ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES

BULLETIN

ASSOCIATION DES CARTOTHÈQUES ET ARCHIVES CARTOGRAPHIQUES DU CANADA

ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES / ASSOCIATION DES CARTOTHÈQUES ET ARCHIVES CARTOGRAPHIQUES DU CANADA

MEMBERSHIP in the Association of Canadian Map Libraries and Archives is open to both individuals and institutions having an interest in maps and the aims and objectives of the Association. Membership dues are for the calendar year and are as follows:

Full (Canadian map field)... $45.00
Associate (anyone interested)... $45.00 ($35 US)
Institutional... $65.00 ($50 US)
Student... $20.00

Members receive the ACMLA Bulletin, the official journal of the Association, which is published three times a year.

Peuvent devenir MEMBRES de l'Association des cartothèques et archives cartographiques du Canada tout individu et toute institutions qui s'intéressent aux cartes ainsi qu'aux objectifs de l'Association. La cotisation annuelle est la suivante:

Membres actifs(cartothécaires canadiens à plein temps)... 45$
Membres associés (tout les intéressées)... 45,00$
Institutions... 65,00$
Étudiant... 20,00$

Le Bulletin de l'ACACC sera envoye aux membres trois fois par annee.

Officers of the Association for 2016/2017 are:

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Deena Yanofsky
Liaison Librarian
Humanities & Social Sciences Library
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president@acmla-acacc.ca

Vice President Communications and Outreach / vice-président aux Communications et Rayonnement
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Views expressed in the Bulletin are those of the contributors and do not necessarily reflect the view of the Association.

Les opinions exprimées dans le Bullein sont celles des collaborateurs et ne correspondent pas nécessairement à celles de l'Association.

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L'Association des cartothèques et archives cartographiques du Canada remercie le Conseil de recherches en sciences humaines du Canada pour son apport financier.

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Table of Contents

ON THE COVER...

Map of Busy Berlin [now Kitchener, Ontario]. The Map Company. Toronto,1912. Published in 1989 by ACMLA. Reproduction sponsored by the Waterloo Regional Heritage Foundation. ACML Facsimile Map Series No. 130 (ISSN 0827-8024)

Map of Busy Berlin [aujourd'hui Kitchener, Ontario]. The Map Company. Toronto,1912. Publié en 1989 par l'ACACC. Reproduction parrainée par la Waterloo Regional Heritage Foundation. Série de cartes fac- similes de l' ACC. carte No. 130(ISSN 0827-8024).

PRESIDENT'S MESSAGE

With winter coming to an end and spring fast approaching, it means that conference season is right around the corner. This year's 51st CARTO will be hosted by Simon Fraser University in beautiful Vancouver, British Columbia. The theme of the conference, Digital Revolutions | Analog Renaissance, brings together two familiar tensions to those of us working with physical and digital collections: the need for extensive print collections versus the increasing ubiquity of digital versions, and the changing expectations for managing and distributing this information. As geospatial information specialists working in libraries and archives, it can be a challenge to keep a foot in both worlds. In the best cases this challenge can be a productive one, as we realize the potential of physical collections in an increasingly digital ecosystem.

At this time, I'd like to take the opportunity to thank the 2016-2017 ACMLA Executive for their time, dedication and tremendous contributions – we have a number of new and significant initiatives coming, including CARTO 2017 and 2018, a digital *ACMLA Bulletin*, a new translation officer position, and a revised mentorship program.

Looking forward to seeing you all in Vancouver,
Deena

Deena Yanofsky
President, Association of Canadian Map Libraries and Archives

Avec la fin de l'hiver et l'approche rapide du printemps, cela signifie que la saison des congrès nous arrive rapidement. Cette année, la 51e CARTO sera accueillie par l'Université Simon Fraser dans la belle ville de Vancouver (Colombie-Britannique). Le thème du congrès, Révolutions numériques | Renaissance analogique, réunit deux tensions familières à nous qui travaillons avec des collections physiques et numériques: la nécessité de vastes collections imprimés contre l'augmentation de l'ubiquité des versions numériques et l'évolution des attentes en matière de gestion et de distribution de ces informations. En tant que des spécialistes de l'information géospatiales qui travaillent en bibliothèques et archives, il est peut être un défi de trouver l'équilibre entre les deux mondes. Dans le meilleur des cas, ce défi peut être productif, car nous nous rendons compte du potentiel des collections physiques dans un écosystème de plus en plus numérique.

À l'heure actuelle, je veux profiter de l'occasion pour remercier le Conseil exécutif de l'ACACC de 2016-2017 pour son temps, son dévouement et ses énormes contributions. Nous avons un certain nombre de nouvelles initiatives et d'importants travaux, dont la CARTO 2017 et 2018, un *ACACC Bulletin* numérique, un nouveau poste d'agent de traduction, et un programme de mentorat révisé.

Au plaisir de vous voir à Vancouver,
Deena

Deena Yanofsky
Présidente, Association des cartothèques et archives cartographiques du Canada

Carto 2017

51st Annual Conference of the Association of Canadian Map Libraries and Archives (ACMLA)

Digital Revolutions | Analog Renaissance

Conference hosted by Simon Fraser University
20-23 June, 2017
Vancouver | Burnaby, British Columbia
www.acmla-acacc.ca/carto2017/

Call for papers

The digital revolution has brought about considerable change for both users and stewards of cartographic and geospatial information: Advances in imaging technologies have facilitated a mass digital migration of physical collections; the rise of "born digital" cartographic and geospatial information has transformed how collections are developed and used; and, expanding mandates for open scholarship are actively changing the expectations for managing and distributing this information. While this "digital transition" has introduced novel opportunities for gathering, investigating and sharing, it has also presented a variety of new challenges to be addressed. In addition, the expansion of digital collections has not left their analog counterparts obsolete; rather, it has provided an opportunity for critical reflection on the role of physical collections, and their persisting value to research, pedagogy and public engagement.

At this time, the Carto 2017 conference organizers invite librarians, library staff, archivists, geographic information specialists and other interested individuals to submit proposals for papers, panels and workshops that explore the opportunities and challenges associated with digital and analog collections, and consider the role of each in the future of their professions.

Topics of interest include (but are not limited to):
• Reflecting on and reimagining the role of physical collections in a progressively digital ecosystem.
• Opportunities and approaches for integrating map collections and archival material into research, public engagement and instruction.
• Approaches, resources, and tools that support all stages of cartographic material digitization.
• Realizing the potential of digitized collections by integrating digital materials, contextual information and platforms to improve discovery, access, and intelligibility.
• Managing geospatial collections and research data, and addressing challenges associated with using, describing, archiving, preserving and providing access to this information.
• Enhancing the digital experience: Considering the shortcomings of digital immersion and implementing approaches that improve user experience with digital cartographic materials.
• Telling stories with cartographic materials: Approaches and applications to engage and educate audiences in digital and analog formats.
• Advancing digital approaches: Innovative methods for geospatial data analysis and visualization.

The members of the program committee are:
Francine Berish, Queen's University
Jason Brodeur, McMaster University
Sue McKee, University of Calgary
Andrew Nicholson, University of Toronto Mississauga
Sarah Simpkin, University of Ottawa
Wenonah Van Heyst, Brandon University

Carto 2017

51e colloque annuel de l'Association des cartothèques et archives cartographiques du Canada (ACACC)

Révolution numérique | Renaissance analogique

Colloque organisé par l'Université Simon Fraser
Du 20 au 23 juin 2017
Vancouver | Burnaby, Colombie-Britannique
www.acmla-acacc.ca/carto2017/

Appel à communications

La révolution numérique a entraîné des changements considérables tant pour les utilisateurs que pour les administrateurs de l'information cartographique et géospatiale : les progrès des technologies d'imagerie ont facilité la migration numérique massive des collections physiques; la montée de l'information cartographique et géospatiale « née numérique » a transformé la façon dont les collections sont développées et utilisées; et l'élargissement des mandats de libre accès change activement les attentes en matière de gestion et de diffusion de ces données. Bien que cette « transition numérique » ait introduit de nouvelles possibilités de collecte, d'enquête et de partage, elle a également présenté une variété de nouveaux défis à relever. De plus, l'expansion des collections numériques n'a pas laissé obsolètes leurs homologues analogiques. Elle fournit plutôt une occasion de réflexion critique sur le rôle des collections physiques et leur valeur persistante pour la recherche, la pédagogie et l'engagement du public.

Les organisateurs du colloque invitent les bibliothécaires, archivistes et autres spécialistes de l'information géographique à soumettre des propositions de présentations et d'ateliers célébrant les opportunités et les défis associés avec les collections analogiques et numériques, ainsi que leurs rôles dans l'avenir.

Quelques sujets d'intérêt incluent (mais ne sont pas limités à) :
• Réfléchir et réimaginer le rôle des collections physiques dans un écosystème progressivement numérique.
• Possibilités et approches pour intégrer les collections de cartes et les documents d'archives dans la recherche, l'engagement du public et l'instruction.
• Approches, ressources et outils qui soutiennent toutes les étapes de la numérisation de documents cartographiques.
• Réaliser le potentiel des collections numérisées en intégrant des documents numériques, des informations contextuelles et des plateformes pour améliorer la découverte, l'accès et l'intelligibilité.
• Gérer les collections géospatiales et les données de recherche et relever les défis associés à l'utilisation, à la description, à l'archivage, à la préservation et à l'accès à ces informations.
• Améliorer l'expérience numérique : considérer les lacunes de l'immersion numérique et mettre en œuvre des approches qui améliorent l'expérience de l'utilisateur avec des documents cartographiques numériques.
• Raconter des histoires avec des documents cartographiques : approches et applications pour engager et éduquer le public en formats numériques et analogiques.
• Avancement des approches numériques : méthodes d'analyse et de visualisation des données géospatiales.

Les membres du comité de programmation sont :
Francine Berish, Queen's University
Jason Brodeur, McMaster University
Sue McKee, University of Calgary
Andrew Nicholson, University of Toronto Mississauga
Sarah Simpkin, Université d'Ottawa
Wenonah Van Heyst, Brandon University

Association of Canadian Map Libraries and Archives

Association des cartothèques et des archives cartographiques du Canada

Assocation of Canadian Map Libraries and Archives Awards

The ACMLA Awards Committee is responsible for three awards given by the Association. We invite nominations for these awards and encourage members to participate in the selection of the awards for outstanding accomplishments in our field.

ACMLA Honours Award
The Awards Committee invites nominations for the ACMLA Honours Award. According to the guidelines for the award, the nominee should be a person who has made an outstanding contribution in the field of map/GIS librarianship. The contribution may either be for a specific activity or for general services and contributions such as continued membership in the Association with active participation either as an executive officer, committee chairperson, or committee member. Normally, membership in ACMLA is a prerequisite; however, that does not preclude considering outstanding non-members. Deadline : 30 April 2017

ACMLA Cathy Moulder Paper Award
To be eligible for the Paper Award, which carries a$200 monetary prize, a feature article of at least three pages in length, by one or more authors, must have appeared the ACMLA Bulletin during 2016. We are looking for articles that make a solid contribution to map librarianship, including carto bibliographies. Originality, uniqueness of subject matter and depth of research will be taken into consideration. Deadline : 30 April 2017

ACMLA Student Paper Award
As a reminder, the ACMLA Awards Committee would like you to encourage students to submit their papers for the Student Paper Award. The Association of Canadian Map Libraries and Archives encourages and supports activities which further the awareness, use and understanding of geographic information by Canadians. To this end, post- secondary students are encouraged to submit a paper for the ACMLA Student Paper Award competition.

The Student Paper Award will consist of a prize of $250 and free membership in the Association for one year. The award includes an invitation to present the winning paper at the Annual Conference. The Association will waive registration fees and provide a travel stipend of up to $250. The award will normally be given on an annual basis to a student from Canada or studying in Canada currently enrolled in a post-secondary institution (college or university). The essay will be original and unpublished and of no more than 3000 words. Primary consideration for the award will be given to the essay's originality and its contribution to new knowledge and insight. Other considerations include the author's demonstration of the relevance of the subject, the quality of the presentation and documentation, and the literary merits of the essay. Deadline : 30 April 2017

For more complete details regarding the awards, please see the ACMLA Awards web page <http://acmla-acacc.ca/awards.php> or contact: Siobhan Hanratty, ACMLA Awards Committee, hanratty@unb.ca.

