Cartouche

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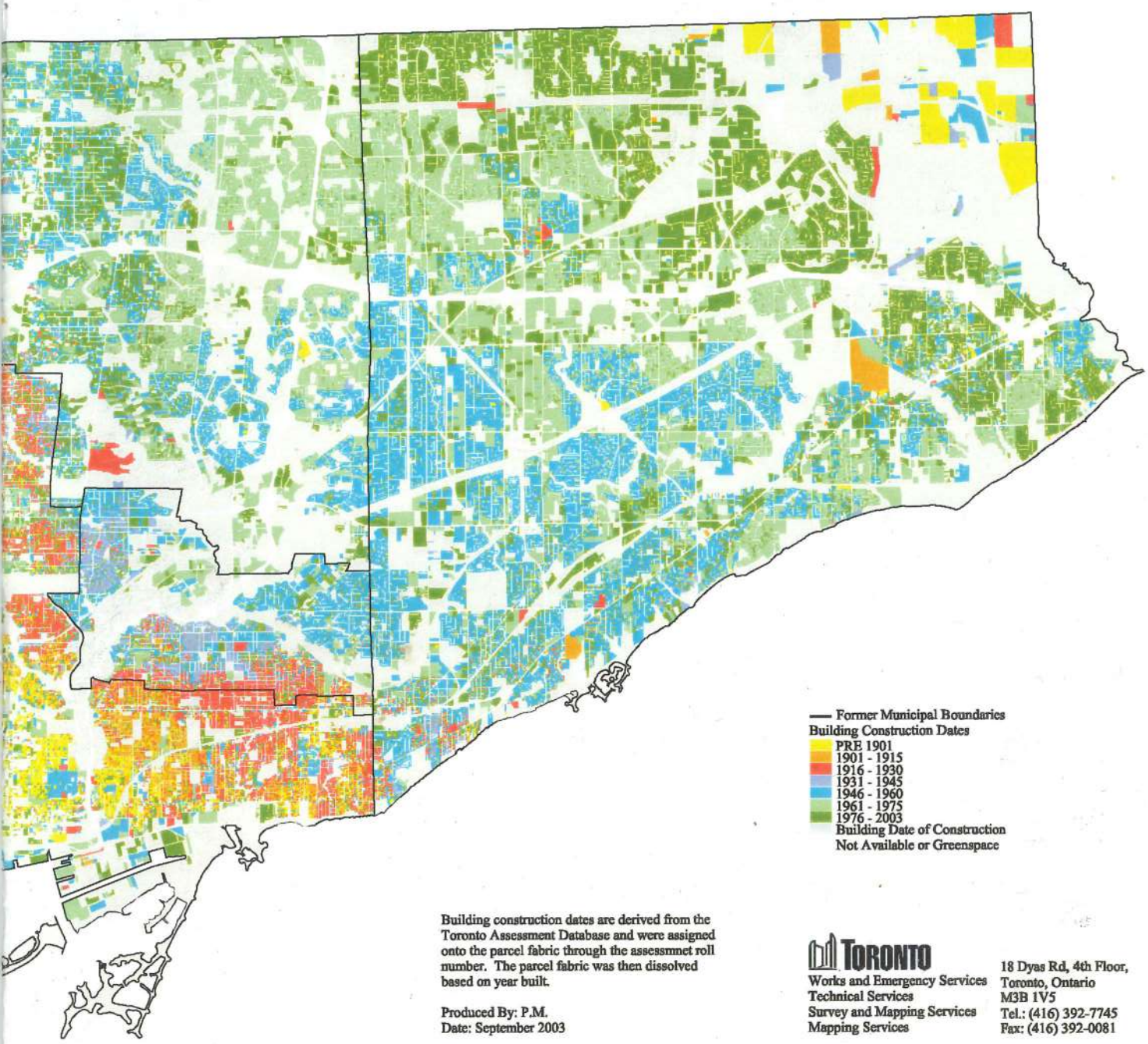

Building construction dates are derived from the Toronto Assessment Database and were assigned onto the parcel fabric through the assessmnet roll number. The parcel fabric was then dissolved based on year built.

Produced By: P.M.
Date: September 2003

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A Word from the Editors

Tulips are now gone in Ottawa and peonies are in full bloom...

For this issue of *Cartouche*, we had a dilemma - what map do we use on the cover? We finally decided: it would be either the map of Toronto or the map of Mount Waddington. Would it be topographic or thematic? Both of the maps are relevant because in this issue you will find an article on both. So, we put the two choices in a hat and had a draw and voila! You will find the map of Toronto wrapped around the outside cover and the map of Mount Waddington on the inside back cover. Unfortunately the list of the CCA Executives, not being as colourful as these maps, can be found inside on page 22. We now have *Cartouche* well covered. We hope you like the result!

Throughout the pages of this issue, you will also find articles from every Interest Group Chair of the Association and on a new feature - Mountain Cartography. We are very pleased to present five articles written by students from across Canada. Well done everyone! We hope this trends keeps up for the future.

Enjoy !

Un mot des éditrices...

Les tulipes sont déjà fanées à Ottawa mais les pivoines sont en fleurs...

Pour ce numéro de *Cartouche*, nous avions un dilemme: quelle carte choisir pour la page couverture? Nous avions deux choix; une carte de Toronto, une de Mont Waddington. Topographique ou thématique ? Ces deux cartes sont pertinentes car on retrouve dans ce numéro un article sur chacune d'elles. On a donc mis les deux choix dans un chapeau et hop ! fait un tirage. Vous trouverez la carte de Toronto sur la couverture et celle de Mont Waddington, à l'intérieur du couvert. Puisque la liste du comité exécutif est moins colorée, nous l'avons mise à la page 22. Nous espérons que vous aimerez le résultat !

À travers les pages de ce numéro, vous trouverez un article venant de chacun des présidents de groupe d'intérêt de l'Association ainsi que sur le nouveau thème de la cartographie des montagnes. De plus, nous sommes très fières de vous présenter cinq articles écrits par des étudiants venant de plusieurs endroits au Canada. Bravo à tous ! Nous espérons que cette tendance se maintiendra longtemps.

Bonne lecture !

Editorial team (from right to left) : Claire, Diane and Anita x 1.5 (little baby boy to be born in September !)

About the cover...

City of Toronto Building Construction Date

Scale: 1: 30,000. Cartographer: Patricia Morphet from the Survey and Mapping Services of the City of Toronto. This map, published in 2003, is a snapshot of growth trends in the city of Toronto using year building information from assessment data. The information presented in this map may be of interest to those in the construction and planning fields or those interested in historical geography. This map has been chosen to be part of the Canadian exhibit for the International Map Exhibit for ICA 2005 in Spain. (Reproduced with the permission from the City of Toronto)

City of Toronto Building Construction Date

Échelle : 1/ 30 000. Cartographe: Patricia Morphet du Survey and Mapping Services de la ville de Toronto. Cette carte, publiée en 2003, présente un instantané des tendances de la croissance de la ville de Toronto en utilisant l'année de construction des édifices à partir des données d'évaluation. L'information présentée sur cette carte intéressera les urbanistes et les constructeurs ainsi que ceux qui s'intéressent à la géographie historique. Cette carte a été choisie pour faire partie de l'Exposition canadienne pour l'Exposition internationale de cartographie de l'ACI de 2005 en Espagne. (Reproduite avec la permission de la Ville de Toronto.)

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CCA Business / Affaires de l'ACC

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. 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. Tous les membres peuvent soumettre des articles à l'éditeur du bulletin (voir coordonnées ci-dessous). Les articles et annonces soumis sont sujets à l'approbation de la rédaction. L'éditeur du bulletin ne peut être tenu responsable pour des erreurs de compilation ou la perte d'article. Des efforts particuliers sont déployés pour éviter de tels problèmes. Les opinions exprimées dans le cadre des éditoriaux, des articles et des lettres publiés dans le bulletin, ne reflètent pas nécessairement celles de l'Association canadienne de cartographie. L'Association canadienne de cartographie remercie particulièrement le Conseil de recherches en sciences humaines du Canada pour son apport financier.

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Christine Earl
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President's Message/ *Mot de la Présidente*

CCA Archives

Last July, I noted in my column that the CCA has a history worth preserving, and that as the oldtimers retire from active involvement, it is important to obtain archival materials from them to create a permanent record. I asked for volunteers for compiling and housing a CCA archive, and I'm still looking, but I would like to initiate the process and will undertake to start collecting materials. Therefore, if any former Executive member, or anyone else, has a CCA file they think is important, send it to me. I'll pass on the archive, and the task, to future CCA Executive.

Cartographic Associations

I have previously described an interview with Georg Gartner and William Cartwright (*Swimming with Scrooge McDuck*) and I reproduced some of the conversation we had about cartography. During the same interview, we talked about professional organizations for cartographers, and I was interested to learn about the organizational concerns of cartographers in other parts of the world.

In Australia, there are three associations for people engaged with mapping. The Australian Map Circle is an association for anyone with an interest in cartography or maps, is managed by volunteers, has a journal entitled *The Globe* and a newsletter, and keeps the membership fee very low at AU$30/year. The Mapping Sciences Institute is a more formal organization and requires prospective members to have a professional degree. The membership fee is AU$130. It is also a volunteer organization and has been in existence since 1952.

The third Australian organization is the very new Spatial Sciences Institute, formed in 2003. The Spatial Sciences Institute is an umbrella organization which has drawn members from the Institution of Surveyors but has a mandate to represent all spatial scientists including cartographers and geomaticians. This Institute charges a higher membership fee – AU$300 – and it has an executive group to do all the work. The Institute provides professional certification and has several Commissions, including one for cartography.

While Bill Cartwright expressed concern that cartography was just one of the players in the Spatial Sciences Institute, he went on to say that he thought it was therefore "up to the cartographers" belonging to the Institute to ensure that they had an important voice. He very definitely felt there were some advantages to the larger organization. A technical session put on by the Mapping Sciences Institute tends to draw a small number of participants. "When we run a cartography-based technical session" he said of the Spatial Sciences Institute, "we find we get surveyors and photogrammetrists and GIScience people coming as well." Instead of a session with maybe 20 people, there may be 150. Then the next session might draw 200 because of "a sort of momentum that builds up." While many of the councillors of the Mapping Sciences Institute want to continue to keep membership fees less expensive, "almost like a club", the advent of the new umbrella group has convinced Cartwright that this strategy "may well introduce a 'sunset' clause for the MSIA, and perhaps younger members won't join that organization because they see the new one as being more dynamic, with more links to industry and other professional organizations."

In Austria, the principal association is the Austrian Cartographic Society. In the German-speaking countries, there is a similar discussion about whether cartography is a strong enough field on its own, or whether it would be desirable to bring it together with surveying and GIS. Gartner believes that cartography is a very strong field itself with a distinct identity and he is firmly on the side of preserving the existing cartographic association, and preserving the term cartography in its name. Although the term has old-fashioned connotations in German-speaking countries and this is troubling, Gartner says, "I am sticking to this term ... I like this term because it describes what I am doing ... I am self-confident enough to say that my discipline is cartography and I see no reason to see myself under the umbrella of GIScience or Geomatics." Although he expressed uncertainty about what would happen in the future, Gartner was clear that a society should be based on a core discipline and that cartography is such a discipline. Sometimes, he says, you meet colleagues from other disciplines and they think you are "still drawing maps like years ago" but he explains that no, he is a cartographer but his work is on location-based services and he calls this cartography.

