping Services Branch, Geomatics Canada, Department of Natural Resources.

Education and Work Experience:

Certificate in Cartography, Nova Scotia College of Geographic Sciences, Bachelor of Science degree in Geography from Memorial University of Newfoundland, Master of Arts degree in Cartography from Carleton University. Research interests include digital multimedia cartography and artistic practise in cartographic design.

Goals as Interest Group Chair:

I would like to promote a re-affirmation of cartographers as craftspeople. It would be beneficial, I believe, to once again embrace the idea of the art of map-making. Also we need to speak more about the communication value of map design. This would serve to raise awareness of map design as a vital part of making maps. With this achieved, newly graduated cartographers may enter a more receptive job market.

Secretary-Treasurer/ Secrétaire-trésorier

CHARLES CONWAY:

Professional Affiliation:

Assistant Cartographer, Department of Geography, Memorial University of Newfoundland.

Education:

B.A.,(Geography), Memorial University of Newfoundland, 1978.

Work Experience:

Since 1979, I have held the position of Assistant Cartographer with the Memorial University of Newfoundland Cartographic Laboratory (MUNCL) in the Department of Geography, Memorial University of Newfoundland.

Service to the Association:

Member of the Association since 1980.

Member of the Nominations Committee, 1986-7.

Presented a paper and co-organized a workshop at the Association's annual meeting held in Winnipeg in 1993.

Member of the Organizing Committee for the C.C.A. annual meeting held in St. John's in 1997.

My objective is to continue the outstanding work performed by members of the Canadian Cartographic Association who have held the position of Secretary/Treasurer in the past.

Chair, History of Cartography/ *Président du groupe d'intérêt sur l'Histoire de la cartographie*

JEFFREY MURRAY:

Professional Affiliation:

Archivist, National Archives of Canada, Ottawa

Education/Experience:

M.A. (1984) University of Alberta

More than twenty-five years of experience in heritage resource management with Parks Canada and the National Archives of Canada.

Published numerous articles on map archives and early Canadian cartography for a variety of audiences, both professional and non-professional. Recent articles have appeared in Canadian Geographic, Mercator's World, and Equinox.

Previous Service to CCA:

Member since 1988

Chair, History of Cartography Interest Group, 1990-92

Proposed Activities:

As Chair of the History of Cartography Interest Group, I will work to ensure that the group's interests are well represented at the CCA's annual conference and in the association's newsletter, *Cartouche.*

CorelDRAW™ 8: To upgrade or not upgrade: that is the Question.

Gary McManus,
Memorial University of Newfoundland

CorelDRAW 8 was released in the fall of 1997.This drawing package which was first introduced in 1989 has adopted an aggressive 12-month development cycle. While this cycle is intended to provide cutting-edge graphics software, it can sometimes seem a little frustrating to the user. No sooner have you mastered one set of instructions, than you feel you have to spend more money to learn a new set of tricks. However, the changes are usually for the better, but not always. Rapid turnover in program editions may create some consternation for site license users, such as university cartography laboratories and others on tight budgets.

CorelDRAW 8 is an improvement over the previous releases. However, is it worth the expense of the upgrade? The answer to this question depends on what version you are upgrading from, how you intend to use the program and whether you are a single user or a site licence user. I will attempt to shed some light on that question by explaining a little bit about what CorelDRAW 8 has to offer.

CorelDRAW 8 comes with the new "flat look." This look is similar to the interface adopted in Netscape® Communicator 4. What effect this new look will have on usability and production is uncertain. To enhance usability, CorelDRAW 8 has streamlined the menus and "dialog" boxes. Many dialogs have been reorganized and smaller than previous versions. Although the dialog boxes have been reorganized the actual content or commands are generally the same.

A new feature which may affect productivity is the introduction of Docker Windows. Docker Windows supplement some of the traditional roll-ups, most of which are still available. Docker Windows open as a split screen window and are grouped neatly when minimized in a side bar as tabs. The Docker Windows can be placed and docked anywhere in the application window. The most important of these Dockers is the Object Manager which replaces the Layers Manager. You now can manage layers and all objects from one window, which can be quickly opened and closed. The Object Manager also supports drop and drag so that it can be used to reorder, group and ungroup objects or drag objects between pages and layers. I found this new method of layer and object management takes a little getting used to, but once mastered it is easy to use.

'To upgrade, or not to upgrade:
that is the question:
Whether 'tis nobler in the cartlab
to suffer the crashes
and downtime of outrageous
operating systems,
Or to take funds against a sea
of troubles, and by
purchasing of them.'

CorelDRAW 8 has also reorganized the Customization controls. All customization now takes place from one dialog box which is well organized. More importantly Corel has created what it calls "Workspaces." Workspaces are savable configurations which can be completely customized to suit the idiosyncracies of any user or any project. The program comes with several default workspaces, one of which has an interface suitable for new users in which all the buttons are labeled. Default workspaces set the application window to appear similar to CorelDRAW 7 or Adobe® Illustrator®, if one of those happens to be your preference.

CorelDRAW claims to have added more than 100 new features to this latest version. It is difficult to determine which of these features will affect map-making. Again, the answer to this question will depend on the individual user. I suspect standard procedures you may have developed for producing maps in earlier versions will not change that much. There is not much difference in basic commands between CorelDRAW 7 and 8. If you are upgrading from CorelDRAW 5 or 6, it is very likely that your procedures will need modification. A major difference is that CorelDRAW 5 and 6 do not have the property bars introduced in CorelDRAW 7. (For more information about CorelDRAW 7 see the software review in *Cartouche*, Summer 1997/ Number 26.)

The following is a list of some of the new features I have found in CorelDRAW 8 which may be useful to Cartographers:

Object locking: Objects can be locked on the drawing screen to prevent inadvertent changes or moves when editing.

Node Editing in Selection state or Tool State: You can now perform basic node editing or transformations on an object when it has been selected with any creations tool (i.e., Rectangle, Eclipse, Freehand Draw, etc.). You also can perform these edit functions with the Pick Tool or the traditional Shape Tool. No matter what tool you have selected the object with you can now move it or change its size. This system provides a faster way to move between object creation and editing.