Prix de l'ACACC
Le Comité des prix et mérites ACACC est responsable de trois prix décernés par l'Association. Nous invitons les nominations pour ces prix et encourager les membres à participer à la sélection des prix pour réalisations exceptionnelles dans notre domaine.

Prix d'excellence de l'ACACC
Le comité des prix et mérites invite les membres de l'ACACC à soumettre la candidature du membre qui, à leurs avis, est admissible au Prix d'excellence. Selon les régles du concours, l'heureux(se) élu(e) sera toute personne dont le nom a été retenue en vertu de sa participation considerable au développement de la profession de cartothécaire. Sa contribution peut se quantifier de différentes façons: activités particulières ou générales, participation soutenue au sein de l'Association en tant que membre d'autres comités. Bien que ce concours s'adresse surtout et avant tout aux adhérents de l'Association, cependant, non-adhérent exceptionneles peuvent être considéré pour le prix. Date limite pour soumettre votre rédaction : le 30 avril 2017

Cathy Moulder ACMLA Prix d'essai
Selon les règles du concours, l'heureux(se) élu(e), qui recevra une bourse de 200 $, devra avoir publié un article d'au moins trois pages au sein d'une édition du Bulletin de l'ACACC en 2016. Le comité recherché principalement les articles ou les carto-bibliographies, qui alimentent et soutiennent le développement de la discipline Les articles seront jugés selon les critères d'originalité du thème choisi et du niveau de recherche. Date limite pour soumettre votre rédaction : le 30 avril 2017

Prix annuel de l'ACACC pour article étudiant
Le comité des prix et mérites de l'ACACC tenons à vous pour encourager les étudiants à participer dans le Prix annuel de l'ACACC pour article étudiant. Le concours est admissible à toute personne originaire du Canada ou qui étudie au Canada et qui est présentement inscrite à un etablissement post-secondaire (collège ou université). Les articles doivent être rédigés durant l'année scolaire en cours.

Le prix annuel de l'ACACC pour article étudiant et se composera d'un montant de 250.00 $ et les droits d'adhésion à l'Association pour une année. Le prix inclus également une invitation présenter la communication lors de la conférence annuelle de l'ACACC tenue à la fin mai ou au début juin. Si le récipiendaire répond à cette invitation, il sera dispensé des frais d'inscription au congrès et l'Association lui allouera un montant jusqu' à 250.00$, avec recettes, pour couvrir les frais de voyage. L'article doit être original et ne jamais avoir été publié. Il doit comporter moins de 3 000 mots. Les juges porteront l'attention en premier lieu sur l'originalité du sujet et sur son apport en nouvelles connaissances et idées novatrices. L'article sera également jugé sur la façon don't l'auteur démontre la pertinence du sujet, sur la qualité générale de la présentation et de la documentation ainsi que sur la qualité littéraire du texte. Date limite pour soumettre votre rédaction : le 30 avril 2017

Pour obtenir des détails complets sur les prix vous pouvez consulter les lignes directrices (en anglais) sur notre site web : http://www.acmla-acacc.ca/awards_committee.php ou contactez

Siobhan Hanratty
Comité des prix et mérites de l'ACACC
hanratty@unb.ca

A message from the ACMLA Executive:

Dear ACMLA members,

As discussed at the last AGM held in June 2016, the ACMLA Executive has been looking into the Association's financial situation; specifically, the fact that the Association is spending more than we are earning each fiscal year. Due to our limited income streams, the ACMLA Executive has decided to increase membership fees in 2017. Individual memberships will increase from $45 to $65, effective this 2017 subscription year. The increase will help offset our annual expenses (such as our website, membership system, and annual conference) while still keeping ACMLA membership affordable.

If you have any questions, please get in touch: Deena (president@acmla-acacc.ca) or Rebecca (treasurer@acmla-acacc.ca).

Sincerely,
Rebecca, ACMLA Treasurer (on behalf of the ACMLA Executive)

Chers membres de l'ACACC,

Comme il a été discuté lors de notre discussion à la dernière assemblée générale de l'association tenue en juin 2016, le conseil d'administration de l'ACCAC s'est questionné sur la situation financière de l'association et plus précisément, le fait que l'association dépense plus que nous gagnons chaque année financière. En raison de nos flux de revenu limités, le CA de l'ACCAC a décidé de hausser les frais d'adhésion. À compter de cette année (2017), les frais d'adhésion individuels seront augmentés de 45 $ à 65 $. L'augmentation contribuera à compenser nos dépenses annuelles (comme notre site Web, notre système d'adhésion et notre congrès annuel) tout en gardant les frais adorables pour les membres de l'ACCAC.

Si vous avez des questions, n'hésitez pas à nous contacter: Deena (president@ACACC-.ca) ou Rebecca (treasurer@ACACC-.ca).

Bien cordialement,
Rebecca, trésorière de l'ACACC (au nom de le CA de l'ACCAC)

ACMLA Welcomes New Members:

Susie Wilson
University of Northern British Columbia
susie.wilson@unbc.ca
Status: Full Member

Heather Adams
Toronto, ON
h.adams@mail.utoronto.ca
Status: Full Member

Call for Translation Officer / Appel à l'agent de traduction

Chers membres de l'ACACC, amis, et collègues,

Commes vous le savez, l'ACACC a pour mandat d'exercer comme group professionnel représentatif pour les bibliothécaires et archivistes cartographiques canadiens. Nos objectifs comprennent l'appui et le développement de normes, d'activités et de réseaux de communication liés aux informations géographiques, ainsi que le soutien au perfectionnement professionnel de nos membres et l'encouragement à la participation aux activités de l'Association. Dans l'esprit de ces objectifs, l'Association cherche actuellement une personne enthousiaste et engagée pour occuper le poste d'agente de traduction de l'ACMLA, en promouvant nos efforts continus pour devenir une organisation entièrement bilingue.

Dans cette position, l'individu facilitera la traduction de divers documents et communications de l'Association, y compris : les annonces du comité exécutif de l'ACACC; les communications associées à la conférence et à l'assemblée générale annuelles; et les communications du groupe travail occasionnel et des événements spéciaux. La personne sera également membre du comité de planification de la conférence annuelle.

Ce poste offre la possibilité de s'impliquer dans une organisation nationale et d'acquérir de l'expérience en planification de conférences. Un honoraire sera fourni en signe d'appréciation (valeur à déterminer).

Veuillez adresser vos demandes de renseignements supplémentaires ou vos manifestations d'intérêt à Tracy Sallaway, vice-présidente des communications et de la sensibilisation, par courriel à tracysallaway@trentu.ca.

Dear ACMLA members, friends and colleagues,

As you know, the ACMLA is mandated to serve as the representative professional group for Canadian map libraries and archivists. Our objectives include supporting and developing standards, activities, and communication networks related to geographic information, as well as supporting our members' professional development and encouraging participation in Association activities. In the spirit of these objectives, the Association is currently seeking an enthusiastic and committed individual to fulfill the position of Translation Officer for the ACMLA in our ongoing efforts to become a fully bilingual organization.

In this position, the individual will facilitate translation of various Association documents, web pages and communications, including: announcements from the ACMLA Executive; communications associated with the conference and annual general meeting; and occasional working group and special communications. The individual will also service as a member of the annual conference planning committee.

This position offers an opportunity to become involved with a national organization and gain experience with conference planning. An honorarium will be provided as an expression of appreciation (value to be determined).

Please send inquiries or expressions of interest to Tracy Sallaway, Vice President Communications & Outreach at tracysallaway@trentu.ca

Tracy Sallaway
Maps, Data & Government Information Centre (MaDGIC)
Trent University Library

Mentoring Program Task Force

Dear ACMLA Members,

Our established ACMLA Mentoring Program is undergoing a facelift and we need the assistance from ACMLA members. The ACMLA Board of Directors has created a Mentoring Program Task Force. The taskforce's mandate is to evaluate the current program, research and evaluate other mentoring programs, and create a new mandate and framework for the mentoring program. The new mandate and framework will be presented to the membership at the next annual general meeting. The task force will be in place from March 2017 until July 2017.

The mentoring program coordinator, Rosa Orlandini, is looking for two volunteers from the ACMLA membership to work on this task force. If you are interested in joining the task force, please contact me at president@acmla-acacc.ca . For more information about the task force, please see the attached document.

Best Regards,
Deena

Bonjour à tous,

Notre programme de mentorat est en cours de rénovation et nous avons besoin de l'aide des membres de l'ACMLA.

Le conseil d'administration de l'ACACC a créé un groupe de travail sur le programme de mentorat. Le mandat du ce groupe de travail est d'évaluer le programme actuel, de faire des recherches et d'évaluer d'autres programmes de mentorat, et créer un nouveau mandat et un nouveau cadre pour le programme de mentorat. Ce groupe de travail sera en place de mars à juillet 2017.

La coordonnatrice du programme de mentorat, Rosa Orlandini, est à la recherche de deux participants de l'ACMLA pour travailler sur ce groupe de travail. Si vous souhaitez participer, veuillez me contacter au president@acmla-acacc.ca .

Pour plus d'informations sur le groupe de travail s'il vous plaît consulter le document ci-joint.

Merci,

Deena

Deena Yanofsky
President, Association of Canadian Map Libraries and Archives

MAPPING 18TH & 19TH CENTURY LAND SURVEYS

Nicholas Boyko
University of Waterloo

Introduction

As Canada was settled by the British in the 18th and 19th centuries, a series of surveys were completed. These surveys divided the country into counties or divisions, and further into townships. As well, these surveys included information about the existing infrastructure and vegetation, giving a small picture of the land cover at the time. This last point is perhaps the most currently useful characteristic of the initial surveys; if mapped in GIS or by hand, the historic vegetation of the areas can be determined and compared to later 19th century surveys of the same format, as well as more modern 20th and 21st century data. This data flexibility can allow for much improved historic analysis. The following guide introduces the general data format and provides direction on the mapping of historic survey data.

Format of Surveys

Various surveys from various people are in different units. The most common denominator is the unit of the surveyor's chain, or generally shortened to Chains. A chain is 20.1168 meters long, and there are 80 chains to the survey mile (Note that this is not a statute mile – although the two are very similar). Some surveys (more common in later surveys, which capture more detail) further break this down into links, which are each 1/100th of a chain (*Figure 1*).

Most land surveys of the time denote distance from a stated point in order to give position of features. The surveyor gives a feature to start from (Birch thicket, east of town, the heights by the creek, etc.), or a latitude and longitude, and then gives a bearing on which they will survey along. Depending on the type of survey (e.g. initial survey, or later detail survey), the entire survey may be along a single line, on a broken line, where the survey will change direction, or along the square borders of a township.

As well, it is possible that the surveyor may have surveyed multiple lines, and this would be denoted, but it is vital that one reads the entire document first in order to gain an understanding of what has been surveyed.

After the chain, however, it becomes a matter of identifying the units and style used by the individual surveyor. In this case, it is vital to possess some cartographic knowledge of units of distance and position in order to identify the system used. One common method for the initial surveys was to denote distance from a corner of a township in miles, followed by chains. A specific example is *William Hambly's 1795 Survey of Darlington Township*, which denotes use of this method.

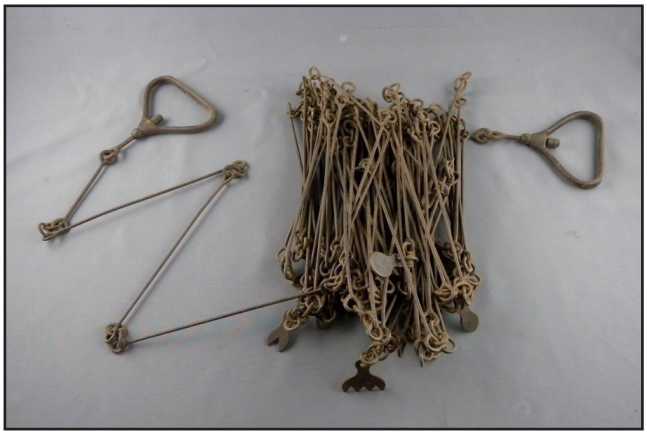


Figure 1. Surveyor's Chain (Image courtesy of the Jordan Historical Museum)

Another method is to show distance in terms of which concession the surveyor was in. Since the township system is a grid of generally equal measures, this is somewhat harder to tell, as the distance can vary county to county. As such, the best practice is to find an NTS or similar map of the county and measure the distance between concession roads manually. In this way, the measurements will be accurate.