We touched upon the situation for cartography at the international level but this is perhaps for others more cognizant of the international scene to comment upon. That the new umbrella terms of Geomatics and GIScience are causing some difficulties and some anguish for the old cartographic organizations is, however, undeniable and, it seems, ubiquitous. In Canada, we have not been immune but we have managed, so far, to create quite a good co-operative environment for professionals in our

field. What it may evolve into in the future is something I can't foresee but I hope the CCA will continue to play an important part in it.

Rick Gray
Ridgetown College -
University of Guelph

Vice-President's message/ *mot du Vice-Président*

In the last issue of *Cartouche,* I lamented the fact that CCA membership numbers have been dropping in the last few years. It seems that the Executive's concerted effort to bring back lapsed members has been paying off. I have been informed that, as a result of the great new look of *Cartouche,* the always exciting venue of St. John's Newfoundland for our conference, and some not-so-subtle pressure tactics by some of our current members, the membership numbers have taken a jump and many of those former CCA members are now returning. Welcome back and hope to see you all in St. John's.
(P.S. bring a friend / prospective new member when you come!)

Claire Gosson
GeoAccess Division, NRCan

Past President's message/ *mot de la Présidente-sortante*

"Parting is such sweet sorrow
That I shall say good night till it be morrow"
Shakespeare

All good things must come to an end and now is time for me to say farewell. For the most part, serving on the executive of the CCA it has been a great experience and also a great honour.

There are many people that I would like to thank for their support during my term. I would like to particularly thank Charles Conway for his kind support and good advice while I filled in as acting President for Ute while she was on Sabbatical and during my term as President and Past- President. I could always count 'on good old Charlie' to provide me with good sound advice and up to date financial reports. Charlie's term also ends this year and I would like to acknowledge how much I appreciate him for all of the years that he has served the CCA. Charlie has also prepared the framed Awards of Distinction certificates and student award certificates that arrived safely at the all venues of the CCA conferences across Canada.

I certainly can't leave without showing my appreciation for Ute's friendship and advice. We shared many good moments together at conferences and later with telephone call and I am certain we will repeat this experience in Newfoundland.

Gary McManus was a joy to work with and produced many good issues of *Cartouche* for the CCA during my term. Thank you Gary for keeping us all connected through *Cartouche* and I know we will meet again soon at other venues.

There is another special person in the CCA, M. Roget LeBlé (A.K.A. Roger Wheate) who was always prepared to share his advice and share his experience as Past-Past Past-President of the CCA. Thank you for all of your advice on many issues, especially the medicinal use of dark beer during trying times. Merci beaucoup Roget!

I was especially fortunate to have a guardian angel in Diana Hocking. She came along to get me *'out of the soup'* as she would say when the CCA was without a Secretary. She soon put our membership back on track and worked endlessly to ramp up on a job that is not necessarily easy when you walk into it fresh. Her good common sense and advice was so appreciate. Thank you so much Diana.

We are also saying good-by to two of our Interest Group Chairs; Paul Heersink was invaluable last year with the organization of the CCA conference in Lindsay, Ontario and for his input to *Cartouche*. We all had a good time in Lindsay and Paul's effort in this organization of the conference at Fleming College was much appreciated; Jean McKendry is also leaving this year. Jean also wrote quite a few articles for *Cartouche* as IG Chair and was also part of the selection committee for the new Board members who will be joining the Executive in July. Thank you Jean!

I would like to wish a warm welcome the new members to the Executive. Lori King from the Ontario Ministry of Natural Resources in Timmins Ontario will take on the duties of Map Production Technology Chair and Ian O'Connell from the University of Victoria as the new IG

Chair for Cartographic Education. I'm certain that their term on the board will bring them satisfaction and the CCA will reap many benefits from their participation.

Our new Treasurer will be John Fowler from the University of Victoria. John is great guy who likes to get involved. I have watched him develop over the years from a student member and our student representative on the Executive to stepping forward and taking on the duties of the Treasurer. He started off one coast of Canada and ended up on the other! He was also the 2004 recipient of the Norman Nicholson Award. Nothing is too daunting for John! He also got involved with the Children's Map Exhibit for ICA 2005 this year while completing his Master Degree successfully, and landing a position at UVIC as the Senior Laboratory Instructor for Geomatics, Department of Geography University of Victoria. John has been a joy to know and work with. Undertaking the duties of Treasurer will certainly be challenging for him. A good calculator would be of great benefit to him also. Good luck John with your new duties. The bills will start arriving very fast to UVIC.

Our Vice-President this year is a very special person. Clifford Wood was a previous President of the CCA. He will officially retire from Memorial University of Newfoundland in August and it appears that he has no intention of slowing down. Last year, Cliff was one of the trio that took over the co- editorship of *Cartographica* and put it back on its regular schedule and with an impressive new look. Cliff decided to have also rejoined the Executive of the CCA and commit to three more years! This is great for the CCA and I know that he will give it his absolute best as he does everything he takes on.

Cliff and Alberta, his wife, will move to London, Ontario this summer. I wish them a long and productive retirement as well as warmth and happiness in their new home. I have sought advice from both Cliff and Alberta many times over the years and received wise guidance and I know that they will continue to be available to all many for years to come.

I wish Christine all of the best in her new role as Part-President and wish her well during her sabbatical year.

Last but not least, I wish Rick a good year as President. I know that he has the determination and good judgement to be a very capable President and that the CCA will be in good hands during his term.

We shall meet again at Carto 2005 in July and I look forward to seeing many of you in Ottawa in 2006 to celebrate the 100th Anniversary of the Atlas of Canada.

«La séparation tant de douleur douce que je dirai que la bonne nuit jusqu'à elle soit le lendemain »

Shakespeare

Toutes bonnes choses doivent se terminer et l'heure de dire adieu est maintenant arrivée. Pour la plupart du temps passé au conseil exécutif, cela a été une grande expérience et un grand honneur de vous servir.

Il y a plusieurs personnes que je voudrais remercier pour leur support pendant mes trois ans au conseil exécutif. Je voudrais tout d'abord remercier plus particulièrement Charles Conway pour son appui et ses bons conseils tandis que je remplaçais temporairement Ute lors de son congé sabbatique et durant mon terme comme Présidente et Présidente sortante. Je pouvais toujours compter sur notre «bon vieux Charlie» pour des conseils éclairés et des rapports d'état financier à jour. Charlie termine aussi son rôle de Trésorier cette année et je voudrais lui exprimer ma gratitude pour toutes les années qu'il a servi l'Association. De plus, c'est également Charlie qui préparait et encadrait les certificats de distinction et ceux pour les étudiants et s'assurait qu'ils arrivent toujours en temps à toutes les conférences de l'ACC à travers le Canada.

Je ne peux certainement pas partir sans reconnaître l'amitié et les conseils de Ute. Nous avons partagé beaucoup de bons moments ensemble aux conférences ainsi que lors de nos conversations téléphoniques. Je suis certaine que cette expérience se répètera à Terre-Neuve.

Ce fut une joie de travailler avec Gary McManus. Gary édita plusieurs éditions de *Cartouche* durant mon terme. Merci beaucoup Gary d'avoir maintenu nos membres en contact par l'entremise du bulletin *Cartouche*. Je sais que nous aurons l'opportunité de nous rencontrer bientôt en d'autres occasions.

Une autre personne très spéciale de l'Association que je voudrais remercier est Monsieur Roget Leblé (plus connu sous le nom de Roger Wheate). Roger était toujours prêt à partager ses conseils et son expérience acquise lorsqu'il était Président sortant «sorti plusieurs fois au courant des années». Merci Roger pour tes judicieux conseils surtout pour ceux concernant l'utilisation médicinale de la bière brune durant les périodes d'épreuve. Thanks M. LeBlé!

J'ai été particulièrement chanceuse d'avoir un ange gardien en Diana Hocking. Elle est venue à mon aide pendant un temps très difficile en reprenant à pied levé les fonctions de secrétaire de l'Association. Elle a bientôt remis nos adhésions sur la bonne voie et mené à bien un travail qui n'est pas nécessairement facile. Un gros merci Diana!

Cette année, nous disons également au revoir à deux de nos présidents de groupe d'intérêt : Paul Heersink et Jean McKendry. L'an dernier, le travail de Paul fut de valeur inestimable lors de l'organisation de la conférence de l'ACC au Collège Fleming à Lindsay en Ontario. Nous avons tous passé un bon temps et nous apprécions et remercions tous l'effort de Paul dans cette grande entreprise. De plus, un grand merci à Jean McKendry pour ses articles, toujours intéressants, parus dans *Cartouche*. En plus de son rôle comme présidente de groupe d'intérêt, Jean participa également comme membre du comité de sélection pour le nouvel exécutif qui se joindra à nous en juillet.

Je voudrais souhaiter un accueil chaleureux aux nouveaux membres de l'exécutif de cette année. Lori King, du Ministère des ressources naturelles de l'Ontario à Timmins, prendra les tâches de la technologie de production cartographique et Ian O'Connell, de l'Université de Victoria, sera le nouveau président du groupe 'Éducation cartographique'. Je suis certaine que leur participation va nous enrichir et que l'ACC bénéficiera de leurs accomplissements au cours des prochaines années.

Notre nouveau trésorier sera John Fowler de l'Université de Victoria. John est le genre de personne qui aime s'impliquer dans plusieurs aspects de l'Association. J'ai suivi sont cheminement au cours des années comme membre étudiant et, plus tard, comme représentant des d'étudiants dans l'exécutif. Il a commencé sa carrière sur la côte est du pays pour la poursuivre sur la côte ouest ! Il était également le récipiendaire 2004 du prix Norman Nicholson. Rien n'est trop difficile pour John ! Il s'est également impliqué avec l'exposition cartographique pour les enfants de l'ACI 2005 tout en terminant sa maîtrise avec succès. L'an dernier, il a obtenu le poste d'instructeur au laboratoire du département de Géomatique de l'Université de Victoria. C'est une joie de connaître John! Et maintenant John a choisi de relever le défi de Trésorier pour l'Association. Une bonne calculatrice lui sera bien utile ! Bonne chance John avec tes nouvelles tâches. Les factures commenceront à arriver très rapidement à UVIC!

Notre vice-président cette année est une personne très spéciale. Clifford Wood fut Président de l'Association il y a plusieurs années passées. Clifford prendra sa retraite de l'Université Memorial au mois d'août de cette année mais n'à aucune intention de ralentir le travail puisqu'il fait également partie du trio qui a pris *Cartographica* en main. Je sais qu'il nous accordera son meilleur au cours des trois années à venir. Cliff et Alberta, son épouse, déménageront à London en Ontario cet été. Je leur souhaite une longue et productive retraite, aussi bien que la douceur et le bonheur dans leur nouveau foyer. Cliff et Alberta m'ont souvent donné de bons conseils à travers toutes ces années et je suis certaine qu'ils continueront à nous faire don de leur sagesse et de leur disponibilité lors des années à venir.

