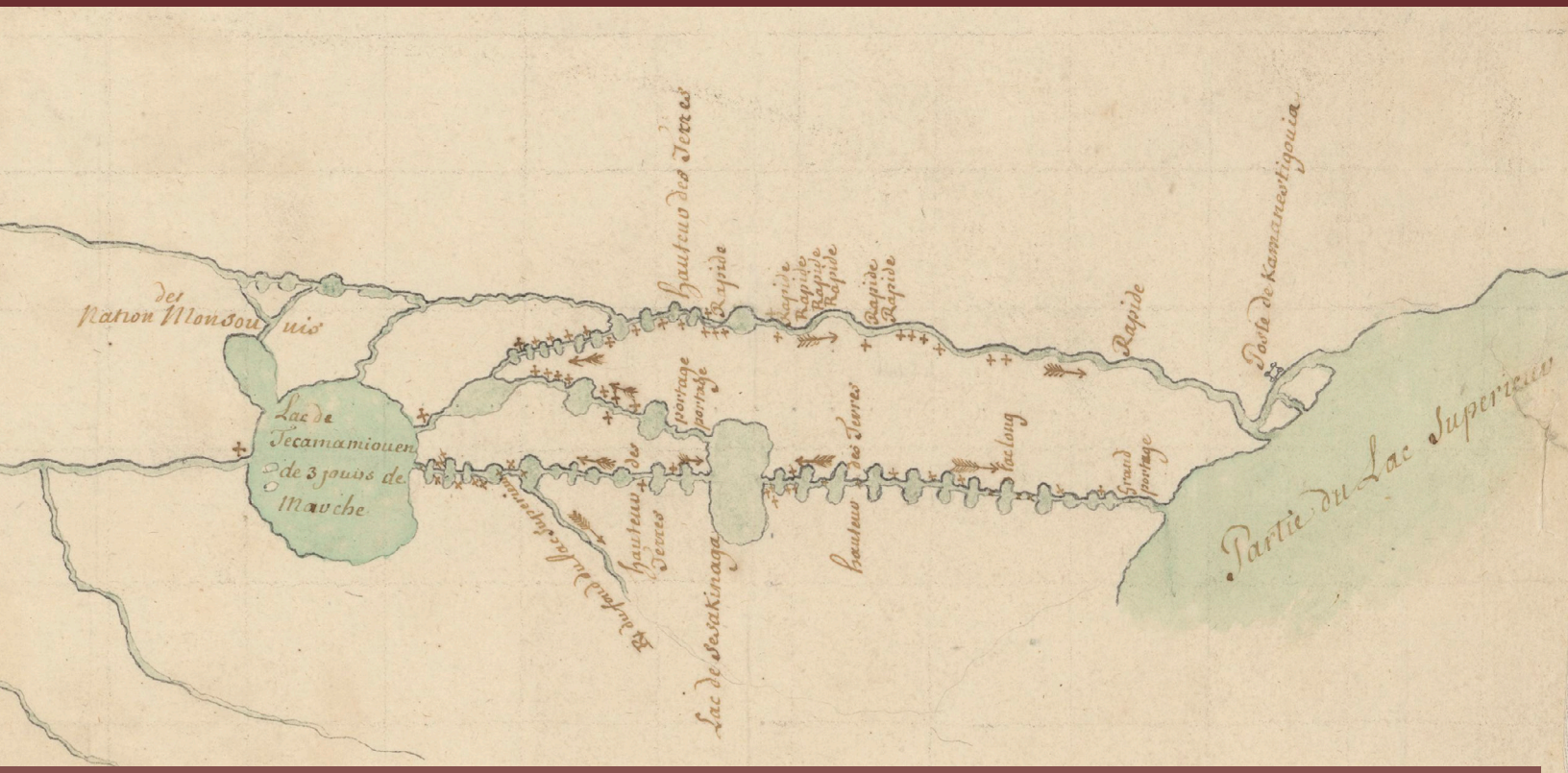
CARTOUCHE

CANADIAN CARTOGRAPHIC ASSOCIATION



Ochagach (Cree); La Vérendrye, Pierre Gaultier de Varennes, sieur de (1685-1749); L'Isle, Guillaume de (1675-1726) [ca. 1728]:

"Cours des rivières, et fleuves, courant à l'ouest du nord du Lac Supérieur, suivant la carte faite par le sauvage Ochagac et autres, reduite dans celle cy sur une meme Echelle." Bibliothèque nationale de France, département Cartes et plans, Ge DD 2987 (8696 B)

For more information about this map refer to the notes on the next page, below the table of contents.

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On the cover of this issue:

As part of the CCA's "Mapping From Home" virtual event held in June 2020, both Daniel G. Cole, GIS Coordinator and Chief Cartographer, Smithsonian Institution, and David Malaher, Centre for Rupert's Land Studies, University of Winnipeg, gave presentations that referred to the mapping of western trade routes by Ochagach/Auchagah, a Cree guide, and others of his nation. The image on this issue's cover shows a detail from one of the copies made from Ochagach's sketch map. Visit the CCA website to explore more material (abstracts and presentation slides, maps, and other images) from the virtual conference, from Daniel, David and the other presenters:

https://cca-acc.org/mapping-from-home-virtual-event.html

PAST PRESIDENT'S MESSAGE

Monica Lloyd

CCA Past President Monica Lloyd
is an instructor at the Centre Of Geographic Sciences
in Lawrencetown, Nova Scotia

In 2019 we celebrated our 44th annual conference in beautiful Prince George, BC. CCA2019 Mapping Our Values: Social, Historical and Natural was hosted by our colleagues at UNBC Roger Wheate and Scott Emmons. Roger, Scott and their team put together interesting presentations rich in history of our Indigenous People of Canada, technology talks on collecting data with LiDAR and even specific sessions on BC mapping. We were pleased to have cartographer Chris Brackley share his mapping journey while creating the Indigenous Peoples Atlas of Canada. During the conference we awarded Chris with the CCA's Award of Distinction recognizing his exceptional contributions to the field of Cartography. We were happy to hold this conference in conjunction with the local northern BC GIS users group. We got to take in the local scenery with hikes around the campus, tours downtown, wine tasting and a field trip to historic Barkerville. Thanks again to our sponsors SparkGeo, TDB Consultants Inc. and of course Esri Canada for your continued support at our events.

CCA2020 was scheduled to be held in Victoria, BC as a joint conference with the Canadian Association of Geographers (CAG) and the Association of Canadian Map Libraries and Archives (ACMLA). As with most events in 2020, it was cancelled. The CCA executive would like to thank members of the CCA Victoria local organizing committee Roger Wheate, Shane Doddridge and Daniel Brendle-Moczuk for their time preparing for this event. In lieu of face to face, our 2020 event transformed to a virtual "Mapping from Home" event. Inspired by Daniel Huffman's How to Do Map Stuff day-long virtual event we had eight presentations and over 160 participants. We received positive feedback from this event and the executive is looking at hosting more online presentations in the coming months. Thank-you to Chris Storie and Roger Wheate for helping to make this event happen. Both conferences were well attended although it is difficult to compare a face to face conference with presentations solely online.

Our treasurer Byron Moldofsky led the executive team in registering our organization as an official non-profit corporation. This move to incorporate was triggered by our newly adopted online payment processing for membership subscriptions and event payments. Updated constitution and updated association by-laws have been written to comply with requirements to incorporate the CCA as a non-profit corporation. These updates were reviewed by an experienced committee to ensure updates met incorporation requirements. The constitution and by-laws were distributed to all CCA members in August as an attachment in the first notice of our AGM. A vote to accept this proposed change was held at our AGM September 9th. Thank you to this committee for all your efforts on this project.

Other business related to our updated constitution and by-laws includes creating three official director positions of President, Vice President and Treasurer. We have always had these positions on our executive; however, the corporation requires that they be named as directors. A vote at the AGM, preceding the constitution/by-law vote, accepted incoming President Ted MacKinnon, Glenn Brauen into the director position of Vice President and Byron Moldofsky as the Treasurer. I have stepped into the Past President role as Julia Siemer finished her term. Thank you, Julia, for your commitment to the CCA over the past six years. We have found that serving multi-year terms allows volunteers to get comfortable in an executive position. Through this time, we gain new friendships, expand our horizons, and are challenged to modernize the association.

This year your executive team has strategized marketing the CCA. Our webmaster Ted MacKinnon, with the help of Anna Jasiak, has worked to modernize our website. The next phase of the website project is to add more cartography related content. If you would like to contribute, please get in touch with Ted or Anna. Our aim is to build a website that showcases mapping projects, opportunities to learn more about cartography and related subjects.

Another marketing project the executive is working on is supporting student meet and greets across the country. A small marketing budget has been set aside to support student events and to generate CCA promotional material. We would ask you, our membership, to watch for these networking opportunities. If time permits, please help the CCA promote cartography to students and those interested.

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As your outgoing President, I would like to thank Roger Wheate and Byron Moldofsky for their mentorship over the past four years. I have enjoyed my time working with the executive and meeting new people from across the country who share a passion for mapping as I do. I encourage our membership to volunteer when you can but most importantly share the wonderful cartographic work that you are doing with the CCA membership and beyond. It is by sharing our expertise we can help improve the maps we make. We can learn from each other and inspire others to map stories unfolding around us. I encourage you to become involved no matter how big or small your contribution. Every bit helps spread the word about making good maps and telling our stories through maps.

I look forward to our upcoming virtual conference to be held Spring of 2021. If COVID restrictions allow, we may have a small group meet at the same time in Fredericton.

If you are interested in getting involved, please get in touch at Contact Us on our website.

Monica Lloyd
Past-President
Canadian Cartographic Association

Canadian Cartographic Association
l'Association canadiene de cartographie

Canadian Cartographic Association Awards of Distinction

The Canadian Cartographic Association (CCA) Awards of Distinction program was initiated in 1994 to help recognize individuals or groups who have made exceptional contributions in the field of Cartography in one of three categories:

1. Exceptional professional contributions to the practice of cartography
2. Exceptional scholarly contributions to cartography
3. Exceptional contributions to the Canadian Cartographic Association.

Nominations for future awards may be forwarded by any CCA member to the Past-President or any member of the CCA Executive.

Note: Awards of Distinction are not necessarily awarded every year.

Visit the CCA website to view lists of all the distinguished recipients from over the years, as well as links to other CCA awards and scholarships.

PRESIDENT'S MESSAGE

Ted MacKinnon

CCA President Ted MacKinnon
is a Geomatics Specialist with the
Department of Natural Resources

Welcome to the latest issue of Cartouche. On behalf of the CCA executive I would like to thank the editors of Cartouche and all who contributed.

I would also like to thank all the courageous healthcare workers, frontline workers, and other Canadians who made difficult but necessary sacrifices during the past year. I'm sure most would agree that 2020 was a year unlike any other. All across our country, Canadians stepped up to help out, and despite the challenges, there remains much to be grateful for heading into 2021.

The COVID-19 pandemic affected all aspects of life here in the Canada and around the world. Most of us had to adjust where and how we work, and the annual CCA conference got cancelled due to the nature and size of the event. Despite the loss of the conference, a small team of volunteers came together to host a one-day online mapping initiative that resulted in over 160 attendees. It perhaps helped represent a true national presence where members could attend from virtually anywhere.

With a country as big as Canada, we sometimes forget how challenging it is for some to travel and as a result often many conference attendees are members who only participate when the conference is hosted near their region. Virtual events like the online mapping event allow participants to attend from all over Canada.

We recognize that uncertainty because of this pandemic will still be still affecting people in countless ways in 2021. Therefore, the CCA Executive has decided to avoid any possible event cancellations and host the upcoming CCA conference online as well. This year's theme "Connecting the Dots for Multi-Dimensional Mapping" will bring together the geospatial community from across the country and beyond, and we encourage you to make plans to join us online in May.

Like most professional associations, the CCA has experienced a significant drop in membership over the years, despite the fact that our industry is larger than it has ever been, thanks to advances in mobile mapping technology and other sectors recognizing the importance of location data.

Most of us know someone else who has a passion for mapping but isn't currently a member of the CCA, therefore I would like to challenge everyone to encourage at least one other person to join the CCA this year (for more information about membership, see the CCA website http://cca-acc.org/membership). Together we can make the CCA a strong e-knowledge networking organization involving Canadians coast to coast who love some aspect of mapping.

Ted MacKinnon
President
Canadian Cartographic Association

The mission of the Canadian Cartographic Association (CCA) is to promote the disciplines and professions of cartography and Geographic Information Science.

VICE PRESIDENT'S MESSAGE

Glenn Brauen

CCA Vice President Glenn Brauen
is an Associate Professor, Teaching Stream
in the Department of Human Geography
at the University of Toronto Scarborough

Fifteen years later: reflecting on a 30 year retrospective

The CCA website has been revamped and is looking great! Among announcements for ongoing events and organization materials the website also contains an archive of Cartouche going back about 15 years. It's an interesting collection to browse when thinking about the CCA's goals and objectives, who has contributed over the years and how. Those topics have been on my mind recently as I thought about how I might contribute.