There are also some surveys that give a latitude instead of a concession, and count up chains and links from there. The latitude will generally appear in the Notes column of the survey table.

Cadastral Surveys

Contemporary cadastral surveys are somewhat more confusing to reference without a map of the lots, as the lot size can vary between townships. An excellent reference in this case is a historical atlas of the area, as it will denote the lots, and even owners in most cases.

Boundary Surveys

Boundary surveys were most often completed as an initial survey of an area. Otherwise, they were performed as an initial step when surveying previously surveyed townships. A boundary survey is a survey of the vegetation around the perimeter of a given township or area. Depending on the time and the surveyor, they sometimes include lot numbers as the surveyor passed them, and almost all of them include the concession numbers as well. An example with the lot number is included below in *Figure 2*, and an example without is given in *Figure 3.*

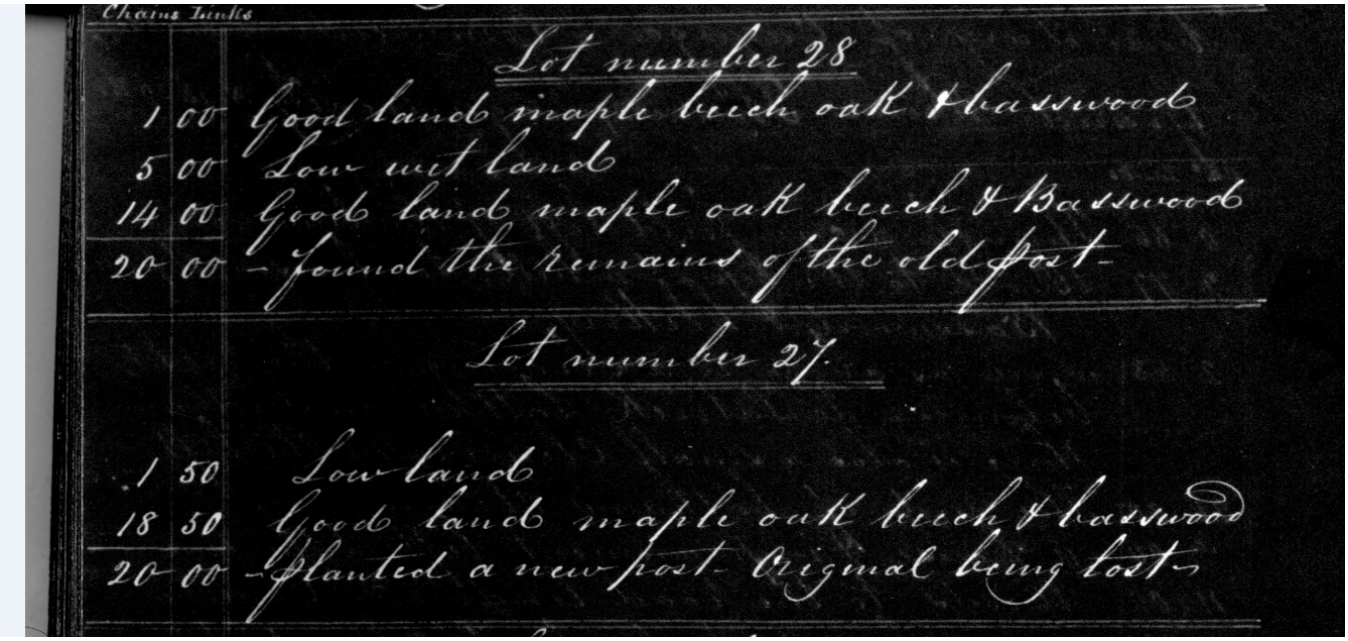


Figure 2: Boundary Survey with Lot numbers

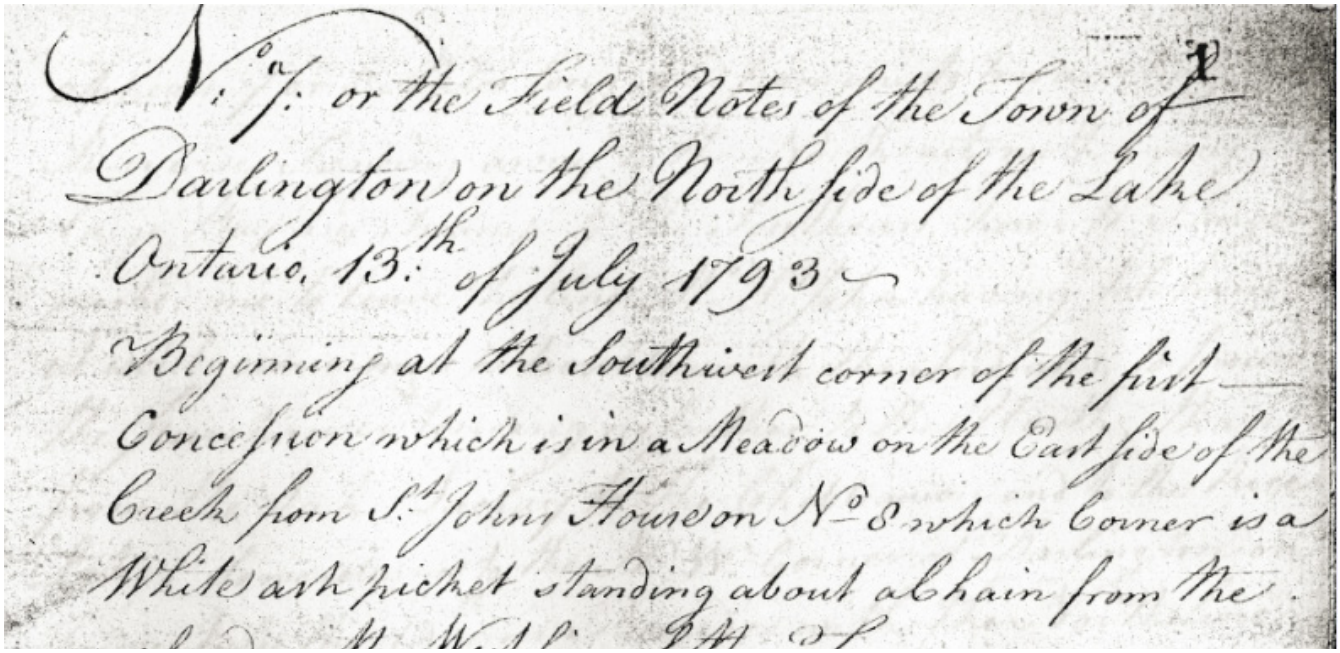


Figure 3: Boundary Survey without Lot numbers

The notes start with a description of the starting point of the survey. The surveyor would attempt to pick some permanent or semi-permanent feature such as a dense clump of trees, a church, a house, or a crossroad, if possible. These features would become the defining corner of each township.

Interior Surveys

The other major type of survey was the survey of the interior of a township. This was often done in conjunction with a boundary survey, unless the entire survey was for a portion of the entire township. These portional surveys will be given from either a set coordinate, or more likely from a landmark. As with other non-lot-based surveys, the features will be given as points along given distances on a given bearing.

Mapping

If more is desired from the survey than simple data, such as in the case of historical vegetation studies, then mapping is required. This falls into two broad categories: hand cartography, which is more straightforward, but requires georeferencing to bring onto a computer; and GIS-based cartography, in which the data are drawn in a GIS such as ArcGIS or QGIS.

Mapping by Hand

In the case of mapping out older land surveys, it can be considered easier to draw by hand, given a protractor, ruler, plenty of paper, and a pencil. Because most surveys follow a straight line, and the oldest (the surveys directly after acquisition of the land) follow the boundaries of the township, they can be easily drawn without any spatial reference.

Having gained an understanding of the units and styles of the survey notes, it is time to begin mapping. There are two main methods to mapping the surveys by hand: the unreferenced and the fill-in method. Each has its application and use, and each is suited best for different data.

Unreferenced Method

The unreferenced method is the best method for surveys that are a regular shape, such as the initial boundary survey of a township, or a single-line survey (such as one re-surveying a boundary). The unreferenced method has the advantage of being easier and faster to perform than the fill-in method, but is more prone to error than the fill-in method, and thus surveys with multiple survey lines are better suited to the fill-in method.

Performing the Unreferenced Method

The first step in mapping out surveys using the unreferenced method is to determine which scale one wishes to map at. This choice depends on what level of detail is present in the survey, as well as what one wishes to do with the map once complete. Choosing a scale that matches topographic maps of the area being mapped is a good choice, as it allows one to overlay the mapped data over the topographic maps, and thus compare data and position. However, if one is planning on later scanning and georeferencing the map, the scale is not of great importance, so long as the scale is consistent.

Having chosen the scale, the units to draw with are the next concern. The easiest to use will likely be centimeters, as they make for easy math after the conversion, and centimeter rulers are easy to come by. As well, it is key to convert miles to chains at 80 chains to the mile first, and use the links as the decimal of the chains (there are 100 links in a chain). With these in mind the *conversion factor* for converting from chains is as follows:

Convert Chains -> Centimeters (change miles to chains at 80 chains to a mile first)

Conversion Factor = 2011.68/Scale

Write this factor down, as you will use it extensively in the mapping process.

Finally, it is time to begin mapping! If the line you are drawing is unbroken, and does not change direction, then starting is easy: Determine the first and last points, and the distance between them (easy, since the distance in the notes is often the distance from the starting point), and draw a line in that scale distance on your paper(s). So, if the last point is 12 miles (a normal township) away from the first point, and you are drawing a map in 1: 25,000 scale, you can find the scale distance as follows:

12 *miles* × 80=960 *chains*
Conversion Factor = 2011.68/25000 =0 .0804672
.:Scale distance = 960 ×CF = 77.25 *centimeters*

Thus, you would draw a line 77.25 centimeters long.

If the line is broken by the surveyor changing direction, you draw the first section as a complete line as described above, then you calculate the difference in bearing between the first and second segment of the line, and use your protractor to draw a line that is whatever difference in bearing off from the first segment, and draw the second segment as above, and so on and so forth.

If the path branches, simply start the branched line from the main segment as above.

Once your line is drawn, you can begin to plot the vegetation and features along it. This is fairly simple once the line has been drawn. For each successive entry, convert the distance, and plot along the line you have drawn. It may be helpful to shorten the names of vegetation; i.e. Beech to Be, Poplar to P, etc. A sample set used by the University of Waterloo Faculty of Environment in the 1970s is included in *Table 1*.

Feature Type	Feature Abbreviation
Alder	Al
Ash	A
Ash black	Ab
Ash white	Aw
Basswood	Bd
Beech	B
Birch	B
Butternut	Bu
Cedar	Ce
Cherry	Ch
Chestnut	C
Cleared	Cl
Dogwood	Dg
Elm	E
Fallow	F
Fire	Fi
Hazel	Ha
Hemlock	He
Hickory	Hi
Hurricane	Hu
Improved Land	Imp
Maple hard	Mh
Maple Soft	Ms
Marsh	Ma
Meadow	Md
Mixed	Mi
Oak	O
Oak black	Ob
Oak red	Or
Oak white	Ow
Pine White	Pw
Plain	Pn
Poplar	Po
Sassafras	Sa
Sycamore	Sy
Tamarack	Ta
Thickets	T
Walnut	Wa
Wheat	Wh
Willow	W
Windfall	WF

Table 1. Abbreviations for features

The features are generally listed with what they are, where they trend (if it is a hill or stream), and how big they are (width of stream in chains), as well as information about the nature of the feature (e.g. clear water, very tall trees, young trees, good soil, loamy ground, etc.). If there is something going on around them (fire, human activity, etc.) it will generally also be noted, although this depends on the surveyor.

Continue this process until the survey is complete. At this point, you can overlay it on a same scale paper map and trace the features of the paper map, thus yielding a map showing the relative locations of the features once aligned correctly. In order to align correctly, one must determine the bearing upon which the survey started, and align the drawn map from the known starting point with the rest of the map. This can be checked by looking at the noted locations of more permanent features, such as creeks and large rocks, as well as by the knowledge that most surveyors remained on roads during their surveys. Alternatively, you can continue on to georeferencing or digitizing the map in a GIS program such as ArcGIS or QGIS,.