Modified Text Tools: Text objects can be moved and resized with the Text Tool. This means that you do not have to switch back to the Pick Tool to move text. Also when you double click on text with the Pick Tool you activate the Text Tool. In this state you can on-screen edit the text. The downside

of this is, that it is very easy to switch from Pick Tool to Text mode.

Enhanced UNDO: The program now supports UNDO across file saves allowing users to return to a previous point in the design process even if they have already saved their work.

Smart duplication: Once a duplicated object is created and moved to a new position, the duplicate option will use the new translated position to place the next duplicates.

Enhanced guidelines: Users may now select multiple guidelines, rotate, duplicate and move them with the mouse. When you select a guideline, it turns red and can be deleted.

Display overprints: A visual cue is displayed on the status bar to indicate when the user has applied an overprint to selected objects.

Drop Shadow effect: This feature adds a soft drop shadow to the selected object with one mouse click. Illustrator 7 has a drop show effect as well, but it does not create a soft bitmap shadow like Draw 8.

Digger selection: Obscured objects can be selected. Once a hidden object is selected it can be resized or moved.

Placeable Import: You can now place objects at any location on the page while importing them. Also you can select several files and import them at the same time. The cursor displays the filename and places each file at the selected location.

Fill Open Curves: This feature fills objects with open paths, creating a better representation of where objects lie in relation to each other.

Show Text Frames: CorelDRAW 8 now lets users view empty text frames at the click of a button. You can experiment with different layouts by re-flowing text around frames.

CorelDRAW 8 has also introduced many on-screen interactive controls for such tools as the Distortion Tool, 3D Tool, Blend Tool etc. These interactive tools let users adjust various properties directly on an image or graphic and are supposed to reduce the learning curve and provide immediate feedback to applied effect. Whether or not these tools will be of any use to a cartographer, will depend on his or her work habits.

As with previous releases, CorelDRAW 8 comes bundled with a variety of utilities: CorelPHOTO-PAINT™8, CorelDREAM™ 3D 8, Corel OCR-TRACE™ 8, CorelTEXTURE™, CorelSCAN™, CorelCAPTURE™, CorelSCRIPT™ Editor, Bitstream® FontNavigator™ 3.0, CorelVERSIONS™. Besides these utilities, Corel also supplies Plug-in filters for: Auto F/X™ Photo/Graphic edges, Cytopia PhotoLab™, Digimarc™ Digital Watermarking and Human Software Squizz!™.

CorelDRAW 8 is a feature rich and powerful drawing program. It is a vast improvement over CorelDRAW 5 and 6. That is not to say CorelDRAW 5 and 6 are not useable - CorelDRAW 5 was OK, however CorelDRAW 6 was and still is a little buggy. CorelDRAW 7 was a major step forward but still a little awkward to use. CorelDRAW 8 is a refinement of CorelDRAW 7 with many new features added. This upgrade is a little more intuitive and easier to understand with fewer awkward command sets. Eventually CorelDRAW 8 should enhance your map and graphic production activities.

If, as promised, CorelDRAW continues its aggressive upgrade schedule CorelDRAW 9 should be out at the beginning of 1999. What the future will bring, only the seers can say. I wonder, if Hamlet were 'Cartographer Prince,' . . .

System requirements: Windows 95 or Windows NT 4.0; Pentium 90 (Pentium 133 recommended); 16 MB RAM (32 MB Strongly recommended); minimum 80 MB hard disk space to install; CD-ROM and SVGA monitor and mouse. CorelDRAW 8 has IntelliMouse™ support for such features as zooming and panning.

Cost: Corel offers an Academic Version of CorelDRAW 8 to eligible users. The Academic Version comes on 3 CDs without the manuals, which are sold separately. The street price for this version is about $100 Cdn. The listed upgrade price for the version with manuals is priced at about $350. The cost to first time buyers for the complete program is about $945 Cdn. Prices may vary from vendor to vendor.

Membership File / *Filière du membres*

Monika Rieger

The Canadian Cartographic Association would like to welcome the following new members to the Association:

Celine Gilbert	Oshawa, ON
Geog. Dept., U.B.C.	Vancouver B.C.
Mary-Ellen Maybee	Kingston, ON
William Moore	Oakville, ON
Debbie Newell	Bothwell,WA, U.S.A.
Geological Survey of Canada	Calgary, Alberta

I would also like to thank all the members who have renewed so promptly. The second renewal notice will be sent out in March to all those members who have yet to renew. Also, I remind members that if they do not renew soon, this will be the last issue of Cartouche they will receive.

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consortiums in Vancouver, one on Vancouver Island and one from the Regional Museum in Prince George (500 miles to the north), the 'capital of the north' and a city almost completely dependent on the forestry industry. While a new location in Vancouver would provide continued accessibility to a large visitor base, the northern location would provide much higher local visibility. How many visitors, including cartophiliacs like myself came through Vancouver many times without ever knowing it was there?

The main catch is the price: it will cost more than $2million to construct a suitable building to house the map and for its transportation.

Sources:

"George Challenger's Plywood Province," Imperial Oil Review, April 1958;

"Giant map's future uncertain," Victoria Times-Colonist, March 13;

Personal communication with Bill Challenger, Feb. 98.

MAPublisher version 2.0

Avenza Software Marketing Inc.
Burlington, Ontario

David Mercer,
University of Western Ontario

MAPublisher is an innovative and welcome addition to the world of cartographic illustration. The strengths of GIS lie with its analytical powers. On the minus side, the output from many GIS packages does not offer the quality of maps that best presents the message intended to communicate. Often, these maps are not a publication quality product. Output from a GIS often requires refining in a high-end graphics package such as Adobe Illustrator, Macromedia Freehand or CorelDraw. The key, then, is to make the link between GIS and illustration software, to take advantage of the benefits of each. MAPublisher helps to bridge the gap between both environments of cartographic production.