Je souhaite à Christine bonne chance durant son terme de Présidente-sortante et je lui souhaite également une bonne année sabbatique.

Enfin, je souhaite à Rick une bonne année comme Président. Je sais qu'il a la détermination et le bon jugement d'être un Président très habile et que l'ACC sera bien servi.

Nous nous réunirons à Carto 2005 en juillet et j'espère de tous vous voir à Terre Neuve. Et n'oubliez pas 2006 à Ottawa pour célébrer le 100e anniversaire de l'Atlas du Canada !

Cartographic Education/
Éducation cartographique

CCA Weblog

Paul Heersink
Ontario Ministry of Natural Resources

The CCA now has another on-line presence: a web log. At *http://ccablog.blogspot.com/*, the web log is meant as an informal collection of news items and links that might be of interest to CCA members and others with a cartographic interest.

Its first posting dates back to April 27th and posting since have included such topics as Variations on Google Maps (April 29), World Wind, a globe-viewing software available free from NASA (April 30), links to various maps of the London Underground (May 1), Shuttle Radar Topography Mission (May 3), mapping the Swiss political landscape (May 10), and maps of global risk (May 31).

Contributions to the web log are always welcomed. If you have something that you think might be worthwhile sharing with the wider cartographic and CCA community, feel free to contact me at paperglyphs@sympatico.ca.

Andrew Millward
University of Waterloo

Connecting the Landscape With a Hydro Network GIS and Water Resource Management

Less than three percent of the water on Earth is fresh, with only one one-hundredth of a percent existing in lakes, rivers, soil and the atmosphere. Access to potable freshwater is of increasing importance to a growing human population, and is in even greater jeopardy with increased demand by global industry. Thus, the description and prediction of freshwater movement through a landscape is of great interest and contemporary importance. Investigation of the physical movement pathways of water (hydrologic cycle) lends itself well to the use of a geographic information system (GIS). When integrated with a hydrologic model, a GIS can facilitate the connecting of geospatial data describing the physical environment with hydrologic process information detailing water movement.

While hydrologists have long recognized that landscape features were integral to water resource management, there had not been a method with which to comprehensively include them in a modeling effort. The 1990s were a significant decade for the introduction of GIS into the realm of hydrologic modeling. GIS provided a consistent and replicable method for watershed and stream network delineation using digital elevation models (DEMs) of land-surface terrain. To advance the capabilities of water resource management, hydrologists and GIS practitioners are currently invested in the integration of geospatial and time-series data to depict water flow through a watershed in space and time. Doing this successfully is 'state-of-the-art', and advances in this realm will occur in significant ways during this decade (Maidment, 2002). An example of a hurdle faced by water resources management initiatives has been that geospatial and time-series data exist in many different formats and archiving environments.

One promising development in the realm of GIS and water resources management has been the ArcGIS Hydro data model (Arc Hydro) developed by ESRI and the Center for Research in Water Resources (CRWR) under the guidance of Dr. David Maidment (UTexas-Austin). As part of the ArcGIS development effort, ESRI initiated efforts to show how ArcGIS can be customized for particular applications of GIS using specially designed data models. Arc Hydro is a data model, which was designed to describe geospatial and temporal data on surface water resource features of the landscape (Maidment, 2002). In its most simplistic sense, it is a behavior model that follows the drainage of a raindrop from contact with the ground through stream and rivers to a point of final rest, usually an ocean.

The data model framework contains three components: 1) Hydro Description – the principal water resource features of the landscape; 2) Hydro Connectivity – water movement from feature to feature; and 3) Hydro Modeling – time patterns of water flow and water quality associated with features. Conceptually, Arc Hydro it is a combination of ArcGIS objects enhanced with the capabilities of a relational database to allow for relationships, topologies, and geometric networks. While Arc Hydro is a data structure that supports hydrologic simulation models, it is not itself a simulation model. Hydrologic simulation occurs by exchanging information between an independent hydrologic model and Arc Hydro (Figure 1). Arc Hydro was build with the notion that it could be accessed from a variety of interfaces (e.g., ArcGIS, MS Access, MS Excel, Visual Basic).

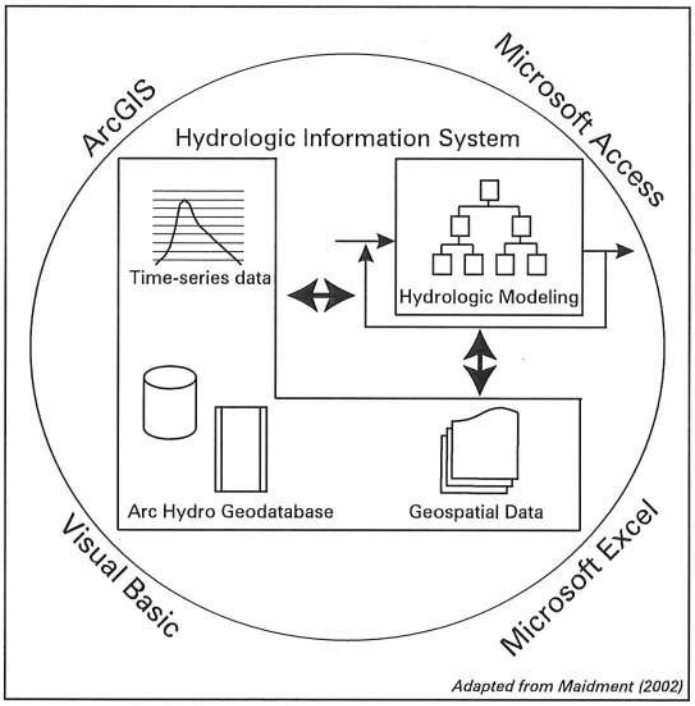

Figure 1: A hydrologic information system with its interfaces connecting time series and geospatial data with hydrologic analysis and modeling.

The *hydro network* is the spine of Arc Hydro. It is created from edges and junctions. The topological connection of its edges and junctions is a geometric network enabling the tracing of water movement upstream and downstream through streams, rivers, and water bodies. Networks of rivers and streams have always been fundamental to maps of the landscape. A hydro network is a simplified representation of the blue lines on maps (Hydrography) defining streams, rivers, and water bodies, in which centerlines can be drawn though all areal features to create a continuous, single-line network though a landscape. Additionally, river addressing (linear referencing) can be used to locate objects on the network. A network has three critical components: 1) geometric data (where each point or line is located in x, y, z space; 2) its topological data (how edges and junctions are joined; and 3) its addressing data (exact location of a point along a line segment). A GIS network of moving water with centerlines through bodies of water (lakes) permits continuous graphical tracing of water movement though the landscape.

Arc Hydro makes a significant contribution to water resources management projects that involve large datasets and require many sources of GIS data to execute complex hydrologic models. However, its functionality is equally relevant to smaller regional or catchment scale water conservation efforts. Perhaps its greatest strength lies with the structural formality that it offers, which contributes to efficient project design and execution. It is good example of a first-generation 'hydrologic information system', which is a synthesis of geospatial and temporal data that support hydrologic modeling and decision making. The developers of Arc Hydro indicate that, "This is a very exciting new concept because rather than simply applying GIS in water resources, what is being created is the foundation for a new way of thinking about how information technology can be used to support water resources" (Maidment, 2002).

Since its formal release several years ago, a variety of organizations (USGS, EPA – don't know of any Canadian adopters yet) have worked with its standardized format for archiving and distributing water resources data. One measure of success for the Arc Hydro initiative will be whether its design will facilitate the standardization of GIS water resources data in a manner that contributes to the efficient sharing of information within and among user communities. The Arc Hydro data model and accompanying toolset operate within the ArcGIS environment and are public domain (free if you own ArcGIS). They require ArcGIS Desktop 8.1 or later with an ArcEditor or ArcInfo license and the ArcGIS Spatial Analyst extension. For more detail and for model download visit: http://www.crwr.utexas.edu/giswr/

Source:

Maidment, D.R. 2002. Arc Hydro: GIS for Water Resources. ESRI Press, Redlands CA.

Map use and Design/
Conception et utilisation des cartes

North (not) at the top

Sally Hermansen
University of British Columbia

Recently on the CCA list server a question arose as the orientation of maps on boards along trails whose purpose is to spatially orient people to the terrain ahead of them. The question was complicated as although the trail in questions ran N/S, there were two sides to the board; one side to show a regional map, the other a large scale detail of immediate area. On one side, North is at top, on the other, the viewer is facing South. Should both sides of the board be oriented to North? The responses were fairly consistent in recommending the large scale map be oriented in the direction of the viewers' perspective.

Dr. Majella-J. Gauthier of the Department of Geography, Université du Québec à Chicoutimi suggests that generally speaking, maps be oriented according to the landscape in front of them. He has made maps for country skiing trails in the forest where North was at the bottom of the map because the gate was located at the North of the area; this being optimal for trail users to understand that the trail no. 5 is on his right and the trail no. 10 on his left. Dr. Gauthier is currently designing a map for bicycling around Lake Saint-Jean, a 256 km ride. The concept he expects to use is like the Peutinger Tables; a map on a roll of paper potentially located on the handlebars that the user will roll as they are moving. The map will be created with two directions; one clockwise around the lake, one counterclockwise.

However, the situation of the double sided board is a more complicated; Mark Denil, Director of Conservation Mapping / Chief Cartographer, at Conservation International offered these comments. "A key feature of

this situation is that there will be two maps of the same area at different scales, with different extents, on different sides of the board. Which direction gets the regional or detailed scale? Does traveling in one particular direction on the trail give you a better claim on the 'up' direction in the regional or on the local map? Is it going to be obvious that stepping around the board means reversing the orientation, especially when the one map area is nested within the other, and comparing the two means jumping back and forth around the sign board? That sounds very annoying and potentially confusing. In a complex situation like this, it would seem to me that a common orientation would be preferable: either a compass direction, a direction to a common landmark or to one particular trail direction (one way is up and the other down)."

Tom Patterson of the US National Parks Service offers this additional piece of advice. "The NPS prefers to orient large-scale trail maps to the direction that the hiker will follow on the trail and regional maps are oriented to north. This preference, however, applies generally to solitary maps. In this case with front and back panels in proximity to one another the logical solution, I believe, would be to orient both maps to the direction that the reader is facing, in this case north and south. If you do this and if the maps contain shaded relief, be sure to change the direction of the illumination on the south-oriented map so that the light comes from the upper left to avoid pesky relief inversion. The NPS did not do this on a front/back map similar to yours installed at the south rim of the Grand Canyon; they simply flipped the relief upside down causing the canyon to look like a major mountain range. Oops. "

Thanks to all those who contributed to this question and answer. I have designed large scale hand held maps, given out at the entrance to gardens, with the orientation to the viewers' perspective.

If you have any other ideas for Map Design discussion, please send them to me at: sallyh@geog.ubc.ca

CARTOGRAPHIC HUMOR

The child of a cartographer and an accountant started kindergarten and was asked about his parents' professions:

"What does Daddy do?"

"He makes maps" was the proud reply.

"And what does Mummy do?