One of the earlier issues in the archive, Cartouche #60 from Winter 2005, is a thirtieth anniversary retrospective of the founding of the CCA along with reflections from then current and former executive members concerning the situation and prospects for cartography as a profession and the CCA's role. Rick Gray discussed cartography and cartographers' roles in the technological milieu of 2005 and ways in which the CCA might proactively study the opportunities offered by new tools to remain relevant and to be seen as such. Ute Dymon wrote about her concerns for maintaining or growing CCA membership, the importance of outreach to students and the role of educational institutions and of CCA members in teaching positions in promoting the CCA. Sally Hermansen highlighted the ongoing relevance of teaching the principles of cartography despite changes in the tools and media within which those are applied. Although the situation described by these authors seems familiar to me and remains timely, the details and terminology associated with activities and emerging professions that overlap with the role of a cartographer continue to change and are often developed without input from cartographers. Sally Hermansen noted the then recent launch of Google Earth and, as we know, that had and continues to have a profound influence on activities and concerns within the profession (e.g., crowdsourcing, big data, data science, DIY visualization).

And yet we continue. Cartographers and GIS practitioners continue to find roles in or with a wide variety of organizations. Students looking for co-op placements and new graduates with knowledge of geography and mapping continue to report to me that they can find entry-level jobs out of university or continue into graduate studies based on skills, knowledge and attitudes they have gained through their studies. In the Department of Human Geography at University of Toronto Scarborough, we teach principles of cartography, data creation and management, spatial statistics, and cartographic modelling along with broad digital literacy skills all packaged as part of a GIS program. We constantly discuss what we are doing and what we need to introduce or change to ensure that our courses benefit our students in their further studies and endeavours.

Another item in Cartouche #60 that caught my attention was Henry Castner's discussion of the CCA logo, a regular icosahedron labelled with the organization's initials nested inside a regular dodecahedron (see the cover image, Cartouche #60), variations of which had been used up until then. A still newer variation continues to be used on our updated website. Citing the use of regular shapes in general as the basis of map projections and the Buckminster Fuller projection using a modified icosahedron, Henry Castner wrote that the logo design was intended to connect the fundamentals of cartography with a philosophical intention concerning the activities and outlook of the CCA:

"The reference to the Fuller Map suggests an organization which is open to experimentation and change, and one which takes a flexible and open approach to the development of ideas about cartography. Placing the icosahedron within the dodecahedron reminds us that while we are a `world' of our own, we also operate within other `worlds'." (p.5)

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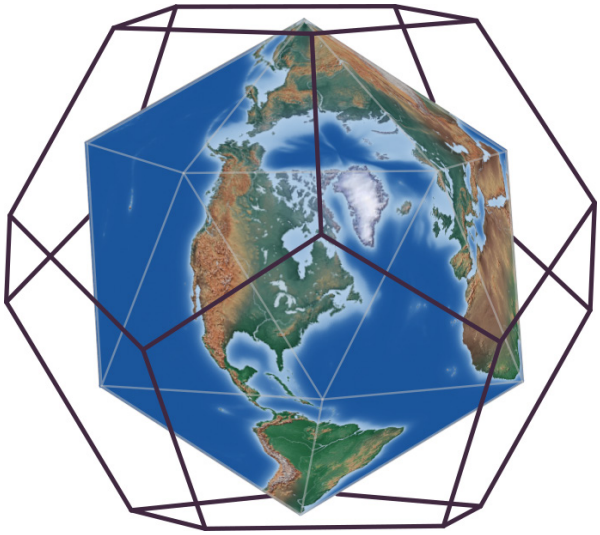
As each of us develops our own career and those of us interested support and contribute to the CCA, I think it remains important that we continually ask what we are doing that is valuable and works and what current issues need consideration. My reading of Cartouche #60 along with my memory of discussions at annual meetings convinces me that these ideas have been and should continue to be a concern of the CCA executive and membership.

The CCA is an important part of my professional network, helping me to develop my understanding of mapping in Canada, connect with people who believe as I do that maps are wonderful things, and that cartography needs to be taught and learned regardless of the media chosen. As a post-secondary educator, I plan to continue pointing potentially interested students at the CCA and am open to suggestions of other ways that we can reach out to all interested people.

If you are not a member of the CCA and are interested, I encourage you to join. Whether you are a member, please forward this invitation to anyone you know that might be interested. I welcome your thoughts concerning the mandate and activities of the association and your ideas on how to further or update those. You can reach me at glenn.brauen@utoronto.ca.

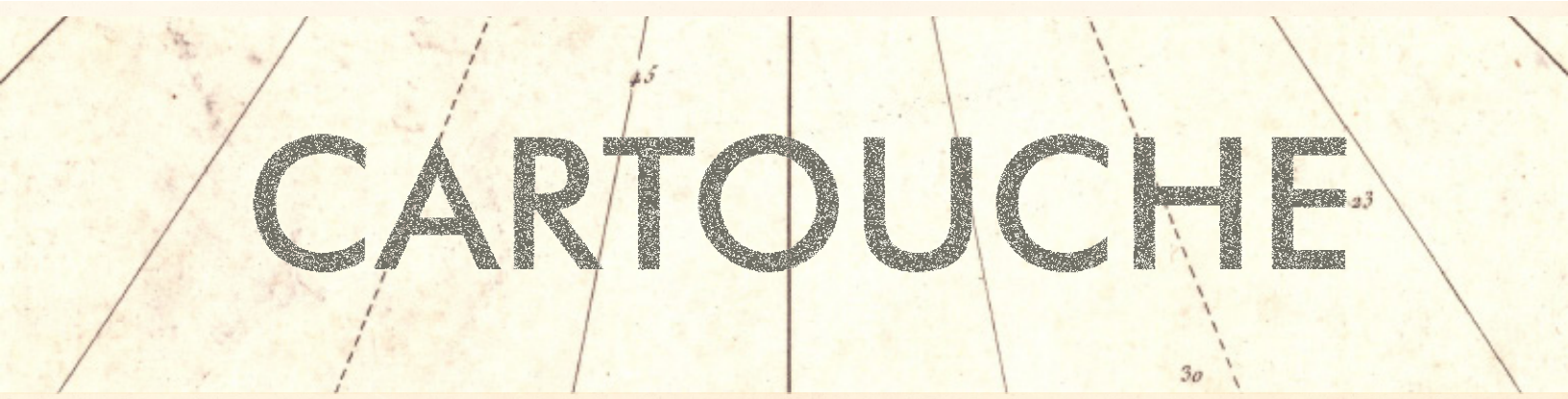
Glenn Brauen
Vice President
Canadian Cartographic Association



Perspective view of folded Fuller projection within the CCA's logo framework. Icosahedron and dodecahedron framework traced from the cover of Cartouche #60.

Hypsometric tinted Earth imagery from Natural Earth (https://www.naturalearthdata.com/).

Tools used: ArcGIS Pro, Gnu Image Manipulation Program (GIMP) and Inkscape.



Cartouche is the Association's published newsletter, that includes updates by the executive committee, news about conferences and events, member submitted articles and much more.

CCA members receive Cartouche as part of the membership. Current versions are sent directly to members, and past editions are added to the website: https://cca-acc.org/cartouche

CCA Annual Conference

Connecting the Dots for Multi-Dimensional Mapping

May 25 - 27, 2021

CCA is planning to host our annual conference at the University of New Brunswick, Fredericton, New Brunswick, and online simultaneously in the expectation that travel and gathering restrictions will still be in effect due to COVID-19.

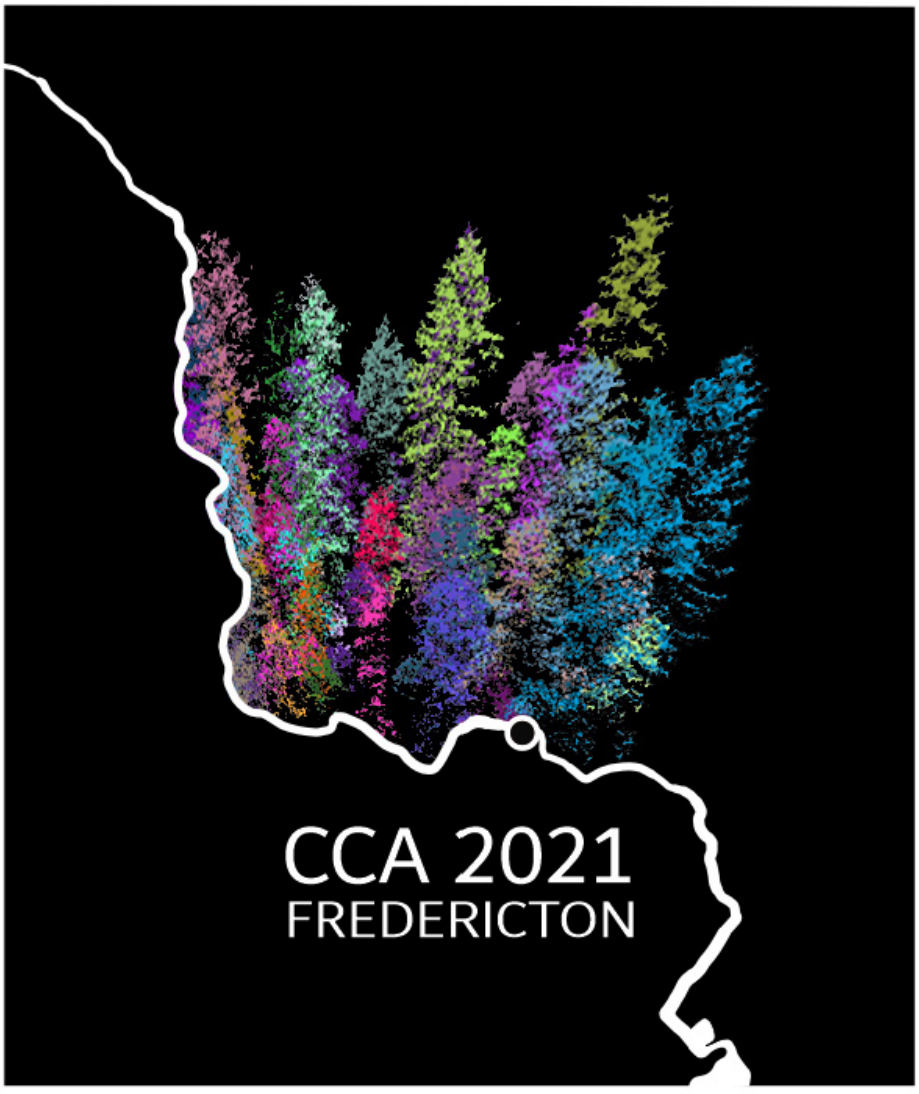
This year's theme, "Connecting the Dots for Multi-Dimensional Mapping," aims to bring together the geospatial community from across the country and beyond. Participants from all areas of geospatial related disciplines are welcome to submit individual abstracts.

We invite submissions for presentations and technical sessions in a variety of topics, including LiDAR technology, web mapping, flood mapping, forestry mapping, Indigenous mapping and more.

Presentations on any topic relevant to cartography, geomatics or geographic information are welcome.

Updated information will be published at:

https://cca-acc.org/conferences/current-conference



An announcement of key dates will be posted on the CCA web site, and shared via the email list, in January 2021.

Special thanks to conference coordinators: Thomas Herbreteau and Gordon Campbell.

CCA 2021 logo designed by Gordon Campbell

CCA Annual Treasurer Report

Byron Moldofsky

Treasurer Update

The detailed 2019 Financial Year Report was submitted to the Executive in July 2020 and tabled at the Annual General Meeting in September. It is available to members by request, just email cancartassoctreasurer@gmail.com. The first page has highlights and notable items, summarized here:

• Total accumulated assets of the association remain at over $50,000. In 2019 the association's total revenues exceeded expenditures by over $500.

• Main revenue: Membership and Annual conference. Actual number of members stayed near constant in 2019, not including conference-related memberships. Conference broke even.

• We successfully awarded President's Prize, Best Presentation and Webmap awards in 2019 to deserving student recipients. Designated awards funds remained stable. We did not award the Nicholson scholarship.

• Term deposit GICs (including general association, Nicholson Fund and Carto-Québec) continued to earn interest. This was less than 2018 due to deferred interest on locked-in GICs.

• Last page of report outlines Association-specific holdings and Other designated assets, primarily scholarship funds. The designated funds are mostly in GICs and total almost $19,000.

Prospects for 2020

My biggest job this year - with the help of the Executive Committee - was managing the revision of the Constitution and by-laws. We needed to do this to make the Association a non-profit corporation so we can accept money online for memberships, etc. This also required changing our bank account to a "commercial" account instead of a "community" account. This will cost a bit more in fees but also was inescapable. I wanted to thank the entire Executive Committee, but especially past president Julia Siemer and her husband Tim, for their assistance and guidance in going through this process.

Of course, this year our annual conference was cancelled due to COVID-19 – so no revenue will be forthcoming from the conference or from its replacement, the Online Day of Presentations which took place June 10, 2020. Fortunately, we do not have any cash flow problem because of our accumulated funds – our financial picture looks essentially the same today as at the end of 2019. What we have instead, as we have said in the past, is the enviable challenge of what kind of programs or infrastructure we should spend money on, in order to grow the association, maximize benefit to our members, and hopefully attract future members. So I would like to put out a call for creativity and innovation to the membership – contact any of the executive with your ideas, and they will be well-received. Thank you.

- Byron Moldofsky

CCA Annual General Meeting
Wednesday, September 9, 2020

Summary of Discussions

The session was held using Zoom facilities provided by University of Winnipeg and managed by Christopher Storie. Full reports from the executive are available on the association web site:
https://cca-acc.org/membership/agm

Welcome and Reports from CCA President:
Monica Lloyd
Monica Lloyd welcomed all CCA members and provided a summary of association activities since the last AGM:

- UNBC Conference 2019,
- the planning for 2020 conference in cooperation with ACMLA and CAG that was cancelled due to COVID-19, and
- the successful "Mapping from Home" event planned as a replacement for the conference.