MAPublisher by Avenza is a suite of plug-in filters (add-ons) that works with Adobe Illustrator and Macromedia Freehand to import the graphic output of a GIS with its data and attributes intact. Previously, images were imported either as an editable image without attributes from the GIS, or sometimes, as a bitmap image. Importing data into Adobe Illustrator via MAPublisher enables the user to retain the data and attributes from the GIS database. The new utility added to the graphics software enables it to accept many different file formats from many GIS packages. These file formats include output from MapInfo, MID/MIF, ARC/INFO un/generate and Arcview Shape files. It will also import AutoCAD DXF and USGS Digital Line Graph (DLG) files.

MAPublisher extends some functionality and analytical tools of the GIS into the graphic illustration software. When the file is imported, MAPublisher can perform many functions to refine the image. These functions include developing legends based on queries from the database, and some more basic GIS functions. Other functions include: changing projections; data transformation; applying map labels from the database; and joining and splining arcs. The software allows for some minor editing of the data that can be re-mapped to reflect these changes. Other editorial changes allow the user to edit symbols in the legend, which translates into global changes of the symbol across the map. MAPublisher offers the benefits of the graphics software to GIS users and extends some functions of the GIS to the cartographer to take better advantage of the graphics software. In addition, files generated in packages such as Adobe Illustrator can be made "MAPublisher aware" so that attributes can be assigned to features on the map.

'MAPublisher extends some functionality and analytical tools of the GIS into the graphic illustration software.'

MAPublisher comes on CD-ROM and requires a Power Macintosh, but will also run on a Macintosh 68030 processor. It requires Apple System 7.1 software, Adobe Illustrator 6.0 or greater, 24 MB of application RAM allocated to Illustrator and 7.5 MB of disk space. The software was primarily tested on a computer routinely used for cartographic work; a Quadra 650 (68040) processor 20 MB of RAM with 16 MB allocated to Illustrator. While this computer normally functions well for cartographic illustration, the hardware is below Avenza's recommended setup and the computer showed the strain of the work imposed by MAPublisher. When tested on a computer that met Avenza's recommendations, it ran very smoothly with no problems at all. Anyone familiar with Adobe Illustrator will find MAPublisher easy to use. The software is menu driven and all MAPublisher functions extend from the filters menu of Adobe Illustrator. Each module of MAPublisher operates on a similar interface by which the user selects options from menus, or fills-in options in response to a prompt. When working with a map, users should be aware that copies of a map made within a document (eg., inset) cannot be reprojected. Also, ungrouping and editing map objects will break the link to the database, thus, limiting any further editing required.

When I first heard of this software, I expected it to be the answer to all of my cartographic frustrations with graphics software. I expected it to do many other things such as generalization and add a new degree of geographic and cartographic editing tools to Illustrator, essentially turning a graphics package into a cartographic production tool. While it may not completely address these concerns, it does extend the functionality of a GIS into the world of professional cartographic illustration. In return, GIS products benefit from the flexibility of the graphics software and the "finishing touches" of a cartographer. Documentation for the software is quite good, all provided electronically on the disk, which I think is inconvenient. I would much prefer to have a printed manual. Technical support is good; they maintain a list server dedicated to comments and questions about MAPublisher that are promptly answered.

MAPublisher is priced at $495 (Cdn)with educational pricing at $125(Cdn). For further information, send mail to: MAPublisher, Avenza Software, 3385 Harvester Road, Burlington, Ontario, L7N 3N2, E-mail: *info@avenza.com* or check out their page on the web at *http://www.avenza.com*

Géomatique VI:
Un Collgue sur un Monde accessible

Michel Fournier,
Cartologique

Le développement spectaculaire des outils technologiques, l'arrivée de l'autoroute de l'information, l'enrichissement des connaissances, la diminution importante du coût lié aux équipements technologiques, la structuration des données à référence spatiale, tels sont là quelques-uns des éléments qui ont contribué ces dernières années à rendre la géomatique accessible à un nombre croissant d'utilisateurs.

De nombreuses applications de la géomatique ont été au coeur du dernier colloque ***Géomatique VI : Un monde accessible***, organisé par la section de Montréal de l'Association canadienne des sciences géomatiques (ACSG). Près de huit cents participants ont assisté à ce rendez-vous qui s'est tenu au Palais des Congrès de Montréal les 13 et 14 novembre derniers, et qui consolide l'événement bisannuel par excellence dans le domaine de la géomatique au Québec.

Des conférences conjuguées au présent et au futur

Les données de plus en plus accessibles et l'intérêt manifeste des gestionnaires nous amène des projets en géomatique encore plus diversifiés, comme en ont témoigné les conférences de cette année. La géomatisation de géobases des tronçons de rues de plus de 150 municipalités au Québec, a permis au centre d'appel Info-Excavation, le service centralisé d'informations sur les installations souterraines au Québec, à réduire de près de moitié le nombre de bris causés aux installations souterraines, entre 1993 et 1996. Chez Environnement Canada, la mise en place du réseau **GENIE** pour gérer les situations d'urgence environnementale et l'utilisation du réseau Internet permettent une circulation efficace de l'information de SIG tout en facilitant la coopération entre les intervenants.

La réédition actualisée de l'ouvrage **"Localisation des nations autochtones au Québec - Historique foncier"** en mode numérique, a permis au ministère des Ressources naturelles d'intégrer des outils géomatiques et infographiques d'où une flexibilité qui permettra d'offrir des produits dérivés, tel le transfert du document sur cédérom. La mise sur pied de la **Base géographique routière du Québec** par le ministère des Transports automatisera l'ensemble du processus de production de séries cartographiques standards, autant que de documents thématiques, comme les cartes régionales du réseau de camionnage ou la carte routière du Québec. D'autre part, le Service hydrographique du Canada a réédité une version revue et corrigée de l'**Atlas des courants de marée du Saint-Laurent**. L'Atlas est constitué de cartes de courants aux différentes heures du cycle de la marée semi-diurne sur le tronçon du Cap de Bon-Désir à Trois-Rivières de l'estuaire. Pour dresser l'Atlas, de nouveaux modèles hydrodynamiques ont été produits et des mesures ont été effectuées sur les courant Lagrangien de surface et validées à l'aide de bouées dérivantes équipéees de récepteurs SPS.