Fill-In Method

The fill-in method is a different approach to the map creation which involves tracing a pre-made map and drawing the features of a survey in. This method has the advantage of being more accurate than the unreferenced method, due to being constrained by an accurate dataset. This method has the downside of being somewhat time-consuming, and requiring both a paper map of the area in question, as well as appropriate tracing tools.

To begin, choose a map of the area that the survey you are interested is located within. The map should have enough detail that some or all of the features in the survey would be listed if the survey was made at the same time as the map. As such, 1: 25,000 NTS maps are a good choice, although you may require multiple, depending on the survey. If you have a historic map of the area in enough detail, that would be a good choice, provided you know the scale of the map.

With the map chosen, you can begin tracing features from the map onto your new map. Be sure to include attribution on your map of the original, and ensure that there are no restrictions on using the map as a source for features (insurance maps are not good sources for this reason. Provincial base maps and NTS maps are better choices). In tracing, ensure that your map is affixed somehow to the map you are tracing from, so as to ensure that there is no error in copying.

Trace key elements of the base map first, such as the concession and side line roads, which will serve largely as the basis on which you can locate surveyed features. Include rough outlines of large cities, and note any towns in the area. These should serve as a good starting point. If you wish to include clearly modern features, such as highways, you can, although they will likely not be relevant to the survey.

Drawing the map – line surveys & beginning a map

Drawing in the survey features in this method is much similar to that of the unreferenced method. Locate the starting point of the survey, which may be either a pair of coordinates, or may be a local reference that will require you to utilize air photos or Google Maps to locate. If the survey is the initial survey of a township, the starting point is generally a corner of the township, which is relatively easy to locate, but for other types of surveys it could be anything, but will be described.

Once the starting point has been located, the survey direction will be mentioned in the survey. This survey is generally along a road, so one can take advantage of this and find the road that most follows the direction given. To verify this is the correct direction, find a stream or other permanent feature in the survey and measure out the distance along the road to the stream on your map (or the traced map, if you did not include streams). If the feature is located where the surveyor wrote it was, you have the correct road.

Once you have the road you are drawing along, you can begin drawing features. Draw features along the road at the specified distance in the survey, converted to scale distance. To convert to scale distance, calculate as mentioned above, or as included here:

It is key to first convert miles to chains at 80 chains to the mile first, and use the links as the decimal of the chains (there are 100 links in a chain). With these in mind the conversion factor for converting from chains is as follows

Convert Chains -> Centimeters (change miles to chains at 80 chains to a mile first)

Conversion Factor=2011.68/Scale

What follows is an example of conversion:

12 miles ×80=960 chains
Conversion Factor = 2011.68/25000=0.0804672
.: Scale distance =9 60 ×CF = 77.25 centimeters

In this way, you can note any features mentioned in the survey, most easily by drawing a perpendicular line on the side of the road that the survey mentions (or both sides if none is mentioned), and noting the feature in abbreviated form.

Drawing the map – Cadastral surveys
In the case of cadastral, or property surveys, the features are generally listed under each property. In this case, it is vital to have contemporary property maps or atlases of the area in the survey, as the division of lots will not always be clear. If you have a scale-listed map and a contemporary map, but without scale, you can convert as follows:

Length Conversion Ratio: (Non-scale distance between concessions)/(Scale map distance between concession lines)

Width Conversion Ratio: (Non-scale distance between side lines)/(Scale map distance between side line roads)

Scaled map lot dimension: (Non-scale lot dimension (x or y))/(Relevant conversion ratio)

Then, simply draw in the lots at the appropriate dimensions, and label by number according to the contemporary map (not by name, there's a good chance the surveyor used the numbers as well). If you do not have numbers, attempt to figure the number system out using topographic features listed in the survey and cross-reference with the base map.

Once you have the lots labelled, you can begin to fill in features. This is just a matter of matching lots and measuring out what distances are mentioned in some entries in the survey notes.

Mapping in a GIS: ArcGIS

Mapping the survey data in a GIS is very similar to the fill-in method listed above in that everything is done with reference to base materials. However, there are some advantages and disadvantages to mapping in a GIS. The chief advantage is the applicability of the data once mapped. Once mapped in a GIS, it is easy to compare historic data to current data, and paint a picture of change over time. The chief disadvantage is the need for accuracy and the difficulties in drafting common with GIS, as well as the need for underlying GIS knowledge, not to mention the costs in acquiring some GIS software.

Step 1: Acquiring Data
To map the survey data, unless precise coordinates are given, you will need some other data to create your map. Luckily enough, most of this data is publicly available. The main datasets you will need are the roads and the geographic township data, both of which can be acquired from provincial open data sites, such as the Province of Ontario's Open Data website (https://www.ontario.ca/data/). Ensure that the first data you add is in a projected coordinate system. This is important, as ArcMap will force all your other data into a GCS if the first data is not projected, and will be unable to convert units or edit properly.

The data, once added to ArcMap, will look something like what is shown in *Figure 4.* In order to make the map easier, use the *Select By Features* tool to select the township(s) you are interested in. Once you have selected your townships, right click on the layer in the *Table of Contents* and export the selection as a shapefile under the *Selection* submenu. As you add data, you will want to clip them to the township(s) you have selected.

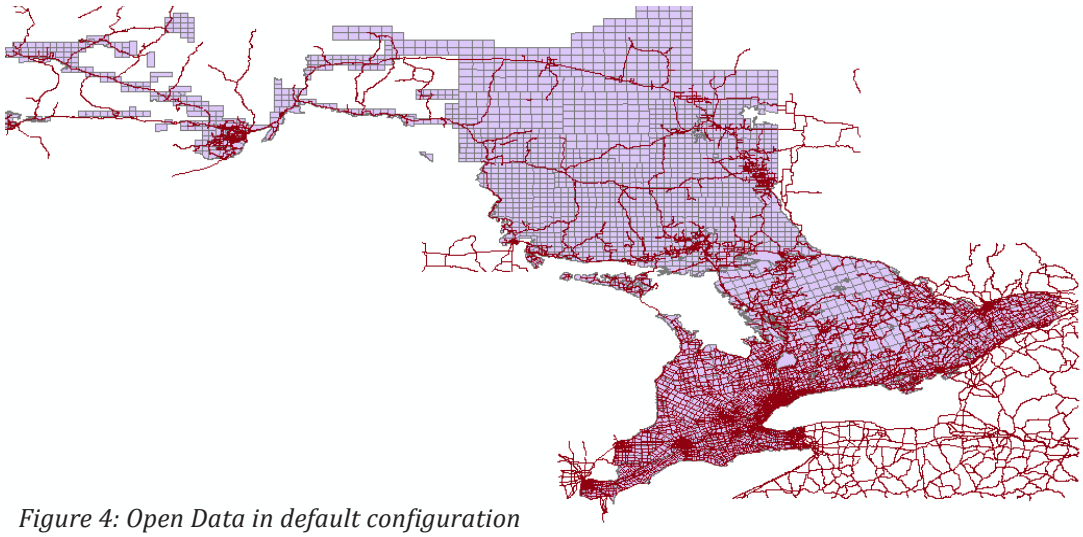


Figure 4: Open Data in default configuration

At this point, you are ready to begin drawing most surveys, although you may wish to acquire stream data, or symbolize roads based on size. If the area you are mapping has higher quality data available on the county or region open data site, it is highly recommended that you use that data instead, as the provincial data is often not complete in terms of local side line roads, as shown in the example township of Darlington in *Figure 5*, below, where the base line road, which is necessary to locate the start of the township, is not included.

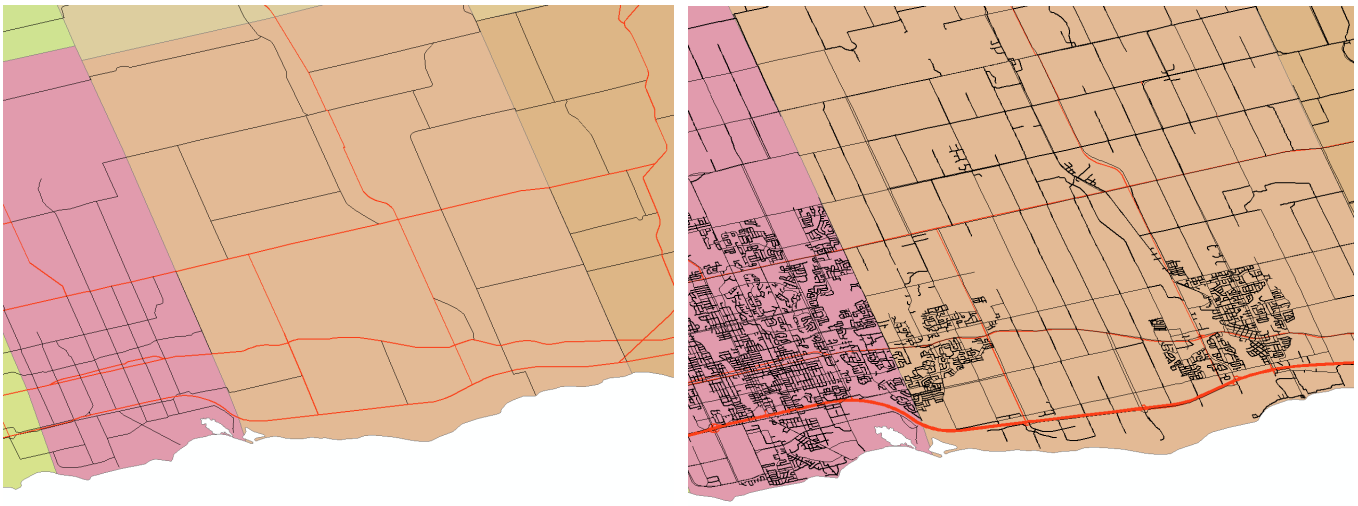


Figure 5: Missing roads – compare left (province open data) and right (county open data)

Mapping

To begin mapping, locate the start of the survey. Use the relative or absolute reference the surveyor uses to locate this, and acquire more data if necessary. In this tutorial, the first line of the 1795 boundary survey of Darlington Township by William Hambly will be mapped. As such, Mr. Hambly states that the survey

"[began] at the Southwest corner of the first Concession which is in a Meadow on the East Side of the Creek from St. John House on No. 8 which Corner is a White ash thicket standing a Chain from the upland on the West line of the Town.[1]

[1]Hambly, William. *Report and Field Notes of the Survey of the Township of Darlington* [survey]. Department of Lands and Forests, 1795.

This is a relatively easy location to find, even though Mr. Hambly was quite verbose in his description. Often, older surveys describe the area at the beginning in great detail, so as to make location on the ground easy for future readers. However, with the great volumes of data available to us, it is easy to locate the southwest corner of the First Concession. Given that townships are laid out in a regular fashion, the southwest corner of the first concession is the point at which the baseline road meets/would meet the next township over. It is necessary to specify the baseline road, as there is often a section of shoreline around lakes that is included as an extra portion of the township, but is not included in the grid.

Using the *Identify Features* tool, we can find which road is the baseline road fairly easily. Once found, we can find the connection point using a ruler on the screen, or an Arc ruler and create a point at the location with the *Editing Toolbar*. To do so, we will first use the tool *Create New Feature Class*, which can be found by searching for it using the search tool in *Geoprocessing*. Make the new layer a Point layer, and put it somewhere relevant. Give it a reasonable name, and then add the *Editing Toolbar* to your ArcMap window, by right clicking anywhere on the toolbars at the top. Click the Editor dropdown menu, and Start Editing. Use the Create Features window to create a point where the start of the survey is. Click Save Edits and Stop Editing after you create the point. You may have to add the Create Features window, if it is not there already.

The next step is to draw a line along which the surveyed points will fall. If the survey occurred along the township boundary, then this step is not necessary, as you can simply place points along the boundary, however if this is not the case, the process is a little more involved. Create a new Feature Class using the tool as before, and begin editing. Create a line that is as long as the survey you are mapping, along the direction of the survey. As noted above, ArcMap provides direction counterclockwise from East. Distance at the bottom while editing is given in map units, and distance when created specific length lines is in map units by default. If you press Ctrl-G, you can enter an exact bearing (clockwise from East) and a distance, which you can provide a unit for.