Monica thanked Ted MacKinnon and Anna Jasiak for their updates to the CCA website and thanked Byron Moldofsky and Roger Wheate for their mentorship during her time in office.

Treasurer's Report and Summary of Finances:
Byron Moldofsky
The important achievement this year for Byron was the updating of the CCA Constitution. Byron would like to thank Julia Siemer and her husband for their assistance. The updated Constitution is here:

https://cca-acc.org/wp2020/wp-content/uploads/PROPOSED-CCA-Constitution-and-By-laws-2020_07_07.pdf

Membership Report:
Roger Wheate
Membership is steady at about 100 for the last several years; access preferences for Cartographica are about evenly divided between online and print: Print 42, Online 41, both 4. In line with other associations not growing in numbers, we focus more on providing an open venue for cartography and cartographers to interact and spread ideas and information.

June 10 'Mapping from Home' half day event:
Roger Wheate
As described elsewhere in this newsletter, this event resulted from the cancellation of the annual meeting planned for May in Victoria due to COVID-19. Many thanks to the seven speakers from the CCA, ACMLA and CAG-GIS, the attendees and the organizers! See the full summary of the event.

Cartouche:
Roger Wheate
We have dropped from four issues per year in the pre-internet era, to two and more recently just one in most recent years. We invite submissions for the current issue on member activities, ideas and research, or any items of interest. Email: glenn.brauen@utoronto.ca or roger.wheate@unbc.ca

Cartographica:
Emmanuel Stefanakis
The ICA has a new publication of the proceedings from their conference called the International Journal of Cartography. The ICA intends to still provide some articles for Cartographica as one of three affiliate Journals. There is a need to attract more articles for Cartographica, have more guest-editors and connect the journal to other conferences.

Website Update: Ted MacKinnon
Ted announced that the CCA website has been updated. The website is still a work in progress so feedback is welcomed as well as more maps for the site. Ted thanked Anna Jasiak for her assistance in updating the website.

New Business: Monica Lloyd
a. Election of Directors
Ted MacKinnon was elected as the incoming association President and Glenn Brauen was elected as the incoming Vice-President. The motion carried unanimously.

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b. Adoption of updated constitution
The new constitution that had been distributed to members during the summer of 2020, written to comply with requirements to incorporate the CCA as a non-profit corporation, was adopted. The motion carried unanimously.

Monica thanked Julia Siemer for her time and service to the CCA.

Volunteer Opportunities with the CCA: Monica Lloyd

The CCA is looking for volunteers:

- to work on 2 Interest Groups: Mapping Technologies and Spatial Data; and Design and Geovisualization.
- to create website content such as blog posts, interesting projects, etc.

Student Map Competition and Awards: Monica Lloyd

Monica announced the winners of this year's Student Map Competition. Details are on the web site and elsewhere in this newsletter.

CCA2021 Virtual Conference and AGM: Thomas Herbreteau

The conference theme is "Connecting the Dots for Multi-Dimension Mapping."

May 25-27, 2021, Fredericton, New Brunswick. Planning mainly for a virtual conference with expectation of ongoing COVID-19 restrictions.

The invitation for submissions will be sent out to the membership in early 2021.

Adjournment

Monica thanked everyone for participating and the meeting adjourned.

After the AGM, Monica became our Past President while Ted MacKinnon stepped into the role of President.

While we look forward to the next time we can meet in person, here is a look back to some recent CCA events:

Map reading venture in the Maritimes: pre-banquet orienteering at Bridgetown, NS CCA2018

The last time we met: end of the last night at CCA2019, The Hub in Prince George, May 2019

End of the road for CCA2018 in the Maritimes: conference field trip to Grand-Pré, NS

End of the road for CCA2019; Wells, BC field trip.

‘Mapping from Home’: June 10, 2020
Virtual Conference Event

Roger Wheate and Glenn Brauen

In lieu of the 2020 annual conference, cancelled due to COVID-19, the CCA hosted a half-day, online event on Wednesday 10 June and invited speakers from the three associations which had planned to jointly hold annual conferences at the University of Victoria in May (CCA/ACMLA/CAG).

About 260 people signed up and about 160 attendees were simultaneously connected to view the wide variety of presentations (see list of presenters below). The online webinar software was provided by the University of Winnipeg and was co-hosted by Roger Wheate and Chris Storie. Attendees used the chat function to announce their arrival and cheerily greet other attendees across the country, continent and overseas, before and between presentations, and to add comments and queries on the speakers’ topics and content.

Dan Cole, GIS Coordinator and Chief Cartographer of the Smithsonian Institution, started the event with a keynote on “The Use of GIS and Historical Maps for Analysis of the Dynamic Native American Landscape”, a presentation planned for the original conference workshop. Dan provided a survey beginning with late 1600s historical maps showing knowledge of First Nations on the Central Great Plains of North America and continuing through to contemporary maps showing reserves and treaty areas, environmental hazards in relation to First Nation lands, and Indigenous language maps. Dan’s superb map illustrations – almost 100 of them – are available on the workshop webpage (link below).

Next, a “chair’s session” included presentations by Victoria Fast, University of Calgary, CAG-GIS study group chair and Daniel Brendle-Moczuk, University of Victoria, and President, ACMLA. Victoria’s presentation was titled “Accessible Mobilities: Mapping Barrier-Free Access on Campuses.” She presented her research intended to streamline map-making to highlight barrier-free access to public spaces, focusing on the development of classifications, data collection, map symbology and design to support improved campus planning. She showed an example map developed for the Nanaimo Campus of Vancouver Island University (available on the event page – see link below). Daniel presented a talk entitled “Simplicity in the time of complexity: Webmaps during COVID-19.” Daniel referenced cartographic literature in a survey of design issues seen in some web mapping efforts about the COVID-19 pandemic.

After a short break, a composite session started and ended with speakers from the ACMLA, two from the CAG-GIS group and sandwiched in the middle one from the CCA. Leanne Trimble, University of Toronto / ACMLA presented “Accessing our past: improving discovery / use of historical Census of Canada data and maps” in which she outlined a vision for an open, bilingual platform that would facilitate and encourage use of digital Canadian census collections. Liton Chakraborty (and co-authors), University of Waterloo / CAG-GIS followed with “National-scale flood risk assessment: GIS-based flood hazards exposure and vulnerability mapping at the census tract level across Canada” in which they studied the percentage of residential properties within census tracts exposed to flood hazards and carried out component analysis to map social vulnerabilities to flooding across Canada. Morgan Hite, Hesperus Arts, Smithers, BC / CCA presented “A Short Introduction to Creating Shaded Relief with Blender” successfully including a live software demonstration in the web conference. Christopher Hewitt (and co-authors), University of Saskatchewan / CAG-GIS presented “The 2011 Snowtober: A Cartographic Model of Social Vulnerability to a Winter Weather Whiplash Event.” The authors examined perceived impacts of an extreme winter snow event, as measured by the number of news articles referencing the storm and counties in which it occurred. The event closed with David Malaher, Centre for Rupert’s Land Studies, University of Winnipeg / ACMLA discussing “French Cartography West of Lake Superior in Relation to the Seven Years War.” David discussed the map of trade routes west of Lake Superior created by Auchagah and his Cree compatriots by 1730 and the copying of that map, more or less accurately by French cartographers during the following decades (see detail from one copy, front cover).

Event summary and links to content

Links to slides from the presentations and tutorials can be viewed on the event webpage:
https://cca-acc.org/mapping-from-home-virtual-event.html

Feedback and final thoughts

Feedback in the online chat and responses heard after the event suggested it was a great success with topics of interest being well presented using the online technologies and enabling many more people to attend than a face to face conference limited by available time and travel finances. We at the CCA are encouraged to do this more often regardless of whether we hold a regular annual conference. We also recognize that we might have attracted a greater number of attendees with more advertising on associated ‘map lists’.

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Event Abstracts

Dan Cole: This is an historical cartographic analysis of Native American and Euro-American relations throughout the center of North America. I will explore threefold the roles of government, academic, and tribal mapping, and bring them together with some findings concerning Native American land tenure, population and related activities. As can be seen, the historic and contemporary cartography has included, albeit selectively at times, spatial data on American Indian territories, land claims, villages, and populations, most of which required information from Native cartographers and other Indigenous informants. All of these issues are involved in the affairs of American Indians and First Nations in our countries and will be discussed to analyze the ongoing spatial activities across the dynamic landscape of Native America.

Victoria Fast: People with mobility-related disabilities—representing about 15% of the Canadian population—are often denied free and independent access to public spaces due to barriers that inhibit movement. This is especially apparent on post-secondary campus, and only 15% of Universities in Canada have a dedicated access map to help students navigate those barriers. Using four different University campuses, this project sought to streamline the barrier-free map-making process and develop a reproduceable method that any institution could implement. In this presentation, I will discuss the data typology development and data collection, map symbology and design, and analytics that supports better campus planning for people with disabilities.

Daniel Brendle-Moczuk: Although beauty lies in the eye of the beholder and thus very subjective, this one person's opinion will examine the plethora of COVID-19 web maps in regards to aesthetics, beauty and simplicity. While perhaps singing to the choir, this presentation will draw upon literature and some cartographic mapping principles from Wood, Robinson, MacEachren, Monmonier, Jones through to Field and Brewer with others in between. However, this session will not be academic but a visual treat as well as much needed humour as we examine some, (with apologies to Sergio Leone), good, ugly and outright bad examples of COVID-19 web maps.

Leanne Trimble: The Census of Canada is a key data source available to support both contemporary and historical research in this country. However, the important historical data embedded within printed maps, printed data tables, and early born-digital data files, remain challenging to access. In this presentation I'll review the work of the Historical Census of Canada Working group. We have a vision for an open, bilingual, Census of Canada research platform that would facilitate long-term access to print and digital census collections. I'll talk about our work so far on a census inventory, and our plans for the future, including making the inventory searchable online, as well as embarking on data "rescue" projects (digitization, format conversion, etc.) to improve access.

Liton Chakraborty: This study assesses social vulnerability to flood hazard exposure at the census tract (CT) level across Canada. Following the Cutter's hazard-of-place model approach, geographical information system (GIS)-based bivariate choropleth maps reveal the hotspots of flood risk at the CT level. Flood exposure analysis captures the percent of residential properties in a CT exposed to any of the fluvial, pluvial, and coastal flood hazards at the 100-year flood recurrence interval. The findings highlight the spatial patterns of social vulnerability to flood hazard, which critically helps policymakers identify geographic flood disadvantaged groups of communities in Canada.

Morgan Hite: Although shaded relief for mountain ranges was originally hand drawn by artists, we now have tools for creating our own digital hillshades in software such as QGIS and ArcGIS. However, the free animation software Blender is another exciting tool for creating shaded relief. Although designed to create animation sequences for film, Blender has a plugin (BlenderGIS) which allows the software to read a DEM, position light sources and shoot a single frame from overhead. Blender's light-bounce algorithms, adjustable light-sources, and surface materials give delicious results, but the software initially appears quite intimidating. I will demonstrate the basic method to produce hillshades in Blender, note the typical pitfalls, and the features a creative cartographer could go on to explore.

Chris Hewitt: Extreme weather events are expected to become more frequent due to rising global temperatures. One such event was the 2011 October snowstorm in New England, which left approximately 4.3 million people without power, and $900,000,000 in damage. Considering the spatial component of the storm and the vulnerability factors, geovisualization would be an ideal framework to investigate this event. Therefore, through a GIS analysis, the areas hardest impacted by the storm will be investigated. The results will be visualized as maps and discussed from a grounded visualization perspective. The conclusion will emphasize the importance of geovisualization in investigating extreme weather events.

David Malaher: This presentation will feature four maps by three French cartographers (Bellin, Danville and Bonne) which were issued between 1743 and 1757 to help their fur-traders cross the 450 km pre-Cambrian territory between Lake Superior and the western prairies. These maps were based on regional sketches by Pierre de La Verendrye and his Indigenous guide Auchagah, and sent to Quebec around 1730 from where they were forwarded to Le Depot de La Marine in Paris. Englishman John Mitchell copied their western information onto his map of 1755 claiming British rights in the northwest prior to the war of 1756-1763.

Reports from NACIS Annual Conference

Virtual Event

October 14-16, 2020

Jeff Clark, Clark Geomatics, Vancouver, BC

NACIS 2020 delivered an exceptional online experience, far-exceeding my expectations of what could be offered within a virtual environment. The two-track format worked smoothly, reducing viewing conflicts (allowing me to almost watch two presentations at a time). Highlights include the fantastic map gallery, Joe Milbrath's presentation on creating 3D maps for the NPS, Erica Knight's discussion about animating migration paths for Audubon, LaToya Gray's passionate session on redlining's legacy, and Travis White introducing his 'colour field guide'. My first foray into Slack was painless and proved to be an invaluable meet, greet and chat tool. All in all, a superb effort by the NACIS organizing team.

Lori Martin

I was very excited to attend the conference virtually as I have been wanting to attend a NACIS conference for some time. I thought it was very well organized and appreciated there only being 2 tracks: certainly made the decision making easier. I have to admit that I too attended more than one session simultaneously on at least one occasion! Even fit in a Skype call with a colleague during one (I did have to keep working while attending).