He thought a while then said, *"She makes money!*

History of Cartography/
Histoire de la cartographie

Historical Maps and the Multi-resolution Compressed Format Dance

David Raymond
Centre of Geographic Sciences

Remember the buzz surrounding the roll-out of the Library of Congress initiative, almost ten years ago now, which involved scanning of selected antique map collections and subsequent online publication. The *American Memory* program was a landmark undertaking that brought forward a solution to the problem of serving large image files, and more specifically antique map images, in a manageable online format. The technology used by the LoC was provided by LizardTech, a company that continues to market its software solution for all types of georeferenced images and pre-press data. The key ingredients in the MrSID file specification were that images could be stored in multi-resolution wavelet compressed format giving the user flexibility over how much detail they could extract from any image. Perfect for those of us on the information dirt-road (read dial-up) but more importantly, it offered a solution to the classic problem of digitally storing very large maps that contained very fine detail.

In the past few years, there has been growing competition in the image compression format market and although it would be nice to think that the historical map business is the driving force, the technology is obviously being driven forward by other interests – medical imaging and high resolution space imaging would be two examples. The 21st Century 'tyranny of numbers' seems to be the storage and management of almost unthinkable amounts of image data that is sure to move the little-known term 'yottabyte' into the vernacular – that's a one with 24 zeros or one septillion bytes. With that in mind, the selection of file compression technology is of paramount importance for everyone including map libraries and archives that are considering wide-scoped scanning projects and the economies of storage. Two current alternatives to the above mentioned LoC solution include the product from

LuraTech and the well-hyped ISO JPEG2000 specification. Both provide multi-resolution support and wavelet compression options. An interesting twist is that both LizardTech and LuraTech have added JPEG2000 specification support to their respective authoring software packages, and it could eventually become the format of choice. A next logical step is to see direct browser support for this format and could push JPEG2000 to the status of *de facto* standard; however many such predictions in this business have found their way into the recycle bin.

Meanwhile, website creators are using any number of tools to solve the image zoom problem with everything from Macromedia Flash to Scalable Vector Graphics or SVG, and the results are acceptable for most cases. Aside from library and archive-centric needs are the approaches taken by the map traders and their initiatives to put high-quality detailed map images on the screens of potential buyers. For all, the fundamental equation of quality versus price will always have its sweet-spot.

Globe Gores fetch seven figures

This week proved to be record-breaking in the map auction business. Christie's June 8th auction in London included Martin Waldseemüller's 1507 printed globe gores that made US $880,000 plus auction premium, bringing the total to $1 Million for the 18cm x 36cm [7" x 14"] single sheet piece. There are only four copies of this map extant, two in German libraries and one other at the University of Minnesota besides this one, now owned by Charles Frodsham and Co. Ltd.

Some may recall that Waldseemüller's 1507 huge wall map, 1.37m x 2.44m [54" x 96"], purchased by the Library of Congress in 2003 for the tidy sum of $10 Million, is considered to be America's birth certificate being the first map to use that geographic name. Waldseemüller references both examples in *Cosmographiæ Introductio*: *"since Americus discovered it may be called... Americ's Land or America"* [Fite & Freeman].

Collectors' notes

A number of new catalogues have been received lately including offerings from Schooner Books here in Halifax, Patrick McGahern Books and Librairie le Bail-Weissert from Paris. All three are of particular interest to collectors of Eastern Canadian history and all include a number of fine examples. Of note from the Bail-Weissert would be a copy of *Charlevoix's Histoire et Description générale de la Nouvelle France* 1744, in six volumes that contains 28 new and important maps by Bellin. Adding this to the home bookshelf is not for the faint-of-heart with a price tag of 5000 iEuro.

Any comments or observations are welcomed and please feel free to contact me with any questions: maps@ns.sympatico.ca

Until next issue...

Map Production Technology
Technologie de production cartographique

Imagination.....Exploration

Jean McKendry
University of Idaho

Introduction

In *Cartouche 57*, CCA President Christine Earl observed that "More people than ever before are engaged with maps and mapping." Certainly the role that technology has played in this has been significant. Diverse and large datasets are more widely available. The tools for mapping have become more accessible and usable. Interestingly, public engagement in mapping also seems to be marked by increasingly collaborative mapping activities that are enabled by technology.

There are abundant examples of public engagement in cartography, and *Cartouche* provides an excellent venue to highlight some. Below are two brief examples that are relevant to this notion of an engaged, public cartography. The first example focuses on how maps can be used to engage the public's literary imagination. The second example focuses on how an atlas can engage the public in a 21st century approach to natural and cultural heritage exploration and understanding.

Imagination: *Literary Map of Manhattan*

In the 1 May 2005 edition of the *New York Time Book Review*, Randy Cohen proposed "to create, with the help of the Book Review's readers, a literary map of Manhattan — not of its authors' haunts, but those of its characters." Readers had until 11 May 2005 to submit entries. A printed and interactive web version of the map were published on 5 June 2005 (visit http://www.nytimes.com/literarymap). Entries were submitted from all over the world and included "general readers, university departments..., and...the third-grade classes of Mrs. Chapnick in Ardsley, N.Y., and Mrs. Rosee and Mrs. Absgarten in Scarsdale."

Forty-seven entries are included on the printed map; 73 are on the web version. One of the submissions included a reader's comment: "I am obviously not the only one who walks around town with a world of fictional locations imprinted on top of the so-called real geography of the city." While mapping has become very technology-driven, it can still inspire the imagination and a very collaborative and creative exercise, as this literary map reveals.

Exploration: *Mapping the Future of America's National Parks*

In the mid-19th century, much of the American West was being explored and "discovered". Exploration was followed by settlement and development. As the 19th century came to a close and the 20th began, a movement emerged to set aside and conserve special places. With the establishment of Yellowstone National Park in 1872 came the birth of the national park idea. Support for parks and conservation came from a variety of places, including people in the eastern US who saw these special places only through the work of cartographers (such as John Wesley Powell) and painters (such as Thomas Moran and Albert Bierstadt).

Today, the challenges are different. These important natural and cultural parks often must be actively managed to be preserved in developed landscapes. Geospatial technologies are increasingly important and applied to carry out stewardship responsibilities. For example, ESRI Press, in collaboration with the US National Park Service, has published *Mapping the Future of America's National Parks: Stewardship through Geographic Information Systems.* This book is filled with maps, photos, and images that document how geospatial data and technologies are being used for decision-making: from backcountry management planning to managing archeological resources, from fire management planning to museum collections (visit http://www.nps.gov/gis/mapbook for additional information about this book including abstracts, images and maps). It represents an extensive compilation of the research and mapping efforts of field staff throughout the National Park Service. Such a book may be a key tool for modern explorers to "see" (akin to the expedition maps and paintings of earlier times) the diverse range of special places and better understand the stewardship challenges they currently face.

Conclusion

Geospatial technologies have enabled a more public engagement in cartography. In the two examples briefly described above, the collaborative efforts of many have been brought to bear on a mapping effort in a short amount of time. The resulting products, in turn, have been made widely available to the public in both print and digital format. Such collaboration in this time frame would have been unheard of just decades ago. Maps matter — have no doubt — perhaps more than ever before.

Sources:

Cohen, R. We'll Map Manhattan. *The New York Times Book Review.* 1 May 2005.

Cohen R. We Mapped Manhattan. *The New York Times Book Review.* 5 June 2005.

Henry, M. and L. Armstrong (eds). 2004. *Mapping the Future of America's Parks: Stewardship through Geographic Information Systems.* Redlands, CA: ESRI Press.

Biographies of the New Executive Members
Biographies des nouveaux membres de l'exécutif

VICE-PRESIDENT/ *VICE-PRÉSIDENT*

Clifford H. Wood, PhD
Professor, Department of Geography
Memorial University of Newfoundland
St. John's, Newfoundland

Cliff has been a member of the Canadian Cartographic Association since 1976. During that time he has served as Secretary, Vice-President, President, Past-President, and was the first Executive Manager. Cliff was the recipient of the CCA's Award of Distinction in 1998. He brings a wealth of information about the Association's history and is familiar with its workings. He recognizes the value of maintaining a vibrant membership and will strive to continue strengthening the Association.

Cliff currently is co-editor of *Cartographica.* In addition, he will retire from the faculty at Memorial University after 28 years teaching cartography whereupon he and Alberta, his wife, will re-locate to London, Ontario in August 2005.

TREASURER/*TRÉSORIER*

John Fowler, M. Sc.
Senior Laboratory Instructor
Department of Geography
University of Victoria
Victoria, British Columbia

John will take on the duties of Treasurer for the CCA. He completed his B. Sc (Geography) in 2001 at Memorial University of Newfoundland; the lure of a warmer climate enticed him to pursue his M. Sc at the other end of the country. In September 2001, he started his thesis research with Dr. Peter Keller at the University of Victoria. Four years later, having successfully completed his Masters, John is working as a Senior Laboratory Instructor at the University of Victoria.

In his short time with the CCA, he has served as Student Representative, received a Best Student Paper (2003) and the Norman Nicholson Scholarship (2004) and was the past chair of the Children's Map Exhibit for ICA 2005.

CARTOGRAPHIC EDUCATION/ *ÉDUCATION CARTOGRAPHIQUE*

Ian J. O'Connell, PhD
Senior Instructor for Geomatics
Department of Geography
University of Victoria
Victoria, British Columbia

Ian's qualifications in Geomatics are founded in a Bachelor's degree in Geography and Computer Studies and a Master's degree (1st Class Honours) in Urban Historical Geography from University College Cork, Ireland. The research involved the application of computers, computer mapping and GIS to historical documents, and the creation of a social geography for an Irish Town from Viking times to the beginning of the 20th Century. At the University of Victoria, he was the recipient of a Three Year Doctoral Fellowship. Ian's doctoral research focused on the application of GIS and geomatic technologies to land valuation. It explored the development of a Web-based Collaborative Spatial Decision Support System to enable local stakeholders to participate in planning initiatives (Conferred in 2003).

Ian has also won the teaching excellence awards, being the 1st recipient of the Gil Sherwin Teaching Award in 1998, and honourable mention in 2001. Ian's research and communication skills have also been acknowledged by winning the Ph.D Paper presentation award at the Western Division of the Canadian Association of Geographers Annual Conference, Okanagan University College, British Columbia, Canada, and the Student Presentation prize for Environment and Resources Speciality Group of the Canadian Association of Geographers, at CAG 2002 Toronto.

Ian is a full time faculty member in the Geography Department of the University of Victoria. He is the Senior Instructor for Geomatics. His teaching duties include Cartography, GIS, Introductory Geomatics, Surveying, Statistics, Map and Photo Interpretation.

MAP PRODUCTION TECHNOLOGY/ *TECHNOLOGIE DE PRODUCTION CARTOGRAPHIQUE*

Lori King
Cartographic Technician
Timmins Geomatics Service Centre,
Timmins, Ontario

Lori will take on the position of Interest Group Chair - Map Production Technology. She is a graduated from Sir Sandford Fleming College (Fleming College) in 1990 with a Cartographic Technology Diploma. Her interest in the CCA is the result of a love of maps, mapping and the Cartography profession.