At this point, you will likely want to make a list of the points you will be drawing, and convert them to map units. Since you are not creating a physical map, you do not have to convert scale. Thus, if your map units are meters, you simply multiply a chain value by 20.1168 meters.

Next, using either the *Direction/Length* tool and the *Point at End of Line* tool in Create Features, or using the *Measure* tool, you can start placing your points. You can either edit the attributes of points as you go, or edit them after you have finished placement. Note that if you use the *Point at End of Line* tool, you can forgo the creation of the survey line in the previous step.

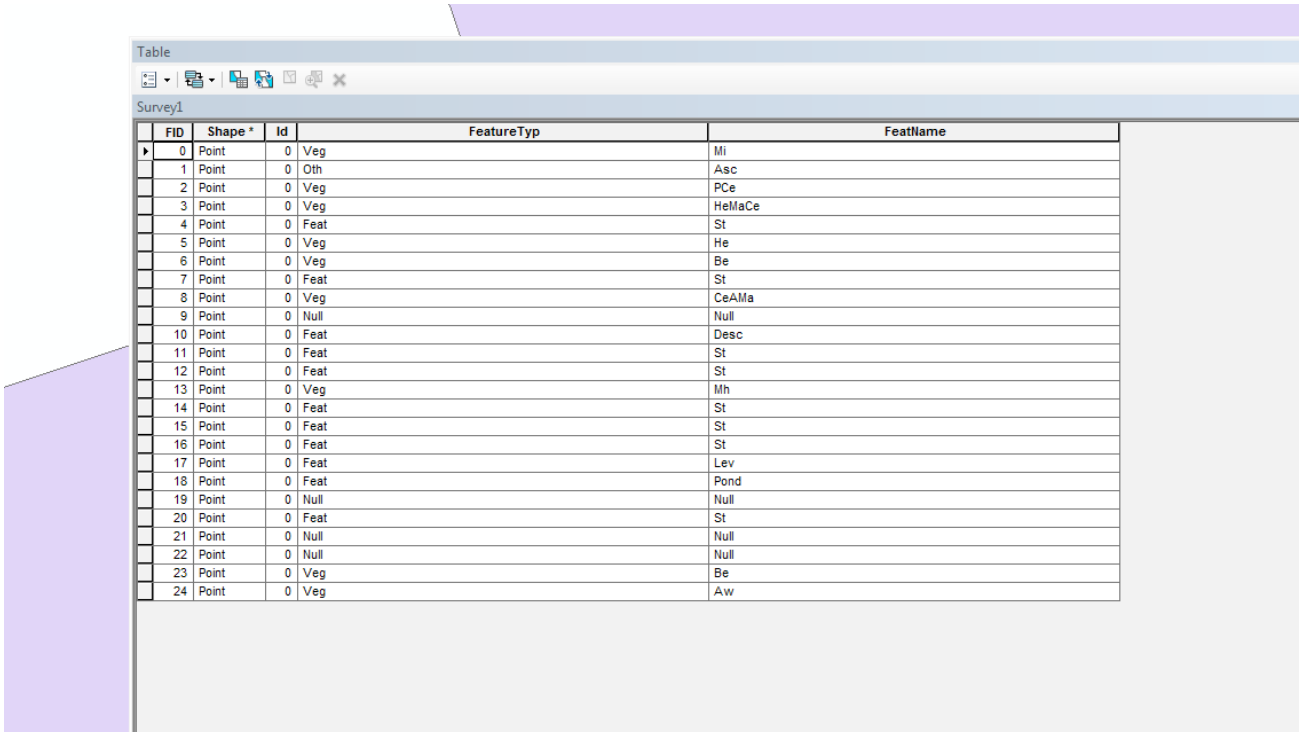
Editing Attributes

When adding attributes to your points, you may want to take one of two approaches to classification. The first is to use a numbered system, in which each number is coded to a feature value. This is preferable if you are within a geodatabase, as coded values can be used as a domain. Another possibility, and the one used in the example, is to use text based classification. In either, case, you will need to create one or more additional fields outside of the edit session, by opening the attribute table of your survey points, and adding the fields. Depending on your use for the data, you will want to change this form of representation.

Now that you have your fields, start an *Edit* session, and open the Attributes task pane. Next, using the *Edit* tool, you will want to select each point in turn, and add the data from the survey notes.

As shown in *Figure 6*, you may not be able to get detailed data for each point. As such, you could assign a vegetation data value based on the nearest known vegetation, or leave without.

With the attributes complete, your survey has been fully encoded! You can now use the Search by Attributes function to select points with given vegetation for the creation of new layers or for further analysis, such as conversion to polygons or comparison with modern data.



Table

Survey1

FID	Shape *	Id	FeatureTyp	FeatName
0	Point	0	Veg	Mi
1	Point	0	Oth	Asc
2	Point	0	Veg	PCe
3	Point	0	Veg	HeMaCe
4	Point	0	Feat	St
5	Point	0	Veg	He
6	Point	0	Veg	Be
7	Point	0	Feat	St
8	Point	0	Veg	CeAMa
9	Point	0	Null	Null
10	Point	0	Feat	Desc
11	Point	0	Feat	St
12	Point	0	Feat	St
13	Point	0	Veg	Mh
14	Point	0	Feat	St
15	Point	0	Feat	St
16	Point	0	Feat	St
17	Point	0	Feat	Lev
18	Point	0	Feat	Pond
19	Point	0	Null	Null
20	Point	0	Feat	St
21	Point	0	Null	Null
22	Point	0	Null	Null
23	Point	0	Veg	Be
24	Point	0	Veg	Aw

Figure 6: Filled Fields

Conclusion

The use of historic survey data can be much enhanced with modern GIS techniques. With the use of this historic data, more and more accurate historic studies can be completed, using a larger quantity of data. The integration of historic data within a GIS is a method by which more use can be made of many historic maps and other physical data currently unused, allowing for greater accuracy and breadth in historic-based GIS analysis.

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BREATHING NEW LIFE INTO OLD HISTORICAL GIS DATA

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Most academics who've written about Historical GIS have discussed the high-cost of building HGIS projects (Gregory and Ell, 2007). Building any GIS project is an expensive endeavour. Few, however, have mentioned the benefits of the ongoing nature or the extended length of some projects; and the long-term benefits of data projects Ontario Historical County Map Project (OCMP) < http://maps.library.utoronto.ca/hgis/countymaps/> and the Don Valley Historical Mapping Project (DVHMP) <https://maps.library.utoronto.ca/dvhmp/> are two projects that have benefitted from the long-tail of their existence in order to continue to develop and enjoy useful applications and use of the long-ago-built (or still being built) historical data.

The OCMP was conceived a few years after the release of the well-known Canadian County Atlas Project <http://digital.library.mcgill.ca/countyatlas/search.htm > at McGill University Libraries in the late 1990s. Nineteenth century County Maps were generally published earlier than the County Atlases. The Atlas project focused solely on the bound maps, and the OCMP focuses only on the earlier large-format maps. Like the Atlas project, however, the main focus of the County Map Project is to allow for the querying of land occupant names found on the maps, and the display of the names on images of the historical maps.

While the McGill project did not use any GIS technology for displaying name information, it did take advantage of the web-technology of its day to graphically lay-out images of the atlasplates, and PHP to link image locations within the database of land-occupant names. The Atlas project was certainly an inspiration to us in developing the Ontario County Map Project.

In contrast to the types of tools used in the Atlas Project, the OHCMP has been a GIS project from the beginning. Like the Atlas Project, however, we also wanted to ensure that users of the County Map project could benefit from web technology to view the maps and GIS data. Being a GIS database, however, a new method of dissemination would need to be used.

Early tests of web technology were pre-Google and used what is now archaic web-mapping software. Our first attempt in 2004 utilized Esri's ArcIMS (Internet Map Server), made available to us as part of our campus site license with Esri Canada. We loaded our entire database into ArcIMS as a test, which at the time consisted of only Waterloo and Brant counties. Somewhat surprisingly, we were able to build a sophisticated querying tool and managed to display the georeferenced county map scans in the online map.

While yielding relatively impressive results for the time (if one were patient enough to wait for results of a query or a zoom-in or -out) it was clear that this setup was less than ideal as the software was extremely difficult to install, very slow to render results, and gave us difficulties finding adequate server space on which to permanently install the software. Due to the limitations of available software, developing a web map of the land occupant names of the project was put on hold. Of course Google Maps changed the entire web-mapping landscape in 2005. Despite the adoption of Google Maps by many to display their data on the web, our attempts were hampered by the now large size of our land occupant database. While MySQL was often used to work alongside PHP and the Google API at the time, the conversion of our geospatial database into a MySQL database would have been a step back in the GIS development of the project.

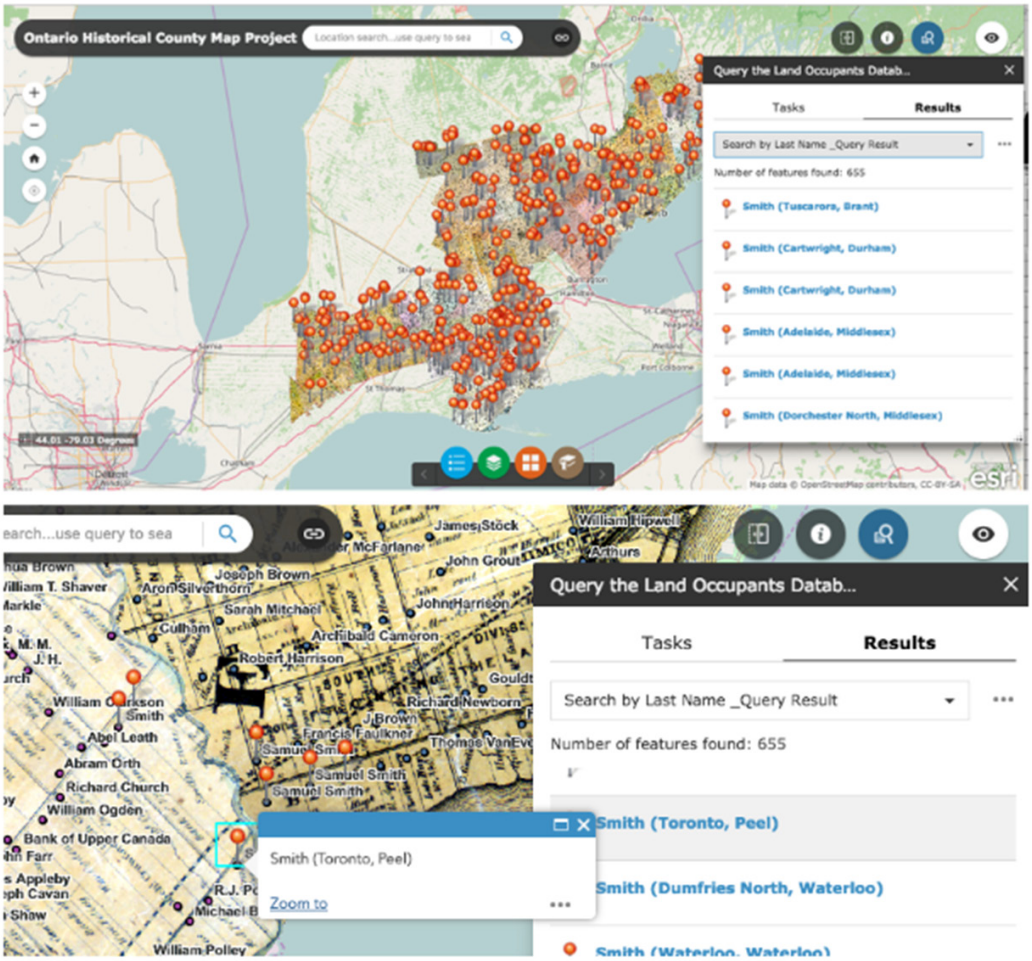
Other more recent attempts at using web-mapping technology in 2013 also included a Mapserver configuration with OpenLayers and a PostgreSQL

geospatial-enabled database using PostGIS. While the shapefile data did need to be converted to PostGIS, this setup at least promised the maintenance of our database in a GIS environment, compared to using MySQL. The resulting web-map was very promising, but required quite a bit of coding and manipulation. Having no programmer on the team or any funds to hire one, my programming of the application was limited to a six month research leave and the odd-slow day at the Map and Data Library. Without a programmer, it was clear this solution was less than ideal and would take years to complete.