The Practical Cartography day was an awesome way to share work and it was refreshing that the presentations were by the people doing the work and not a sales pitch for a particular product. I particularly enjoyed the Mapping for Society Track on Friday morning and found the talk by Annita Lucchesi on "Spatial Data and (De)Colonization: Incorporating Indigenous Data Sovereignty Principles into Cartographic Research" very interesting. I also enjoyed the talks on critique and map review. The Black Girls M.A.P.P. presentation was very inspiring. The atmosphere was positive and encouraging. Slack was an excellent way to comment on presentations and connect with other attendees. I particularly noticed the pride with which each speaker presented their work. It was as if the organizers have been doing virtual conferences forever.

Certainly the best one I have attended to date.

Morgan Hite, Hesperus Arts

NACIS did this clever thing where each presenter (in his or her own house) simply joined a Zoom meeting, but all the Zoom feeds, including that of the session moderator, were spliced together by a third party, and fed into a YouTube stream. As attendees, we didn't have to join a meeting or mute our mics, etc. etc. We were simply watching a live stream. The fact that we weren't there in person was more than offset by the savings of travel and hotel, not to mention being able to switch to watching on my phone, and wander away in my pyjamas for a minute to make coffee. I'm sure this will get old eventually, but right now the novelty is fun. The only cost of attending was my NACIS membership.

Since there were two parallel sessions, I would keep one muted while listening to the more interesting one -- all the while chatting away to people in a Slack window. It's quite remarkable how quickly you can realize you want to switch to the other talk simply based on the slides you're seeing there.

I particularly enjoyed Leanne Abraham talking about satellite imagery, Joe Milbrath on 3D maps, Ellie Milligan on the CDC's online COVID mapping, Ned Drummond's talk on cutting maps out of wood with a laser, Rudo Kemper's talk on mapping indigenous oral histories, Arzu Çöltekin on the latest research in left-bias (not a political position, but which way we want to see the sun coming in on shaded relief), Nat Case on how he thinks about who he's making a map for, Daniel Huffman's discussion of map critique, Alex Tait on National Geographic's database and Jim Thatcher talking about notable cartography in tabletop games. Although initially the schedule seemed a little heavy on people from the commercial software and data companies, in the end free software and data were discussed quite a lot.

Super enjoyable: I would do it again.

https://nacis.org/annual-meeting/current-meeting/welcome-to-nacis-2020

FEATURED ARTICLES

In this issue we are pleased to present material from Kenneth Favrholdt (Heritage Consultant, Researcher, Writer and Educator), Claus Rinner & Luke Johnson (Department of Geography and Environmental Studies at Ryerson University), and Helen Zhang (GIS Student at University of Calgary).

Looking at Indigenous Territories on Historical Maps

Kenneth Favrholdt

The US Library of Congress has described ethnographic maps as

> *"…tools for portraying the organization and distribution of American Indian cultures. Ethnographic maps depict the distribution of Indian tribes with common ethnic affinities, and linguistic maps group them by common language characteristics. …indications of tribal range appear on a number of early maps, but the first systematic efforts to map the geographic distribution of Indian cultural groups did not begin to appear until the early nineteenth century"* (LoC website).

But, contrary to their statement that "most ethnographic and linguistic maps focus on cultural and language associations at the time of European contact and often do not reflect the migrations and adaptations that occurred either prior to or after the encounter," this brief survey shows how boundaries and groupings have changed on maps over time, even into the 20th century.

Former US Treasury Secretary, Albert Gallatin, founded the *American Ethnological Society*, and was an early nineteenth-century recognized authority on Native American languages. His 1836 map of Indigenous tribal distribution accompanied his study of Native American languages titled, "Map of the Indian Tribes of North America about 1600 AD along the Atlantic; & about 1800 westwardly." The map includes content of interest to Canadians. It also introduces the evolution of portraying of Indigenous territories over time (Figure 1).

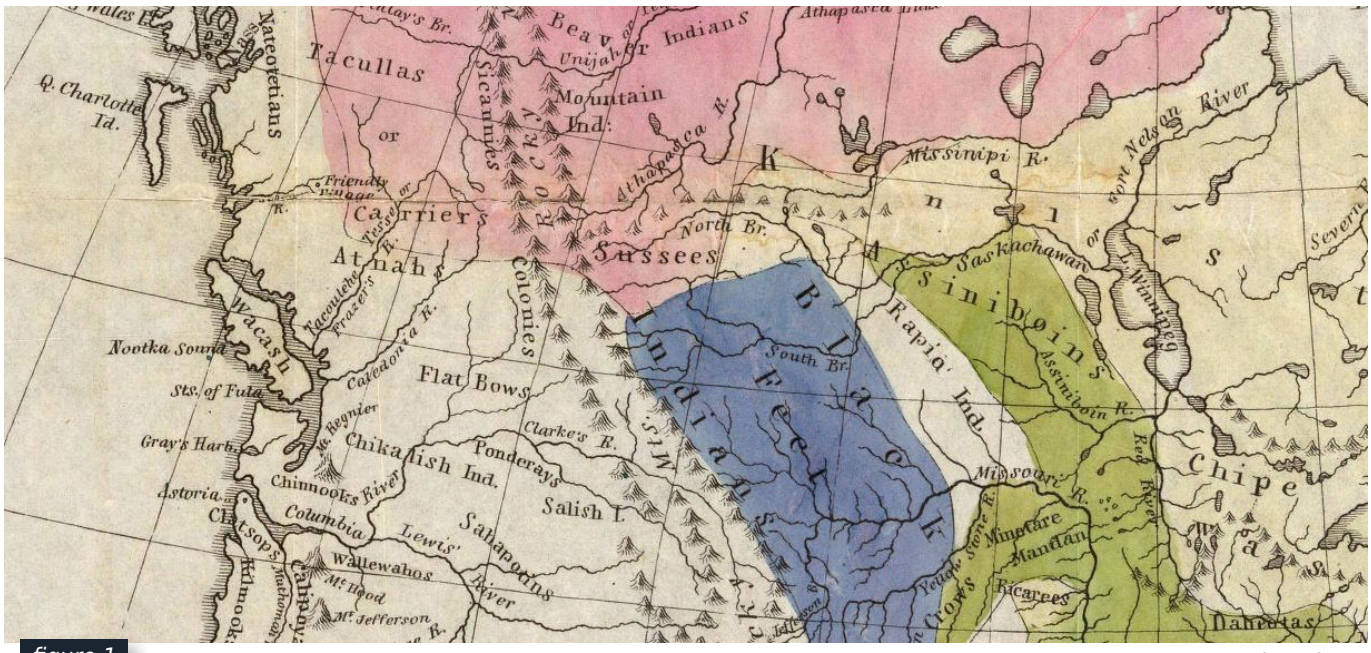

figure 1

continued on page 16

Another similar map to Gallatin's from 1844, "A Map of North America, Denoting the Boundaries of the Yearly Meetings of Friends and the Locations of the Various Indian Tribes [and] Aboriginal America, East of the Mississippi [complete with report]", *Religious Society of Friends towards the Indian Tribes*... [Quakers]" reaches the west coast and British Columbia.

Following the American lead, and explorations across Canada, tribal divisions were shown in a generalized way, without boundaries demarcated, until the latter half of the 19th century, such as observed in maps of British North America produced by the London-based Arrowsmith company. Their earliest map showing Indigenous territories across the continent is titled, "Aboriginal Map of North America, denoting the Boundaries and the Locations of various Indian Tribes. By John Arrowsmith (London). Published by British Parliamentary Committee report on the Hudson's Bay Company (1857)." The coloured map was made just prior to the sale of Rupert's Land to Canada and the end of the Hudson's Bay Company's dominion over tribal territories in what became Canada and the creation of the Colony of British Columbia in 1858 (Figure 2).

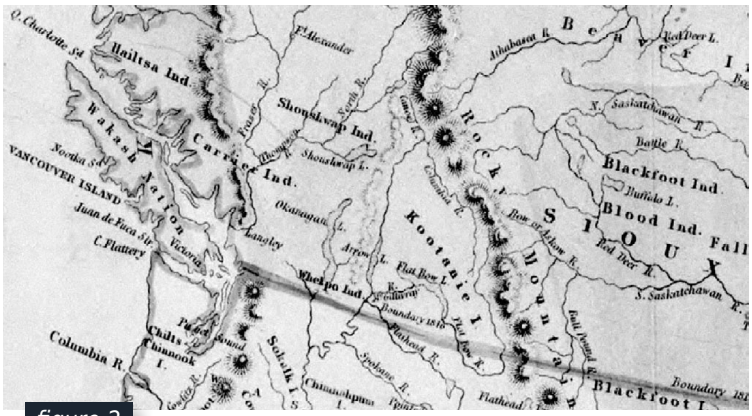

figure 2

Another cartographic work of particular note is the "Map shewing the Distribution of the Indian Tribes of British Columbia by W.F. Tolmie and G.M. Dawson," by the Geological and Natural History Survey in 1883, portraying the "Shewhapmuh" (Secwépemc) and Okanagan as a combined Selish [sic] group (Figure 3).

In 1891, American anthropologist Franz Boas produced a map to accompany George Dawson's paper, "Notes on the Shuswap People of British Columbia," which displayed their knowledge of Secwépemc territory and neighbouring peoples (Figure 4).

In 1894, Boas went to Spences Bridge on the Thompson River where he met rancher James Teit, who was married to a local Nlaka'pamux woman. Teit prepared

figure 3

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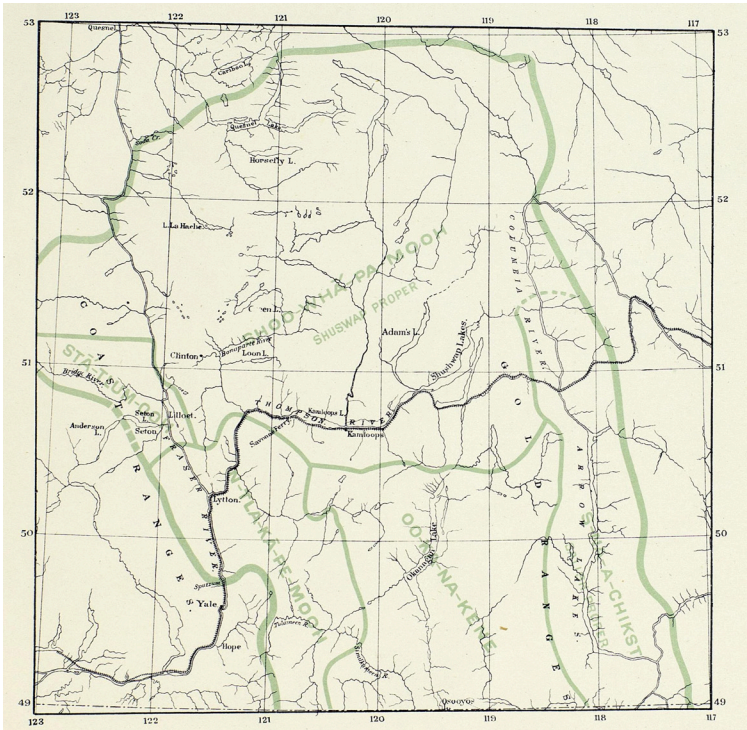

figure 4

a report for Boas and helped him when he returned in 1897, with funding for a systematic ethnological and archaeological overview of the relations between the Indigenous peoples of the Pacific rim of northwestern America and those of northeastern Asia, called the *Jesup North Pacific Expedition*, organized into research teams (Wickwire, 2003). Teit produced a number of papers on Indigenous culture and assisted Dr. Charles Frederic Newcombe of the B.C. Provincial Museum with various projects including development of an ethnological map of B.C. Newcombe was a physician but became an avid researcher and artefact collector for the BC Provincial Museum in the 1890s (Neary, 2005).

The map, produced by Newcombe in 1897, shows the distributions of "Athapascan, Dene, Salishan, Kootenaiain, Nootkan, Kwakiutl, Tsimshian, and Haidan people groups as determined by the BC Provincial Museum" (Figure 5).

As an ethnographer, Teit conducted extensive travel and inquiry around southern B.C. resulting in the production of monographs on the Interior Salish peoples, specifically the Thompson, Lillooet, and Shuswap, as they were called at the time, with accompanying maps. My focus is on the Secwépemc (Shuswap) and their traditional territory on Teit's map published by the American Museum of Natural History, under Boas, in 1909. Teit's map showing seven divisions of the Shuswap was likely sketched around 1905 (1909: 450) (Figure 6).