She is currently employed as a Cartographic Technician with the Ontario Ministry of Natural Resources (OMNR), Timmins Geomatics Service Centre. Lori has seen many changes in map production technology over the last fourteen years since her graduation. She works for the Ministry of Natural Resources and strives to use the most up-to-date technology in the GIS field, including Cartography. Over the past year, a large portion of her time has been spent in the compilation of the Cartographic Guidelines for the OMNR which she presented at the 2004 CCA conference in Lindsay, Ontario. The guidelines are in the final stages of approval for use within the OMNR. She hopes to be involved in the launch of the Guidelines and education of ministry staff in their implementation over the next several months.

Within the Timmins Geomatics Service Centre, Lori is the sole "cartographer". As a result she has had many opportunities to interact with her GIS colleagues helping them to create the cartographically sound products that the Centre is known for.

CARTO 2005 Preliminary Program

Tuesday, July 26

All day – Association of Canadian Map Libraries and Archives Executive Meeting and the Canadian Cartographic Association Executive Meeting

9:00 a.m. – 12:00 p.m.

9:00 – 10:30 a.m.
David Raymond – Workshop Instructor [30 people max]
Workshop: Map Production Using ArcGIS 9.x

Coffee break from 10:30 to 11:00

11:00 a.m. – 12:00 p.m.
Edie Punt – Workshop Instructor
Arc 9.2 Cartographic Enhancements for the next release

Lunch from 12:00 – 2:00 p.m.

2:00 – 5:00 p.m.
Andrew Millward – Workshop Instructor [30 people max]
Discriminating and mapping of hydrologic features with ArcGIS and Arc Hydro

6:30 – 8:30 p.m.
Ice Breaker at the Newman Wine Vaults.
Transportation will be arranged from and back to campus in front of the Arts and Administration Building.

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Wednesday July 27

8:45 – 10:15 a.m.
Plenary Session
Dr. Henry Castner.

Coffee Break from 10:15 to 10:45 a.m.

10:45 a.m. – 12:15 p.m.
Atlas Session
Diane Lacasse - Session Facilitator
Presenters: Claire Gosson, Brian Eddy, Andrew Chapeskie, Cameron Wilson, Steven Fick, Alex Peters, Peter Paul.

12:15 – 1:30 p.m.
Luncheon – guest speaker Dr. Robert (Bob) O'Neil.

1:30 – 3:00 p.m.
Atlas Session continued.

Steven Fick
Canadian Geographic's 75th Anniversary

Coffee Break from 3:00 to 3:30 p.m.

3:30 – 5:00 p.m.
Trudy Bodak – Session Facilitator
"Metadata standards: why we need them, and how do we get there?"
Panelists: Grace Welch, Cameron Wilson, Sally Hermansen, John Sorrell

6:00 – 8:00 p.m.
Orienteering and Park tour.
Transportation will be provided from and back to the university campus.

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Thursday July 28

8:30 – 10:25 a.m.
Anna Jasiak – Session Facilitator
Data Archiving
Speakers: Christine Cullingworth, Jean-Pierre Lemieux, David Brown and Gaetan Drolet

Coffee Break from 10:25 to 10:45 a.m.

10:45 a.m. to 12:15 p.m.
Canadian Cartographic Association: Annual General Meeting

Anne Draper
LAC

Cathy Moulder
Report on Washington Conference May 2005

Lunch from 12:15 to 1:30 p.m.
Canadian Cartographic Association Executive Meeting: follow up to their AGM.

2:00 – 5:00 p.m.
Association of Canadian Map Libraries and Archives: Annual General Meeting.

1:30 p.m. to 3:00 p.m.
Trish Connor
Freeware

Christine Earl
Geomatics at Carleton University

Patty Zhao
Mapping Snow in the Atlas of Canada

Xiuxia Liu
Web-based Map Transfer

Coffee Break from 3:30 to 3:50 p.m.

6:30 to 10:00 p.m.
Banquet. Transportation will be provided from and back to the university campus.

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Friday July 29

8:45 – 10:15 a.m.
Paul Heersink facilitator
Education Panel
Panelists: Sally Hermansen, Tim Wykes and hopefully a student.

Marcel Fortin and Jennifer Marvin
Putting Literacy in Geographic Information

Coffee Break from 10:15 a.m. to 10:45 a.m.

10:45 a.m. – 12:15 p.m.
Gerald Penney
"The earliest known map of St. John's" - Henry Southwood's 1675 inset of St. John's Harbour.

Paul Light
The Evolution of the Nautical Chart: 13th to 19th Century

John Robson and Dr. Michael Stavely
James Cook's contribution to the mapping of Newfoundland and Newfoundland's contribution to the career of James Cook.

Alun Hughes
Surveying Merritt's Ditch: Fixing the Line of the First Welland Canal.

Lunch from 12:15 to 1:30 p.m.

1:30-3:00
David Raymond
Current Technology for Historical Research: GIS and Comparative Cartography

Edie Punt
Building a portal to a new world

Alberta Wood
Fabian O'Dea Map Collection

Alun Hughes
John Graves Simcoe and the Naming of Upper Canada

Coffee Break from 3:00 to 3:30 p.m.

3:30-5:00
Neil McNaughton
MapsNL

Gaetan Drolet
Citing Data

Danial Duda
Copyright

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Saturday July 30

Tour of St. John's and vicinity

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Poster Sessions:

David Raymond
Cartography at COGS

David Jones
Austro-Hungarian Maps

James Ferguson
Modelling Biodiversity Using the Genetic Algorithm for Rule-set Prediction in the Sierra de Manantlán Biosphere Reserve

James Richmond
Tactile Maps

Mapping the World - One Hand Drawn View at a Time

Molly Holmberg
Graduate Student
University of Colorado at Boulder

We must continue to make maps based on personal experience if we wish to encourage individual experiences in places. Like stories, hand-drawn maps are a magical language that can speak to many. Perhaps that is why many well-loved children's books contain hand-drawn maps. The art and craftsmanship of wonderfully hand-drawn maps must not be lost to the yellowing pages of antique book collections. The need for expressive cartography may even be on the rise. There is a growing niche for those who can help us remember how to visualize and care about unique places. Maps may help inspire a sense of place and belonging, an attachment to our home in unique cultural landscapes, and a responsibility to support local and regional communities.

Visitors to Mongolia using blown-up map of Khovsgol region, outside National Park Office, Khovsgol, Mongolia.

With a yearlong fellowship through the Watson Foundation, I traveled to Peru, Madagascar, Italy, and Mongolia seeking out situations where an artistic, hand drawn map could be useful to represent a local, cultural landscape. I sought to draw maps based on personal experience exploring landscapes on foot. With this goal, I discovered that custom-made bird's eye views could be highly effective to fit the needs of rural, community-minded tourism organizations. I focused on rural highlands because I wanted to find areas where the landscape was still largely experienced on foot, where there were human-scale, non-motor routes—trails, foot paths, dirt roads—for both utilitarian and recreational purposes. With only a large backpack's worth of belongings, I was prepared to travel on foot and local transportation for the majority of the year. I got to know those who worked in the tourism sector in rural areas, learning from the restaurant cooks, the hostel owners, the wives of tour guides. And with their help I discovered an ideal niche for the type of maps I sought to create given the limited time I had in each place. As an outsider I could make maps for other outsiders. Personally, I was always disappointed with the maps and graphic information that was available to travelers. Maps were at too small a scale and so many brochures and guidebook entries seemed similar. The local tourism industries appeared to all be appealing to tourists in the same way—homogenizing potentially intriguing idiosyncrasies about distinct places for easy consumption. By making hand-drawn maps based on personal experience as an outsider myself, I sought to encourage others to see particular landscapes as special places, admiring their unique physical and cultural qualities and respecting the presence of local communities.

Map of Khovsgol Region, an increasingly popular backpacker destination in northern Mongolia.

My hand drawn maps have successfully helped create forums for conversation about place and local landscape. Some have encouraged trail use and low-impact tourism, while encouraging interaction with local communities. And most importantly, for me, I believe the maps serve as modern illustrations of the unique qualities of places, affording them the attention and reverence they deserve and encouraging us to value the places that are special to each of us. They offer a modern example of how artistic maps can be powerful, effective means of communicating experientially-based spatial information. Plus they were created and published in an inexpensive, efficient and timely manner. There was no need for expensive digital equipment to lug around or get through customs, no multi-tiered committees or large teams to assemble and manage. For all these reasons, there is still a place for hand-drawn work.

As alternative, community-scale mapping practices are currently being tried and tested, the door is open for creative ways to visualize local landscapes. Visual imagery will always have its restrictions, no matter what materials, medium, or perspective is used. The key is to use these restrictions to the image's advantage to persuade. As artistic renderings, maps are clearly subjective and personal, yet they communicate useful spatial information that is roughly accurate and often never before represented on paper. I would argue that hand drawn maps have been, and continue to be, useful in orientating us to and situating us in personally meaningful places.

BIOGRAPHY

Molly Holmberg is a graduate student in geography completing her masters at the University of Colorado at Boulder after one year at UBC. Her maps can be viewed on her website, *www.mollymaps.com*. She is currently a summer intern with the New York Times graphics department.

MapPlace.ca, site web du Ministère des mines et de l'énergie du Gouvernement de la Colombie-Britannique

http://mapplace.ca

Yannick Blain
Étudiant/Student
Université d'Ottawa/University of Ottawa

Abstract: *MapPlace.ca is a Web Site created by the BC Ministry of Energy and Mines which gives you access to a number of maps and databases. On this Web Site, you can make your own maps, create reports and download a variety of datasets.*

Le site web *MapPlace.ca* donne accès aux cartes et aux bases de données du Ministère de l'énergie et des mines de la Colombie-Britannique « BC Ministry of Energy and Mines ». On peut y créer nos propres cartes en ce servant des jeux de données interactifs. De plus, on peut créer des rapports et télécharger des données de thème et d'objet sélectionné.

Sur la page d'accueil, il y a un lien qui nous amène a une page qui explique comment le site fonctionne et comment on se sert des cartes. Cette page contient plusieurs liens et ils sont divisés en thèmes qui expliquent différentes facettes du site ainsi que leur fonctionnement.

Les cartes que l'on retrouve dans ce site sont surtout de nature géologique et minéralogique. Pour visualiser ces cartes, il faut télécharger le logiciel : « MapGuide Viewer ». Ce logiciel transforme « Internet Explorer » en SIG. Le SIG n'est pas aussi complexe ou performant qu'un vrai SIG, mais il permet de faire les fonctions de base comme de sélectionner, d'ajouter et de retirer les différentes planches disponibles, faire un zoom-avant et un zoom-arrière et obtenir les coordonnées géographiques d'un point sur la carte. Les autres thèmes des planches sont par exemple le réseau routier, le réseau hydrologique et les divisions administratives.