Les possibilités qu'offre maintenant l'autoroute de l'information ont largement été évoquées à l'aide d'exemples concrets. Ainsi, le Nouveau-Brunswick utilise dorénavant le réseau Internet pour permettre aux citoyens, moyennant des coûts minimes, d'accéder à un service d'information sur les droits fonciers.

Il y a également lieu de souligner l'importance accordée aux **entrepôts de données géospatiales**. Il s'agit là d'un concept permettant de trouver une solution à la distribution des données sur des sites différents, et sur des environnements informatiques qui sont souvent hétérogènes. Les utilisateurs disposent maintenant d'une accessibilité élargie à divers géorépertoires destinés à faire connaître les produits à référence spatiale.

Des entreprises oeuvrant dans le domaine des systèmes de communications personnelles (SCP) utilisent maintenant la géomatique en conjonction avec des logiciels de simulation et de prédiction de la propagation des fréquences radio pour optimiser la couverture du réseau sur un territoire donné. Ainsi, les spécialistes sont en mesure de rationaliser les sites de leurs infrastructures de télécommunication.

Les producteurs agricoles disposent de nouveaux outils technologiques, tels les systèmes de positionnement par satellites (**SPS**, mieux connus sous l'acronyme anglais GPS-Global Positionning System), le capteur de rendement en temps réel et les SIG qui sont surtout utilisés en agriculture de précision (**AP**) pour maîtriser, rationaliser et uniformiser le rendement des cultures. Tandis que l'usage de nouveaux capteurs hyperspectraux serviront à donner, dans des délais très courts, l'image d'un stress végétal ou encore d'une espèce végétale particulière, donnant ainsi la possibilité d'intervenir avec célérité selon la situation.

La Direction des services techniques de la Garde côtière canadienne (GCC) effectue maintenant ses levés bathymétriques sur le Saint-Laurent en faisant appel à l'approche «on the fly-temps réel» (**OTF-TR**) et au SPS, pour notamment valider des systèmes de navigation et pour déterminer le dégagement sous quille des navires à fort tirant d'eau compte tenu de la marée, de la variation de la vitesse du navire et de l'influence de la houle. Ces technologies améliorent la précision de la navigation fluviale (quelques centimètres) tout en augmentant la sécurité du traffic dans le corridor de navigation. Le **GPS*C** du Service canadien de référence

spatiale fournit quant à lui des corrections se rapportant aux orbites et aux horloges des satellites ainsi que pour les erreurs dues aux délais de transmission du signal GPS dans l'ionospère, facilitant ainsi le positionnement en temps réel de l'ordre du demi-mètre et ce, à la grandeur du pays.

La géomatique pour valoriser la planète

Lors d'un déjeuner-causerie, M. **Roger Nicolet**, président de l'Ordre des ingénieurs du Québec, a fait partager à l'assistance son expérience à la tête de la Commission technique et scientifique sur l'étude des barrages au Québec à la suite du désastre survenu au Saguenay durant l'été de 1996. *"Rarement rappel à l'ordre n'a été aussi brutal et rarement la précarité de nos réalisations fut aussi dramatiquement mis en évidence"* selon M. **Nicolet** qui a mis l'accent sur l'intime relation entre les ouvrages que crée l'Homme et la nature, ainsi que sur les leçons à tirer de cet événement quant au rôle et responsabilités des professionnels et des spécialistes.

La probabilité d'occurence d'événements extraordinaires comme cette crue subite au Saguenay s'établit en milliers d'année. Les risques associés aux incidents naturels extrêmes ne sont donc souvent qu'abstractions et jugé non-significatifs par l'humain car, *" ... de mémoire d'homme on n'avait jamais rien vue de tel"* d'où une insousciance relative. Une autre évidence ressort également soit, la délicate question de l'arbitrage entre le volet économique, l'exploitation d'un ouvrage à des fins de production d'énergie et la sécurité publique. Dans cette situation, il est souhaitable d'établir des critères stricts, compris et acceptés de tous afin d'actualiser le cadre juridique désuet qui régit l'exploitation des ouvrages de retenue des eaux.

Par conséquent, une gestion de type préventif et probabiliste doit s'appuyer sur une expertise et des outils appropriés tels que la caractérisation de bassin hydraulique et du réseau hydrographique, la géomatique pour établir les liens entre les précipitations et l'apport au réservoir. Au-delà des aspects techniques stricts et rigoureux, les principaux intervenants devront accepter de participer à des débats sociaux afin de dégager des concensus sur les niveaux de sécurité, sur la nature de l'implication des populations affectées par les ouvrages, leur gestion et les mécanismes de coordination entre les propriétaires d'ouvrage et l'administration publique. Cette concertation ne peut être qu'enrichissante tant pour les gestionnaires et la population que pour la société québécoise.

Sur un autre régistre, M. **Charles Halary**, professeur titulaire au Département de sociologie de l'Université du Québec à Montréal et directeur du Groupe d'étude sur la mobilité mondiale dans l'enseignement supérieur (GEMMES), a suscité un très grand intérêt en livrant un vibrant plaidoyer pour que la géomatique aide à ouvrir la voie à une société planétaire. M. **Halary** a cité le monde de l'éducation où des applications en géomatique permettront d'ici peu de sensibiliser par exemple les écoliers de demain à la protection à distance des espèces menacées. *La prochaine génération de savants de l'astrophysique sera occupée à cartographier tous les astres du système solaire, peut-on lire dans les gazettes. Mais, il serait bien stupide de notre part de ne pas considérer la protection de notre planète comme le premier objectif de la géomatique. Habitués à disposer des ressources illimitées de l'industrialisme triomphant, les ingénieurs doivent maintenant raisonner dans un espace clos, fragile et bien circonscrit à l'atmosphère terrestre.*

Le conférencier a également indiqué que la géomatique pourrait contribuer à mettre en valeur un programme de protection et de valorisation de la planète. Pour lui, les métiers où la mobilité est la règle seront les principaux bénéficiaires de la géomatique. Il restera toutefois à s'assurer de préserver l'autonomie personnelle et la vie privée. *L'apprentissage scolaire de la planète, la veille sur les problèmes écologiques de la Terre et l'extension des libertés individuelles sont des missions intrinsèques aux systèmes géomatiques. Elles supposent aussi quelques renoncements.* Et il ne faudra certes pas oublier que la perception sociale de la géomatique se concrétise par l'usage de produits destinés au grand public.