After the publication of the Shuswap monograph, Teit provided an analysis of his own maps, making some corrections to the territory of the Shuswap (Secwépemc) people. He reduced the area of the Shuswap Lake Division based on subsequent research. Referring to the 1909 map, in a letter to Newcombe April 1, 1910, "The Shuswap boundaries are all correct excepting part to the south but this is my mistake and not yours... last year I ascertained for certain the boundaries near

figure 5

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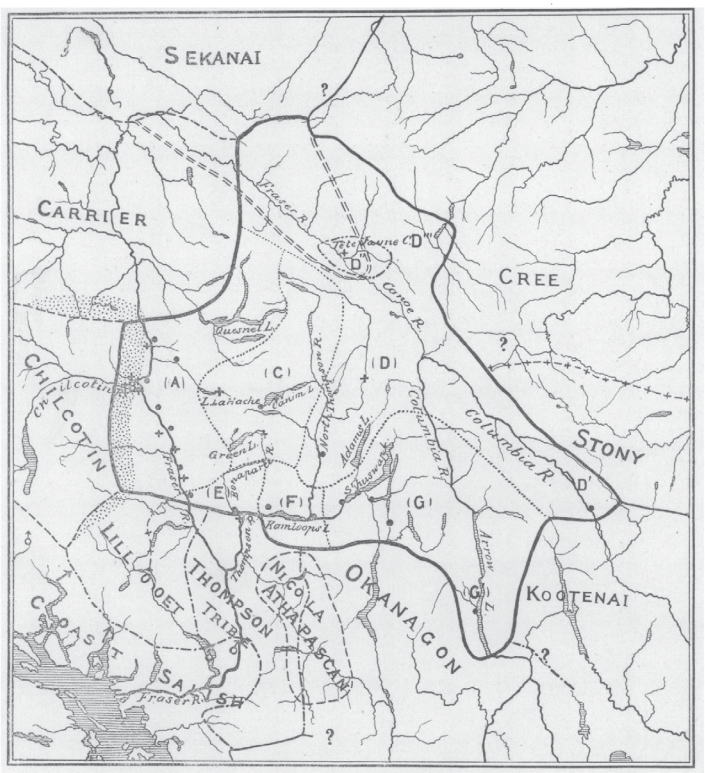

Fig. 199. Map showing the Shuswap Territory.

A, Fraser River Division.
B, Cañon Division, territory now largely occupied by the Chilcotin.
C, Lake Division.
D, North Thompson Division.
D′, Kinbasket.
D″, Former territory of the Iroquois Band.
D‴, Shuswap, Cree, and Iroquois mixed.
E, Bonaparte Division.
F, Kamloops Division.
G, Shuswap Lake Division.
G′, Arrow Lake Band.
●, Villages.
+, Former villages.

Dotted area, territory recently occupied by the Chilcotin. Area at head of Fraser River, enclosed by broken double lines, temporarily occupied by the Sekanai.

figure 6

Arrow Lakes are wrong.... The country from the mouth of the Kettle River following up the Columbia and taking in the Lower and Upper Arrow Lakes north to or slightly beyond Revelstoke was occupied by the Lakes or Lake Indians, a tribe very closely related to the Chaudiere or Colville Indians and speaking a dialect very close to the Okanagon" (BC Archives Newcombe Letters). Teit's revision (Map No. 3, c. 1909), sketched on a commercial map, shows the contracted territory of the Secwépemc (Figure 7).

Teit's maps provide examples of the permeability and change in boundaries on linguistic maps, as well as errors that may be revealed. Indigenous territories have not been static over time, despite the perpetuation of former and incorrect information. Migrations, resulting from war, disease, and forcible movements, are reflected in the changes to maps over time, and as Teit concedes, occasional errors by ethnographers.

Kenneth Favrholdt is a freelance writer, historical geographer, and former curator/archivist of the Kamloops Museum & Archives. He currently resides in Kamloops.

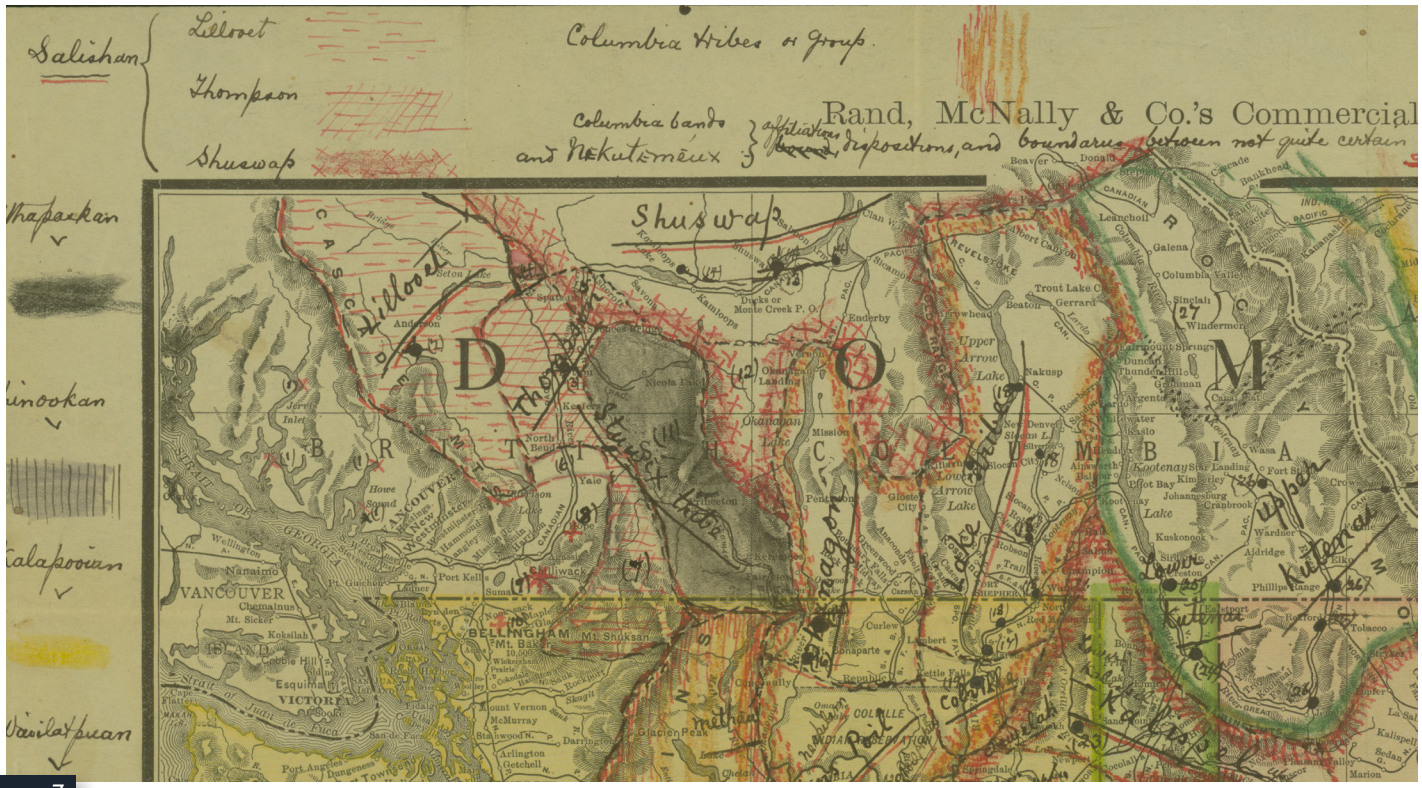

figure 7

continued on page 19

Map images in order of appearance in article:

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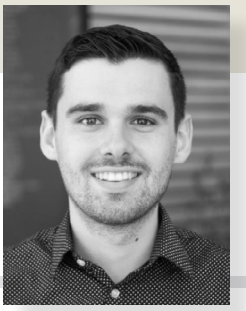
Mapping Wide, Sparsely Populated Tables

The Case of Retail Market Shares Estimated by the Huff Model



Claus Rinner & Luke Johnson

Department of Geography & Environmental Studies, Ryerson University

The Department of Geography and Environmental Studies at Ryerson University, founded as the School of Applied Geography in the early 1970s, has always had special expertise in business geography and location analysis. One of the techniques taught in several courses in our BA in Geographic Analysis and Master of Spatial Analysis (MSA) programs is the Huff Model, a gravity model that predicts the probability of customers to use a retail location on the basis of proximity and attractiveness as well as distance and utility of competing sites. Despite its simplicity, this model is widely used among retail analysts and the "location intelligentsia" in the Toronto area.

The market shares resulting from the Huff model are typically stored in a data table with rows representing customer origins such as Census areas and columns representing shopping destinations. The more stores are considered, the wider this table gets, leading to an interesting cartographic challenge. In previous work, we used the standard approach of mapping one store's market shares at a time, i.e. one column of the Huff results table (Swales et al., 2017; Rinner et al., 2019a), which requires creating a separate map for each store of interest. Or we only mapped the largest probabilities around each store, hoping that the stores' market areas would not overlap (Rinner et al., 2019b). Here, we attempt to include all aspects in one map.

My student and co-author Luke Johnson completed his MSA degree with a research project aimed at developing and testing an open-source network distance tool for QGIS. His case study involved 63 major grocery store locations and 572 Toronto Census tracts (CTs). Luke estimated store patronage based on network distance between CTs and stores, and on the sales square footage as the measure of store attractiveness. We were not interested in one particular store's performance but wanted to visualize the general distribution of market shares across the city, with some attention to the status of each of the three major grocery chains.

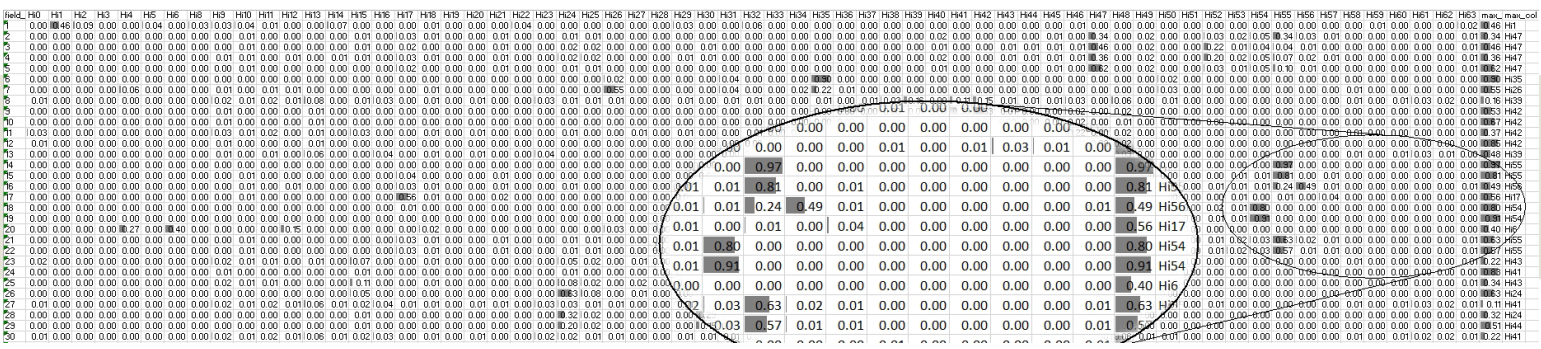


Fig. 1: First 30 rows of 66-column wide data table with "data bars" and magnification, showing sparse Huff probabilities along with row maxima and identifiers.

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To condense the output of the Huff model, Luke used a simple Excel formula to extract the largest probability and the corresponding store ID from the results table:

INDEX(ColumnHeadersRow, MATCH(MAX(CtRow), CtRow, 0))

The MAX function identifies the largest probability value within each row (Census tract); MATCH returns the position of that value within the same range; and INDEX extracts the contents of the header row containing the store IDs at the position of the max value. With that, we obtain a more manageable dataset containing just two attributes for each feature, the "dominant" store and the associated probability (defined by the MAX(CtRow) value itself). We then further reduced the store identifier to the label of its chain (Loblaws, Metro, or Sobeys, including Sobeys Urban Fresh).

The map has a categorical choropleth layer based on the dominant store in each Census tract. Three hues represent the three grocery chains: While Loblaws and Sobeys were assigned desaturated orange and green shades reminiscent of their corporate identities, Metro's colour was set to a blue in order to complete the 3-class, colourblind-safe qualitative "Set2" scheme from colorbrewer2.org. This layer is superimposed by a value-by-alpha layer (Roth et al., 2010) based on the Huff probabilities. An expression is used in QGIS' "single symbol" dialog to set the alpha channel of a black fill colour (RGB=0,0,0). Each CT is made opaque in proportion to its (maximum) Huff probability using the function color_rgba(0,0,0,255*("max_value")). The layer overall was given a reduced opacity of 66% to improve legibility of the dominant-store layer underneath.

