Cartouche

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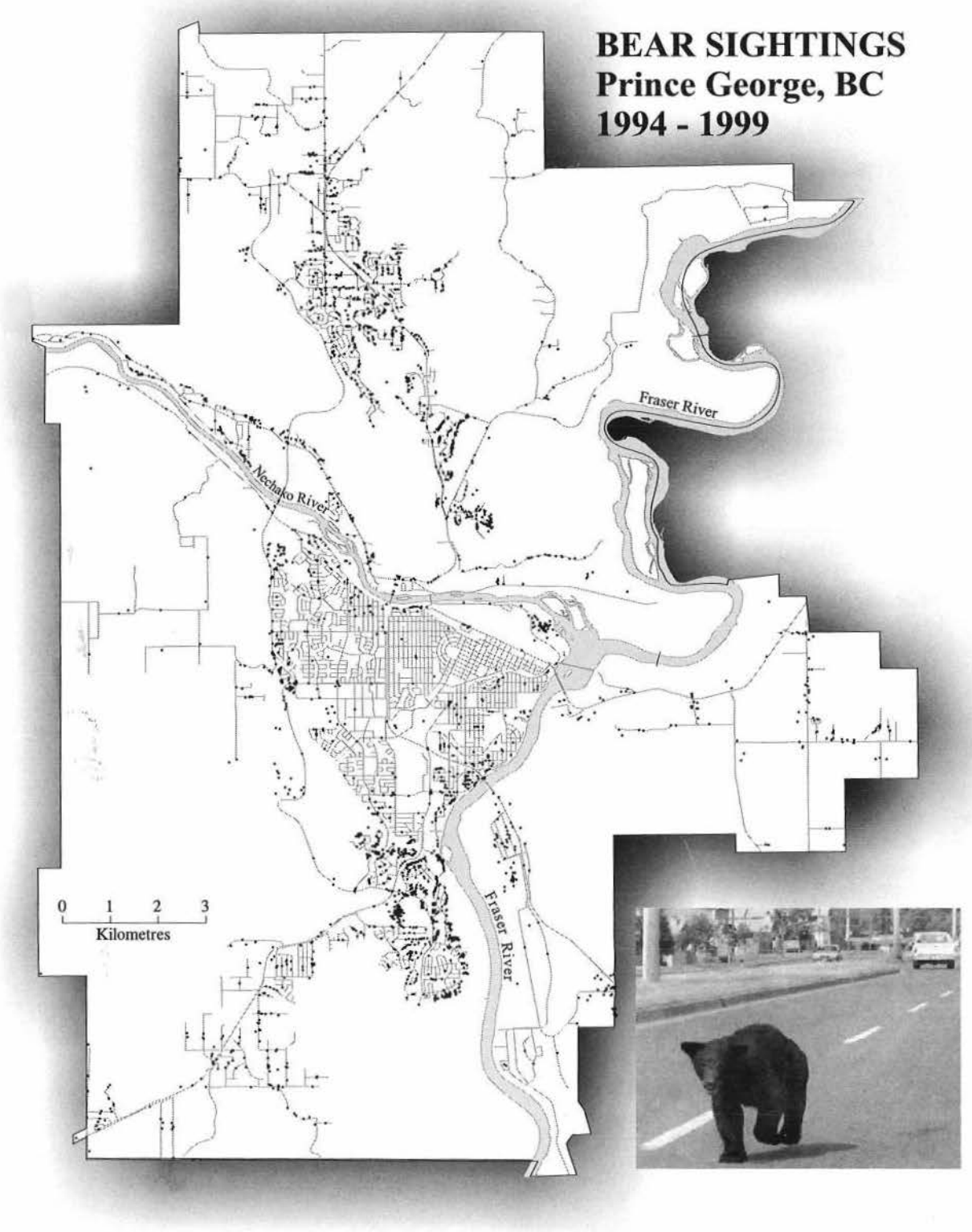

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About the Cover...

The Power of Maps: Canada prides itself on its wildlife, but conflicts arise in northern communities when large mammals visit residential areas. Although black bears rarely attack humans, there is usually a zero tolerance policy in urban areas. In Prince George, in northern BC, there have been an average of over 500 bear sightings per year, resulting sadly in about 10% of these being destroyed, as relocation is both expensive and mostly unsuccessful, once bears have enjoyed urban cuisine. This consists of two major elements: garbage and tree fruit, especially crab apples (in September).

Following a high of 80 bears shot in 1998, resulting partly from more bears coming into town due to a poor berry crop, (see *www.env.gov.bc.ca/main/newsrel/fisc9899/august/ib811.htm*) the City decided to promote a campaign to reduce improper garbage storage. Part of this program included the need to tabulate and plot all sightings from report sheets. Through John Paczkowski, a University of Northern British Columbia graduate student whose thesis involves a large grizzly bear study, UNBC volunteer students entered the occurrence data and spatial locations into a GIS. Some of the locations required a wee bit of detective work as they specified street names only. Digitial copy of roads and rivers was obtained from the City of Prince George.

Year	Bear Sightings	Bears Destroyed
1994	545	56
1995	345	33
1996	318	41
1997	248	24
1998	788	80
1999	568	56
2000 (as of 9/22/00)	357	23

The city pamphlet now contains a colour version of this map, with dots for each year colour-coded (see *www.gis.unbc.ca/research/pgbears.html*). It is too soon to tell whether the city program and map have had any effect on bear visits and mortalities, since these numbers are also negatively associated with the available natural berry crop which was high both in 1997 and again in 2000.

A poster version of this map at UNBC attracts much attention from campus visitors, no doubt due to its subject matter. This is just one example of the power of maps in communicating spatial distributions and patterns.

Roger Wheate, UNBC (wheate@unbc.ca)
Map output: Robert Legg, Senior Lab Instructor, UNBC
Bear facts: Kyle Nahornok, UNBC / City awareness program
Data input: James Borneman, and other UNBC students

Inside this issue / *Sommaire....*

FEATURES

COLUMNS and REPORTS

EDITORIAL

Patricia Chalk
University of Western Ontario

Mot du Président
President's Message

Map Your Handful of Sand for the President's Prize

*"We take a handful of sand from the endless landscape of awareness around us and call that handful of sand the world." **

Student cartographers - seize the opportunity to map YOUR handful of sand.

Each year the Canadian Cartographic Association awards several prizes for excellence in student cartography. These awards are aptly called the President's Prizes because it is the President who determines on what basis they will be awarded. With such awesome power at my disposal (and valued feedback from former Presidents and members of the executive), I have taken this opportunity to revise the format for the President's Prizes for Mapping quite substantially, with several categories making their first appearance.

It is my intention that the revised categories will provide a new forum for students to marry up their cartographic strengths with their personal interests and/or perspectives on the world around them. In this way, each cartographer has an opportunity to exhibit the unique strengths they bring to the field. A digital library of selected submissions on our website would provide a unique and thought-provoking educational resource, useful in many contexts.

The three categories, *Communicating Canadian Issues, Mapping Our World, and Imaginary Worlds,* will each have two prizes, one for submissions from undergraduate students, and one for submissions from college or graduate students. A brief description of each category appears below. *Please note the change in date for receipt of the submissions. All submissions must be received by the Friday PRIOR TO the conference (by May 25, 2001). Refer to the application form for details.*

President's Prize Categories – 2001

Category 1: Communicating Canadian Issues

This new category provides student cartographers the means to communicate key spatial aspects of environmental, health, social or political issues within the Canadian context. Any geographical scale of enquiry within Canadian borders is acceptable.

Category 2: Mapping Our World

For this category student cartographers are at liberty to choose any subject for their mapping, from anywhere in the world.

Category 3: Imaginary Worlds

The intent of this new category is to allow student cartographers to liberate their creative spirit completely, without the typical constraints placed on design when mapping real phenomena in real environments. It is an opportunity for students to experiment with various mapping methodologies or design techniques for example, or to create a thought-provoking imaginary world of some sort.

Category 4: Discretionary Prize

Occasionally, an outstanding submission that isn't the best in its category, still merits recognition due to excellence in some other sphere. This new category provides the opportunity for the President and the team of judges to make an award under special circumstances. It is anticipated that this category will only be awarded on a very occasional basis.

The President's Prize application form is available on the web (*www.geog.ubc.ca/cca/pres_prize.html*). Entry conditions and judging criterea also appear on this form. The submission may be a single map, or a series of maps forming a map composite. In both cases the submission must be coherent as a stand-alone piece on one page (maximum page size is 11" x 17"). Judging is conducted by a team of three individuals including the President.

I sincerely hope that student cartographers find one of these categories appealing to their creative spirit. I look forward to reviewing the submissions at our annual conference in Montreal, 2001.

*Pirsig, Robert M. 1974. *Zen and the Art of Motorcycle Maintenance.* Bantam: New Age Edition, 69.

Web-related News

• Anita Mueller and Brian Klinkenberg are updating our website on a regular basis. Please acknowledge their efforts and provide feedback.

• Interest Group Chairs have been asked to provide content relevant to their groups on the respective website links. Please keep the various Interest Groups in mind when you come across information that may be interesting for posting on the Interest Group pages.

• You may now reach most of our corporate members through links directly off the membership page (http://www.geog.ubc.ca/cca/members.html).

Interim Chair of Map Production Methodology

I wish to welcome Mike Shasko to the executive as he assumes an interim Chair position for the Map Production Technology Interest Group. Mike will fill this role until the end of its current term (May 2001). The Chair position for the 2001-2003 term will be among those on the election ballot this spring. Mike may be reached at Clover Point Cartographics in Victoria, B.C. (email: cloverpoint@pinc.com).

News from Montréal - Site of the 2001 CCA Conference

A fantastic city, a fantastic organizing committee ... and plans are well underway for our next conference! We are pleased that the Université de Québec à Montréal and the Université de Montréal have offered to host our joint conference with the ACMLA. The organizing committee consists of Michel Fournier (CCA representative), Yves Baudoin (Geography Professor, Université de Québec à Montréal) François Cavayas (Geography Professor, Université de Montréal), and Pierre Lepine (ACMLA representative).

Conference dates: Wednesday, May 30 - Saturday, June 2, 2001

Phil Dodds
Intergraph Corporation

"A Map, a Map, My Kingdom for a Map"

A personal perspective

Given the directive from our fearless editor, I have decided to make this a "back to school" article for Cartouche # 39. Students may have some experience with this personal mapping problem I have or maybe it is not a problem at all. Given the fact that I travel several times a year to new and exotic locations (excluding Detroit) I have a mapping routine that I go thru every single time. The first step is to review any maps of my final destination (in various scales) to achieve a mental picture of the area. If this is a first trip to a new location then I am limited to the Hertz rental car map and any other map paraphernalia I can pickup at the airport baggage reclamation center. I always plan to research the web for maps before my travel but always forget and I am always rushed in route so I have no time to plug in my laptop to download maps.

At the Hertz counter, the first order of business is to ask for directions first with any maps they might have available, then ask for the keys. There have been many times I have left the counter with many maps and directions but with no keys! I have to admit I frequently secure a Hertz direction printout from the touch screen, also. After picking up my rental keys I find my car and deposit my luggage in the boot (Irish for trunk) and then get in the car with my maps. This is where I get a bit anal with the maps. I usually spend around 20-30 minutes planning my route combining physical maps, touch screen printout directions and verbal directions. The goal here is to visualize my route so I have a mental map of the area with my route meticulously plotted out. As I sit there studying my maps (many of which are guilty of cartographic malpractice) I am oblivious to the outside world and have on many occasions been approached by Hertz personnel inquiring if I am Ok or "is there anything wrong with the car"?