Les fonctions sociales de la géomatique passeront notamment par la valorisation des ressources naturelles des pays du Sud et constitueront une excellente occasion de transfert et de partage de connaissances géomatiques, de mettre en place des stratégies convergentes de développement et ultimement pourra servir de promotion de la démocratie.

2e Forum annuel de R-D en géomatique

Le colloque ***Géomatique VI*** a accueilli les participants du 2e Forum annuel de recherche-développement en géomatique, organisé par le Centre de développement de la géomatique (CDG). Le Forum présentait une vitrine virtuelle, où des chercheurs sur place aidaient à consulter quelques-uns des 80 projets en géomatique sur Internet (**www.cdg.qc.ca**). Une vidéoconférence, suivie par une centaine de participants au colloque, a permis d'échanger sur le thème de l'analyse spatiale avec des chercheures en géomatique de Strasbourg et Paris. Le CDG a également lancé un cédérom qui traite de l'échange des données à référence spatiale. _ la faveur d'un petit-déjeûner-causerie, le CDG a présenté un portrait de l'industrie québécoise de la géomatique et de son potentiel d'exportation. Le ministre délégué à l'Industrie et au Commerce M. Roger Bertrand y a souligné l'importance pour le Québec de demeurer compétitif en terme de compétence de haut niveau et en innovation technologique. _ ce titre, il a mis en relief le besoin de soutenir les investissements en R-D pour accroître le marché de la géomatique, qui se chiffre au Québec à 150 millions de dollars.

Nouvelles technologies à l'exposition commerciale et aux vitrines technologiques

L'exposition commerciale et les Vitrines technologiques se sont révélées une halte incontournable pour les participants qui ont pu constater, auprès d'une trentaine d'entreprise, l'évolution des logiciels et des outils technologiques. Parmi lesquels on note l'utilisation d'Internet pour la publication et la diffusion de données ou encore, l'usage croissant et les nouvelle orientations des SPS. La présence de collèges et d'universités sur le site n'est pas sans nous rappeler l'importance que représente ces maisons d'enseignement tant pour la formation dans

le domaine de la géomatique que pour le potentiel de recherche et développement qu'elles recellent.

Prix Gaïa à deux «piliers» de la géomatique

MM **Guy Béliveau** et **Jules Couture** ont été les récipiendaires cette année du prix Gaïa (déesse de la terre dans la mythologie grecque) qui vise à souligner une contribution particulière dans le domaine de la géomatique au Québec. Au cours des 30 dernières années, MM **Béliveau** et **Couture** ont activement contribué à l'essor de la géomatique dans le secteur privé tant au Québec et au Canada qu'à l'étranger. En 1966, ils fondaient la firme **Béliveau-Couture**, puis en 1987, le **Bureau de Consultants en gestion du territoire (BCGT)**. Depuis mars 1997, nos deux récipiendaires sont rattachés au groupe SSiG, qui est déjà devenu la firme la plus importante en géomatique au Canada. Le prix Gaïa est symbolisé par une sculpture, oeuvre de l'artiste Serge Roy.

4 bourses décernées à la «relève»

Par ailleurs, les sections de Montréal et Champlain, de l'ACSG ont remis quatre bourses chacune, d'une valeur de 1 000 $, à des étudiants qui se sont notamment illustrés par leurs résultats académiques et la qualité de leurs travaux. il s'agit de MM **François Létourneau** et **Pierre-Yves Caron**, tous deux étudiants gradués de l'Université Laval inscrits à des études de maîtrise. et de MM **Mohamed Aazouz** et **Mohamed Ali Neji** de l'Université du Québec à Montréal.

L'ACSG a son site Internet

Le colloque a en outre permis à la section montréalaise de l'ACSG de présenter son nouveau site Internet (**www.acsg.montreal.qc.ca**). Dès le début de 1998, la communauté géomatique pourra y trouver le compte rendu du colloque ainsi qu'une foule de renseignements sur l'ACSG. Le site a d'ailleurs servi comme véhicule d'information à l'intention des personnes qui voulaient s'inscrire au colloque. Depuis l'été de 1997, le site a accueilli plus de 2 000 visiteurs. Les Actes du colloque sont disponibles auprès de l'ACSG.

Recent International Activities in Cartosemiotics

Hansgeorg Schlichtmann,
University of Regina

Since a collection of studies in cartosemiotics is about to appear (see below), it is convenient, at this time, to report about recent international activities in the field. Several relevant papers were presented last year at the 18th International Cartographic Conference in Stockholm. In addition, three cases of cooperative work deserve to be mentioned.

1. Last summer the ICA Working Group on Map Semiotics met under my chairmanship in Dresden, Germany. The purpose was to develop an inventory of existing cartosemiotic studies for the English, French, German, Czech, Slovak, Polish, and Russian language areas. A number of critical literature reviews were presented and discussed. Meanwhile, most of these have been revised, the others are about to be finalized. They are to be made available in a volume of proceedings.

2. Some time earlier an international conference was held in Amsterdam under the theme "Culture - sign - space." It included a section entitled "The map and the territory." Incidentally, this may have been the first time that, in a conference organized by semioticians, a whole section was set aside for discussing cartographic representations. Speakers came from Germany, Canada, and the United States and, in terms of their intellectual backgrounds, represented the disciplines of semiotics, cartography, and sociology.

3. Finally, a forthcoming issue of the journal Zeitschrift für Semiotik (published in Berlin) will be devoted to maps. The title of this issue translates as "Maps as synoptic media"; its editors are D. Schmauks and W. Nöth. Two of the eight pertinent chapters are based on papers presented at the Amsterdam conference. Five contributions cover strictly semiotic themes: maps as synoptic media, cartosemiotics and the cartographic sign, processes of sign production in map making, generalization as a semiotic process, and the semiotics of geological maps. The remaining three articles concern cognate topics: spatial modelling by information-processing systems, map understanding from the point of view of cognitive psychology, and characteristics of the medieval Ebstorf World Map. All articles are in German but have English abstracts. The collection has gone to press and is expected to be available in April 1998.