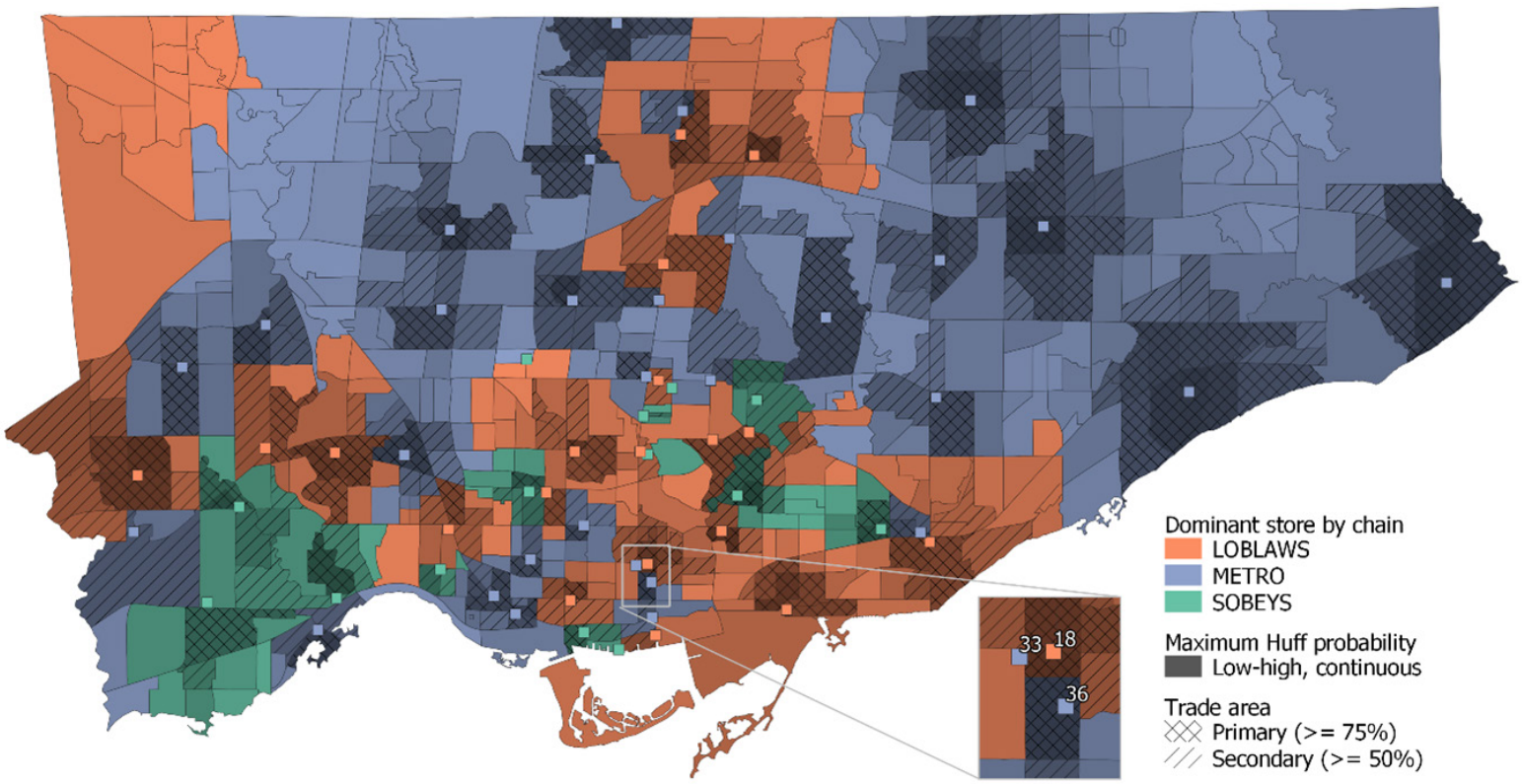

Fig. 2: Dominant grocery store chain (categorical) and corresponding Huff probability (value-by-alpha) for Toronto census tracts. Data sources: Centre for the Study of Commercial Activity, Statistics Canada

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Retail analysts think of store catchment areas in terms or primary, secondary, and tertiary markets, although the market shares determining these boundaries are not fixed. We chose 75% and 50% as the thresholds for primary and secondary markets, since these values guarantee that each source area is assigned to at most one destination. In a dense retail environment, lower thresholds could lead to ambivalent assignments, e.g. if the secondary market threshold was 33% and a Census tract had probabilities of 40% and 35% for two nearby stores. The expression that defines our thresholds using two nested if statements is entered in QGIS as part of the "categorized" symbology dialog (see Fig. 3).

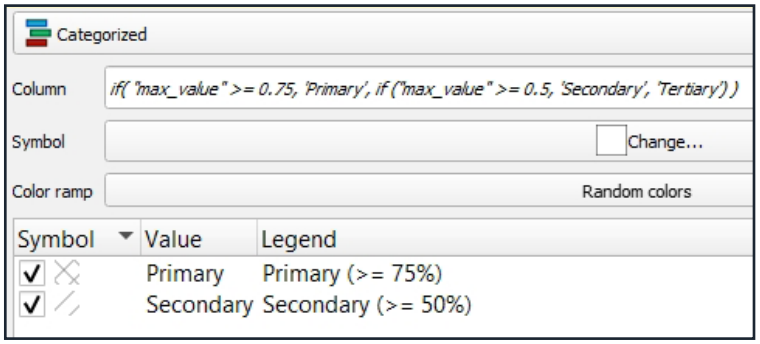

Fig. 3: QGIS dialog with expression to categorize high probabilities into primary and secondary markets, and assign line pattern symbols

Some aspects of our cartographic challenge are similar to those encountered when mapping election results. The value-by-alpha technique has been used to map popular vote in the US elections as an alternative to using cartograms. While we used the dark/opaque end of the alpha scheme for the high probabilities in Fig. 2, the typical election map uses the light/transparent end for high values while it masks the low values. Two experiments with this approach using a black and a white alpha layer are presented in Fig. 4 as alternatives to the map in Fig. 2. In analogy to mapping election results, we could also use the alpha channel to represent population/customers rather than the Huff probabilities.

Although substantial observations about the Toronto grocery market were not the purpose of this text nor of Luke's major research paper, we cannot help but notice that there are large, seemingly under-served areas in the inner suburbs of northern Etobicoke in the northwest of the city and Scarborough in the northeast. However, we do not know from this exercise whether those areas are better serviced by the discount supermarkets of the same chains, namely No Frills, Food Basics, or FreshCo. An interesting pattern can be seen in the downtown inset in Fig. 2, where store No. 33 (Metro in College Park) does not dominate any Census tract, since the nearby Loblaws in the former Maple Leaf Gardens or Metro on Ryerson University's campus command higher probabilities of patronage in all nearby CTs. In this case, three separate maps with the individual probabilities for each of the three stores would be most useful for the store's management to determine opportunities for expanding or intensifying their marketing efforts.

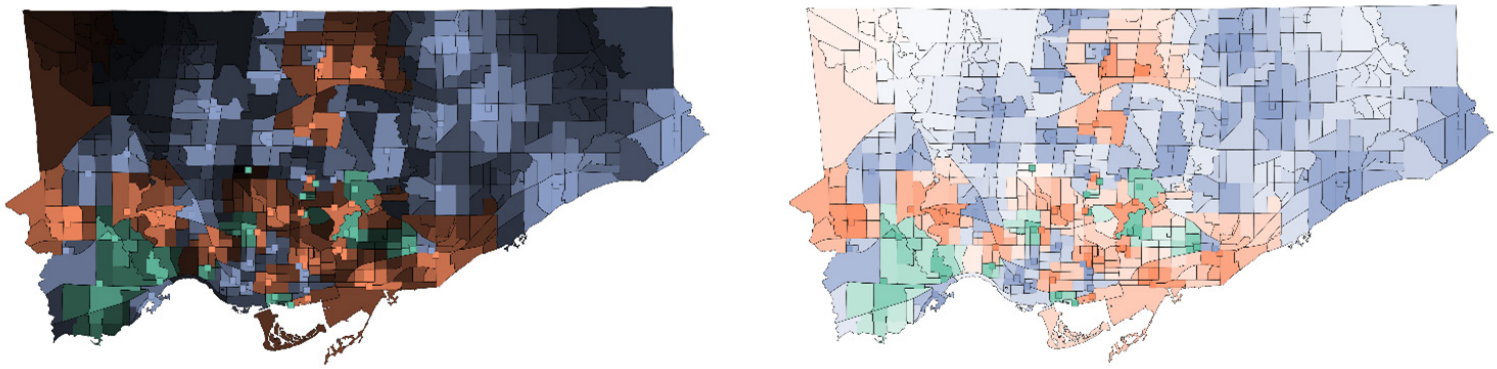

Fig. 4: Alternative uses of the value-by-alpha technique analogous to mapping election results. Data sources: Centre for the Study of Commercial Activity, Statistics Canada

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Indoor Path Finder for the University of Calgary

Helen Zhang

With the increase of smartphones and usage of technology, routing systems have become an integral aspect of many people's daily lives to provide convenience in navigating from one place to another. While outdoor routing has been an area of study for many years and has evolved to a norm now, recently, there has been increasing interest and projects revolving around developing routing tools to help users navigate through indoor spaces. Creating indoor routing tools presents a different set of challenges and criteria than outdoors. One of these areas of the challenge being that multi-level building creates a need for three-dimensional considerations, while also considering safety and accessibility factors. With the rise of COVID-19, regulating social-distancing procedures in travel within buildings has become an important safety focus.

Most University of Calgary buildings are interconnected with indoor pathways. These are especially convenient for traveling around campus during the long and snowy winters the city of Calgary has often been known for. Beyond inconvenience, during these months, it could be particularly hard for those who are handicapped to access the outdoor paths. However, with so many buildings

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interconnected, it becomes a difficult task for those who are not familiar with the campus to access these indoor paths. The current lack of indoor routing applications that can be used for navigating the complexity of the buildings motivated this project.

The indoor path finder is an inter-building routing system developed using ArcGIS software to aid those accessing the University of Calgary campus. This project explores the question of how mapping and geomatics engineering practices can be used to improve navigation through indoor spaces within a university campus. For this project, only the first floor of the buildings that are interconnected on the main campus are modeled, except for the Canadian Natural Resources Limited Engineering Complex. The detailed Engineering Complex model covers all floors from basement to floor 3 to explore the process of indoor routing for multi-level buildings more in-depth with considerations of 3D visualizations. The prototype considers three travel scenarios to best meet the demands of the user, which are: the fastest path, disability-friendly path, and a social distancing filter that can be applied to either. The development process utilizes ArcGIS desktop for route building and ArcScene for 3D visualization.

PROJECT DEVELOPMENT

Intended users of this prototype project are people unfamiliar with the University of Calgary campus and those accessing the buildings when outdoor weather elements are not ideal and want to only travel through indoor paths. The project will be focused on 16 interconnected buildings out of the total 50 buildings located in the main campus.

To accommodate for the whole travel journey, outdoor paths were included to consider those who arrive on campus through transit wanting to find the nearest building entrance. In terms of indoor travel, two travel modes were taken into consideration: an accessibility-friendly mode with routing constraints that will avoid stairs and go through only ramps and elevators, and a travel mode without these constraints. Both modes use distance to compare routes, selecting the shortest path subject to mode constraints. Due to the recent COVID-19 situation, a safe return to campus considerations was made by including social distancing features. This is implemented as a restriction that can be placed with either travel mode. The restriction uses hallway width as a factor in determining whether it will be restricted to one-way travel or two ways.

Data Collection

The project utilizes feature classes, CAD data, and is stored in a file geodatabase. Data collection was split into two portions, in which one covers the external campus features used for creating the visualization of outdoor paths, and another for internal floor plans of each of the buildings for creating indoor routes.

For the external portion, the online library for the University of Calgary has open data freely available which allowed me to access GIS campus data (UofC Campus data, 2018). The campus data shapefiles include all campus buildings, sidewalks, parking lots, and roads that go through the campus areas. Data on transit drop off and pickup locations were also publicly available on the University of Calgary campus maps website (Ucmaps, 2020).

Internal floor plans for the buildings were not available publicly and had to be obtained through communication with the campus planning department of the University. The Interactive Room Finder application at the University of Calgary(Room Finder, 2019) provided a layer file for the campus building footprints which was the basic data resource for building the indoors network. However, the use of the layer file was limited, and a space data request was put through the Campus Planning department for floor plans. CAD drawings for floor plans for floor 1 of each of the buildings of interest and floors B1 to 3 of the engineering complex were obtained.

Implementation of project design

Outdoor paths were created using transit stop locations (Calgary Transit Access map), building entrance and exit points (derived from building floor plans) and sidewalk polylines (from the UofC Campus data file). The network analyst extension of ArcGIS Desktop 10.7.3 was then used to create an exterior network and to run closest facility queries to identify the closest entrance / exit for each transit stop. These shortest routes were used to create the outdoor network segments.

continued on page 25

In terms of indoor path development, the main task was using the floor plans available to digitize the hallways of all the buildings involved and the multiple levels within the Canadian Natural Resources Limited Engineering Complex. With digitizing hallways, a polyline feature class was created that covered the areas of interest. Floor transitions were translated to arbitrary elevation values that distinguished between the floors and maintained the proper connectivity for floor transitions such as stairs and elevators. For the modeling of floor transitions for stairs, elevators and ramps, two endpoints were created with the same x and y geometry values, but with varying z-values.

With the data digitized and feature classes created, a network dataset was built with the three feature classes and desired features. In the network analysis process, the attributes defined were Walk time, Accessibility, and COVID-19. The Walk time attribute was built to identify the estimated walk time expressed in meters per minute based on the length attribute that is linked to geometry lengths of the feature class. The Accessibility attribute restricts the use of stairs in the Floor transition feature class for creating a travel mode that would only access elevators. The COVID-19 attribute examines the hallway width attribute in the indoor path polyline, where for values of greater or equal to 3 meters, the function will return false and the path will be accessible as two way, while widths less than 3 meters will return one-way travel restriction.