Quelques titres de carte que l'on trouve sur ce site web sont : ***BCGS Geology Map, Exploration Assistant, Mineral Titles Map,*** *The MapperWrapper, BC UTM Zone Projections* et ***Virtual World Maps.***

Si on veut utiliser ces cartes afin d'illustrer un article, on peut prendre une impression de l'écran, en autant que l'on cite la référence. On peut aussi utiliser les données géoscientifiques distribuées par la «BC Geological Survey» situées au url *http://www.em.gov.bc.ca/Mining/Geolsurv/MapPlace/geoData.htm*

Cependant, il y a des restrictions pour l'utilisation des données qui n'appartiennent pas au «BC Ministry of Energy and Mines» comme par exemple les données topographiques. On doit alors consulter le site web «Land and Resource Data Warehouse (LRDW)» au URL *http://lrdw.ca/* pour se renseigner sur les politiques d'utilisation de données du Gouvernement de la Colombie-Britannique.

La France en Amérique/ France in America

http://international.loc.gov/intldl/fiahtml/fiahome.html

Paul Lafrenière
Étudiant/Student
Université d'Ottawa/University of Ottawa

Abstract: *This Web site was a collaborative effort between France's National Library (Bibliothèque nationale de France) and the Library of*

Congress of the United States. It contains a bilingual digital library that explores the history of the French presence in North America from the first decades of the 16th century to the end of the 19th century.

La Bibliothèque du Congrès des États-Unis et la Bibliothèque nationale de France se sont regroupées pour développer un site dans la langue française et anglaise sur le « rôle majeur joué par la France dans l'exploration et la colonisation du continent, sa participation à plusieurs événements qui ont marqué l'histoire des États-Unis dans la seconde moitié du XVIIIe siècle : la guerre de Sept Ans, la Révolution américaine et la cession de la Louisiane. » Ce site est beaucoup axé sur les évènements historiques qui ont bâti l'Amérique du Nord d'aujourd'hui. Ce site a pour but de familiariser la population à l'histoire du Canada et des États-Unis. Plus particulièrement, il faut mentionner que le site a comme objectif primaire de démontrer l'évolution de la présence française et des cultures indiennes sur cet espace. Les lecteurs ont la chance de découvrir cette histoire du Nouveau Monde présentée dans le site dans une période de 400 ans à partir du XVIe siècle jusqu'au XIXe siècle. En plus, ils ont accès à une banque de données remplie de documents, de textes imprimés, de manuscrits, de cartes, d'estampes, etc.

Sur la page ouverture, on retrouve six onglets ou sous-sections. Ils sont : *les thèmes, les collections, sur le site, partenariats, plan du site et recherche avancée*. Sous la section, *les thèmes*, on retrouve toute l'information nécessaire pour les grandes étapes de l'histoire. Les grands titres que l'on retrouve dans cette grande section sont *Exploration et connaissance, les colonies, les alliances franco-indiennes, les luttes d'empires, les français et l'Amérique du Nord après le traité de Paris (1763-1803), la France en Amérique : Chronologie* et *les cartes descriptives*. La dernière partie, les cartes descriptives, contient huit cartes. Ces cartes aident beaucoup à la compréhension de l'histoire car elles démontrent la localisation des différentes colonies à l'échelle de l'Amérique du Nord. En plus, ces cartes donnent la situation des différentes époques. Les quatre prochaines sections contiennent les informations qui ne sont pas liées à l'histoire comme telle. Finalement, la dernière section qui est *recherche avancée* est un engin de recherche très sophistiqué. On peut avoir accès à des cartes de l'époque. Par exemple, vous pouvez avoir des cartes de la géographie de la région du Saint-Laurent d'une telle date. Le point intéressant ici est qu'on peut voir l'évolution de la cartographie au courant des années. En plus, il y a un gros montant de documents d'une multitude de sujets qui sont disponibles.

Locative Media

Christopher Eaket
Ph.D Candidate
Carleton University

Locative media is a catch-all term coined by Karlis Kalnins for a set of new media practices that explores the interaction between data networks and the physical space of the urban environment. According to Drew Hemment, AHRB Research Fellow in Creative Technologies at the University of Salford, "locative media uses portable, networked, location aware computing devices for user-led mapping and artistic interventions in which geographical space becomes its canvas" (*http://www.drewhemment.com/2004/locative_arts.html*). An explosion in the availability of internet-based maps, satellite photos and open source software combined with the ubiquity of GPS receivers, cell phones, wireless computers, tablets and PDAs has allowed artists to integrate "a sense of place" into their works in ways that were not previously possible. Counter to a trend in the 1990's that equated information with virtuality and a liberation from the constraints of place, locative media projects attempt to reconcile the geospatial positioning of the user with the pervasiveness of data networks that allow us to know almost anything about where we are at any given moment.

Many of the concepts of locative media grew out of the field of Augmented Reality (AR), a subset of Virtual Reality (VR) that involves creating systems whereby the user is simultaneously aware of real world and computer-generated data. Augmented Reality links physical objects and places with data, effectively "annotating" reality with multimodal information. The concept of *location-linked information* has come to dominate AR research, largely replacing discussions of AR + GPS/GIS (cf. *http://xenia.media.mit.edu/~mankins/lli/lli-thesis.pdf*). In one of the earliest conceptualizations of a location-aware Internet, Jim Spohrer's *WorldBoard* was envisioned as "a planetary chalkboard for the 21st century," whereby "users [are able to] post messages on any of the six faces of every cubic meter (a hundred billion billion cubic meters) of space humans might go on this planet" (*http://www.worldboard.org/pub/spohrer/wbconcept/default.html*). Essentially anything that could be put on a web page—text messages, blog entries, audio feeds and video—could be linked to geospatial coordinates and "pushed" to a wireless internet user at a given location. The positioning of the user in the real world becomes the base layer; the types of data (or metadata) available become "channels" the user can

select to receive information feeds from.

While *WorldBoard* has yet to become a reality outside the lab, locative media practitioners are applying the underlying concept of linking geospatial locations with various types of site-specific information in a variety of ways. Making site-specific historical information available to users has led to real-space museum projects. A digital cousin to the headphone-based tours one experiences in a conventional museum, real-space museums typically utilize a combination of GPS receivers and tablet PCs in a guided walk through outdoor environments. "The visitors walk through contemporary spaces [and] experience visual images and audio soundtracks from the past through a computer that they carry. The visual images can be historic photographs, maps, or even video footage. The sounds can be historic recordings, recreated sound effects, or actors reading scripts from textual records" (*http://www.acra-crm.org/ACRAEdition10-1.pdf*).

Multimodal data are triggered by the user's GPS coordinates as they wander from site to site in an outdoor form of "narrative archeology" that reveals layers of historical data. Because the data are triggered by coordinates, this experience is inherently non-linear; unlike the guided tours of the typical museum, users are free to wander about the area, uncovering data as they move about. In one real-space museum project, *34 North, 118 West* (*http://www.34n118w.net/*), spatial explorations trigger a series of experiences of what turn-of-the-century Los Angeles looked and sounded like. A historical map on the tablet PC presents users with the area the real-space museum project covers, a map distinctly different from their immediate, more modern surroundings. Part of the enjoyment in these projects is the participation of the user in reconciling what they are hearing and seeing on the tablet with what they are perceiving around them in the physical environment. Disorienting (at first) perhaps, but ultimately giving the user a richer and more nuanced appreciation of the environment in which they exist, by providing them with location-linked information. Newer works by the same group appear to be moving in a direction whereby content is *dynamically* generated in response to location, proximity to historical sites, time of day, the distance walked and so on; moving through the environment—not just activating individual waypoints—determines how the story unfolds in real time. In another example of this type of artistic project, *Voices of Oakland* (*http://www.cc.gatech.edu/ael/projects/voicesofoakland.html*) chose a 19th century graveyard as the site of their real-space museum experiments. Historical data, journals and speeches were used as the raw material for producing audio scripts for the project. Initially using RFID chips as geospatial triggers in the prototype, the project moved over to GPS wired to tablet PCs in the final version. Triggering audio feeds based on a user's proximity to certain gravesites, the project becomes a historical tour of the lives and times of the many residents of the graveyard. Relative to the names and dates on the tombstones, *Voices of Oakland* provides a wealth of information about those buried there—data that would otherwise not be accessible to the average visitor. But by utilizing locative technologies, the real-space museum is able to turn even the most mundane of sites into a historical experience, one that fundamentally changes our perception of, and relationship with, the space in question. The *Oakland* group's shift from RFID to GPS was done primarily so that the system could be fully automated. However, such a shift is historically interesting, as an RFID consortium is currently developing the EPCglobal Network, a kind of "Internet" for RFID tags (*http://www.rfidjournal.com/article/articleview/1634/1/1/*). This opens up a host of possibilities for new ways of annotating places and objects directly; that is, by making the digital annotation of places as easy as using a post-it note.

But these types of geospatial annotations need not be a one-way affair. Locative Media Lab's Geograffiti project is an early example of a *WorldBoard*-type application that allows a user to submit GPS waypoints and link them to text or multimedia elements (*http://www.gpster.net/geograffiti.html*). Geograffiti-perl is a prototype application for portable PC's linked by serial port to a GPS receiver, and connected to a wireless network for accessing a waypoint database. Currently text only, it is however an "out in the wild" platform for the application of *WorldBoard*-type annotation of spaces. The Geograffiti group is also working on a java version for PDAs, cell phones and other portable computing devices. Similarly, the *Urban Tapestries* project out of the UK allows users to textually annotate the streets and buildings of downtown London (*http://urbantapestries.net/*). Utilizing PDA's and cell phones, the project presents the user with a map of the area and allows for waypoints to be placed and annotated. Other users can then access these data by author or by location. What the project does effectively is create an aggregate collective memory of a city, authored by its inhabitants. The end point of this type of technological application seems to be a curious combination of Google Map's pushpin annotation combined with a message board, blog or wiki, whereby waypoint sites become not only annotated, but annotated by multiple users over time. GPS coordinates in real space become much more than just points, but sites of reference, referral, and even discussion. Think Amazon book reviews, but for places... Part of this type

of multiple annotations is already at work, utilizing a somewhat different medium. The Toronto-based *[murmur]* project links places to information utilizing the ever-ubiquitous cell phone (*http://murmurtoronto.ca/*). Started in 2003 and expanding to Montréal and Vancouver thereafter, the project involves placing signs (with a phone number and location-specific access code) at various locations throughout a neighbourhood. Users hear descriptions, stories and/or histories submitted by other citizens specific to that place. These stories have now been transferred online, but the intended experience is still to try it out on the street, so that one can compare and contrast the physical experience of the place with the description on the phone simultaneously. The medium of the cell phone was chosen specifically because of its pervasiveness in society, allowing the maximum number of users access to location-linked information. Future plans for the system involve a move to an open source Asterisk PBX phone system for managing calls and a move towards real-time updating, so that users can call in their stories from the location they are at, instead of recording them in a studio beforehand. Eventually, triangulation via cell towers and wireless hotspots may allow for relatively accurate geospatial coordinate tagging to be built in to such a system as well (see *http://geograffiti.com/where-fi.html* for more details). *[Murmur]*'s emphasis on "being there" and experiencing the space for oneself while listening to the audio streams forces the user to reconcile the materiality of a place with its historical and social dimensions. As a relatively low-tech form of Augmented Reality, it allows the user access to data that would otherwise be inaccessible, invisible or inaudible—data which cause the user to perceive the space, or even the city, differently.

This is only a brief sampling of the types of projects that artists are exploring utilizing locative technologies. The application of GPS and wireless data sources is allowing a "sense of place" to reassert itself in arts practices in ways that were never before possible.