1998 ESRI USER Conference Student Assistantship Program

Each Year, ESRI hosts an international conference in San Diego, California, where over 8,000 users gather to learn more about geographic information systems (GIS) ESRI will sponsor a number of students to participate during the week of July 27-31, 1998. If interested please send application letter, resume or work history, two letters of recommandations (one from a professor and one from another source),telephone number (include summer telephone number), mailing address and E-Mail to:

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Geomatics VI:
A Symposium on a World Within Reach

Michel Fournier,
Cartologique

The spectacular development of technological tools, the advent of the information highway, the ongoing enrichment of knowledge, plummeting technology costs, and the organization of geographic data are but a few of the events over the past few years that have helped bring geomatics to an ever-growing number of users.

A large number geomatics applications were central to the symposium, Geomatics VI: A World Within Reach, organized by the Montreal branch of the Canadian Institute of Geomatics (CIG). Nearly 800 participants came to the Palais des Congrès de Montréal last November 13 and 14 to attend this biennial symposium, the biggest and best of its kind in the Quebec geomatics industry.

Conferences for Today and Tomorrow

Increasingly accessible data and the clear interest of managers have brought us geomatics projects that are even more diversified, as the conferences at last year's symposium certainly illustrated. The geomatization of the road system databases of over 150 municipalities in Quebec enabled the call center of Info-Excavation, the centralized service providing information on underground facilities in Quebec, to nearly halve the number of fractures caused to these facilities between 1993 and 1996. At Environment Canada, use of the GENIE network, which handles environmental emergencies, and the Internet have greatly improved the flow of GIS information while at the same time boosted cooperation between all parties involved.

The latest reissue of a work entitled Aboriginal Nations in Quebec - Land Transactions in digital format has allowed the Quebec ministry of natural resources to incorporate geomatics and computer graphics tools, giving it the flexibility to offer derivative products such as the document transferred to CD-ROM. Development of the Quebec Road System Base Map by the ministry of transport will automate the entire process of producing standard series of maps, as well as thematic documents such as regional truck route maps or the Quebec road map. Moreover, the Canadian Hydrographic Service reissued a revised, updated version of the Atlas of Tidal Currents - St. Lawrence Estuary which contains maps of currents at various times in the semidiurnal St. Lawrence tide cycle, in the section from Cap de Bon-Désir to Trois-Rivières. To prepare the atlas, new hydrodynamic models were produced and measures were taken of Lagrangian surface currents and validated with the help of drifting buoys equipped with GPS receivers.

The promising potential of the information highway was clearly illustrated with concrete examples such as the Internet service launched by New Brunswick to provide complete province-wide real estate information to clients at a nominal charge.

Special emphasis was also placed on the importance of **geographic data warehouses** which solve the problem of distributing data to different sites frequently residing in disparate computer environments. Users now have broader access to a variety of georepositories that will further the popularity of geomatics products.

Businesses working in the personal communication systems (PCS) sector now combine the use of geomatics with software that simulates and forecasts radio frequency propagation to optimize network coverage for a given area, thereby helping specialists streamline the sites of their telecommunication infrastructures.

Agricultural producers now have new technologies too, such as the GPS (Global Positioning System), real-time yield sensors and geographic information systems, used particularly in precision agriculture (**PA**) to manage, optimize and standardize crop yields. And the new hyperspectral sensors help produce instant images of vegetal stress or even specific areas of vegetation, thus enabling speedy intervention in special situations.

The Technical Services Branch of the Canadian Coast Guard (CCG) is currently conducting bathymetric surveys on the St. Lawrence River using the On-the-Fly Real-Time (**OTF-RT**) approach and GPS, especially to validate navigation systems and determine the keel clearance of deep draught vessels as a factor of tides, changing vessel speeds and the swell factor. These technologies have improved the accuracy of river navigation (to within centimeters) while also improving traffic safety in the shipping channel. The **GPS*C** of the Canadian Spatial Reference Service provides satellite orbit and clock corrections, as well as corrections to errors caused by delayed GPS signals in the ionosphere, thus providing half-meter level accuracy for real-time positioning anywhere in the country.

A Better Planet Through Geomatics

Mr. **Roger Nicolet**, President of the Ordre des ingénieurs du Québec, told a luncheon meeting audience about his experience as head of the Commission technique et scientifique sur l'étude des barrages au Québec following the disastrous floods that hit the Saguenay region in the summer of 1996. *"Rarely has a call to order ever been so brutal and rarely has the precariousness of our achievements been so dramatically demonstrated,"* said Mr. **Nicolet**, who stressed how closely the works of Man are tied to nature, as well as the lessons to be learned from this event in terms of the roles and responsibilities of professionals and specialists.

The probability of occurrence of extraordinary events like the flash floods in the Saguenay can be measured in thousands of years. Consequently, the risks associated with extreme natural phenomena are often mere abstractions, considered as insignificant by human beings, for *" ... such an event has never happened within living memory"*, thus the reason for our comparative indifference. And yet more evidence was cited: the delicate question of arbitrating between economics, the operation of a hydroelectric dam and public safety. In this case, what is called for is the establishment of stringent criteria that are understood and accepted by all in order to modernize the outdated legal framework that governs dam operations.

As a consequence, a preventive and probabilistic type of management must be based on the right expertise and tools, such as the description of the catchment basin and drainage patterns, as well as on geomatics, to make the connection between precipitation and reservoir capacity. Besides these strictly technical issues, the key players will have to agree to help initiate public debates to arrive at a consensus on safety levels, the nature of involvement of the populations affected by the dams, their management and the means for coordinating dam owners and public administration. This consensus-building cannot help but be an enriching experience for both managers and the population, as well as for Quebec society as a whole.