Once I have a mental map, I venture out of the Hertz parking lot, which usually is the hardest part of my mapping exercise. Many times I have had to stop and ask directions to exit the Hertz lot (being of the male persuasion I hate asking for directions but sometimes it is vital after spending 20 minutes going in circles around a rental car parking lot). However, I am very careful to avoid those nasty, "Severe Tire Damage will occur if you look sideways at these things". Once on the road, the task is locating the hotel from my mental map. With a few odd glances at the hardcopy maps beside me, I locate the hotel. I do not check in immediately but proceed to step 2 of my personal mapping procedure. I drive around the hotel in circles increasing in distance up to a radius of 1-3 miles and create a 1:1 mental map of my surrounding area while mapping noticeable landmarks as I go. Some people who have had the pleasure of traveling with me and just want to get to their hotel room are getting irritated with me at this point in time. Why do I do this? I have no idea but some people have speculated that I am locating the best bars and restaurants – maybe.

I drive around the hotel in circles increasing in distance up to a radius of 1-3 miles and create a 1:1 mental map of my surrounding area

Finally, I check in to the hotel. It is here that my final mapping routine takes place. I acquire any maps that the concierge or the front desk may have along with any maps from the brochure racks that are located in most hotel lobbies. Once finding my room and committing my room number to memory, I unload my luggage and locate the information directory, which usually has a local map included in it and add it to my map stash. This however is not enough for me; I have to search the local phone book that sometimes has a local map for reference (this is were my travel scissors come in very handy). It is at this point when people think I am mad.

If it is not too late, I venture out of the hotel and test my new mental maps. If I have created a superior mental map taking into account scale, magnetic declination, one-way streets etc. I will have found an excellent pub to ease my map-making stress. Everyone has their own way of mapping new areas and I would like to hear yours. What do you do when traveling to an unfamiliar location? If you are the type of person who just jumps into a car and "maps on the fly" – I hate you. Just kidding.

David Broscoe
Algonquin College

Maps, Fire and Other Dangerous Things

As a teacher in a technologist program, one of the questions I ask myself is 'How much theory do I introduce?' Students in the program generally think they are there for practice, not for theory. Either the students have completed a degree already and have probably had their fill of theory, or they have opted for a technologist program instead of university in an attempt to avoid the theory. But there are important questions that can only be resolved by considering theoretical issues. Let me illustrate with some specific situations.

I teach a course in Cartographic Design within the GIS Technology Program. The usual topics such as visual variables, data classification and thematic mapping are covered. Should I introduce Brian Harley's (1989) and Denis Wood's critiques of cartography? I think students should be aware of the power of maps to manipulate information. By comparing the maps produced by Bill Bunge and the Geographic Expeditions of the late 1960s to standard topo maps (Woods 1992, 70-94), students see the effect on the map reader of choosing which features to exclude and which to include.

I introduce MacEachren's (1995, 279) Extended Variable Syntactics without a detailed discussion of his cognitive-semiotic approach to mapping. Am I misrepresenting his work? How much of MacEachren's *How Maps Work* is understandable and relevant to the GIS technologist interested in 'simply' producing reasonable cartographic output from a GIS? Can one extract portions of such a text without putting the information out of context?

Similar questions are raised in GIS. In a GIS project course I introduce students to the idea that GIS is not only about technique but also about the relationships between technology, culture and society, drawing on resources such as Pickles *Ground Truth* and the NCGIA's Initiative 19: GIS and Society - *www.geo.wvu.edu/i19/*. My idea in this exploration is to question the implications of a position of Stan Openshaw. He suggests that with GIS it would be possible to:

> *analyse river networks on Mars on Monday, study cancer in Bristol on Tuesday, map the underclass of London on Wednesday, analyse groundwater flow in the Amazon Basin on Thursday, and end the week by modelling retail shoppers in Los Angeles on Friday* (Openshaw 1991,624)

To my mind, the passage above betrays a real lack of understanding of the extensive knowledge required to carry out any one of the above analyses, both in terms of theory and in terms of background information. A thorough grounding is required not only in formulating the analysis, but also in appropriately answering the inevitable questions which occur in working through the process.

Openshaw offers GIS as Geography's savior, unifying a fractured discipline, 'using GIS to put Humpty-Dumpty back together again' (Openshaw 1991, 621). But using a technology itself as a bridge between conceptual divisions within a discipline is in my opinion flawed. Pickles argument is as follows:

> *...where technology is not seen as a social relation, it is fetishized and aestheticized, the contingent nature of technical outcomes is overlooked, and the struggles waged over the choice and application of any particular technology are ignored. (Pickles 1995, x)*

For some of my students Pickle's passage is problematic. If one is not familiar with high-level academic cultural theory, such writing is incomprehensible. Critics such as Pickles, Michael Curry (1994) and Neil Smith (1992) have something to say of relevance to those working within the culture of GIS but can it be understood by anyone working in that culture? Obviously the answer varies with the individual. My dilemma is how to introduce such ideas without so much jargon and still maintain the integrity of argument.

Within both realms, both cartography and GIS, my students have been receptive to the introduction of the critiques and dialogues I describe above, even if some of them have struggled with the writing. I feel that an awareness of such issues is an important component of their education.

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Michel Fournier
Cartologique, Montréal

Mot du Président-sortant

Conférence 2001 à Montréal

Les prochaines conférences de l'Association canadienne de cartographie tenues conjointement avec l'Association canadienne des cartothécaires et archivistes, auront lieu du **30 mai au 2 juin 2001, à Montréal**. L'événement se tiendra sur deux sites soit : *l'Université du Québec à Montréal* pour la portion «Conférences et expositions» et *l'Université de Montréal* pour la portion «Atelier». Nous vous sollicitons pour proposer des conférences sous le ***thème «Les professions de la cartographie»*** ou encore à participer à l'exposition commerciale. Bien que nous soyons encore dans les préparatifs préliminaires de l'événement, nous vous promettons des conférences qui vous laisseront un souvenir impérissable. Alors, n'hésitez pas à réserver cette fin du mois de mai 2001 à votre agenda !

Our next conference will take place from May 30th to June 2nd in Montréal. The Université du Québec à Montréal will be our host for papers and exhibits and the University of Montréal will host the workshops. The main topic is ***«Les professions de la cartographie».*** *It's now the time for the* ***preleminary call for papers and exhibitors****. More information will be available in the next weeks but now be sure to mark those days in your 2001 calendar.*

Mont Logan ou Mont Pierre-Elliott Trudeau ?

Pour ceux qui reçoivent du courriel via notre liste d'envoi, vous aurez noté ces derniers jours, un afflux de courriel sur le potentiel changement de nom du Mont Logan pour Mont Pierre-Elliott Trudeau. Autant ce désir s'est exprimé spontanément à travers le pays autant d'autre part, des cris se sont élevés contre cette suggestion. Le Premier ministre Jean Chrétien y est également allé de tout son poids pour entamer le processus de changement .

Cet empressement a de quoi surprendre, il est d'usage de laisser retomber la poussière avant de procéder à l'attribution ou au changement de nom d'un lieu. En fait, hormis les odonymes qui sont parfois rebaptisés, la tendance va plutôt à nommer un lieu non encore identifié. Bien que le personnage, haut en couleur, ait joué un certain rôle dans la politique canadienne et qu'il ait eu quelques penchants pour les hauteurs de nos magnifiques montagnes, sont-ce là des prétextes suffisants pour rebaptiser un mont aussi réputé ?

La précipitation et l'émotivité ne sont en général pas de bons conseillers. Est-il besoin de rappeler qu'il existe des règles en matière de toponymie. Par exemple au Québec, la commission de toponymie attend un an après le décès d'une personnalité, avant d'entreprendre l'étude d'une demande pour un changement de nom de lieux, de rue ou de monument et ce afin de choisir l'endroit le plus approprié pour rendre hommage au défunt. En Europe, l'ensemble des États a des règles similaires, voire même plus strictes. Dans certains pays le délai passe de 5 à 10 ans après le décès de la personnalité.

La commission de toponymie du Yukon se retrouve donc avec un boulet bien lourd. Quoiqu'il en soit, comme l'indique Linda Johnson, coprésidente de la commission de toponymie du Yukon, dans l'avant-propos du répertoire géographique du Canada pour ce territoire :

> « La dénomination des entités géographiques qui nous entourent se révèle un exercice essentiel lorsque vient le temps de se rappeler où nous étions jadis et d'indiquer clairement l'endroit où nous nous trouvons en tout temps. Les noms ont le pouvoir d'évoquer le passé, des personnes, des sons, des images, des odeurs et des sentiments. Souvent ces noms désignent des ressources qu'abrite un lieu. Bon nombre de noms d'entités du Yukon témoignent des particularités culturelles et linguistiques importantes des autochtones qui habitent dans ce territoire depuis des milliers d'années. Pendant la ruée vers l'or, beaucoup d'autres cultures ont aussi contribué à la dénomination des noms géographiques, d'où l'existence de noms colorés rappelant la période du Klondike. »

Dans les directives pour la présentation de noms géographiques, du répertoire géographique du Yukon, il est notamment indiqué :

> « Il faut proposer de préférence des noms descriptifs, d'usage local ou des noms qui évoquent une page de l'histoire de la région. »

Est-il nécessaire d'en dire plus ? Si nous désirons honorer ce personnage, je crois qu'il serait plus approprié de le faire dans des lieux où il a vécu, plus particulièrement à Ottawa ou dans sa ville natale, comme c'est le cas pour d'autres anciens Premiers ministres canadiens et ce avec le respect des règles en vigueur en la matière. Il serait plus judicieux de donner son nom à un parc où l'on aura pris soin

d'y placer avantageusement une sculpture à son image.

ACI en Chine

Un autre courriel a également fait couler beaucoup d'encre (poudre) dans notre liste d'envoi. Il s'agit du lieu où aura lieu les prochaines conférences de l'ACI, la Chine. Là encore, des pour et des contre. En fait, il faut voir, compte tenu de l'évolution, de l'avancé de la démocratie et des traits culturels des États à travers le monde, si le boycottage de ce pays est fondamentalement l'arme idéale pour amener un changement de régime dans ce pays, qui a traversé plusieurs millénaires. Il me semble que la meilleure arme que nous ayons à notre disposition est l'infiltration, tel un virus, qui s'immisce un peu partout et qui fait des petits, insidieusement. Ce moyen sera sûrement plus efficace puisqu'il participera à une remise en question par des composantes internes du système. Comme tout se passe à un rythme passablement lent en Chine, il faudra compter sur une longue période d'incubation avant que le processus aboutisse à des résultats substantiels.

Entre-temps, doit-on pour autant abandonner tout échanges à caractère scientifique avec nos collègues de la Chine ? Isoler un pays peut, en général, constituer une bonne solution pour infléchir un État récalcitrant toutefois, dans le cas présent, nous faisons face à un pays d'au delà d'un milliard habitants qui peut se subvenir à lui-même (Grande muraille). Ce pays a su passer à travers de multiples crises tout au long de son histoire et malgré tout il y a eu une certaine évolution.

Les sanctions économiques émanant d'une multitude de pays contribuent déjà largement à faire pression sur les dirigeants de la Chine. Le mode de vie de la Chine est fascinant et souvent nous sommes démunis face à ses débordements. Sans une remise en question par sa population, combinée aux pressions externes, on ne peut espérer un vent de réformes avant quelques décennies. Alors comme dit le Grand Sage : Patience et longueur de temps valent mieux que ...

Sixth Circumpolar Symposium on Remote Sensing of the Environment

Yellowknife, Northwest Territories
June 2000

Roger Wheate, UNBC

Very few groups have the intimate family feeling that we experience at annual CCA meetings. One of the closest is the 'circumpolar' group drawn together by common northentricity and specialist interests in remote sensing and related mapping needs. The group was first assembled in 1990 by Helmut Epp, of the NWT remote sensing centre in Yellowknife. Subsequent biannual meetings were organised in Tromso, Norway; Fairbanks, Alaska; Lyngby, Denmark; Dundee, Scotland and back to Yellowknife for this millennium year.