Exploring the convergence between data and the real world, artists are pointing new directions in the application of location-linked information in our daily lives; in doing so, they are changing how we access - and how we interpret - data in the environment around us.

For a more comprehensive list of examples of locative media projects, start browsing at:

http://www.mobilegaze.com/art_links/locative.html or

http://www.turbulence.org/blog/

Agroclimatic Atlas of Alberta, 1971 – 2000: A Review

Rick Gray, Ontario Weather Network
Ridgetown College, University of Guelph

Agroclimatic Atlas of Alberta, 1971 – 2000. 1971 – 2000 / Chetner, S. and the Agroclimatic Atlas Working Group, 2003. v, 97 pp.; ill., maps; Agdex 071-1. Available from: Alberta Agriculture, Food and Rural Development, 7000 – 113 Street, Edmonton, AB. T6H 5T6

As the GIS specialist for the Ontario Weather Network, part of my job is to generate maps of temperature, rainfall, crop heat units, frost free periods, etc. aimed at Ontario's agricultural industry. It was with great anticipation, therefore, that I received the Agroclimatic Atlas of Alberta for review. This was, for me, an opportunity to see how others handled the task. I was impressed.

The Agroclimatic Atlas of Alberta states that it is designed to "present climatic information of importance to agriculture in Alberta and to make that information easily available to the agricultural community". The atlas is a colourful, informative softbound text that should have no trouble fulfilling its mandate.

Very readable, this book provides a crash course in meteorology and on how soils and weather relate to agriculture. The authors provide a fascinating analysis of Alberta's weather and climate, in particular, and the implications these hold for agriculture in that province. The book also displays a large number of maps of weather related information, such as Annual Precipitation 1971 to 2000, Date of first fall frost (0°C), 1971 to 2000, etc.

Intriguing trivia tidbits are interspersed with lessons in weather systems to bring the subject alive. For example, I learned in the section on Chinook winds that those warm blustery breezes that can raise the temperature in January by 25°C or more in a few hours were named after the Salishan First Nation's word Tsinuk, referring to a wind that blew from the direction of their encampment. These winds can be both a benefit to farmers by increasing the grazing period for livestock, or a problem by increasing plant stress through moisture loss.

The book also describes the difference between severe weather and extreme weather, explains the effects of air masses and topography, and covers a number of other agro - meteorological terms. What was missing, I felt, were simple figures or schematics to illustrate some of the concepts.

Although the Atlas is ostensibly divided into multiple "chapters", it really is divided into two sections – the first part being the text or lessons and the balance maps. This format works quite well, but some layout and design discrepancies are evident. Although these weaknesses do not seriously affect the usefulness of the book, they do cause some confusion and detract from an otherwise excellent publication. Some of these problems, most of them quite minor, are outlined below.

For instance, the first section of the atlas is peppered with small but beautiful photos of "weather" and agricultural scenes, but these photos have no captions. A brief description of the interesting cloud formation or of the location of the shot would have enhanced the product. If not important enough to label, why bother to include them?

One thing that I found confusing was the several maps throughout the first section of the atlas, were drawn to the same scale as those in the back half, but labeled 'Figures' whereas the latter are labeled 'Maps'. It is unclear why the nomenclature changes. Also, one map that seems conspicuous by its absence is a soils map. One would have fit in nicely in the section on soil moisture and would seem critical to any understanding of agriculture. Finally, with regard to the maps, Maps 1 through 3, all on precipitation, a different colour scale is used in the legend for each. This is true of the temperature maps as well. Although the extreme range of values provides challenges for classifying all maps the same, the system used makes it far more difficult to compare the data from one season to the next.

From an editing viewpoint, I found references in the text to other sections (e.g. on page 19: "see Interpolation of climate station data"; and on page 25: "See Soil moisture condition in Alberta) do not offer a page number to turn to and require a lot of searching to find the referred section. Also, the stacked bar charts on page 24 show annual and growing season precipitation for 40 years. I would have preferred to see the stack reversed for greater clarity. The growing season is tacked on top of the balance of the year's value. In my mind, the growing season is the critical value and, as displayed, it is difficult to quantify and compare growing season values from year to year. An index at the rear of the atlas would also make it much easier to find a particular map. A list of maps on page V and a section immediately preceding the maps entitled "Discussion of maps" provide the necessary information, but are not as handy as an index.

Although the authors have gone into great detail explaining the data interpolation process, for those of us in the industry a footnote describing what software was used would have been nice.

All in all, I found the Agroclimatic Atlas of Alberta 1971 – 2000 a pleasure to read and to look at, with a wealth of information. In comparing this version to its predecessor, published in 1990 and containing the data for 1951 – 1980, the two major differences are the use of colour maps and images and the thickness of the book – it has more than tripled in size. As vibrant as the new atlas is, however, the simple black and white pen and ink drawings of isolines of the earlier version do have merit – there is little room for guess work and no problems for the colourblind.

The Atlas is also available, in its entirety, on the web at http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag6278?opendocument.

Awards of Distinction/Prix de distinction 2005

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

Les prix de distinction de l'ACC, établis en 1994, sont remis à des personnes qui ont apporté une contribution particulière à l'Association ou dans l'exercice de leur profession et ce pour les catégories suivantes :

Exceptional professional contributions to the practice of cartography/

Contribution exceptionnelle dans la pratique de la cartographie

Canadian Geographic Magazine – to recognize 75 years of their long standing mapping accomplishments/ Pour souligner 75 ans d'excellence en cartographie.

Exception Scholarly Contribution to the Practice of Cartography /*Contribution exceptionnelle d'érudition sur la cartographie*

Judy M. Olson – Professor/Professeur – Michigan State University

Exceptional Contribution to the CCA/

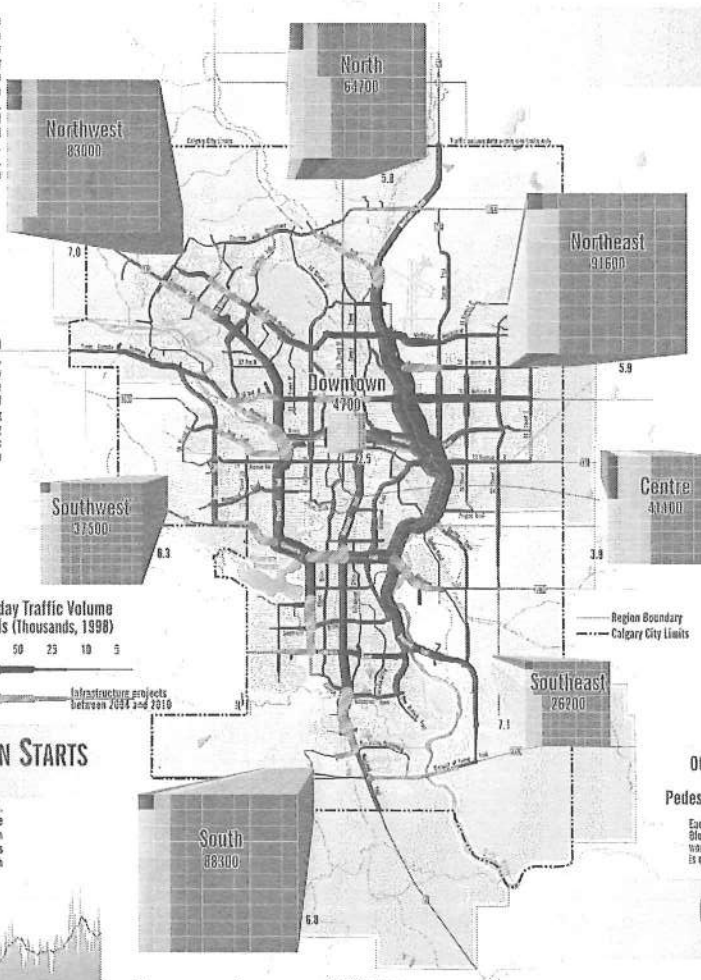
Contribution exceptionnelle à l'Association canadienne de cartographie.

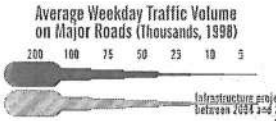
Gary E. McManus – Past Editor of *Cartouche*/ Ex-éditeur de *Cartouche;* Past President CCA/Ex-président de l'ACC.

Calgary is part of the fastest growing region in Canada, the Calgary-Edmonton corridor. The population is expected to reach one million by 2007, and is growing financially by more than half a million dollars every hour. The oil industry in Alberta is amidst another oil boom. Growth is an indicator that people want to be in the city, to take advantage of jobs, services, and a certain quality of life. Sprawling growth which consists of large developments of single family suburban homes, puts an increased cost and pressure on the existing city services and infrastructure. To accommodate growth, issues in transportation, housing, migration, and planning for efficient growth are all concerns.

Transportation

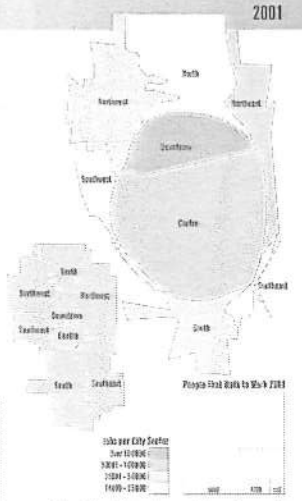
Basic services provided by the city such as sewage and water are under pressure from the increasing population, and so is the transportation infrastructure. Emergency response times are among the lowest in North America due to the sprawling low population density characteristic of the city. Although Calgary has an excellent and expanding transit system, travel in the city is still largely done using private vehicles. From sprawling residential areas. Traffic problems are mounting, but projects are underway to help alleviate these problems.



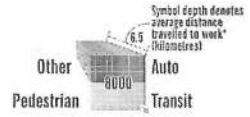


Walking to Work

2001



An important part of an environmentally sound community is having viable alternatives to driving in the city. When residential areas are developed in close proximity to services and workplaces, walking to work becomes an option. The Downtown and Centre regions of the city have the most jobs, and therefore have the most people that are able to walk to work. The cartogram above represents the area of the city regions, sized to the number of people who walk to work from their residence.

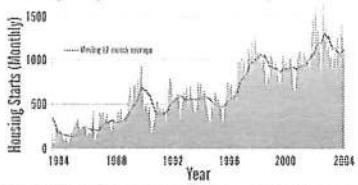


Each cell represents 1% of the total. Block size reflects the total trips to work from the respective region and is quantified by the number on the grid.

Housing Construction Starts

1984 - 2004

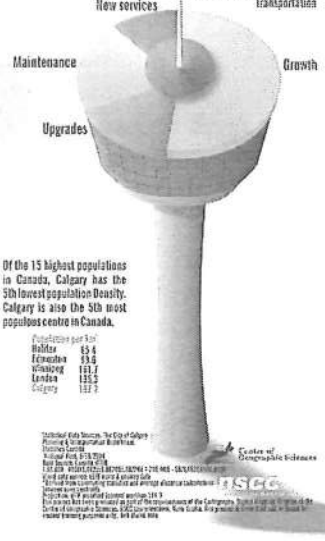
Since the National Energy Program was put to rest in 1984, Calgary has recovered quite well. The decline of the economy in Calgary during the NEP has been reversed in the past 20 years. The number of construction starts has increased steadily and is a very strong indicator of growth and a healthy economy.