Openlayers-Mapserver-PostGIS rendition of the Ontario Historical County Map Project

For many years I ignored ArcGIS Online <https://www.arcgis.com/home/index.html> as possibly an overblown idea by Esri. How could one actually build an online tool with GIS functionality and get us to buy into it, I always wondered. However, its popularity grew so much among our U of T users that I eventually needed to learn how to use it to be able to support it. What better way to teach myself how to use ArcGIS Online than to load the County Map Project data, I decided. To my immediate surprise, ArcGIS Online was not only fun and full of great GIS and web-mapping features; it also had the Web AppBuilder application built into it Along with dozens of Story Map templates, the Web AppBuilder allows you to take your GIS data into a web skin where you can add customizable widgets that work extremely well, even in mobile browsers. Being able to query or filter the 80,000 or so names in our database was a key consideration in adopting any web technology for the project. ArcGIS Online delivered this amazingly well, and also allowed for the rendering of high-resolution images of the scanned County Maps. The ease of use and customization of web apps without the need for coding are also fantastic selling points. Other fun but useful widgets include using animated timelines of. "time-enabled" data, and a swipe tool that allows for viewing two datasets on top of the other and sliding a toolbar to switch between displays.

Adopting ArcGIS Online as a web-mapping tool has allowed the project to be out in the public eye where users can actually take advantage of the data built over the past 15 years. I never thought we would have a web-mapping solution before we finished the database, but as it stands, I am pretty happy with most of the functionality of the web app at this point, as our database continues to grow and we continue to compile more land-occupant names from Historical County Maps. Interestingly, while writing this post I actually received three email messages about the project and requests for further information from users of the County Maps site. Without making our data available in this powerful way, I doubt our project would have drawn so much attention.



ArcGIS Online version of the Ontario Historical County Map Project with Querying tool display

Inspired by my success with the web-app builder tool, I decided to also build an app for the DVHMP and found that the data we had built over seven years ago really came to life on the web. Being able to query the data and render both polygon and point data together in one view online is empowering.

ArcGIS online is of course not the only tool that has taken advantage of web-mapping and cloud computing advancements to allow users to build their own web map apps. Products such as Mapbox are also increasing in popularity because of their ease of use, powerful functionality and customizability, and the attractiveness of the final map product.

Web Mapping has been around since the 1990s, but with new advanced web-mapping technology like ArcGIS online and Mapbox, it may be time for many other dormant or long-forgotten HGIS datasets to be pulled out of hard drives, or USB sticks to be given new life displayed in easily created yet powerful web maps. I am excited at the thought of possibly seeing the Montréal Avenir du Passé data for instance, available for display on a web map for all to interact with.

The Canadian HGIS Partnership is investigating many web-mapping tools and visualization methods. We are also working with Esri Canada, as part of the GeoHist project, to provide specific HGIS requirements for online mapping tools. With the powerful components already available in ArcGIS online, Mapbox, and other web mapping tools, the future of web-mapping for HGIS is certainly very exciting and accessible to anyone interested in developing them without the need to code.

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Gregory, Ian, and Paul S. Ell. Historical GIS: Technologies, Methodologies, and Scholarship. New York: Cambridge University Press, 2007.

EMBELLIR POUR MIEUX DIRE : DES ORNEMENTS SUR LA CARTE DE L'AMÉRIQUE DE JODOCUS HONDIUS (1606)

Alban Berson
Bibliothèque et Archives nationales du Québec

Si une carte est la représentation d'un territoire, elle témoigne bien souvent aussi d'une vision du monde. C'est le cas de cette carte du continent américain gravée par le Flamand Jodocus Hondius (1563-1612) en 1606 à Amsterdam et dont BAnQ vient d'acquérir un exemplaire d'une édition publiée en 1613 ou 1616[1] par sa femme, Coletta van den Keere[2]. Bien qu'il fût lui-même cartographe, Hondius se considérait avant tout comme l'éditeur de l'œuvre de Gérard Mercator (1512-1594) dont il avait acquis les plaques dix ans après sa mort[3]. En 1606, en dépit de la concurrence du superbe atlas d'Abraham Ortelius, la première édition par Hondius de l'atlas général de Mercator est épuisée dans l'année[4]. Dans cet ouvrage, jusqu'en 1630, coexistent deux cartes de l'Amérique entière : l'une gravée par Michael Mercator, petit-fils de Gérard, l'autre, cette *America*, œuvre compilatoire de Hondius. Mais alors que la première est accompagnée d'un texte décrivant le continent, *l'America* de Hondius n'est associée à aucun commentaire[5]. Cette absence rend d'autant plus précieux les différents ornements qui non seulement l'embellissent mais aussi accroissent sa richesse documentaire : Amérindiens s'affairant autour d'un chaudron ou naviguant sur des canoës, monstres marins, oiseaux tropicaux, bateaux familiers ou plus exotiques ; aucun de ces éléments n'est purement décoratif. Au contraire, cette iconographie est chargée de sens et contribue à étoffer la vision du Nouveau Monde exprimée par la carte

L'Amérique juste avant Champlain

Utilisant la projection stéréographique plutôt que celle de Mercator, Hondius donne à voir une Amérique du Nord très élargie. Le carton situé à gauche du titre précise en latin que le continent est inconnu au-delà de ce point et relativise les conjectures concernant un passage du Nord-Ouest par le détroit d'Anian. La carte continentale de Hondius sert en cela de contrepoint aux deux réalisations de Gérard et Michael Mercator présentes dans le même atlas qui, elles, représentent ce passage tant recherché notamment par Davis et Frobisher[6]. La forme triangulaire de Terre-Neuve est typique des travaux d'un autre Amstellodamois, Petrus Plancius[7]. La Nouvelle-France est parsemée de toponymes français, portugais et amérindiens tirés principalement de l'œuvre de Cornelis van Wytfliet, ce dernier s'appuyant sur les cartographes dieppois. Si une partie de cette nomenclature a survécu, parfois en se déplaçant ou en se modifiant, la majorité est tombée en désuétude avec l'œuvre d'exploration et de colonisation de Champlain[8]. L'observateur contemporain ne manquera pas de remarquer l'absence des Grands Lacs. La côte Est des actuels États-Unis est représentative des productions de l'époque avec toutefois une singulière protubérance de la Virginie. Quant à la Nouvelle-Espagne, Hondius la rapproche de ses proportions réelles en la rétrécissant encore un peu au niveau du Tropique du Cancer[9].

[1]Burden, Philip D., *The mapping of North America : list of printed maps, 1511-1670*, p. 183-184
[2]Préface à Mercator, Gerardus, *Atlas or a geographicke description of the world*, p. VIII
[3]Woodward, David, et al., *The history of cartography*, Vol. 3 part. 2, p. 1313
[4]Burden, Philip D., *The mapping of North America : list of printed maps, 1511-1670*, p. 183
[5]Ibid.
[6]Au sujet de *Septentrionalium terrarum desciptio* de Gérard Mercator, voir Palomino, Jean-François, *Le point de vue fascinant de Mercator* in À rayons ouverts, n. 93 automne 2013, p. 32-33
[7]Burden, Philip D., *The mapping of North America : list of printed maps, 1511-1670*, p. 183
[8]Au sujet des toponymes sur les cartes de la Nouvelle-France avant Champlain, voir Litalien, Raymonde, Jean-François Palomino et Denis Vaugeois, *La mesure d'un continent : atlas historique de l'Amérique du Nord, 1492-1814*, en particulier p. 1, 4, 46 et 48
[9]Burden, Philip D., *The mapping of North America : list of printed maps, 1511-1670*, p. 183

Le cartographe incorpore également une nouvelle représentation plus fidèle de la côte Ouest de l'Amérique du Sud. L'étroitesse du détroit de Magellan est caractéristique de la période marquée par la présence imposante de la Terre Australe au sud du globe. Les ornements sont harmonieusement répartis sur les océans et leur iconographie, comme c'est souvent le cas, fait la part belle à l'Amérique du Sud, mais pas seulement. Le point d'orgue esthétique de l'ensemble est ce carton représentant une scène amérindienne sur le cadre duquel sont perchés deux oiseaux emblématiques.

Le Perroquet et le toucan

Thevet, André, *Les Singularitez de la France antarctique autrement nommée Amerique & de plusieurs terres & isles decouvertes de notre temps, 1558, p. 91*

Dans son ouvrage au sujet de la représentation de la faune sur les cartes géographiques anciennes, Wilma George soutient la thèse que certains animaux symbolisent des régions du monde de la même façon qu'une bannière identifie un chevalier[10]. Hondius, comme en général les Européens cultivés depuis l'Antiquité, connait le perroquet, présent en Inde ainsi qu'en Afrique sub-saharienne et mentionné plusieurs fois dans le texte de son atlas[11], parfois sous parfois sous le nom de *papagay*[12]. Sur *America*, il l'utilise comme emblème du continent : c'est l'illustration la plus grande par rapport aux dimensions réelles du sujet et son emplacement au coin du carton amérindien le rend immanquable au lecteur qu'il parait accueillir[13]. Selon une légende tenace, le 12 octobre 1492, le regard de Christophe Colomb aurait été attiré vers la terre par un vol de perroquets. On sait que le navigateur ramena une quarantaine de ces oiseaux de sa première expédition. Comme le souligne Wilma George, les premiers explorateurs, parmi lesquels Vespucci, Cabral et Corte Real, ne manquent jamais de mentionner dans leurs récits la splendeur, la longueur du plumage et la variété des couleurs des aras[14]. Dans les *Grands Voyages* de de Bry (1592) figure une scène dans laquelle les Français achètent quelques uns de ces volatiles aux indigènes, accompagnés de singes et de poivre[15]. En somme, le perroquet est, dans l'imaginaire collectif européen, associé à l'Amérique tropicale depuis le commencement des grandes découvertes. Dès 1502, l'animal fait son apparition cartographique sur le planisphère de Cantino, un groupe de trois grands aras rouges occupant l'intérieur du sous-continent[16]. De même, en 1507, la première carte imprimée à représenter un continent distinct du nom d'Amérique, le planisphère de Waldseemüller, fait figurer à l'intérieur des terres un spécimen isolé accompagné de la mention *rubei psitaci* : perroquet rouge. Les exemples de cette convention se multiplient au cours du XVI[e] siècle. En 1562, une des cartes murales les plus richement ornées, dessinée par Gutiérrez et gravée par Cock, en représente quatre dont deux en vol autour du cartouche. Sur cette *America*, Jodocus Hondius perpétue ce qui s'apparente à une tradition de plus d'un siècle.

[10]George, Wilma B., *Animals and maps*
[11]Notons que ce texte a été augmenté par Petrus Montanus du vivant de Hondius. Si le propos a certainement été validé par ce dernier, les articles n'étant pas signés on ne peut en distinguer les contributeurs.
[12]Par exemple : Mercator, *Gerardus, L'atlas de Gerard Marcator : de nouveau reveu, toutes les cartes corrigez et en outre augm. d'un appendix par Josse Hondius*, p. 664. Les mentions de la faune se raréfient dans l'édition abrégée.
[13]Notons que la couleur est ici un ajout très postérieur à la production de la carte destiné à en augmenter la valeur marchande. Sur l'exemplaire de BAnQ, le perroquet est rose ; sur d'autres exemplaires examinés, il est rouge, vert ou de plusieurs couleurs. En outre, la représentation des animaux sur les cartes est souvent peu fidèle au sujet. Il n'est pas étonnant que ce perroquet ressemble à une perruche.
[14]Dickenson, Victoria, *Drawn from life : science and art in the portrayal of the New World,* p. 57 et 60
[15]Bry, Théodore de, *Le théâtre du Nouveau Monde : les grands voyages de Théodore de Bry présenté par Marc Bouyer et Jean-Pierre Duviols*, p. 114 et 216
[16]Dickenson, Victoria, *Drawn from life : science and art in the portrayal of the New World*, p. 57 et 60

Comparé au perroquet, sur les cartes géographiques anciennes, le toucan fait figure d'oiseau rare. Sa présence est une des touches personnelles de Hondius. Si le premier européen à rapporter l'existence du toucan est l'Espagnol Gonzalo Fernàndez de Oviedo en 1526 dans son *Ouiedo de la natural hystoria de las Indias*, il faut attendre L*es Singularités de la France antarctique* d'André Thevet en 1557 pour qu'une gravure attribuable à Jean Cousin offre à voir la morphologie si particulière de « *cet oyseau merveilleusement difforme et monstrueux, ayant le bec plus gros et plus long quasi que le reste du corps* »[17]. Décidément impressionné par cette créature, Thevet lui consacre un chapitre entier dans lequel il mentionne avoir ramené du Brésil un chapeau confectionné avec des plumes de toucan qui « *a été présenté au Roy comme chose singulière* »[18]. Le livre de Thevet étant un ouvrage majeur de la littérature de voyage, il est difficilement concevable que Hondius ait pu ignorer une source si précieuse. On ne peut en revanche pas affirmer qu'il y ait puisé le modèle principal de son dessin tant les deux représentations du même oiseau diffèrent. Toutefois, Hondius a collaboré avec Petrus Plancius (1552-1622), un érudit versé dans plusieurs sciences. Or, Plancius a formé deux navigateurs, Heyser et Houtman, à la cartographie[19]. Ces Néerlandais sont à l'origine de la création de douze constellations australes que Plancius reproduit dans le globe céleste qu'il présente en 1600[20]. Parmi ces constellations, aux côtés d'animaux fantastiques comme le phénix ou l'hydre mâle, on retrouve le toucan. Hondius ayant lui-même fabriqué ce globe[21], on comprend que le toucan, si prisé dans son entourage, l'ait lui aussi marqué, au point qu'il le représente quelques années plus tard sur une de ses cartes les plus ambitieuses, comme pendant au perroquet, les deux oiseaux servant d'emblème au Nouveau Monde.