The symposia are very much meetings of auld friends, with delegates mostly from northern-focus countries: Canada, US, Finland, Norway, Finland, Sweden, Denmark, Iceland, Italy and France; and though absent from the 2000 meeting, Switzerland, UK and Russia. Sessions deal with topics such as glaciers and snow, sea ice, vulcanology, vegetation and biology, climate, remote sensing techniques and GIS modelling. Sparring combatants often divide into two camps to debate the relative merits of radar versus optical sensors, extending into the evening hostelries. The Black Knight pub in Yellowknife was conveniently located close to the conference hotel. Other attractions of the northern capital include services and government buildings (especially parliament) disproportionate for a city of 23,000, and of course 24 hour daylight, nevertheless depriving us of the northern lights for which the area is renowned.

Yellowknife is however a southern location compared to the next meeting in summer 2002, in Longyearbyen, Svalbard, Norway, easily the world's northernmost campus at 78 degrees latitude. The organiser is Sigmund Spjelkavik who also ran the 1992 meeting in Tromso.

NWT government legislature building on Frame Lake, Yellowknife

Web Pages of interest:

- NWT Resource/Wildlife: *www.gov.nt.ca/RWED*
- Alaska SAR facility: *www.asf.alaska.edu*
- Circumpolar arctic vegetation mapping project: *www.agdc.usgs.gov*
- Geophysical Institute, U. Alaska: *www.gi.alaska.edu*
- 2002 Conference site, Svalbard: *www.unis.no/default.htm*

Harry Steward
Clark University

What's in a Name?: The Barrallier Version

At the recent Edmonton Conference I had the pleasure of giving a paper on the surveying and mapping work of Francis Barrallier. I doubt whether anybody in the audience had heard his name before. He is one of those legions of names that form the bulk of biographical compendiums like *Tooley's Dictionary of Mapmakers*. That is, he falls into the category of a "minor mapmaker". Minor figure may have been, but he moved against some large historical canvases. In one way or another, his life was directly affected by the French Revolution, the notorious 'menage á trois' between Horatio Nelson, Sir William Hamilton and Emma Hart, the concern of Sir Joseph Banks in developing Australia and the titantic Battle of Waterloo.

Researching his life is, thus, a fascinating exercise in tracing interconnections between people, places and events. An object lesson, as it were, in the "Six Degrees of Separation" idea. It is also a salutary exercise in the pitfalls and profits in tracking one the most elementary leads in biographical research: the recording of personal names in historical documents.

Lesson #1: a name commonly recorded in the English language sources may not be the same in French ones. Our protagonist, known as Francis Louis Barrallier, was, in fact, born and baptised in Toulon, in 1773, as Louis François Barrallier. Lesson #2 is a familiar one: one's baptismal name may not be one's familiar one. Thus, he was commonly called François. The Louis was an honorific. His father, Jean-Louis Barrallier, was a staunch monarchist and, in honoring the long line of French kings called Louis, included the name in the baptisms of four of his sons.

The next mutation is easily understood. François became an exile when Toulon fell to Revolutionary forces in 1793 and joined the British Army. Melding into a military force, to whom the French were the enemy, became a consideration. François was anglicized to Francis and his full name reversed to Francis Louis. So far, so good, but in the Australian records he is frequently referred to as Francis *Luis*. Why a Spanish name ? The answer, only recently found, seems to be that his mother was Franco-Spanish. Her name was Marie-Antoinette-Françoise Hernandez and she was born, in 1755, at Castell de San Felipe in Minorca, at a time when it was briefly under British rule. How Mademoiselle (or Senorita) Hernandez got to Toulon we do not know, but her father, François, was a fortifications engineer and he seems to have been the namesake for his grandson.

The final twist in this retinue of forenames occurs at the end of Francis' life. He never returned to France on any permanent basis and, at the age of 76, he became a British citizen. In doing so, he made a gesture to his Toulon baptism and reversed his name to Louis Francis. This also being the way he is recorded, later, in the 1851 census and in his will.

But, the variations in forenames fall into a minor category compared with the many different versions of the surname, Barrallier. At least 18 different versions exist in indices of both books and manuscript listings. It is not especially surprising to see this in the English-language records: an unfamiliar name in an unfamiliar tongue leads to common mistakes by the recorder. What is surprising is that this variation also occurs in the *French* records. All this, of course, warrants care in searching and is reasonably straightforward, albeit time-consuming. A new take on it, however, is provided in searching Internet sources. Deliberately feeding in misspellings of the name can be surprisingly fruitful. The writer has found at a least one major and several minor pieces of information doing this, as well discovering interesting sidelights on the etymology and the use of the name. The most diverting being a leader of the Australian "Goth" cult movement who, in calling himself Barrallier, says "it came to him in a dream". After six years chasing this Frenchman, the write can emphasize.

There is, however, one more variant to add to the fun. At the end of the Napoleonic Wars, Jean-Louis Barrallier returned to France and, for his loyalty to the crown, was named a *Chevalier de l'Ordre royal et militaire de St. Louis*. His sons promptly added the aristocratic participle "de" to their name and became "de Barrallier". Thus, on his 1827 map of Barbados, the name of the map-maker appears as "Captain Francis de Barrallier": this designation also explaining the appearance of two entries, instead of one, in the first edition of Tooley. Francis never retained the new version for long but one of his brothers, also an army officer, did, and confusion identifying him in ill kept army records, especially regimental ones, means that, alas, the searcher has to take this into account.

There is one last wrinkle in this story. Barrallier's pioneer surveys in Australia lead to a number of toponyms honoring his work. In New South Wales, he has a mountain, a valley, and a postal district named after him. In Victoria, there is a topographic sheet bearing his name. In addition, in several Australian cities, in locations he never visited, one can find streets bearing the name Barrallier. The most interesting, however, is in Western Port, the large bay to the east of Melbourne. In a pioneer survey of the Bass Strait, ordered by Governor King in 1801, there was a splurge of new placenames. Barrallier was the chief surveyor but, perhaps because he was a humble ensign, perhaps because he was French, perhaps because of King's noted moodiness, was only rewarded with his named being attached to a small island.

This island, or perhaps islet is a better term, was so obscure that a British naval

survey in the mid-19th century recorded it as "Brilla" island. This lead to an Australian colleague to suggest that, in fact, it was named, not after Barrallier, but after "barilla", an alkali derived from the ash of local mangroves and used in the early colonial manufacture of soap. A good example of the need to exercise caution in reconstructing historical toponymy but the historical record does check out and the attribution is correct. Nevertheless, the obscurity is confounded by the official Victorian toponymic records which designate its "Official Place Name" as "Barrallier Island and "Official *Alternative* Place Names" (writers italics) as "Barrilliar or Barriliar Island".

One can't help thinking in all this nomenclature stew, that Francis Barrallier (or whatever name he preferred) must be smiling somewhere, especially over the writer's recent discovery of a "Barrallier Bed and Breakfast" in Milford Haven and the Australian school history text that has renamed him George.....

Pantyhose Cartography

Roger Wheate
UNBC (wheate@unbc.ca)

A few years ago in Cartouche, Christine Earl alerted us to an excellent series of thematic maps published in 'Atlantic Monthly' under the heading 'At last Count'. They portrayed some theme of social culture in the US from census data. What a pity I thought that we don't have an equivalent, in Canada. Now we do, or sort of, since the *National Post* includes a map in its "'Saturday Night" weekend magazine. Alas, if only it matched its US counterpart.

The maps are generated by Compusearch and are posed in the form of a question (shades of 'Jeopardy'!). The first I saw was on July 22, when the question was "Do you jog regularly?". The five class map has the categories: most likely to say yes, above average, average, below average, and most likely to say no. One might expect the highest classes to follow urban areas, but No, those most likely to say yes reside in the eastern townships of Quebec, the Gatineau and Laurentian hills north of Ottawa and Montreal and much of Nova Scotia and new Brunswick. One becomes a wee bit suspicious on the wording of the question: are these folk actually jogging, or just saying that they jog? In contrast all of Newfoundland and Labrador, and northern Canada including many uninhabited arctic islands are most likely to say no (or rather the non-inhabitants not say anything).

At least the colour legend matched cartographic convention; not so four weeks later, when the question was "Do you drink ten or more glasses of milk a week?" A partial spectrum scheme from light yellow to dark brown in reverse displayed Newfoundland (but not Labrador), and the southern prairies as dark brown (most likely to say no) versus Labrador and Yukon/Northwest Territories most likely to say yes (??).

September 2: the question you had always wondered about: "Do you wear pantyhose?". Newfoundland and Saskatchewan say yes. I'm still trying to figure out who is most likely to say no, from the indistinguishable legend colours: looks like Labrador and Quebec, joined by a ladder. How many wear pantyhose while jogging I wonder (it never worked for me). Ellesmere Island at 80 degrees north is 'average' ??

September 9 and the question is "Would you spend more to save time?" and the answer is a simple Boolean yes or no. At this point, I've stopped looking for maps of any meaning in the *National Post*. Maybe, Statistics Canada can fill the void!

Postscript: The author wishes to note that in the period since he submitted this column` the *National Post* has picked up its cartographic socks with some better executed and conceived examples, most recently answering the question "Do you like to cook?" published on Thanksgiving weekend. The output even makes some sense. The *National Post* also published an excellent two page spread on Thursday, October 5th, portraying some of the maps of the William Wonders collection at the University of Alberta.

Calendar / *calendrier*

October 19 - 22 octobre, 2000
The Stewart Museum
Globe Symposium
Ile Sainte-Hélêne, Montreal
For information /*pour renseignements:*
nhammadi@stewart-museum.org
Tel (514 861-6703, ext 260;
Fax 514 284-0123

February 19 - 21 février, 2001
GIS 2001
Vancouver, BC
For information /*pour renseignements:*
www.GIS2001.com
(includes CCA sponsored Education Session - contact: Peter Keller, Roger Wheate)

May 29 mai - June 2 juin, 2001
Canadina Association of Geographers
Montreal, QC
(MiGill, Concordia, UQAM)
Contact cag@felix.geog.mcgill.ca

May 30 mai - June 2 juin, 2001
Conference l'ACC/CCA 2001
Joint with the ACMLA
Montreal, QC
For information /*pour renseignements:*
MichealFournier,acsg_mtl@mlink.net
or any executive member.

August 6 - 10 august, 2001
ICA BEIJING 2001
For information /*pour renseignements:*
www.sbsm.gov.cn/ica2001

October 3 - 6 octobre
NACIS XXI
North American Cartographic Information Society
Portland, Oregon
Doubletree Hotel
contact: jcrampto@gmu.edu

2004
XX International Congress of the ISPRS
Barcelona, Spain
For information /*pour renseignements:*
www.icc.es

Digital Map Publishing - the Next Generation

Lou Skoda
Canadian Cartographics

This paper is the first of a series featuring papers by prominent cartographers and speakers at the Carto2000 meeting in Edmonton in June. Lou Skoda has been a member of the CCA since its founding in 1975 and was one of its earliest vice-presidents. He was the first recipient of the CCA Award of Distinction for Exceptional Professional Contributions to the Practice of Cartography in 1994; the company he founded, Canadian Cartographics is renowned for exceptional quality map products and exhibited a selection of its best works at Carto2000. (see www.canmap.com)

Introduction

From my perspective, there were just three significant developments during the past century that forever changed cartography: remote sensing, hardcopy imaging and computer technology-triggered innovations.