Capital Budget Spending

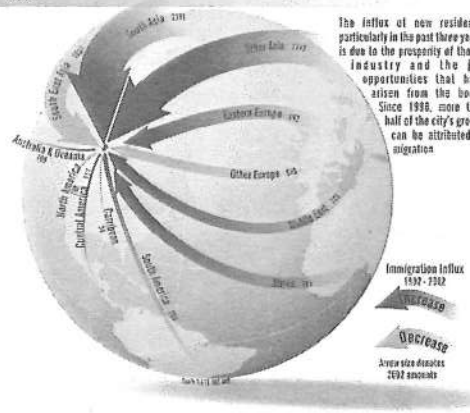
2003 - 2007

The total capital budget for this period is $2.513 Billion. Of that, 52% will be spent on Transportation



Immigration

2002

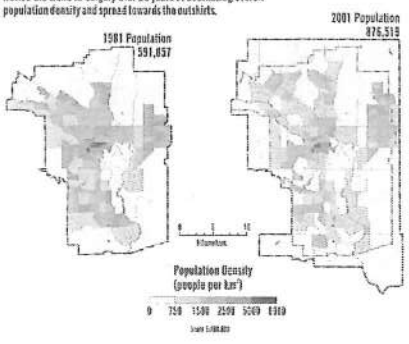


The influx of new residents, particularly in the past three years, is due to the prosperity of the oil industry and the job opportunities that have arisen from the boom. Since 1998, more than half of the city's growth can be attributed to migration

Urban Sprawl

Population Density 1981 - 2001

The main indicator of urban sprawl is low population density. Notice the trend in Calgary over 20 years of decreasing overall population density and spread towards the outskirts.



Of the 15 highest populations in Canada, Calgary has the 5th lowest population Density. Calgary is also the 5th most populous centre in Canada.

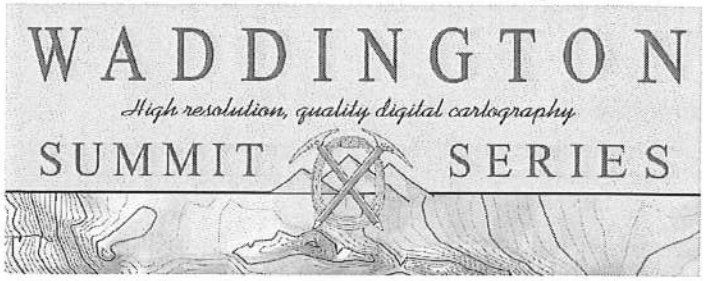
Population per km²	
Halifax	65.4
Edmonton	93.6
Winnipeg	161.7
London	175.3
Calgary	182.2

Calgary: Accommodating Growth

Jeff Wielki
Student -COGS

Calgary: Accommodating Growth is a student project produced at the Centre of Geographic Sciences in Nova Scotia in November, 2004. It was produced as a thematic project purely for academic purposes but is intended to show the City of Calgary, Alberta and the issues in dealing with the expansion it is experiencing in the wake of the oil industry's growth. Transportation is displayed most prominently, as it is a major issue when looking at how a city deals with population growth. Also displayed are immigration, urban sprawl, and spending issues useful for urban planning. The information is presented in such a way that citizens of Calgary can easily glean information from it. The poster was designed to portray the data in a clean, contemporary fashion so it catches the eye without being busy, and is simple to interpret. Geographic information was manipulated in ESRI's suite of products with the final layout and compilation being done in CorelDraw. Scales of the maps range from 1:157,500 on the main map to 1:112,000,000. It is a 42 cm by 59.4 cm (A2) poster and was produced only in English.

Mountain Cartography/ *Cartographie des montagnes*



Summit Series – Mount Waddington The Mystery Mountain

Marcel Morin
Cartographer/GIS Analyst
Timberline Forest Inventory Consultants

At 4019 metres, Mount Waddington is the highest summit on the west coast of North America, between Washington's Mount Rainier 4392 metres and Mount Fairweather 4663 metres, on British Columbia's border with the Alaska Panhandle, a distance of 1700 kms. Waddington's height was first triangulated by L.S. Cokely in 1926 and J.T. Underhill in 1927 and is named after Alfred Waddington. In 1862 Alfred was granted a charter to build a road from Bute Inlet up the Homathko canyon through to the Chilcotin Plateau to reach the goldfields. In 1864 a group of Chilcotin Indians massacred most of the work-party and the road was abandoned.

The first attempts to climb Waddington were by two mountaineers, Don Munday and his wife Phyllis, starting in 1925. They never actually climbed Waddington but made several attempts. They visited the range over a span of eight years climbing many of the surrounding peaks and accumulated a wealth of knowledge used by future Mountaineers. Fritz Wiessner and Bill House finally climbed the summit in 1936. Today the Waddington Range attracts Mountaineers from all over the globe. The Waddington Range is very remote and is almost always accessed via helicopter.

The reason for this series is simple, for the past thirteen years I've been working as a Cartographer/GIS Analyst and noticed that GIS has somewhat killed the art of Cartography. Cartography is as much an art as it is a science. Hundreds of GIS projects, all with their own quarks, headaches and data nightmares, alongside extensive training in traditional Cartographic techniques (plate making, darkroom work, scribing) has given me a vast arsenal of tricks and techniques to draw from. GIS (Unix ArcInfo, AML, ArcMap, ArcScene) is however, at the centre of my workflow. In Forestry, GIS analysis is used for number crunching, analyzing terrain, calculating harvest volumes but analysis results can also be used for creating cartographic effects.

The scale of the map is 1:25,000, with a 20 metre contour interval. The map was generated using the T.R.I.M. 20k data structure (Terrain Resource Information Management). Custom programs were created to process all the data into a seamless format. All data layers, masks, construction elements are exported as EPS files, all with registration marks. Final map production takes place in Adobe Illustrator and Photoshop. The workflow between ArcInfo and Adobe is quite fluid and works flawlessly. EPS files are imported either directly into the Illustrator map composition or pre prepped in Illustrator to be rasterized in Photoshop. Because of the complex combination of vector/raster information, trapping was done manually; colour bridges and colour overprints were used where possible to reduce gaps during the printing process. Because of the extreme conditions in this geographic area the map was printed on waterproof, tearproof synthetic paper. This material poses some major printing problems, companies using this material must have experience, plate

pressure is higher than normal, static buildup is also a problem. Offset printing was digital-direct-to-plate. The final folded map is weighty and has a nice matt finish. To offset the cost of printing and the massive amount of time involved in map production, W.L. GORE (GORE-TEX) was the sole sponsor. Gore felt this was an excellent avenue to get closer to the mountaineering community and the relationship has been a good one.

Just as much time and attention was spent on the front panel as the rest of the map. Each element on the map is in it's own right an individual work of art. Most folding map concepts seem to follow the same boring format, title accompanied by a photo. The artwork is designed to capture the essence of the geographic area. The brightly outfitted mountaineers are contrasted with vibrant blues, cyans and rich blacks. The jaggedness represents the dominating features of the Waddington Range, lots and lots of glaciers and ice fields.

Much appreciation goes to Don Serl, the author of The Waddington Guide. Don has been climbing in the Waddington Range for over twenty-five years. Without his vast knowledge of the area the map would be sparsely annotated. Most of the names come from the mountaineering community.

The next Summit Series is in full production and will be called 'Bugaboos', set in the Bugaboo Provincial Park. The map will be two sided, the front side showing a 3-D perspective view of the park using World Construction Set and the back side will be a more streamline and robust topo with Swiss style hillshading, stay tuned.

Historical Sources

The Waddington Guide – Don Serl

Summit Series - Mount Waddington a Review

Roger Wheate, UNBC

Mountain and glacier cartography in Canada reached its heyday in 1975, with the Peyto Glacier map, produced in the 'Swiss-style' and with imported Swiss expertise, reviewed and distributed in the Canadian Cartographer (Henoch and Croizet, 1976). This period came to a close in 1980 with the publication of the Columbia Icefield map. Since then, government downsizing and redirection of federal and provincial goals towards data provision resulted in a long gap in specialised mountain maps, although some private companies have created medium to large scale topographic products (Wheate et al., 2002). Marcel Morin's Waddington summit map (2003), centred on NTS sheet 92N06, is by far the closest to replicating the excellence of the 'swiss method' in depicting high mountain landscapes.

It is aimed mostly at climbers and heli-skiers, since much of the sheet is ice-covered. Contours are depicted in blue on glaciers and gray on rock, along with peak spot heights. Special recreation features, such as Heli-landing sites, camps and climbing routes have been added in black and red, to be prominent but not overwhelming; summit peaks are nicely highlighted in yellow. Subtle tints of blue and green are used to depict glaciers and sparse vegetated areas respectively without the need for area boundary lines. I might have opted to use a different colour than blue for traverse/travel routes which is otherwise reserved for hydrographic features. Hillshading effectively portrays the terrain at a scale that approaches its operational limit. Other companies' maps for example at the original TRIM 1:20,000 scale in less dramatic terrain aren't nearly as impressive.

The only visual distraction is the vertical artefacts or 'washboarding' in the hillshading. This results from the photogrammetric collection of elevation data from points on north-south lines. These are generally about 80metres apart and used to interpolate a 25metre raster grid. On glaciers however, snow illumination 'saturation' reduces the number of points that can be fixed by stereo-parallax, and artefacts result. They could only be reduced by smoothing with a digital paintbrush. Cartographic luddites will be pleased to know that expert manual hillshading (if there are any left) can still be superior: another tough case is where ridges run NW-SE and the two sides are equally illuminated, although swiss practitioners are experimenting using in-house software (*www.reliefshading.com*).

However, this is a spectacular sheet for any who wish to vicariously wander. We keenly anticipate future maps in the series.

Footnotes:

Mt. Waddington is the highest peak completely in BC (4019m) : Mt. Robson (3954m) is the highest peak in the Canadian Rockies.

Marcel Morin graduated from the Cartography program at COGS (Lawrencetown, NS), in the last year before the program went digital. He credits the instructors there for much of his success and cartographic inspiration.

Websites and references:

www.mountaincartography.com : (includes Peyto and Columbia examples)

Henoch W.E.S. and Croizet J.L. 1976, The Peyto Glacier Map / A three-dimensional depiction of mountain relief, *The Canadian Cartographer*, 13 No. 1, 69-86.

Wheate R.D., N.D. Alexander, M. J. Fisher, and D. D. Mouafo, 2001. A brief history and progress of mountain cartography in Canada, *Cartographica, 38, 1/2, 31-40.*


WADDINGTON
High resolution, quickly digital cartography
SUMMIT SERIES
GORE-TEX
1:25,000 SCALE
20 metre contour interval
Printed on waterproof, tearproof synthetic paper
Timberline
Easting UTM
Northing UTM
Parallel Glacier
Goddard Glacier
SCIMITAR GLACIER
Fury Gap
Franklin Glacier
Dais Glacier
CORRIDOR GLACIER

City of Toronto
Building Construction Dates