To best visualize the 3D indoor routing network, the ArcGIS 3D Analyst extension was used to add Z-values using elevation attributes on feature classes. For this project, these elevation values are arbitrary, and just for a clear separation of levels, each floor has an 8-meter difference, with floor B1 defined as 0 meters. The feature classes were added to ArcScene to build a 3D visualization of the indoor routing network. (Figure 1)

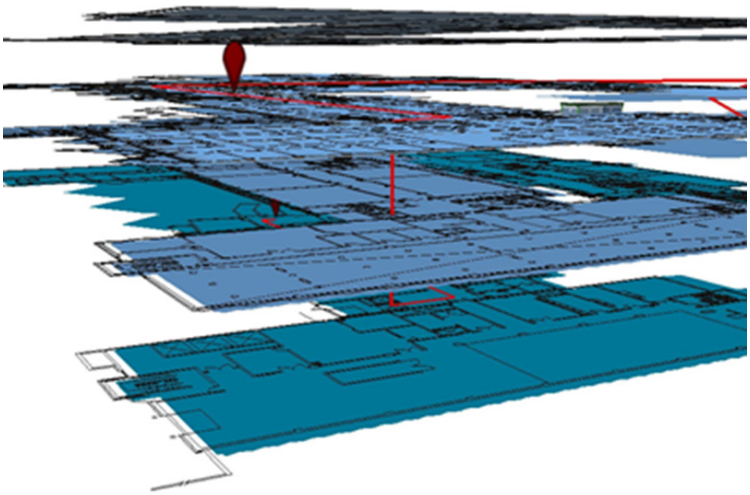

Figure 1: Imported stops into ArcScene showing the 3D path through floors of the Engineering building

Figure 2: Overall campus coverage in ArcScene showing network in red dashed line.

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While this project was a prototype and did deliver the design features intended, a usable application was not delivered, which remains for future development based on the progress made. While the prototype covers only the first floor of the interconnected buildings on campus with details provided specifically for the engineering building covering 4 floors, expanding coverage could be the next step. To effectively expand coverage on campus, first, the CAD floor plans including each desired building and floors on the main campus would need to be acquired.

As for the design features, the COVID-19 social distancing feature could be refined as well. While hallway width is a start for consideration of how to effectively utilize space with social distancing, other factors may add to the effectiveness of this feature. For example, the consideration of traffic flow of individuals traveling through the building could be used to create a more responsive travel path option that would better regulate traffic flow during busier times such as class changes. Another limitation with only considering hallway width is that the one-way paths created could lead to dead ends where an alternative path is not available. More flexibility could be implemented to create a more effective social distancing feature. An update of this prototype could also examine the use of ArcGIS Indoors as the basis for creating an interactive and mobile routing application through the buildings.

In terms of visualization, further implementation could use 3D data from the floor plans to create a 3D visualization with wall divisions between different spaces and clear identification of the walkway spaces and floor transitions. This would require comprehensive data collection with floor plans that include elevation and 3D data associated with the elements of the floor plan, as well as a more comprehensive model built for ArcScene. Finally, a web application could be built through WebScene.

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Room Finder. (2019). Interactive Room Finder Application, University of Calgary. Available at: https://ucmapspro.ucalgary.ca/RoomFinder/ [visited on 21 August 2020]

UofC Campus Data (2018). MADGIC GIS Data, University of Calgary, Available at http://libdata.ucalgary.ca/index.php?dir=/uc_Structures/ [Visited 20 September 2020]

Ucmaps (2020). Campus Maps, University of Calgary, available at: http://ucmaps.ucalgary.ca/PublicFiles/CurrentMaps/ACCESS_Calgary.pdf [Visited 20 September 2020]

Info for interested content contributors: regarding papers, articles or member correspondence for publication in Cartouche, contact Glenn Brauen.

For blog entries or other content submitted for the CCA website, or proposals for presentations for the annual CCA conference, contact Ted MacKinnon.

When contacting one of the following for this purpose, please c.c. the other on the email.

Ted: t_mackinnon@yahoo.com

Glenn: glenn.brauen@utoronto.ca

Hansgeorg Schlichtmann 1938 - 2020

Hans was born in East Prussia and grew up in Hannover, West Germany. After studying Geography at the universities in Göttingen and Tübingen. Hansgeorg Schlichtmann received his degree of Dr. phil. in Geography in 1967 from Eberhard-Karls-Universität, Tübingen. From 1966 to 1970, he worked as a research officer at the Federal Research Institution for Geography and Planning in Bonn. In 1970, he accepted a teaching position from what was then the University of Saskatchewan - Regina campus.

After arriving in Regina, Hans taught Geography and Cartography and quickly was promoted to the rank of full professor. After his retirement from the University of Regina in 2005 he became Professor Emeritus. Hans continued to be an active researcher working on his projects and publications and attending conferences during his retirement.

Hans Schlichtmann's areas of professional interest were cultural geography, historical geography, geography of settlements and, more recently, cartography (with emphasis on cartosemiotics). His research in cartosemiotics stands in the semiotic tradition of continental Europe. In the International Cartographic Association he served as chairman of the Working Group on Map Semiotics (1995-1999) and as vice-chairman of the Commission on Theoretical Cartography (1999-2007). In the former capacity he edited Map semiotics around the world (1999). He co-edited the discussion-paper series Kartosemiotik/ Картосемиотика (1994-1995) and was co-editor of the successor series Diskussionsbeiträge zur Kartosemiotik und zur Theorie der Kartographie (2012). In 2011, he published Cartosemiotics: A Short Dictionary, the first dictionary of the field written in English.

Throughout his career, Hans was a teacher and a scholar with very high standards; always thorough and uncompromising. He was highly respected by his students as well as by his colleagues. Colleagues and students who got to know him better experienced his inner warmth, compassion and mentor-ship.

Hans was a rather private man, not too fond of social gatherings and seemed often difficult for his students to approach. But when students showed genuine interest in his assistance, he would move the earth for them and explain anything to the greatest detail. His recall of facts and literature on an array of subjects - even beyond geography - was legendary. The students who dared break through his sheath of inscrutability to waylay him on his way home after his long hours in the library or office were richly rewarded. When they bought him a round at the campus bar, they got a glimpse of his kindness, wry humour, and gentle nature.

Dr. Hans Schlichtmann passed away unexpectedly on May 31 2020. Hans is survived by his wife Ingeborg, his daughter Esther (Christian) and two grandchildren Nicholas and Brookelyn.

U. M. Hardenbicker
Head of the Department of Geography
and Environmental Studies
University of Regina

President's Prize Maps 2020

President's Prize

The CCA President's Prize recognizes excellence in student map design and production and is open to all students at Canadian post-secondary institutions who have completed and produced a cartographic project in the preceding school year. The President's Prize Competition consists of two prizes of $250, one for entries from college-level or CEGEP students, and one for entries from university-level students in the thematic map category.

A thematic map is a map that is meant to communicate a specific subject matter within a particular geographic area. They are often defined as special purpose maps and can be either quantitative or qualitative in nature. The International Cartographic Association (ICA) defines the thematic map this way: "A map designed to demonstrate particular features or concepts. In conventional use this term excludes topographic maps" (Dent 1999, 8).

President's Prize (University)

Awarded to: Jessica Budhoo
Title: *You are What you eat: the Cycle*
Institution: Ryerson University

President's Prize (College or CEGEP)

Awarded to: Thomas Zuberbuehler
Title: *Digby Area · Trails, Lighthouses and Open Spaces*
Institution: Centre of Geographic Sciences (COGS)

Carto-Québec Prize

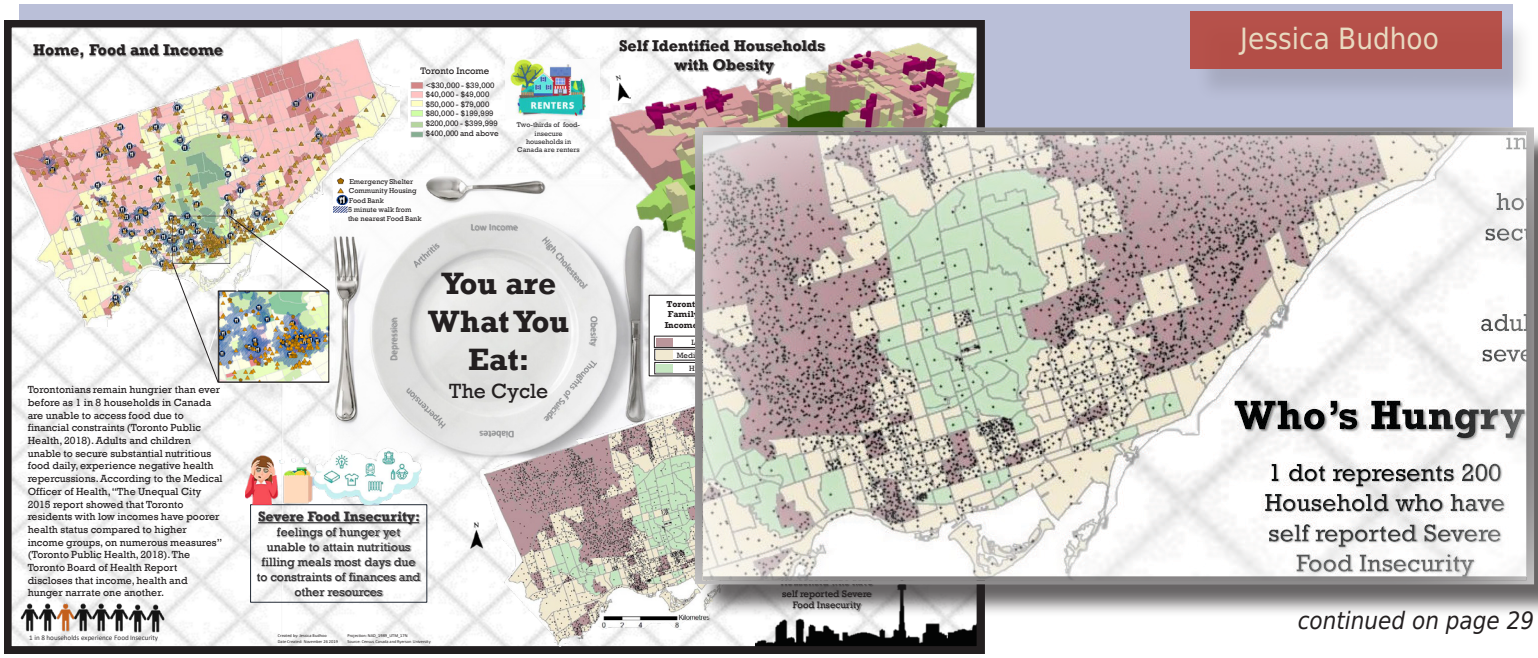
The Carto-Quebec Prize is a special annual competition for the best student-authored cartographic product in French. The award has been established through a gift from the former Association Carto-Québec to promote and recognize excellence in map design. The competition is open to all post-secondary students in Canada who have completed and produced a cartographic project in the preceding school year. The Carto-Quebec Prize will consist of two awards of $500, one for entries from college-level or CEGEP students, and one for entries from university-level students.

(Not awarded in 2020)

Web Map Award

This award recognizes excellence in web mapping and is open to all post-secondary students who have completed and produced a web map in the preceding school year. The CCA Web Map Award Competition consists of one prize of $250 for entries from college-level, CEGEP students, or university-level students.

Awarded to: Brooke Hehr
Title: *Canada's Electric Highway Network*
Institution: University of Alberta
Story Map Link: https://storymaps.arcgis.com/stories/94d0b8bd38d949388ae60fc2516ae6ce
Web Map Link: https://arcg.is/1rW181



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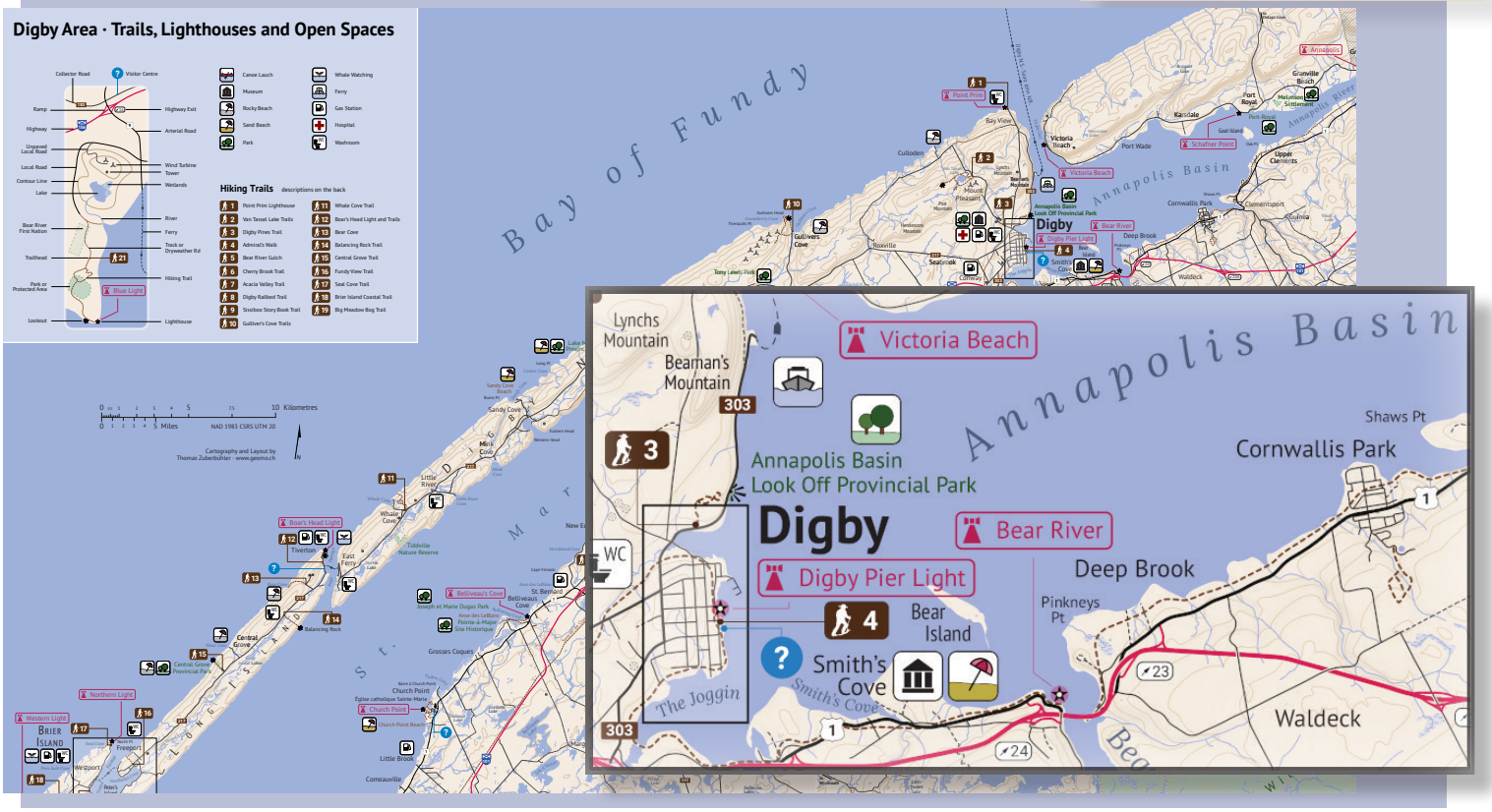
Thomas Zuberbuehler