Development of aerial photography, satellite imaging and remote sensing procedures including gravity, magnetic and other methods of data gathering, revolutionized the way in which we collect spatial information. These developments also opened up access to a vast amount of information that was hitherto not accessible by field observation.

With the spatial information flow floodgates wide open, the traditional drafting process used in image creation could not cope with the demand for hardcopy and was replaced by a process that bypassed several steps in map production. This innovation produced the highest quality artificial negatives in a single step, was referred to as scribing and was part of the new hardcopy imaging technology that also produced shortcuts in creation of lettering and of a vast array of cartographic screens needed for symbols to represent areal phenomena. These technological advances in image forming peaked in the 80s.

For the convenience of differentiating this pre-computer cartographic process from computer technology-induced operations, I will refer to the traditional production as the analogue process and the computer-based operations as the digital process. It is true that even in computer-based mapping operations we still represent reality through symbols, i.e. analogy, even though the symbols are digitally defined, the terms analogue and digital are nevertheless useful labels for the pre-computer and the computer-assisted stages.

Computer technology has been available to mapping for decades now predating this Association by a substantial margin. This technology, however, became available to map publishing only relatively recently with the introduction of high resolution imagesetters. Even though the computer workstation with peripherals and specialized programs could readily replace the tools used in analogue compilation and drafting procedures, the technology was of marginal value in map publishing as long as the computer was harnessed to pen driven or light driven plotters. The imaging capability of such systems was adequate for engineering drawings and for topographic, cadastral and similar maps but not for high end thematic map publishing.

The imagesetters that are now available are an extension of the computer technology, they are fast and they are capable of high resolution which is high enough to satisfy minimum requirements in map publishing. The imagesetters replaced the demanding fair drawing, photomechanical and photographic analogue processing steps substantially shortening the production time and made the process more reliable.

There is now a new technology available that also replaces the imagesetter functions. This new technology enables us to go from the workstation directly to the printing plate completely bypassing the imagesetter and in the process eliminating the vestigial photomechanical/photographic processing stages as well.

This paper reviews core changes that took place in map publishing due to developments in computer technology and briefly describes new computer to plate technology which is now shaping up as the next most significant innovation in map publishing.

Terms and Concepts

There have been enormous changes in the field of mapping since the founding of this Association. These changes may have been dominated by the changes brought about through the advances in computer hardware and through development of computer software, but there were also other changes, changes in perception, changes in the way we view ourselves and in the way we go about molding our future. Let me share with you some of my thoughts on this topic to place the next few pages of these notes in a better perspective.

For quite some time now, I have subscribed to a definition of cartography which is that it is an applied science methodological discipline primarily concerned with inventorying, analysis and communication of information with spatial characteristics. I am aware that this definition differs from that which has been traditionally accepted by our geomatics community. So, instead of attempting to change the accepted definition, I opted to coin a new label more accurately reflecting what we do and what we are. We are members of the geomatics community but our speciality and interest is in map creation, in particular the analysis and the communication aspects. Cartomatics, therefore, seemed like the right label to indicate where we're at.

So, to restate my definition, I now say that cartomatics is an applied science discipline primarily concerned with inventory-

ing, analysis and communication of spatial information. Now, if we are going to have cartomatics we must also have cartomaticists.

In the earlier perhaps more leisurely times of the analogue era, we organized our activities so that some performed research and conceptualization and project design, others specialized in data-gathering and compilation, while still others performed the skilled tasks of drafting with perhaps some graphic design assignments attached, and at the end of this there were yet others that performed the photographic and the photomechanical operations. If we are to utilize the available computer technology to the fullest extent possible, we now have to collapse this traditional multi-stage process into a single, all-embracing operation centred on a workstation.

The person that performs the whole gamut of these map construction functions must be trained to understand the nature and the significance of the information he or she will need to handle, classify and analyze. As well, this person must be well prepared for the drafting and the graphic design activities essential to turning their exercise into a successful graphic communication at the final hardcopy or softcopy stage. For this one workstation map creating operation we need a cartomaticist well trained to handle the substance as well as the form of the spatial data and in addition also have adequate training in computer science and technology.

Digital map publishing

Digital map publishing workflow closely approximates the production flow established in the analogue processing (see Figure 1).

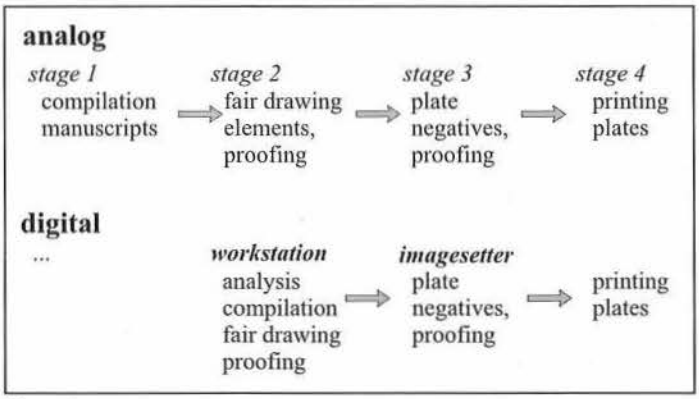


Figure 1

After research, data gathering and project design, the initial stage of analogue production included base compilation manuscripts and manuscripts containing thematic data classification and analysis. The next stage consisted of preparation of the final drawings in the form of artificial negatives, lettering overlays and masking elements that were needed to create areal symbols. The stage after this, i.e. stage 3, consisted of creating negatives from which printing plates would be made. This was accomplished by grouping the fairdrawing elements and creating one plate negative for each group usually finishing up with as many plate negatives as there were printing inks assigned to a project.

In the digital workflow, analogue stages 1 and 2 are combined and all the work is performed in a workstation. The computer workstation eliminated complex, time consuming and demanding analogue operations and in the process made obsolete some inherent photographic and photomechanical operations. The change generally reduced the timeline to as little as one quarter of what it took to accomplish the same task in the analogue mode.

The photographic process used in the analogue plate negatives production is replaced in the digital publishing by another photographic process performed by an imagesetter. An imagesetter is a device designed to record raster data. This machine basically consists of a laser printing head with an aperature that starts at 12.7 microns or 1/2000th of an inch, and a fast rotating drum to which is attached an unexposed film. The drum rotates at constant speed executing the movement parallel to the y-axis. The printing head travels along the x-axis. The laser printing head is triggered to expose a 12.7 microns x 12.7 microns area of the film to indicate the presence of an image. Images of complex shapes are built up with these 12.7 micron pixels, pixel by pixel.

The availability of the computer technology to map publishing was entirely determined by the availability of imagesetters. The resolution of the imagesetters now largely determines their degree of usefulness to map publishing.

The 12 micron imagesetters were the early generation map imagesetters. There are now imagesetters available with resolutions of 10, 8, 6 or even 4 microns. These imagesetters were created to mainly satisfy growing demand in the graphic arts/printing industry sectors.

The resolution of even 12.7 microns (0.0127mm) has proven adequate for most maps. At this resolution we do lose the perfect edge definition of the analogue processing, where the resolution was mainly determined by the particle size of the artificial negative emulsion or the size of the film emulsion molecule. In exchange and as a generous compensation, we gain speed, versatility and reliability. Most maps, including topographic, navigation and general purpose maps are relatively simple line, text and occasional areal symbol presentations. At this resolution the fuzzy, pixel- generated edges, are not noticeable and in any case are unimportant in the context of the purpose and the function of these maps.

Limitations of the digital process caused by resolution only applies to complex thematic maps that rely heavily on communicating areal information by way of graded chromatic screens. In the analogue mode, precision line screens were routinely generated to represent density changes at 1% increments. A 133 lines per inch line screen representing a 10% density would consist of 19.1 micron lines at 191 micron intervals. A 12.7 micron resolution imagesetter could, at best, create a line screen consisting of lines 2 pixels wide, i.e. 0.0254mm, at 15 pixel intervals, i.e. 0.1905mm intervals, which would yield a screen density of 13.3% at 133.33 lines per inch. The density increment with a 12.7 micron imagesetter, at the simplest level, would be limited to increments equal to the pixel size if we wanted to retain the line per

inch count. So the possible screen densities would then be limited to 0 pixels, 1 pixel, 2 pixels, 3 pixels, 4 pixels, etc. In actual measurements this sequence would yield the following densities: 0.00mm or 0%, 0.0127mm or 6.7%, 0.0254mm or 13.3%, 0.0381mm or 20%, 0.0508mm or 26.7% and so on. A 6% density increment would be completely inadequate for any highlevel symbolization on a thematic map.

The kind of accuracy required to generate 1% or 2% increments in 133 or 150 lines per inch precision line screens remains completely out of range of even the highest resolution imagesetters now available. To undertake fully digital production for maps requiring this kind of screen accuracy will have to wait until very high resolution imagesetters become available or, more likely, until we can devise techniques that would utilize the options contained in the next generation map publishing technology.

CTP technology

CTP is an acronym for **c**omputer **t**o **p**late technology which presents substantial new opportunities to map publishing. This technology was created by Creo, a Burnaby, British Columbia firm. This firm is now marketing an advanced form of this technology which transfers computer files to printing plates in a single step.

In the map publishing workflow this ctp system reduces the production phases to just two steps (see Figure 2).

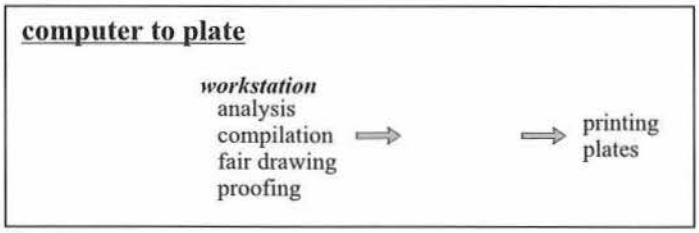


Figure 2

The Creo's early ctp systems were based on visible light technology. This approach was followed by introduction of thermal imaging in the mid 90s. In this innovative approach Creo uses heat rather than light to create images on infrared sensitive proofing materials and thermal plates. The thermal imaging in Creo's second generation of ctp systems uses infrared laser diodes which deliver the highest resolution imagery and eliminate any need for chemical processing. This technology also promises additional advantages in delivery of sharp, hard-edge imagery and the elimination of regular pattern screens which are replaced by random dot applications.

My firm has an experiment underway to explore the benefits of this new technology by converting the *Biogeoclimatic Zone of British Columbia* map to the ctp process. This map, when it was first created in 1988, incorporated the most demanding methodology which taxed even the highest resolution analogue processing available at that time. We expect that the results will fully demonstrate the capability and the advantages of this new generation ctp technology.

In conclusion I should also add that there is a component to digital mapping which is just in the early stages of development. This is the component that is concerned with short-run on-demand map publishing. Development in this area will most likely be linked to the current development in the ctp technology. I will look forward to exploring these developments with you at some early opportunity.

To summarize

The computer technology only became accessible to map publishing after the introduction of the high resolution imagesetters. This conversion to digital publishing simplified the production process and introduced some very substantial savings in time and costs. However, some highend thematic mapping could not benefit from this digital publishing technology due to the imagesetter resolution limitations.

There is now a new technology available that was developed by a Burnaby, British Columbia firm. This technology reduces the map publishing production activities to just two steps. The technology allows for workstation generated digital files to be converted directly to printing plates completely bypassing hitherto essential plate negative stages.

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

C. Peter Keller
Chair, CNC for Cartography

ICA ACTIVITIES

Most ICA commissions have been busy since last reporting in Ottawa in 1999, with most of their activities and meetings noted on the ICA web page at *http://www.icaci.org*.