On a different note, Mr. **Charles Halary**, full professor in the Sociology Faculty of Université du Québec à Montréal and the director of Groupe d'étude sur la mobilité mondiale dans l'enseignement supérieur (GEMMES), created considerable interest by vigorously pleading the cause of geomatics as a tool to help pave the way towards a global society. Mr. Halary discussed the education sector where geomatics applications will shortly be used, for example, to help educate tomorrow's students about the remote protection of endangered species. *The newspapers tell us that the next generation of astrophysicists will be concerned with mapping all the heavenly bodies in the solar system, but it would be very foolish of us if we did not make the protection of our planet the prime objective of geomatics. Used to having access to the unlimited resources of boom-time industrialism, engineers are now being forced to reason within the restricted and fragile confines of the earth's atmosphere.*

The speaker also pointed out that geomatics could make a significant contribution to programs aimed at protecting and enriching the planet. He feels that occupations in which mobility is the rule will benefit most from geomatics. Personal autonomy and privacy, however, must remain intact. *Education, surveillance of ecological problems and the expansion of individual freedoms are the intrinsic missions of geomatics. They also entail some renunciations.* And never forget that the social perception of geomatics is embodied in the use of products intended for the general public.

The social role of geomatics will be particularly evident in the enhancement of natural resources in developing countries and will be an excellent opportunity to transfer and share geomatics knowledge, implement converging development strategies and, eventually, help promote democracy.

2nd Annual Forum on R&D in Geomatics

Geomatics VI also welcomed participants to the 2nd Annual Forum on R&D in Geomatics, organized by the Centre de développement de la géomatique (CDG). The Forum was a virtual showcase at which on-site researchers helped consult for some of the 80 geomatics projects over the Internet (**www.cdg.qc.ca**). A videoconference, attended by approximately a hundred symposium participants, even served as a forum for discussion on the spatial analysis theme with geomatics researchers from Strasbourg and Paris. The CDG also launched a CD-ROM addressing the exchange of geographic data. At a luncheon meeting, the CDG gave a picture of the Quebec geomatics industry and its export potential. The minister responsible for industry and commerce, Mr. Roger Bertrand, pointed out how important it is for Quebec to remain competitive in terms of high-level skills and technological innovation. Accordingly, he highlighted the need to support R&D investments to develop the geomatics market, which brings in revenues of $150 million in Quebec.

New Technologies at the Trade Show and Technology Showcases

The trade show and technology showcases were a required stop for participants who could see contributions made by about 30 companies to the development of software applications and technology tools. Among them were our use of the Internet to publish and distribute data, not to mention the growing use of GPS and the new directions it is taking. The presence of colleges and universities also helped drive home how important these learning institutions are for both geomatics training and the R&D potential they represent.

Gaïa Award for Two "Pillars" of Geomatics

Guy Béliveau and Jules Couture were the latest recipients of the Gaïa Award (Gaïa was the goddess of the earth in Greek mythology) to recognize their special contribution to the Quebec geomatics industry. Over the past 30 years, Mr. **Béliveau** and Mr. **Couture** have been closely involved in the growth of geomatics in the private sector in Quebec, the rest of Canada and abroad. In 1966, they founded Béliveau-Couture, and then in 1987, Bureau de Consultants en gestion du territoire (BCGT). Since March 1997, our two award winners have been members of Groupe SSiG, which has already become the largest geomatics firm in Canada. The Gaïa Award is in the form of a sculpture created by the artist, Serge Roy.

Four Grants Awarded to the Up-and-Coming Generation

In addition, the Montreal and Champlain branches of the CIG awarded four grants worth $1,000 each to students who have distinguished themselves through both their studies and their work. They are Mr. **François Létourneau** and Mr. **Pierre-Yves Caron**, both graduate students of Université Laval enrolled in master's programs, together with Mr. **Mohamed Aazouz** and Mr. **Mohamed Ali Neji** from Université du Québec à Montréal.

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Canadian National Committee for Cartography and CIG Technical Councillor for Cartography

Peter Keller,
University of Victoria

ICA Activities

I have received from the ICA their newsletter #29, Winter 1997. It has been passed on to the various newsletter editors for distribution. You can also try the following website for association news:

http://www.abdn.ac.uk/ica

I also have received from the ICA's *Commission on National and Regional Atlases* the proceedings from their seminar on "Electronic Atlases II" held at Charles University, Prague, July 31-August 2, 1996 and the 28th IGU Conference, The Hague, August 8, 1996. Copies of the proceedings can be obtained from:

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I understand that two new initiatives by the ICA are the formation of commission or working groups on "Planetary Cartography" and "Census Mapping".

ICA'99 Ottawa (August 14-21, 1999)

You don't want to miss it ..... because you are spatial!

Planning and preparation for this conference are well on the way and the conference web site is up. Try us at:

http://www.ccrs.nrcan.gc.ca/ica1999/icafme.html

The various committees are busy gearing up for this event. Volunteers interested in contributing with time or other support are always welcome and should contact Lloyd Bowler or myself through the ICA'99 Secretariat. A meeting of the Scientific and Technical Program Committee will be held over lunch on May 27 in London, Ontario in conjunction with the CCA conference (please see the CCA programme for detail).

The Glengarry Initiative

At a CIG meeting in Calgary last year an initiative called the *Glengarry Group* was formed. The stated purpose of this group is to 'facilitate the integration, growth and development of the Canadian Geomatics community'. One of the initiatives undertaken so far includes a "three-minute questionnaire" accessible at:

http://132.156.33.161/cgn/glengary/que-3min.txt

The group also has been in communication with *Human Resources Development Canada* discussing their initiative to make geomatics an area that would benefit from a sector study to identify human resource issues and needs, and to develop an implementation program. Two complimentary initiatives are the drafting of a set of ISO certification standards for geomatics professionals. A draft of this standard has been presented at the recent ISOTC211 meeting held in Victoria March 2-6, 1998 before the CHS conference. A second initiative is the joint effort by a number of geomatics sectors to produce a variety of information materials to be used in the promotion of geomatics in Canada. More information about the Glengarry Group and its activities can be obtained from:

http://www/cig-acsg.ca

CAFICA

An alliance of all geomatics associations was formed some time ago jointly to work with the ICA'99 Secretariat on the ICA'99 conference. CAFICA continues to strive under the leadership of Tony O'Connor from the CHS.