Brooke Hehr

Visit the CCA website for more details on the winning entries and links to view high-quality versions of the maps:
https://cca-acc.org/the-2020-student-mapping-competition-winners.html

Member Correspondence

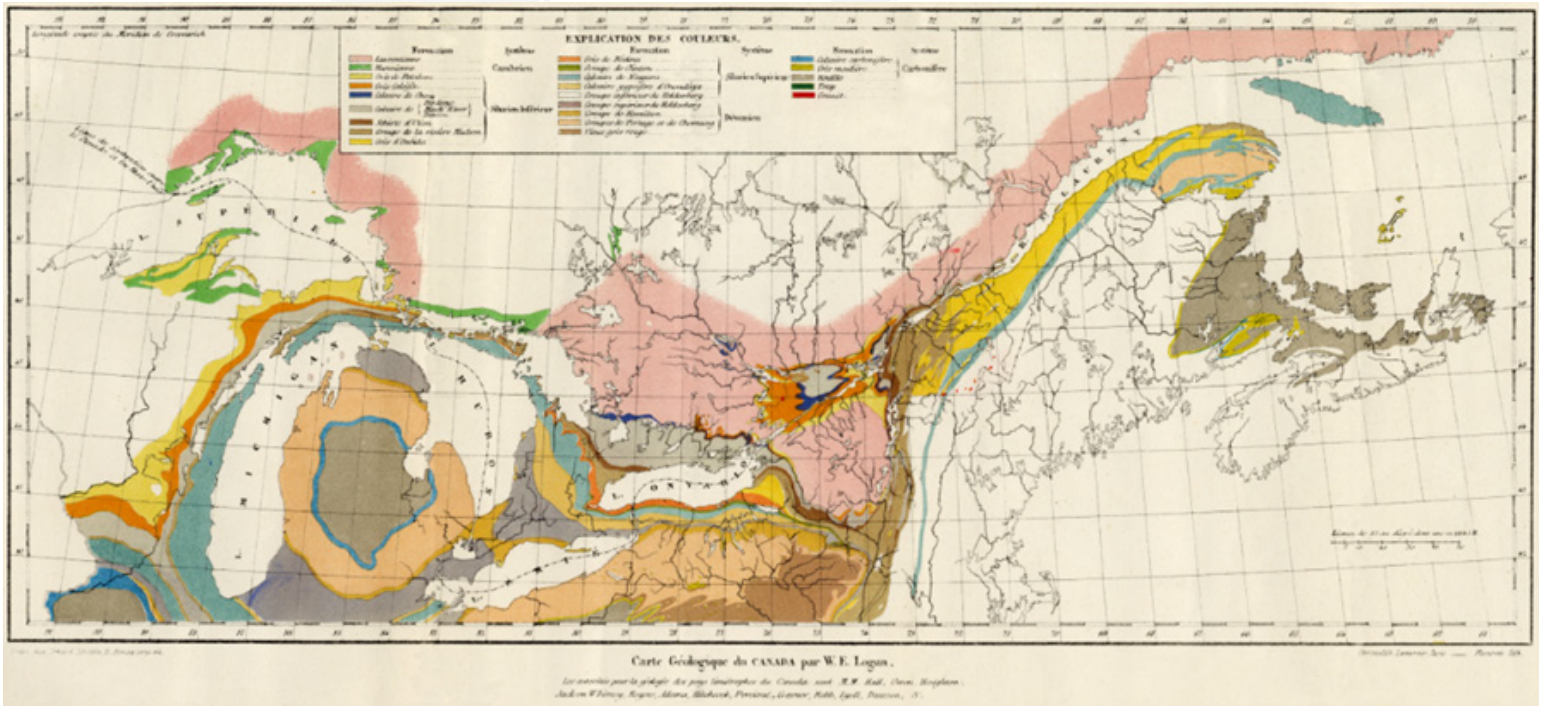
Ian Crain & Morgan Hite

I enjoyed the short article by Robert Cocking on the "Highly Formalized Cartography of the Geological Survey of Canada" in the most recent edition of Cartouche (96, p20), but I want to correct the attribution of the early GSC map (included below). It is indeed the first coloured geological map of Canada produced by the GSC, but it dates from 1855, not 1869. It is an interesting map, annotated entirely in French, it was included in a special publication "Esquisse Geologique du Canada pour servir a l'intelligence de la carte géologique et de la collection des minéraux économiques envoyées a l'Exposition Universelle de Paris, 1855" by W.E. Logan and T. Sterry-Hunt. (Scale 150 miles to the inch). It was not circulated widely, and no English version was made, apparently because Logan discovered some errors in it. A revised version in English was published in 1864 in the atlas of maps that accompanied the "Report of Progress from the Commencement to 1863"(also known as the "Geology of Canada"). It bore the long-winded title of "Geological map of Canada and adjacent regions, including parts of other British Provinces and of the United States" and had the somewhat larger scale of 125 miles to the inch. 1869 saw the publication of Logan's magnificent map (dated 1866) with the same title, a huge thing in 8 sheets at the scale of 25 miles to the inch.

The first coloured geological map of a small part of Canada published by the GSC seems to have been "Plan showing the Distribution of Crystalline Limestones of the Laurentian Series in various townships between Grenville and Rawdon, Quebec" which appeared in the Report of Progress for 1853-56, more or less contemporary with the Paris Exposition map of Canada.

Symbology and colour schemes for these early maps was heavily influenced by the early mapping of the British Geological Survey and evolved through the "A - Series" maps into the standards and practices used today. Experiments and innovation in computer aided processing and cartography for geological and geophysical data started in the GSC in the late 1960s, eventually establishing the "Data Systems Group", led by the late Bill Hutchison in the 1970s. This group created the foundation for the eventual implementation of GIS technology in the following decades as Cocking described so well.

Ian Crain, Ottawa



First geological map of eastern Canada by William Logan

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Member Correspondence

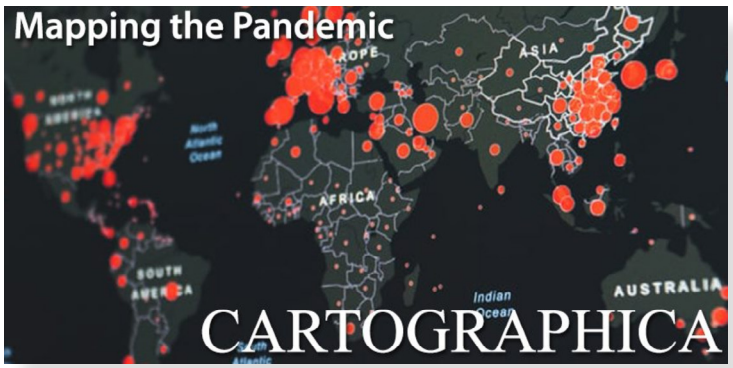
Hidden images in Swiss national maps

"A topographic map is by definition the graphic representation of a territory. Thanks to its high quality, the graphic design of [Swiss] national maps come close to reality. However, despite strict requirements concerning precision and rigorousness, they sometimes conceal treasures born of their creator's imagination."

To see these map additions in context, please see: https://www.swisstopo.admin.ch/en/home/meta/search.detail.news.html/swisstopo-internet/news2016/didyouknow/161221.html

Morgan Hite, Smithers, BC

Cartographica – Special Issue: "Mapping the Pandemic"



Since December 2019, tens of millions cases of COVID-19 have been reported worldwide and disrupted the lives of almost everyone on the planet. Numerous geospatial applications have been developed and shared over the web to either visualize or help prevent further spread of the pandemic. Innovative mobile applications are now in full swing to help individuals find a COVID-19 testing spot, safely move in their city using public transport, find a weekend activity with social distancing measures for families to enjoy, or even select a low risk vacation destination. At the same time, researchers and health officials use maps to analyze the spread of the disease and advise the government's stakeholders to make decisions for the public safety and common good. As researchers and organizations across the globe are fighting the COVID-19 pandemic, they all rely on the "location matters" principle and the fundamental mapping concepts and practices to understand the phenomenon and develop state-of-the-art geospatial intelligence methods and tools.

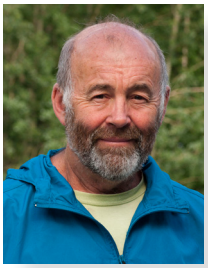
In August 2020, the editorial team of Cartographica invited submissions of original research focusing on novel methods and tools for mapping the spread of pandemics, their impact and/or the mitigation of their effects. The special issue will be published as the first issue of the journal for 2021, numbered as 56.1, and will include six high quality manuscripts from international authors. These manuscripts present novel results on mapping and tracking the spread of the COVID-19 pandemic in Canada, the United States and the world; but also research outcomes for historical epidemics and pandemics including the 1918 Influenza and the Malaria Threat to Ancient Roman Travelers.

Emmanuel Stefanakis, Editor-in-Chief
University of Calgary

MEMBERSHIP COORDINATOR

Roger Wheate
University of Northern British Columbia

Canadian delegate to the International
Cartographic Association



Membership Report, 2020

Current membership 100 (updated since September AGM): Regular 52, Retired 21, Student 17, Institutional/Corporate 10

Membership renewal notes will be sent out near the start of 2021 – possibly close to when you may receive this issue of Cartouche.

Welcome new members 2020:

Alexei Goudine, Victoria, BC
Victoria Devasahayam, Calgary, AB
Aita Bezzola, Golden, BC
Trina King, Waterloo, ON
Angela Silva, Lasalle, QC
Jonathan Li, Waterloo, ON
Rachelle Lam, Calgary, AB
Elliot Mann, Cranbrook, BC
Xiaochen Chen, Lawrencetown, NS
Sharad Mainaly, Scarborough, ON
Hugh Shaftoe, Guelph, ON
Emilie Rabeau, Toronto, ON
Inaingo Osuagwu, Calgary, AB
Alexander Kirwan-Wallace, Maple Ridge, BC
Nidhi Darji, Calgary, AB
Tosh McKetta, Montrose, Colorado
Jian Guan, Regina, SK
Vigram Bhagavat, Mississauga, ON

Cartographic Conferences 2021:

CCA: Fredericton, NB (virtual) May 25-27, 2021
– see page 8 in this issue for details

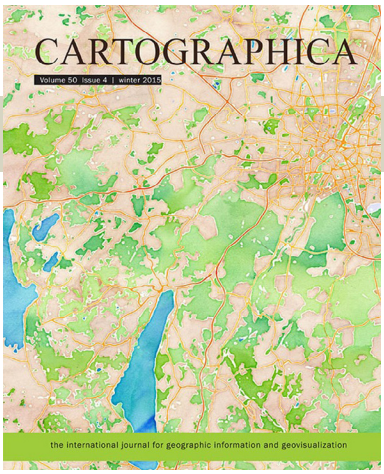
British Cartographic Society, UK (virtual): September 8-9, Jennifer Johnston, inspiritcartographics@mail.com (previously NRCan / CCA)

ICA: Florence, Italy December 14-18, 2021; https://www.icc2021.net

National Map exhibit coordinator needed

We need a new coordinator for the national map exhibit which is assembled every two years in conjunction with conferences of the International Cartographic Association (ICA).
The next meeting will be held in Florence, Italy in December 2021 - although it may well be a virtual meeting with e-maps. The previous coordinator was Janet Mersey, U.Guelph (recently retired). There could also be a team (2-3 people) filling this role.
We can supply contacts and lists of maps submitted from previous meetings - maps should have been produced since the last conference (July 2019). These could be federal, provincial, corporate or sole authored. Please contact me to volunteer or if you have any questions. We should have someone in place in the next few months to start collecting potential maps well before December.

roger.wheate@unbc.ca



Cartographica

Printed journal copies

I have extra copies of most journal issues dating back to 2003, when we adopted the current format. These contribute to my overflowing bookshelves and I'd be happy to send these to good homes. Please email me if you would like any copies.

Roger Wheate, UNBC - CCA Membership coordinator

roger.wheate@unbc.ca

Newsletter of the/Bulletin de Canadian Cartographic Association/l'Association canadienne de cartographie

CCA Executive/Exécutif de l'ACC

Interest Group Chairs/ Présidents des groupes d'Intérêt

Appointees/Personnes nommées

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