ICA MEETING IN BEIJING, AUGUST 6-10, 2001

Not so long ago that we were all busy with the ICA conference in Ottawa., and already the time has come to prepare for the next ICA meeting, this time in Beijing. Details concerning the meeting can be found at: *www.sbsm.gov.cn/icc2001/*

If you have not already submitted an abstract, don't despair. We have been informed that the deadline for abstract submission has been extended from September 1st to the end of October. It appears that completed papers are to be received by April of 2001. A note of thanks to those of you who already have forwarded to me copies of your abstract submissions. Those of you who have

not, a copy would be very much appreciated. It always helps to know who from Canada is planning to attend.

Thanks to Alberta Wood, one of ICA's Vice Presidents, we have been kept very up-to-date on plans and progress with respect to the Beijing meeting. It appears that plans are for a program of 210 papers and several poster sessions, with authors to be notified of acceptance by the end of December, and proceedings to be published by July 2001. Registration is expected to be US$450 before April 1, 2001 (US$550 thereafter), student registration US$150(US$250), one day registration US$200, and accompanying persons US$100. Full registration is to include the proceedings in paper format with a CD-ROM version to be available for an extra US$50. Please confirm these details on the conference's Web site, and do check out some of the tours planned in association with the meeting.

I understand that visas will be required to visit China, and that a letter of invitation to facilitate the visa application process will be sent after receipt of registration. Registration material should be available via the Web site, but will also be included in a second circular expected to be sent in early 2001. You can request mailing of a circular through their Web site.

National Map Exhibit for Beijing

I am very pleased to be able to inform you that Claire Gosson has agreed to take charge once again of putting together a national map exhibition for the Beijing meeting. Thank you Claire for agreeing to continue on with this job. We are still waiting to hear details from Beijing with respect to space availability and logistics. Please contact Claire with questions concerning the exhibit. She can be reached at:

Claire Gosson, Geographer
Stakeholders Coordination Section
GeoAccess Division/Division GéoAccès
615 Booth Street, Room 650
Ottawa, Ontario, K1A OE9
tel. (613)992-4134; fax (613)947-2410
email*claire.gosson@geocan.nrcan.gc.ca*

ICA Children's Map Competition

I am equally pleased to inform you that Erin Richmond has agreed to take responsibility once again for the Children's Map Competition. Thank you Erin. Erin has started to organise a call for submissions for Beijing 2001. At this stage, she needs your help to get the word out, and to create local enthusiasm. Please encourage educators and parents to submit entries. Erin can be reached by e-mail at *erinrich@uvic.ca*, or by mail at:

Ms. Erin Richmond
attn: ICA Children's Map Competition
c/o Department of Geography
University of Victoria
Victoria, BC,
Canada.V8W 3P5

Mailbox / *Courrier*

Dear editor,

I noticed in the latest issue of Cartouche a nice biography of Lillian Wonders [Cartouche 38, Awards of Distinction, text written by Roger Wheate]. In it you mention her work in *Mapping a Northern Land.* This reminded me of the other members of the CCA that worked on this book, and whom I have never thanked officially for their efforts.

Henry Castner wrote the section on research in cartography, and in this he virtually reviews all important cartographic research in Canada since the Second World War. In 142 end notes he quotes the titles of the important cartographic papers published in this period.

The chapter on Canadian Atlases was written by three of your members : George Falconer covered the *National Atlas* in all its editions, Lillian, as mentioned wrote on provincial, school and commercial atlases and Iain Taylor reviewed Canadian thematic atlases. Each of these categories required long hours in map libraries and archives.

George Falconer was given the almost impossible task of reviewing Canadian thematic maps. When one realizes that maps in this category range though every aspect of science, one understands the enormousness of this task. George was able to carry out this work with clarity and style.

Mapping a Northern Land would have been seriously deficient without the hard work of these researchers. I am most grateful for their efforts.

Yours sincerely,
Lou Sebert
Ottawa

[Lou Sebert is one of the founding members of the CCA, for a little more information about Lou see Cartouche, Number 36, p11]

Maps Threaten Sovereignty

(lonelyplanet.com) Hundreds of thousands of maps of China have been destroyed by the government, according to local officials. Considered incorrect and therefore harmful to national sovereignty, 300,000 maps were seized from north-eastern Xinjiang province, where the ethnic-Uighur separatist movement is active. The unofficial maps show 'incorrect' borders with neighbouring states; a few officially recognized islands had also been excluded from China's landscape. Officials believed that these flaws could encourage negative political influences. (*www.lonelyplanet.com/scoop/asi/chi.htm*)

National Atlas of Canada is Producing the First Map Using Automated Generalisation of Framework Data

Rupert Brooks
National Atlas of Canada
GeoAccess Division, CCRS

The National Atlas of Canada has a long tradition of making high quality reference maps of the country. Over the last two decades the organisation has switched from a traditional to a digital mapmaking environment where the majority of maps remain online and are never sent to press. It has been a challenge and source of pride to continue the paper reference map series using the most advanced technology, while maintaining or improving the aesthetic and technical standards of the past.

The entire GIS industry has gradually increased in sophistication since its inception. In the beginning stages, only the simplest spatial data structures, and corresponding similar products could be produced digitally. Improvements in technology have allowed for the replacement of manual processes by digital ones. This resulted in mapmaking being carried out digitally using a very similar production process to the traditional paper approach. Scribers were replaced with mice, screens replaced the drawing table. The sequence and structure remained similar. As a result, the data layers produced for mapping corresponded very closely to the scribed sheets that would have been produced in the past.

The next logical progression is the development of a geospatial data infrastructure. Cartographic visualisation is just one of many applications that the geospatial data infrastructure must support. This is leading to a complete change in mapmaking procedures. In the past, multiple cartographic base layers would be kept at a range of scales. Each such layer was a relatively simple group of features for a map, rendered in a style and a level of detail appropriate for the scale. Attributes, if present at all, were often solely related to the symbolisation of the feature. Name information was usually present as annotation near the feature on the map, but there was no explicit linking of the feature name to the feature record in the database. Data infrastructures, however, operate on the principle of collecting a minimal number of different datasets, as close as possible to their source. In addition to supporting mapping, the data is designed to answer analytical questions, and so contains a high degree of attribution and topological structure.

The National Atlas of Canada's contribution to the data infrastructure is a series of 1:1M framework data layers. These are being designed to contain considerable intelligence and topology. The hydrology layer has undergone a great amount of work in the past while. From the outset, the data was intended to support cartographic visualisation at a variety of scales. In fact, the need for automatic generalisation was one of the driving factors in the design of the dataset. Derived from the VMAP0, these layers are relatively detailed as compared to other National Atlas products[1].

Deriving cartographic products from a feature database is certainly not new. For example, for a long time now the Canadian topographic map series has been created from features in the National Topographic Data Base (NTDB) and Canadian aeronautical charts have been generated based on features extracted from the Canadian Aeronautical Charting database (CANAC). For these products, the features in the database are a close approximation to the features that must appear on the printed map. The National Atlas of Canada required a significant scale transformation as part of the cartographic process, which added considerable challenge.

As the work on the hydrologic layer of the framework progressed, work had also begun on preparing a new reference map of Canada's Northern Territories. The existing map was drawn in 1974, with a partial names update in 1982 and some new information overprinted since then. While still popular, the map was now significantly out of date. The base material was never digital, and at a scale of 1:4M, it fell far enough between the usual Atlas scales of 1:2M and 1:7.5M that recompilation was essential. It was an ideal candidate to use for testing the theoretical automated generalisation. Instead of manual recompilation, the cartographic team would work with the «frameworks» team to create a hydrologic layer for this map. This layer would then be quality controlled and edited as part of the usual cartographic process.

As the process began in the fall of 1999, the team was faced with a number of challenges. The organisation ran on a base software of ESRI Arc/Info, but it had quickly become clear that no off the shelf tools within that software were adequate to handle the task. In addition, the base was not yet complete, and had to be fully structured and updated before this could be applied. While research examples of automated generalisation software existed, they had not proved robust enough in practice to be used for production. As the data was being structured and revised, generalisation software had to be rapidly prototyped, tested and brought into the production process.

Automated generalisation for map production can be divided into two generalisation processes – database generalisation (selection) and cartographic generalisation (rendering). The preferred application is to apply a selection process to the full database to yield the set of features to be present. These features are then rendered using cartographic generalisation operators to prepare the result for presentation on paper.

The selection process was based on algorithms developed by Richardson and Thomson[2], and extended in the course of this project by Thomson and Brooks[3]. Lake selection was guided by a measure of area and shape. River selection is based on the stream ordering of the river network. Previous efforts at using stream ordering for generalisation, when compared against manual efforts had achieved accuracies greater than 80%[4]. While impressive, even 20% remaining error was too much for a pro-

duction process. By developing techniques that could integrate supplemental information from the database the team was able to exploit the sophisticated attribution of the framework data to achieve a highly accurate result.

In addition to these primary rules, two rules were applied to guide the interaction of lakes and rivers during the generalisation. The outflow path from a lake to the ocean would be kept if the lake was kept. Conversely, small lakes at the very tip of river systems were preferentially kept if the river system was kept. Finally the process was tuned to provide slightly more features than were required, since it was far easier to manually remove a feature, than to add one.

There was very little experience in automatic cartographic generalisation within the organisation. It quickly became clear that off the shelf tools would not suffice to provide an aesthetically pleasing cartographic solution. Custom software was required to process the selected data for visual effect.

The expertise of the cartographic team was essential to this development. This author began with only a theoretical understanding of the problem and could not have come up with a successful solution without the patient assistance of the experienced cartographers. The software was rapidly prototyped by producing test generalisations which were then scrutinised and commented on by experienced cartographers. After approximately two months of development, and many such test cycles, the results were imperfect, but acceptable. The remaining problems could be fixed by an experienced cartographer in a reasonable amount of time.

The importance of the personal dynamic cannot be overemphasised. GIS advocates, computer scientists and engineers have claimed to be "on the verge" of producing automated generalisation techniques for nearly 40 years. However, the success stories have been few and far between. In practice, automated techniques have rarely demonstrated the capability that even a relatively inexperienced cartographer can muster. Conversely, cartography has gained a reputation among engineers for being subjective and very prone to the individual idiosyncrasies of the cartographer. We were fortunate that the project team was able to dispel both of these myths.

The generalisation procedures have been a success in practice. Nevertheless, there are many potential areas for improvement. Several systematic problems remain which must be corrected manually. Small spikes are frequently created by the line simplification techniques. Although not usually visible at the final scale, these are being corrected manually before printing. The system has also shown a strange preference for narrow lake features, which can sometimes create a "noodley" appearance. Again, these stylistic problems must still be corrected by hand.