Next Meeting

Plans are to hold the next meeting of the Canadian National Committee for Cartography over lunch on May 28, 1998 in London, Ontario in conjunction with the annual meeting of the Canadian Cartographic Association, May 27-30, 1998 (please see the CCA programme for detail). It will be an open meeting and I hope to see you all there.

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CIG on the Web

The Montreal branch of the CIG also took the opportunity of the symposium to introduce its new Web site (**www.acsg.montreal.qc.ca**). Since the beginning of 1998, the geomatics community has been able to visit the site to discover what happened at the symposium, as well as to see lot of information on the CIG. People also used the site for symposium information to help them register. The CIG site has had over 2,000 hits since the summer of 1997. The symposium proceedings are available from the CIG.

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L'Association canadienne de cartographie

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- ☐ I wish to receive the Preliminary Program / Je souhaite obtenir le Programme préliminaire
- ☐ I wish to receive the Corporate Sponsorship Package / Je souhaite obtenir la trousse d'information pour les commanditaires
- ☐ I wish to receive the Exhibitor's Trade Fair Package / Je souhaite obtenir la trousse d'information pour la foire commerciale
- ☐ I wish to receive Accommodations Information / Je souhaite obtenir de l'information sur le logement
- ☐ I wish to receive information on the Pre- and Post-Conference Tours / Je souhaite obtenir de l'information concernant les visites avant et après la Conférence
- ☐ I wish to receive information on the social programs for delegates and their guests / Je souhaite obtenir de l'information sur le programme des activités sociales à l'intention des délégués et de leurs invités

Si vous désirez recevoir des renseignements supplémentaires sur la conférence, veuillez préciser à l'aide de la liste ci-dessus

Family name:
Nom de famille : _____

First name:
Prénom : _____

Organization:
Organisme : _____

Address:
Adresse : _____

City: _____ Prov./State
Ville : _____ Prov./État : _____

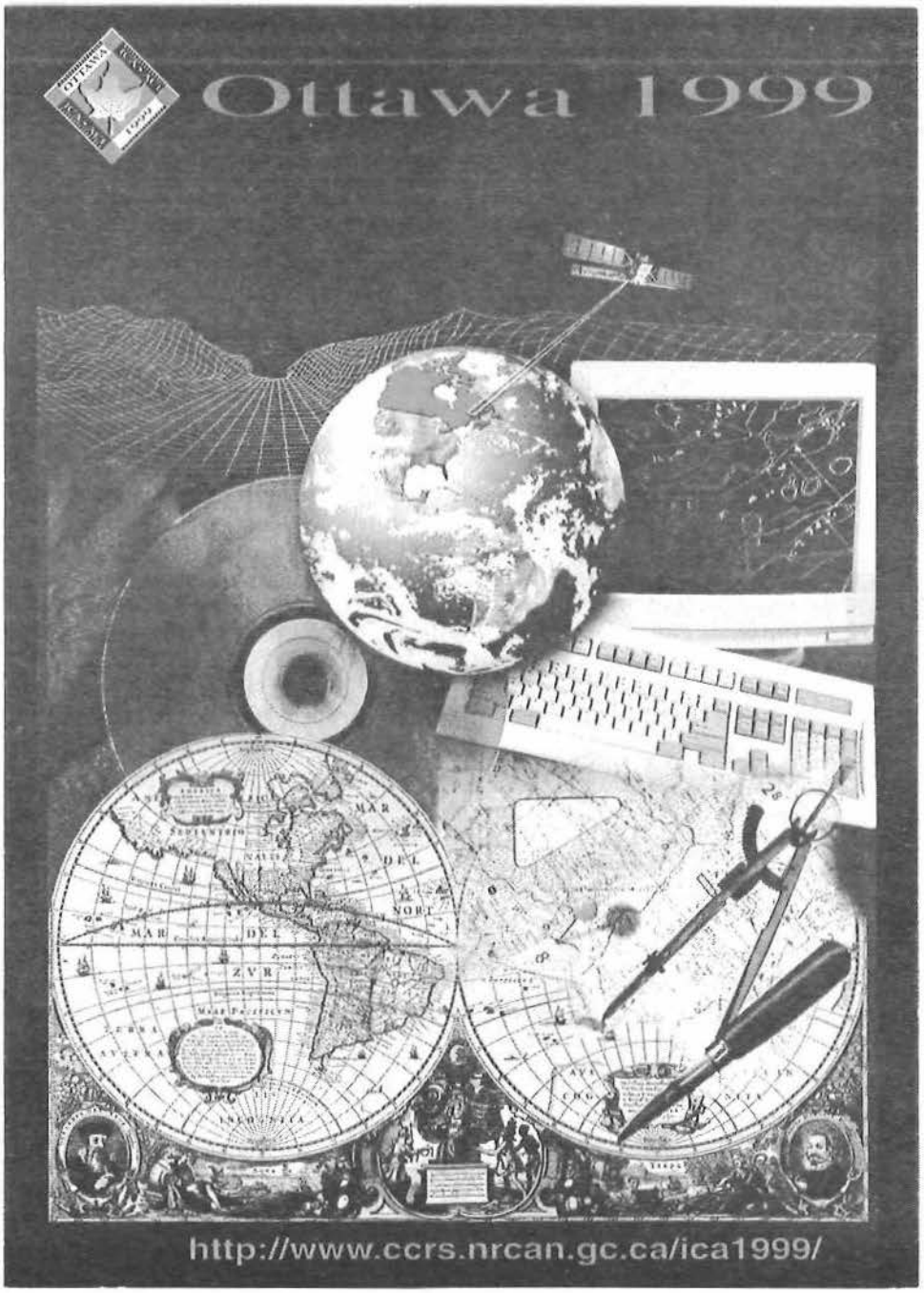
Postal Code:
Code postal : _____

Country
Pays : _____

Tel./Tél. : _____

Fax/Téléc. : _____

E-mail/CÉ : _____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