D'ingénieux autochtones

Bry, Théodore de, [*Grands voyages : Americae. IXe partie*], Francofurti : Excudebat Matthoeus Beckerus, 1602, p. 22

Les scènes d'Amérindiens dans le carton au bas de la carte sont tirées d'une planche du *Voyage au Brésil* (1592) du huguenot Théodore de Bry dont Hondius a réorganisé les éléments[22]. Elles reconstituent de droite à gauche les trois phases de préparation rituelle d'une boisson alcoolisée: la mastication par les femmes, la cuisson et la fermentation, puis les libations qui s'en suivent[23]. L'ensemble des commentateurs de la gravure d'origine se rejoignent sur la ressemblance entre ces Tupinambas et d'anciens païens, l'Antiquité européenne servant de point de référence pour appréhender l'étrangeté fondamentale des autochtones. Leur nudité, notamment, fascine les explorateurs à bien des égards[24].

La barque flottant sur les côtes orientales de l'Amérique du Nord est un autre emprunt à de

[17]Thevet, André, *Les Singularitez de la France antarctique autrement nommée Amerique & de plusieurs terres & isles decouvertes de notre temps*, 1558, p. 91
[18]*Ibid.*
[19]Hockey, Thomas, et al., *The biographical encyclopedia of astronomers*, p. 911
[20]Woodward, David, et al., *The history of cartography*, Vol. 3 part. 2, p. 1363
[21]Kanas, Nick, *Star maps: history, artistry, and cartography,* p. 231
[22]Bry, Théodore de, *Le théâtre du Nouveau Monde : les grands voyages de Théodore de Bry présenté par Marc Bouyer et Jean-Pierre Duviols*, p. 119
[23]*Ibid.* p. 221
[24]Sur la nudité des Amérindiens, voir Litalien, Raymonde, Jean-François Palomino et Denis Vaugeois, *La mesure d'un continent : atlas historique de l'Amérique du Nord, 1492-1814*, p. 61

Bry, tiré cette fois du *Voyage en Virginie* (1590). Quant au canoé situé au Sud du continent, il est tiré d'une gravure du huguenot intitulée *Hollandi in Freto Magellanico*[25]. Les deux embarcations ont en commun de témoigner d'un savoir-faire qui semble avoir fait forte impression sur Hondius. En effet, selon de Bry[26], les Amérindiens de Virginie emploient une méthode ingénieuse pour la construction de leurs barques. Ne disposant pas d'outils métalliques, ils raclent l'écorce d'un tronc d'arbre à l'aide de coquillages puis le creusent en y allumant un feu soigneusement contrôlé[27]. « Construit avec du feu » écrit Hondius dans la légende associée au canoé, « le feu exulte », insiste-t-il sous la barque. Il est particulièrement intéressant ici de constater la sélection effectuée par Hondius parmi les gravures de de Bry. Alors que les œuvres du Français abondent en scènes de guerre, torture, cannibalisme et autres violences, le Flamand a choisi de reproduire une minorité d'illustrations documentant un artisanat proprement amérindien. Il est tentant de voir dans ce choix la reconnaissance d'une industrie originale, jusqu'alors inconnue, par un graveur et cartographe se considérant lui-même, avant tout, comme un habile et minutieux artisan.

Des monstres en voie d'extinction

Les poissons volants, également tirés de de Bry[28], côtoient dans les eaux des créatures encore plus étonnantes : des monstres marins. Hondius est un des derniers grands cartographes à en représenter. Force est de constater que ce ne sont pas les ornements pour lesquels il a cherché à atteindre le plus haut degré de finition[29]. Il semble se conformer à l'usage du temps sans grande conviction. De manière générale, dans son atlas, Hondius fait preuve d'un esprit incrédule. Lorsqu'il puise dans une relation de voyage une anecdote de l'ordre du fantastique, il s'empresse systématiquement d'en mettre en doute la véracité[30]. Celles de Champlain, dont Hondius est contemporain, sont relativement fidèles. Il les dessine comme les créatures familières qu'elles sont au navigateur chevronné. Mais il s'agit là d'exceptions. Depuis le X^{e} siècle, au moins, des monstres diversement fantaisistes figurent sur les cartes marines[31]. Spécialiste de la question, Chet Van Duzer examine plusieurs théories sur cette présence fabuleuse. Une des plus séduisantes soutient que, tout comme la carte dévoile un territoire inconnu, la représentation d'êtres surnaturels offre à l'observateur une vue sur des merveilles de la Création habituellement dissimulée dans les profondeurs océanes[32]. Cette fonction de révélateur des merveilles du monde atteint son apogée en 1539 dans la *Carta Marina* du Suédois Olaus Magnus, dont les nombreux monstres, non seulement représentés avec soin mais également décrits textuellement, tels que, par exemple, le rhinocéros de mer, l'arbre à canards ou le kraken, sont la source d'inspiration principale des ornements animaliers de Gérard Mercator. Sur son globe de 1541, au-dessus du cartouche, Mercator copie de Magnus cette même créature chevaline qu'on peut contempler dans une version dépouillée sur la présente carte de Hondius, nageant au large du Pérou. Aussi étonnant que cela puisse paraître, il s'agit de la représentation conventionnelle à l'époque du cachalot[33], auquel la mâchoire et les dents ont peut-être valu ce portrait équin[34]. Hondius l'accompagne d'une baleine à la Magnus dans l'Atlantique Sud ainsi que d'un autre cétacé plus naturaliste en plein Pacifique. Ces créatures fantastiques se raréfieront au point de s'éteindre presque complètement au crépuscule du XVII^{e}, en une fin de Crétacé cartographique.

[25]Bry, Théodore de, [*Grands voyages : Americae. IXe partie*], p. XXII
[26]Qui se base sur le témoignage de Thomas Harriot, A Briefe and *True Report of the Newfoundland of Virginia*, 1588
[27]Bry, Théodore de, *Le théâtre du Nouveau Monde : les grands voyages de Théodore de Bry présenté par Marc Bouyer et Jean-Pierre Duviols*, p. 143-144
[28]*Ibid*. p. 203
[29]La bête qui ressemble à un requin-marteau, au large de la Californie, est tout juste ébauchée.
[30]Par exemple au sujet de la présence de licornes (probablement des narvals) au Groenland : Mercator, *Gerard, Atlas, ou représentation du monde universel et des parties d'icelui, faicte en tables et descriptions très amples et exactes, divisé en deux tomes*, vol. 1, p. 73.
[31]Notons que la majorité des cartes est exempte de ces monstres.
[32]Van Duzer, Chet, *Sea monsters on medieval and renaissance maps*, p. 12
[33]Nigg, Joseph, S*ea monsters : a voyage around the world's most beguiling map*, p. 70
[34]Notons que la confusion est d'autant plus grande que Mercator assimile le cachalot à l'hippopotame.

Un kayakiste adroit

Settle, Dionyse, *De Martini Forbisseri angli navigatione in regiones occidentis et septentrionis narratio historica, ex gallico sermone in latinum translata per D. Joan. Tho. Freigium,* p. 124-125

Le personnage manœuvrant un kayak entre Terre-Neuve et l'Irlande est un Groenlandais. Sous l'image, Hondius a introduit une légende dans laquelle il précise que, sur ce type d'embarcation, l'homme ne rame que d'une seule main, ce qui lui permet de lancer son curieux trident sur les oiseaux de l'autre. Le cartographe a à peine esquissé la cible du chasseur qu'il serait difficile d'identifier comme un oiseau sans la légende et l'original de cette scène de chasse. Ce dernier se trouve dans *De Martini Forbisseri angli navigatione in regiones occidentis et septentrionis narratio historica* de Dionyse Settle[35], un ouvrage consacré aux expéditions de Frobisher paru en anglais en 1577. Les récits de voyage sont une source d'information géographique de premier ordre pour les cartographes de cabinet. L'exemple de ce Groenlandais confirme qu'ils peuvent également fournir des modèles d'illustrations pittoresques et instructives pour les ornements. Bien que l'atlas mentionne que les habitants du pays soient « *pour la plupart Chrestiens* »[36], Hondius a choisi de représenter un Inuit, peuple dont il dépeint l'apparence et les mœurs sans le nommer. Son intérêt pour l'artisanat autochtone se manifeste à nouveau à propos des kayaks, dont l'auteur n'emploie pas le nom non plus mais qu'il juge pertinent de décrire comme de « *petits Essquifs faicts de cuirs de bestes qui ont la peau espesse, lesquels ne craignent l'agitation de Mer ni le heurtement des Rochers* »[37] et dans lesquels « *un homme seul peut se seoir* »[38].

Un navire venu d'Orient

Ayant séjourné en Angleterre de 1584 à 1593, Jodocus Hondius a navigué à au moins deux reprises dans sa vie mais certainement guère plus. Son œuvre, en revanche, témoigne d'une passion pour l'aventure maritime. Londonien puis Amstellodamois, il a eu mainte fois l'occasion de contempler des bateaux et se plait à en représenter dans ses travaux. Sur sa carte intitulée *Vera totius expeditionis nauticæ: descriptio D. Franc. Draci* (vers 1595) dont un superbe exemplaire coloré est conservé à la Library of Congress[39], il consacre le carton central au Golden Hind, le célèbre galion de Francis Drake. Peu de vaisseaux ont connu une notoriété suffisante pour être immortalisés sur des cartes géographiques[40]. Les bateaux y apparaissent généralement de manière plus générique. C'est le cas sur *America* où ces cinq petits galions aux voiles gonflées faisant route dans des directions différentes rappellent aux amateurs d'atlas que les océans sont parcourus par d'audacieux explorateurs qui reviendront en Europe porteurs d'informations nouvelles.

Si, sur America, Hondius modèle ses galions sur les canons en vigueur en son temps, il s'est autorisé une forte touche d'originalité avec la mystérieuse

[35]Settle, Dionyse, De *Martini Forbisseri angli navigatione in regiones occidentis et septentrionis narratio historica, ex gallico sermone in latinum translata per D. Joan. Tho. Freigium*, p. 124-125
[36]Mercator, Gerard, *Atlas, ou représentation du monde universel et des parties d'icelui, faicte en tables et descriptions très amples et exactes, divisé en deux tomes,* vol. 1, p. 73
[37]*Ibid*.
[38]*Ibid*. p. 76
[39]Hondius, Jodocus, *Vera totius expeditionis nauticæ : descriptio D. Franc. Draci*, [ca. 1595]
[40]Reinhartz, Dennis, *The art of the map : an illustrated history of map elements and embellishments*, p. 46

embarcation mouillant près de l'entrée du Détroit d'Anian. La légende latine de cette illustration spécifie qu'il s'agit d'un « navire de guerre tissé de bois de roseau, en provenance du Japon, qui jette l'ancre ». Ce type de bateau exotique sert plus souvent d'ornement aux cartes de l'archipel nippon et est rarement exécuté avec un tel niveau de détail : on distingue l'entrelacs de roseaux sur la coque, les motifs sur la voile ainsi que quelques marins s'activant sur le pont. Hondius a équilibré la disposition de ses illustrations en gravant un sujet qui avait sa faveur, un navire, dont l'origine orientale opère comme une réminiscence : au-delà de l'Amérique, par-delà l'océan, se trouve l'Asie, si secrète et désirable.