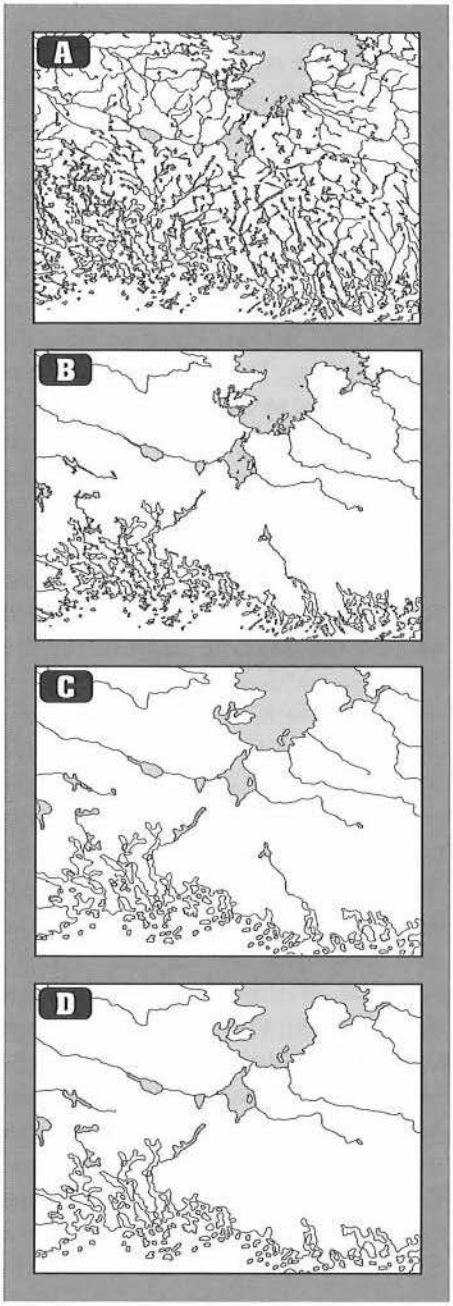


*Figure 1: The evolution of the hydrology and coastline on the south coast of Baffin Island through the various stages of processing. **A** - raw 1:1M data; **B** - after automated generalisation/selection; **C** - after automated generalisation/cartographic process; **D** - after cleanup by an experienced cartographer.*

Overall the experience was challenging but successful. It took longer to carry out the automated generalisation than it would have taken to manually generalise the data, but this time includes considerable development time. When the dead ends and learning experiences are factored out, the process is reasonably efficient. Ultimately, however, the real reason to seek procedures like this is to be able to invest effort in maintaining a single sophisticated database that supports many applications rather than multiple simplistic map layers. Indeed, over the course of the year, numerous other applications have surfaced.

The map *Canada: Yukon Territory, Northwest Territories and Nunavut* will be released by the end of this year. It will be the first map produced by the National Atlas of Canada that has used automated generalisation techniques for a significant portion of its production. Nevertheless, the entire team is pleased with the outcome and consider it to be on a par with any of the other maps produced here.

Notes:

1. Brooks, R. (1999). "The New and Improved Base Framework for National Atlas Data." *Proceedings of ICA '99*. Also online at *http://atlas.gc.ca/english/about_us/index_pres_e.html#framework*

2. Richardson, D. E. (1994). "Generalization of spatial and thematic data using inheritance and classification and aggregation hierarchies. In: Waugh, T. C. and Healey, R. G. (Eds.), *Advances in GIS Research 2*. London: Taylor and Francis, 957-972.

Richardson, D. E., and Thomson, R. C. (1996). "Integrating thematic, geometric and topological information in the generalization of road networks." *Cartographica*, 33(1), 75–83.

Thomson, R. C., and Richardson, D. E. (1999). "The 'Good Continuation' Principle of Perceptual Organization applied to the Generalization of Road Networks." *Proceedings* of the ICA, 19th International Cartographic Conference (Ottawa, 14-21 August), 1215–1223.

3. Thomson, R. and Brooks, R. (2000). "Efficient Generalisation and Abstration of Networks using Perceptual Grouping." *Proceedings* of GeoComputation 2000. University of Greenwich, UK.

4. Rusak Mazur, E., and Castner, H. W. (1990). "Horton's ordering scheme and the generalisation of river networks." *The Cartographic Journal*, 27, 104-112.

International Cartographic Association (ICA) Executive Committee Meeting Report

Alberta Auringer Wood
(Vice President - Canada)
September 13, 2000

The meeting of the ICA Executive Committee was held from August 5-9 in Beijing, China. The primary purpose for the meeting location was to review the site for the 2001 conference and discuss plans and progress with the Local Organizing Committee (LOC). See their web page at *http://www.sbsm.gov.cn/icc2001/.*

Upon arrival on the 5th, having left on the morning of the 4th and after three flights including the last one of more than 13 hours, there was a dinner meeting with LOC members to get acquainted. The following day, there was an evaluation tour of proposed venues for conference tours. Some of us went to the Great Wall and Ming Tombs, while others went to the Summer Palace. They were all very interesting, though very crowded, perhaps due to it being a Sunday.

Monday morning, the 7th, was the beginning of the formal Executive Committee (EC) meeting. Highlights were review of minutes from the last meeting, reports on meetings attended by EC members, and discussions regarding publications. Bengt Rystedt, ICA President, and Ferjan Ormeling, ICA Secretary-General and Treasurer, met with United Nations officials in New York City, Kirsi Virrantaus (VP - Finland), attended the International Federation for Geodesy (FIG) in Prague, while Milan Konecny (VP - Czech Republic) went to a meeting in India (already reported in the *ICA News*), and Michael Wood (Past President - United Kingdom) attended the International Map Trade Association (IMTA) in Heidelberg. Graciela Metternicht (Editor) reported on the *ICA News*. Issues 33 and 34 are out in paper and on the web, also translated into Spanish. She would like to do a color edition and is seeking funding support for this. Robert McMaster (VP - United States) reported on publications. The contract with Elsevier is being re-negotiated. Discussion focused on the pros and cons of doing our own journal. We are to send our comments to Bob who is to draft a plan by the end of the year.

On Monday afternoon, the LOC reported. The planned dates are August 6-10, 2001. The program has at least 28 topics. The deadline for abstracts was September 1, but has been extended to the end of October. The completed papers are to be received by April 2001. LiLi (VP - China) chairs the program committee. The plans are for 210 papers and several poster sessions, with authors to be notified of acceptance or not by the end of December. The proceedings are planned to be published by July 2001. Michael Wood will do the keynote address for the conference on Monday. A second plenary session will be held Wednesday with no competing sessions, where fellowships will be awarded, as well as the travel awards. The sessions will be held in the Beijing International Conference Center (BICC) where our EC meetings were held. Hotel prices per room in the vicinity of the BICC were noted as being: 2 star: US$30, Four star (Beijing Continental Grand Hotel): US$80; Five star: US$100; suite US$120, including breakfast. Pre-conference tours are being scheduled for August 3-5 and post-conference tours from August 11-18, of varying lengths. Technical visits are planned during the conference, along with the papers sessions on August 7-9. Tours are planned to historic sites, including the Great Wall, Ming Tombs, Imperial Palace, and Summer Palace. Social events will include an opening reception, the Peking Opera, Acrobatics, and a gala dinner. Registration is expected to be US$450 before April 1, 2001, and US$550 thereafter. Student registration was to be US$150 before April 1, 2001, and US$250 thereafter. One day registration is planned to be US$200, while accompanying persons are scheduled to be US$100. Full registration includes the proceedings in paper format with a CD-ROM version to be available for an extra US$50. The map and technical exhibits will be open from Monday through Thursday. There will be shuttle transportation from the airport to the Beijing Continental Grand Hotel (BCGH) on Thursday, August 2 (for those going on the pre-conference tours) and Saturday and Sunday, August 4 and 5, as well as fixed-time shuttle departures on the 11th from the BCGH to the airport. . As Visas are required for visiting China, a letter of invitation will be sent after receipt of registration, which can be used to obtain it. The second circular is expected to be sent in early 2001 which will include all the registration material. Check the web site to request this circular. In the evening, there was a banquet sponsored by the State Bureau of Surveying and Mapping (SBSM) featuring Peking duck. Many delectable dishes featuring duck were served. We were given mementoes of stone stamps with our names given in Chinese.

On Tuesday morning, we met at the BICC to review the facilities of the conference center. We were first shown a brief video noting that it is in the north part of the city about 20 Km from the airport and 9 Km from downtown. It has several very large halls, one seating nearly 600 people. Simultaneous translation is possible. The business center offers Internet access, as does the BCGH. There are large exhibit halls with separate rooms planned for the historical and children's maps. There will be computer access for delegates in the technical exhibits area, also, similar to that in Ottawa in 1999. The first floor will be for exhibits and the second and third floors will be for technical sessions and poster sessions. There will be provision for CD-ROM projections in the exhibits. It looks like a great facility for a conference! About 10:30 am, we departed by bus in pouring rain to visit the China Cartographic Publishing House. It has a staff of about 1,000 and publishes about 600 titles per year. They produce small scale maps,

atlases, journals, school atlases, and wall maps. Record copies are kept of all their publications. They are moving to computer assisted production, and each of their two buildings has a computer network room with 38 network lines and 2000 GB of storage that can be expanded. The printing is contracted out over 50 sites and amounts to about 250,000 copies per year.

In the afternoon, we resumed our EC meeting to discuss publications further. There will be a meeting shortly with Elsevier representatives for contract re-negotiation. The color edition of the newsletter will go ahead, with Graciela and Ferjan to handle the details. In terms of other publications, the second edition of volume two of *Basic Cartography* is expected to be done about November, while the metadata standards book will probably be ready by Beijing. Commissions and their activities were discussed next. Most were quite active and their meetings are noted on the ICA web page (*http://www.icaci.org*).

On Wednesday morning, the reports on commission activities concluded. It was decided to hold the next EC meeting from March 29 to April 2, 2001 followed by several meetings next August in Beijing. Bob and I are to organize a session for Commission Chairs on Sunday before the conference, while Bengt and Ferjan will organize one on Wednesday for National Committee Representatives. Commissions are asked to inform Ferjan of any external sponsor support so that an overall picture can be acquired of financial support for ICA. Some discussion centered on the possibility of having individual or regional memberships in addition to membership by country. It was felt that investigation would be needed and that changing the statutes would be required. Each member of the EC reported on how they felt they were functioning in their role. Ferjan reported that letters have been sent out inviting proposals for the 2005 meeting with a response deadline of April 2001. There has been some interest from Australia (Sydney), Chile, Columbia, India, Iran, and Sri Lanka. A formal letter from the director of the Institute Geographique National of France regarding archiving of ICA materials will be requested by Ferjan. When received, the guidelines for archiving will be publicized. Elri Liebenberg (VP - South Africa) reported on planning for the 2003 conference in Durban. She is not officially on the organizing committee at this point. It was noted that a detailed report would be expected in Beijing next year. The EC has been invited to meet in Durban from August 4-6, 2002. An earlier meeting will be requested, but this offer will be accepted. On the topics of the United Nations, global mapping, and ISO, there was spirited discussion, especially on the idea of charging for the use of geographic information terminology in an ISO web database. Bengt will contact the chair and report back. All those representing ICA in cartography related international bodies will be expected to prepare a written report for the next EC meeting. Preparation of a strategic plan for ICA was considered with the idea being to bring one to the 2003 General Assembly. A Working Group of the EC was established consisting of Bengt, Ferjan, Mike, Milan and Kirsi. We are to send our comments on the plan and that for the International Society for Photogrammetry and Remote Sensing (ISPRS) to Bengt and Ferjan. The ISPRS plan had been distributed for the EC meeting. Mike proposed a new, condensed version of an ICA promotional brochure that he will do for our next meeting. Ferjan noted that the ICA web page would be updated every three months. Bengt and Ferjan were delegated to invest ICA funds. Alberta and Elri agreed to coordinate the Barbara Bartz Petchnik award.

The meeting wrapped up with an endorsement for a conference that Milan is organizing in Brno and a heartfelt expression of thanks to LiLi for the hospitality. In the evening we were treated to a performance of the Peking Opera. The next day, we dispersed to head home or attend other meetings in Beijing and Seoul.

CCA T-SHIRTS

Reduced grey scale image of the colour Original

COST: **$25** if picked up; **$30** if mailed.
TO ORDER: contact
Andrew Millward
Department of Geography
Univeristy of Waterloo
Waterloo, Ontario N2L 3G1
aamillwa@fes.uwaterloo.ca
Cheques ONLY made payable to the CCA. All profits from the shirt sales will go to support the Norman Nicholson Memorial Scholarship.
SIZES: M,L,XL. Constructed of unbleached100% cotton.

Mount Logan CD-ROM

Available from the Arctic Institute of North America, at the University of Calgary, by Gerald Holdsworth: the Mount Logan CD, (PC/MAC) for $45. Contains chapters on the history and background of Canada's highest peak, including surveying and topographic mapping. For More information go to: *www.ucalgary.ca/aina*

This could become a collector's item if the federal government plans go ahead to re-name the peak Mount Pierre Elliot Trudeau after the recently deceased Prime Minister. When Dr. Holdsworth was asked by his ex-office mate and CCA past-past-president how far he would go in fighting this renaming, his reply was .. "Just watch me". (Roger Wheate)

Topographical Map Grids are Changing

Gordon Haggert

On a [canoe] trip in the Algoma District our group was trying to identify exactly where we were on a long shoreline using triangulation and comparing our grid references. When looking at two maps we realized the grids on our Canadian 1:50 000 topographic sheets were not in the same positions. The maps appeared the same but the grid lines had shifted by over 200 metres. Was there a misprint on the maps?

Canoe trippers should be aware of what has happened. We were using two editions of the same map. Edition 3 of our map was based on "North American Datum 1927" or "NAD 27" (shown in the bottom margin of topo maps) but Edition 4 of the same map was based on "North American Datum 1983"; or "NAD 83".

In 1927 a complete survey of North America was completed to define positions in latitude and longitude and all survey networks which also included the 1000 metre grid pattern that we all have been using on Canadian topo maps. The introduction of navigation satellites has allowed cartographers to define the shape of the earth and the positions of features on the earth more precisely than before. The system as revised in 1983 was officially adopted by the Department of Energy, Mines and Resources (now Natural Resources Canada) in May of 1990. The United States, Mexico, Denmark (Greenland) and Canada had reached agreement on the definition of the datum in 1983, hence the name NAD 83. Other departments of the Government of Canada and provincial governments have adopted NAD 83 as their geodetic reference system for new maps. NAD 83 is based on the Earth's centre of gravity and also is a more accurate mathematical representation (ellipsoid) of the shape of the earth than was NAD 27. NAD 83 is therefore more compatible with the co-ordinate system used to compute the orbit of satellites used for surveying and for the use of GPS receivers.

The National Topographic System is revising all existing maps to NAD 83 and since April, 1989, all new mapping has been computed using NAD 83 values. Maps not scheduled for revision for a long period of time will not be converted, but instead, will be overprinted with notes, usually in the bottom

CONTOUR INTERVAL 50 FEET
Elevations in Feet above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection

Figure 1 - Datum Note, found in margin of map. This example from the margin of a current map shows that the grid is based on "North American Datum 1927".

margin, enabling the conversion of the map grid of the geographic co-ordinates to NAD 83.

Alongside this information is a conversion table (See Figure 2) to use if you want to know where the new NAD 83 grid would be on a revised map. The Latitude and Longitude changes slightly but for canoe trippers, you would add 10 m to the Easting and 222 m to the Northing to locate where the new grid lines would be on a NAD 83 map. Any

Coordinate Conversion NAD 83 (WGS 84) to NAD 27
Mean Values for this map

Geographic:	Latitude -	subtract	0.1"
	Longitude -	add	0.3"
Grid:	Northing -	subtract	222m
	Easting -	subtract	10m

Figure 2 - Example of Co-ordinate Conversion Table from National Topographic System map sheet 41J/2 Algoma, Ed. 4, 1994. This table indicates values to add or subtract to NAD 83 co-ordinates to obtain NAD 27 co-ordinates.

specific map reference point would also move in the same manner. The more up-to-date Canadian topo maps already have printed the NAD 83 grid on them and the co-ordinate conversion is from NAD 83 to NAD 27. On the chart the WGS 84 designation means World Geodetic System 1984 which is consistent with the NAD 83 reference system and used in orbit computation of satellites in the Global Positioning System.

Fortunately for canoe trippers or for map reading classes, confusion can be avoided by everyone in the group using the same edition of the map. Conversions of co-ordinate references from NAD 27 maps to NAD 83 maps (or from NAD 83 maps to NAD 27) are possible if you have the NAD shift information from Natural Resources Canada, or if it is printed in the map margin.

Each map in each of 50 different zones across Canada can be converted using different values. You may want to learn more on the Geodetic Survey's home page and related sites: http://www.geod.NRCan.gc.ca/. The maps at 1:250 000 scale have been adjusted to more accurately show positions of features but the differences are not measurable at the 1:250 000 scale and therefore changes in grids have not been applied to the maps.

Many maps for canoeists and hikers in the United States show only tick marks in the margin indicating the 1000 m grid so that users have to join the tick marks for practical purposes. Canoe trippers in Canada can enjoy the usefulness of the completely printed grid and by being aware that the conversions are being made as time goes on.

Gordon Haggert is the Publications Chair of the Ontario Recreational Canoeing Association, and may be contacted at: ghaggert@mnsi.net

This article originally appeared in the May 1999 edition of "Canews", the Magazine of the Ontario Recreational Canoeing Association (www.canoeontario.on.ca). Reprinted with permission.

Free Maps of Canada on the Web

The Centre for Topographic Information in Sherbrooke, a division of the Earth Sciences Sector within Natural Resources Canada announces its latest product "***Toporama***." Toporama is a raster representation of part of the contents of the National Topographic Data Base (NTDB) at the 1:250 000 scale for all of Canada. This representation of NTDB is available free of charge to all on the Internet. Toporama can be used for desktop applications, such as word processing and drawing/image software. It's a snap to use! Just select an image, copy it, and paste it into your desktop application, or select an image and copy it to disk. Among other uses, this product is a great way to give family and friends directions for getting to your home or cottage. Toporama also has applications in geography and mapping. For example, it can be used as a background map or to locate topographic features such as towns and lakes.

Toporama uses representation features, such as symbols, screens, and colors, similar to that of the paper map. Simple navigation tools and a legend are provided to make it easier to find your way around. Finally, there is a series of index cards that users can consult to guide them to the area for which they want images. http://toporama.ctis.nrcan.gc.ca.

Source: Centre for Topographic Information
Customer Support Group, Natural Resources Canada
2144 King Street West, Suite 010, Sherbrooke, Quebec J1J 2E8
E-mail: ntdb@NRCan.gc.ca Web: http://CTIS.NRCan.gc.ca
Tel.: 1-800-661-2638 Fax: (819) 564-5698

Cartes du Canada Offertes Gratuitement Sur Le Web

Le Centre d'information topographique de Sherbrooke, une division du Secteur des sciences de la Terre situé au sein de Ressources naturelles annonce "***Toporama***". Toporama est une représentation matricielle d'une partie de la Base nationale de données topographiques (BNDT) à l'échelle de 1/250 000, et ce, pour tout le Canada. Cette repréésentation gratuite est offerte à tous par l'intermédiaire d'Internet. Toporama peut servir pour des applications de traitement de texte ou dans des logiciels de dessin et d'imagerie. C'est tout simple. Vous choisissez l'image, vous la copiez et vous la collez dans un logiciel de bureautique ou, encore, vous séélectionnez l'image et vous l'enregistrez sur votre disque. Ce genre de produit est très utile, entre autres pour indiquer aux parents et aux amis comment se rendre à la maison ou au chalet. Aussi, ce produit peut servir pour des besoins en géographie et en cartographie : comme fond de carte ou pour localiser des phénomènes topographiques, par exemple des villes ou des lacs.

Toporama utilise des caractéristiques de représentation comme des symboles, des trames et des couleurs, similaires à celles d'une carte papier. Afin de s'y retrouver, une légende et des outils de navigation simples sont présents. Enfin, une série de cartes index mènent l'usager à la région dont il désire obtenir une carte.

Source : Centre d'information topographique
Équipe de soutien aux usagers, Resources Natureles Canada, 2144 rue King Ouest, bureau 010, Sherbrooke (Québec) J1J 2E8
Courriel : bndt@RNCan.gc.ca Web : http://www.CITS.RNCan.gc.ca
Tél. : 1 800 661-2638 Téléc. : (819) 564-5698

EDUCATIONAL WEB SITES OF CCA MEMBERS AND COMPANIES

compiled by Roger Wheate (wheate@unbc.ca) , thanks for submissions..apologies for omissions (please send)

Companies and government departments with education component

Caliper Corporation (Peter Van Demark) *www.caliper.com* Maptitude GIS and TransCAD + Web versions
Canadian Geographic (Steve Fick) *www.canadiangeographic.ca* Articles on Canada and great maps
GeoData Resources (Anthony Bonnici) *www.GeodataResources.on.ca* Mapping with Microstation
ICA Cartography-Children Commission (Jacqueline Anderson) *artsci-ccwin.concordia.ca/geog/ica-ccwg.html*
IDRISI (Ron Eastman) *www.idrisi.com* GIS software with tutorials, workbooks, resources
Intergraph (Phil Dodds) *www.intergraph.com/schools/* GIS starter kit and data for GeoMedia
Statistics Canada (Carolyn Weiss, Lea Selley) *www.statcan.ca* educational resources for students / teachers
Tourism, Culture & Recreation, Newfoundland, (Damien Morrissey) *www.gov.nf.ca/parks&reserves/*

Universities with Cartography and GIS web sites

British Columbia (Brian Klinkenberg) *www.geog.ubc.ca/courses/klink/g370_470.html* GIS, cartography, links
opus.geog.ubc.ca/martha 'MARTHA' : Multimedia Arcview Research and Tutorial Help Assistant
Carleton (Anita Muller) *chat.carleton.ca/~amuller/* Internet based cartographic: iconography / symbolisation
Gavle, Sweden (David Douglas) *www.hig.se/~dds* programs, links, topographic rendering,
Iowa (Marc Armstrong) *www.uiowa.edu/~geog/health/* GIS and Public Health site, study of infant mortality
Indiana State (William D. Brooks) *www.indstate.edu/gga/gga_cart/index.html.* Links, interactive graphics site
Liege, Belgium (Jean-Paul Donnay, Bernard Cornelis) *www.geo.ulg.ac.be* Département de géomatique
Northern BC (Roger Wheate) *www.gis.unbc.ca* course notes in cartography, GIS and remote sensing
Penn State (Cindy Brewer) *www.essc.psu.edu/~cbrewer* interactive guide to use of colour in thematic maps
Toronto (Byron Moldofsky) *www.geog.utoronto.ca/cartweb/cartpage.html* Cartography Office and links
Waterloo (Barry Levely) *www.fes.uwaterloo.ca/gis* Cart-GIS (Joe Piwowar) */crs/geog376* remote sensing
Western Ontario (Patricia Chalk) www.uwo.ca/geog/facilities/cartogra.htm *Cart. Lab facilities, courses*
Western Ontario (Robert McDaniel, Prof. Emeritus) *publish.uwo.ca/~mcdaniel/weblinks/carto.html* ***(links!)***

University Geography departments with strong cartographic component

Chicoutimi (Majella Gauthier) *www.uqac.uquebec.ca/dsh* (Département des Sciences humaines, géographie)
dsf.uqac.uquebec.ca/teleair/ (Laboratoire de télédétection aérienne / Laboratory of airborne remote sensing)
Concordia (Jaqueline Anderson) *artsci-ccwin.concordia.ca/geog/geog.html* see also ICA commision above
Kent State (Ute Dymon) *dept.kent.edu/geography/* Remote sensing educational resources
Michigan (Judy Olson) *www.geo.msu.edu* Cartography, GIS and remote sensing research
Ryerson (Doug Banting) *www.geography.ryerson.ca* Geomatics courses and GIS modules for teachers
Syracuse (Mark Monmonier) *www.maxwell.syr.edu/geo/indexgeo.htm* Interactive Geography map, careers
Saskatchewan (Ka Iu Fung) *www.usask.ca/geography/index.htm* Atlas of Saskatchewan project
Victoria (Diana Hocking, Peter Keller, Erin Richmond) *office.geog.uvic.ca/index.shtml* digital Cart archive
Wilfrid Laurier (Grant Head) *www.wlu.ca/~wwwgeog/* GIS certificate, Geomatics education
www.wlu.ca/~wwwgeog/wlgpig/wlgpigmain.htm Grad program with Waterloo: courses/ research projects
Winnipeg (Brian McGregor) *www.uwinnipeg.ca/~mcgregor/* Cartography and GIS, moving maps

Map libraries

Alberta (David Jones) *www.library.ualberta.ca/subject/maps/index.cfm* Wonders Map Collection, resources
Memorial (Alberta Wood) *www.mun.ca/library/maps/* guides to ArcView/MapInfo, R.A.Skelton materials
Oregon (Aileen Buckley) *geography.uoregon.edu/gis* GIScience and mapping courses

Colleges: diplomas in Cartography and GIS

Algonquin, Ottawa (David Broscoe) *www.algonquincollege.com/gis* diploma and evening certificate course
Centre of Geographic Sciences, NS *www.cogs.ns.ca/department/is.html* GIS/RS/cartography diplomas
New Caledonia, BC (Joseph Morong) *www.cnc.bc.ca*/gis/*gishome.html* one year GIS diploma program
Sir Sandford Fleming, Lindsay (Tim Wykes) *gaia.flemingc.on.ca/nr/cart/welcome.htm* cartography, gallery

GIS
Three tenure-track positions
University of Calgary

The Department of Geography invites applications for three tenure-track positions in Geographic Information Science and its applications. These positions are part of a planned sequence of appointments relating to our new Masters in Geographic Information Systems (MGIS) program. All three positions are at the Assistant Professor rank and provide opportunities for successful appointees to contribute to an exciting new degree program. The first position begins January 1, 2001, while the second and third will start July 1, 2001. Applicants should hold a PhD degree at the time of appointment.

The Department is seeking expertise in any of the following areas: (1) GIS Geostatistics, (2) GIS and Remote Sensing Integration, (3) GIS Applications (including Health, Environmental Modelling, Urban, Spatial Cognition, Organizational Issues and Business Applications), (4) GIS, Community and Policy Applications, and (5) GIS, data, Standards, Access and Interoperability Issues.

The closing date for applications for the first position is **October 31, 2000** and for the second and third positions is January 29, 2001. Applicants should send a letter of application, a curriculum vitae, and arrange to have three letters of reference directly sent to Dr. Dianne Draper, Head, Department of Geography, University of Calgary, Calgary, Alberta T2N 1N4 (Fax: 403-282-6561).

Tenure Track GIS / Human Geographer
University of Manitoba

The Department of Geography at the University of Manitoba invites applications for a full-time tenure-track appointment, which is subject to final budgetary approval, at Assistant Professor rank in Geographic Information Systems (GIS) and Human Geography. The appointment will begin on July 1, 2001 or soon thereafter. The successful candidate must have a Ph.D. in Geography or related discipline by the commencement of the appointment. Candidates should have a strong background in applications of GIS to a field of contemporary human geography, such as (but not limited to) population geography, economic geography, social geography, urban geography, medical geography, and resource management. The successful candidate would be expected to teach undergraduate and graduate courses in human applications of GIS, research methods, and topics in human geography based on his/her area of expertise. Candidates must have a strong commitment to teaching and applied research in human geography.

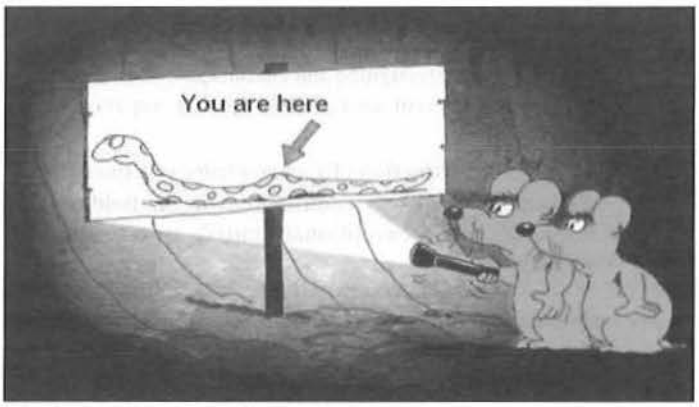
The successful candidate may participate in the Centre for Earth Observation Science (CEOS), a level-1 teaching and research facility located within the Department of Geography. CEOS has three teaching and research laboratories based on distributed Windows, NT, UNIX and Mac OS based computer platforms. CEOS is funded by grants, contracts and a baseline contribution from the Faculty of Arts, and conducts research programs on four different continents. Currently, CEOS has over 20 graduate students at the Master's and Ph.D. levels.

Applications, curriculum vitae, and three letters of reference should be sent to William Norton, Acting Head, Department of Geography, University of Manitoba, Winnipeg, MB, Canada R3T 2N2. Phone: (204) 474-9081; Fax: (204) 474-7699. Email: norton@ms.umanitoba.ca Deadline for applications: **December 31, 2000**.

GIS LECTURER
University of Toronto

The Department of Geography and Programme in Planning, University of Toronto, invites applicants for a teaching-stream position at the LECTURER rank in Geographic Information Systems commencing July 1st, 2001. Under university policy, appointees to teaching stream positions may be eligible for a continuing appointment after five years. The successful candidate will direct development of GIS teaching and laboratory components in our undergraduate and graduate programs that cover all aspects of geography, planning and urban design. Responsibilities include teaching introductory GIS and participation in cross-disciplinary GIS teaching and research initiatives within the Faculty of Arts and Science. The successful candidate will have graduate training in Geography and GIS, at least to the Master's level and preferably to Ph.D., and some teaching experience. Applications should be accompanied by a file explaining the form, content and methods of this teaching experience.

Candidates should send their curriculum vitae, statements of teaching specializations, other evidence of professional accomplishments, as well as arrange to have letters from three referees forwarded, before **November 15th, 2000** to: Professor Joseph Desloges, Chair; Department of Geography & Programme in Planning; University of Toronto; 100 St. George Street; 5th Floor, Sidney Smith Hall; Toronto, Ontario; Canada M5S 3G3 (Please note that no email applications will be accepted.)



Thanks to Julie Rice for the "smile"

GIS 2001, the 15th Annual GIS Conference, will return to beautiful Vancouver for a milestone event. The fast pace of technological advances that profoundly affect our industry warrant a yearly face-to-face meeting and **GIS 2001** provides the ideal space and time for the exchange of knowledge, data, news and opinions on the past, current and future state of spatial technology.

The conference theme, "***Branching Out: Spatial Technology Goes Mainstream***," reflects the exciting results of a great number of recent technological advancements that have enabled the industry to branch out from islands of information to mainstream information technology. These advancements include strong progress on GIS interoperability, spatial data storage in commercial relational databases, Global Positioning System integration, high-resolution satellite imagery and the use of the Internet for data dissemination and web-based mapping. **GIS 2001** will explore and explain the implications of each of these advancements as GIS enters the world of mainstream information technology.

GIS 2001 is Canada's foremost applications-focused conference showcasing spatial technology solutions. Whether you work in government, industry or research you will find themes and sessions that will address how to integrate GIS and associated technologies into your work. Whether you have responsibility for forestry, fisheries, wildlife or environmental management, communications, utilities, municipal or local government, business, health or community issues – you will find solutions that address your interests at **GIS 2001**. Please join us for what promises to be the best GIS Conference ever!

Febuary 19 to 21, 2001 - Please visit the conference Web site at **www.GIS2001.com** for further details or contact **Matt Ball, Show Manager at 303-544-0594, E-mail: info@GIS2001.com.**

CCA AWARDS

The Canadian Cartographic Association presents several awards each year to deserving members of the cartographic community which it serves. These awards are meant to recognize and encourage the achievements of outstanding individuals in the field.

- **President's Prize Student Competition** ($100 prizes in several categories)
- **Norman Nicholson Memorial Scholarship in Cartography** (To recognize and encourage exceptional student achievement and ability in any aspect of cartography.)
- **Awards of Distinction** (To acknowledge exceptional professional or scholarly contributions to the field of cartography or an exceptional contribution to the Association.)

For information about eligibility and how to apply or nominate individuals for these awards see the CCA web site: *www.geog.ubc.ca/cca* or contact any member of the executive.

PRIX de l'ACC

L'Association canadienne de cartographie présente, à chaque année, plusieurs prix à ses menbres méritants. L'attribution de ces prix a pour but de reconnaître et d'encourager l'accomplissement exceptionnel d'individus dans le milieu cartographique.

- **Le prix du Président pour la compétition des étudiants** (Des prix de $100 pour différentes catégories.)
- **Bourse Norman Nicholson** (Bourse attribuée afin de reconnaître et d'encourager un étudiant pour son accomplissement exceptionnel et ses capacités dans tous les aspects de la cartographie.)
- **Prix de distinction** (Prix pour reconnaître les contributions professionelles ou académiques exceptionnelles dans le domaine de la cartographie ou pour une contribution exceptionnelle à l'Association.)

Pour de plus amples renseignements concernant l'éligibilité, comment postuler ou proposer un candidat pour ces prix, s'il vous plaît, veuillez visitez le site web de l'ACC à l'adresse URL suivante : *www.geog.ubc.ca/cca*, ou veuillez contacter un membre du comité exécutif.

The Canadian Cartographic Association
L'Association canadienne de cartographie
www.geog.ubc.ca/cca

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The CCA was founded in 1975 to promote interest and education in maps and cartographic data, and to provide for the exchange of ideas and information, at the regional, national, and international levels, via meetings and publications. Membership in the Canadian Cartographic Association is open to all individuals, and public and private institutions which have an interest in maps and the aims and objectives of the Association. Membership is available in the following categories at the annual rates listed below ($CND):

Regular	$80
Student	$40
Institutional	$100
Corporate	$200
Family	$95
Retired	$40
Associate	$40

To cover mailing costs US residents please add $5 CDN and Overseas residents please add $10 CND to the appliciable membership catatgory.

Members receive the quarterly journal *Cartographica*, published by the University of Toronto Press and endorsed as the journal of the CCA; four issues of *Cartouche*, the CCA newsletter and the International Cartographic Association Newsletter. The Association also provides an annual conference to promote discourse and access to a range of expertise through the interest groups and regional contacts.

For further information about membership qualifications and benefits contact the membership coordinator or any executive member or visit www.geog.ubc.ca/cca

L'ACC a été créé en 1975 pour promouvoir les intérêts et l'enseignement des cartes et de la cartographie ainsi que pour permettre l'échange d'idées, d'informations tant sur les plans régionaux que nationaux et ce via des bulletins et des conférences. L'adhésion à l'association est ouverte à tous les individus et institutions (privées et publiques) qui sont intéresés par les cartes et par les buts et objectifs de l'association. Vous pouvez adhérer dans les catégories suivantes selon les taux indiqués (cdn$) dans la liste ci-dessous :

Régulier	$80
Étudiant	$40
Institutionnel	$100
Société	$200
Famille	$95
à la retraite	$40
Associé	$40

Un montant de 5$ (cdn$) est ajouté pour couvrir les frais postaux aux membres américains (É-U) et de 10$ (cdn$) pour les membres outremers.

Les membres recoivent la monographie trimestrielle Cartographica, publiée par le University Toronto Press; 4 numéros du bulletin de nouvelle Cartouche et le bulletin de nouvelle de l'Association cartographique internationale (ACI). L'Association organise également une rencontre annuelle avec des conférences qui donne accès à l'expertise issue des groupes d'intérêts et des diverses régions du pays.

Pour plus d'information concernant l'adhésion et les bénéfices de l'association, contactez le coordonnateur des adhésions ou l'un des membres de l'exécutif ou encore, visitez notre site Internet *www.geog.ubc.ca/cca.*