Un pas de plus vers la science

S'agissant des données proprement géographiques, Jodocus Hondius est un habile compilateur. En bon cartographe de cabinet, il s'appuie sur des sources riches et variées au sein desquelles il opère une sélection de l'information en vertu de ce qui lui apparait le plus digne de foi. Le choix de ses ornements semble résulter du même principe. Hondius se documente solidement ; il reproduit et n'invente pas. Les illustrations dont il embellit ses cartes témoignent du rationalisme en marche à l'aube du siècle de Descartes et Newton. L'ingéniosité humaine est mise en valeur, les animaux sont représentés avec naturel. Quant aux monstres marins, issus d'une tradition qui commence à dater, ils perdent l'outrance qui les caractérisait chez Magnus ou Mercator ; ils s'estompent du décor, ne conservant plus qu'une fonction symbolique. Hondius ne s'enchante pas de contes fantastiques, il trouve dans le monde tel qu'il se dévoile à ses yeux de savant matière à émerveillement.

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REVIEWS

Edited by Sarah Simpkin

Atlas Obscura: an explorer's guide to the world's hidden wonders
Reviewed by Rebecca Bartlett

Foer, Joshua, Morton, Ella and Thuras, Dylan. ***Atlas Obscura: an explorer's guide to the world's hidden wonders***. Workman Publishing Company, 2016. 480p. $35.00 US. ISBN 978-0761169086.

Atlas Obscura is not an atlas in the traditional sense but, as described in the introduction, "a cabinet of curiosities." The content is derived from the website http://www.atlasobscura.com, which was founded in 2009 by Foer and Thuras and currently includes thousands of locations across the globe contributed by a community of users. This book contains more than 600 of those sites organized by continent and country.

With perhaps two dozen maps found throughout its nearly-500 pages – including one entitled Lake Monsters of the USA (p. 368) – this is not the kind of atlas normally found in a post-secondary academic collection. Furthermore, due to the crowdsourced nature of the material, while the authors have made efforts to ensure accuracy there is no real authority or expertise at play. However, the purpose of this book is not academic but "meant to inspire wonderlust as much as wanderlust" (Introduction). *Atlas Obscura* is a book to pore over and meander through, discovering in the process that there are an astonishing number of preserved human body parts on view around the world.

In large part due to its organization by geography and including navigational tips to many of the sights, *Atlas Obscura* functions primarily as a travel guide to bizarre, macabre, natural, and cultural wonders the world over. Each entry is described in a paragraph or two, and along with the expected alphabetical index of locations there is also a special index organized into themes including giant holes, self-built castles dangerous paths, and mummies and bones. Of particular interest is the Globe Museum in Vienna, which displays over 650 globes (p.24). While this book may not have a natural place in an academic library and its content (and more) can be found on the corresponding website, it is an entertainingly-written book that provides a glimpse into the myriad oddities and marvels found around the world.

Rebecca Bartlett
GIS and Digital Resources Librarian
Carleton University
Ottawa, Ontario

Atlas of Design, Volume Three
Reviewed by Rhys Stevens

Matthews, Sam V. and Elmer, Martin E. (Eds.). ***Atlas of Design, Volume Three.*** Milwaukee, WI: North American Cartographic Information Society, 2016. 98p. $35.00 US.

Prepare to spend several hours poring over the fascinating assortment of maps included in the *Atlas of Design, Volume Three*. This hard-bound atlas contains 32 separate maps selected from amongst hundreds of entries by a team of North American Cartographic Information Society (NACIS) editors "...to spread a variety of the top mapmakers' ideas about what it means to make a good map, and inspire others to follow their lead."

The maps appearing in the atlas primarily originate from either the United States or Europe and are extraordinarily different from one another. Included are maps that have incorporated caricatures, illustrations, 3-D bird's eye views, landscape imagery, transportation routes, infographics and numerous other visualization techniques. There are maps drawn entirely by hand as well as those that have been digitally-produced using the latest cartographic software. In addition, there are maps of underground worlds (cave systems in Kentucky), mythological creatures (monsters appearing in the folklore of the

United States), socio-political events (lives lost in the Mediterranean Sea of those fleeing conflicts in North Africa), and even antiquarian-style topographic maps of planets in our solar system (Mars). What unifies the volume is that each of the maps chosen for inclusion are extremely effective in communicating visual stories about the universe in which we live.

Every map in the atlas is shown in its entirety but at a reduced scale as page dimensions are 12 in. X 9 in. Quality and colour of the reproduced images are excellent. There are also additional enlargements of specific sections of each map which serve to illustrate interesting map features. One-page summaries containing author commentary accompany all maps in the atlas. They provide general insight into the creative processes involved in the map development and focus on design decisions by authors in their choice of underlying map data and cartographic techniques. Details concerning specific technologies and software applications used to create the maps are typically not included. A handful of these summaries include hyperlinks that direct readers to digital versions of the map or websites providing background details. Despite readers possibly recognizing certain maps that have circulated on social networking sites (e.g., "The Magnificent Bears of the Glorious Nation of Finland" by Annukka Mäkijärvi), the variety of maps and included author insights distinguish this collection from what can be located for free on the WWW.

In summary, the *Atlas of Design, Volume Three* is a recommended resource for college/university library collections. Students and faculty members are sure to find creative inspiration from these interesting examples of amazingly well designed maps.

Rhys Stevens
Librarian III
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Making Sense in Geography and Environmental Sciences: A Student's Guide to Research and Writing
Reviewed by Julie Jones

Northey, Margot, Draper, Dianne and Knight, David B. ***Making Sense in Geography and Environmental Sciences: A Student's Guide to Research and Writing.*** Sixth Edition. Don Mills: Oxford University Press, 2015. 328p. $24.95. ISBN 978-0199010226.

The *Making Sense* series of books is devoted to guiding students through academic research and writing. Both general and subject-specific volumes are available, with new editions published every few years in an effort to keep things current. I wish I had been aware of this series as an undergraduate and perhaps especially as a graduate student (when my lack of general academic literacy and struggles with the skill that is academic writing became painfully obvious). I did not have a firm understanding of the processes at play in academia and, looking back, I see that this knowledge was never really taught to me, yet it was assumed that I would possess it. There was a profound gap between what my professors assumed I knew (and so did not teach) and what I actually knew. Working with students these days, I see that this conundrum persists for many if not most of them. As such, the subject of this review, the volume of this series aimed at students in Geography and Environmental Studies, is a book I frequently refer to during instructional sessions. While its chapter on library resources and research has some major problems, which I will discuss, it is in general a fantastic resource that helps address the gap between what faculty assume students know and what they actually know.

Extremely accessible yet incredibly thorough, this book demystifies and guides students through academic skills such as writing essays, research papers, and lab reports; preparing for tests and exams; the mechanics of academic writing (and thinking!); creating presentations and research posters; the research process; documenting sources; and even surviving group work. All these important skills are of course highly transferable, as the authors assert on page 19: "The contents of this book, then, are *not* just suggestions to help you think, organize, research, and present findings for academic course work: they are also aids to learning skills that will be important later, in whatever field(s) of endeavor

you eventually find yourself." Written by Canadian academics (Northey is the former dean of the School of Business at Queen's, Draper is a Geography professor at the University of Calgary, and Knight is a former Geography professor at Carleton University), the book's tone, objectives, and examples will not alienate readers in Canadian higher education; they will feel that the book has been written for them. The chapters on how to write various types of information (notes, reports, essays, proposals, research papers, theses, lab reports, field work writing, and exams) and on the mechanics of writing ("Writing with Style", "Grammar and Usage", "Punctuation", and "Misused Words and Phrases") are excellent and really break things down in a way that students at all levels will appreciate. So much of the battle with academic writing is getting past the general anxiety that it can provoke and getting to a place of deconstructing it into concrete steps and thought processes. This book facilitates just that.

Where the book has some problems (problems that I always am sure to mention to students) is in the chapter that covers library resources – Chapter 2, "Searching and Researching". This chapter is outdated and is sorely in need of a librarian being brought in as a project partner (either as a consultant or co-author). The chapter demonstrates a lack of understanding of contemporary academic libraries and their resources, especially databases. There are no mentions of online research guides —only "disciplinary fact sheets" (those print relics of yesteryear that have long since evolved into online research guides). In the section on journals, there is no discussion of the importance of licensed databases for searching across journals and a lack of understanding of library online subscriptions and how they make article access possible. The authors actually suggest shelf browsing print journals and their annual indexes, which of course will lead to students failing to connect with massive amounts of the most current literature. The authors seem rather unaware that main way indexes like Web of Science, EconLit, and MEDLINE are now accessed as online databases when they state, "Your library may have on its shelves…" before listing these and other indexes. Interlibrary loan is never mentioned with respect to journal article access, though the fact that articles are sometimes available for a fee on publishers' websites is. Open access sources and publishing are not discussed anywhere. This chapter was desperately in need of an update when the fifth edition of this book was published in 2012 and it is tremendously disappointing that an update did not happen – this chapter remains virtually unchanged in the 2015 edition.

Maps are dealt with in the book, both as a source to use in research (Chapter 2 – "Searching and Researching") and as a format that students of geography may want to use to communicate and explore their research (Chapter 12 – "Illustrating your Work"). The information and guidance here is fairly up to date and clear, with a good discussion of GIS and why maps matter in Chapter 12. Missing from the discussion is the importance of citing the datasets that are used to create a map using a GIS. In the Chapter 2 discussion of maps as sources, air photos, atlases, and satellite images are highlighted, but geospatial data beyond that are not mentioned. Both of these omissions again highlight the fact that involving a librarian in this project may have been valuable and enhanced this book.

Though it has some problems, this book provides a good overview of the thinking, research, and writing process in Geography and Environmental Sciences. I do not hesitate to recommend it to students, with the caveat that the chapter on library resources is out of date. Undergraduate and graduate students will find this book useful, as will subject librarians new to these subject areas.

Julie Jones
GIS & Map Librarian, Librarian for Geography
Simon Fraser University
Burnaby, BC

Oxford Atlas of the World, Twenty-third Edition
Reviewed by Tracy Sallaway

Oxford Atlas of the World, Twenty-third Edition. New York: Oxford University Press, 2016. 448p. $89.95 US. ISBN 978-0-19-063428-5.

Self-described as 'a serious and authoritative work' and

'one of the finest atlases in the world' (p. 2), the *Oxford Atlas of the World* has garnered extensive recognition as a highly valued and respected reference source. Now in its twenty-third edition, the atlas is developed and published annually by Oxford University Press, a division of Oxford University. Its purpose is to provide a current and comprehensive view of the world, and this edition does not disappoint. Teeming with current world statistics, descriptive text, stunning imagery, and effective data visualizations, this atlas contains a tremendous amount of information regarding the physical and political state of the world and factually addresses some of the most pressing issues currently affecting humanity and the natural environment.

The atlas is divided into a number of sections, ranging in format from basic statistical tables to topical sections that provide fascinating data and visualizations related to the physical, political, and economic characteristics of the world. A section entitled *The Future of the Oceans and Seas* provides a brief but fascinating overview of the ocean's characteristics and the important ecological functions they perform, followed by a discussion of how these functions are being drastically altered through the effects of human activity and consumption such as overfishing, resource extraction, oil spills, and plastic. I found the factual and unbiased presentation of facts to be a refreshing change in lieu of politically motivated or impassioned discussions of these issues.

An 18-page section entitled World Imagery follows, displaying aerial views of select urban centres around the globe including London, St. Petersburg, Dubai, Melbourne, and Montréal, among others. The imagery is derived from Landsat-8 satellite data and is absolutely stunning in detail and clarity.

The Gazetteer of Nations provides a succinct and admirably thorough summary for every nation of the world, providing background and context related to indigenous peoples and important political, social and economic events throughout the nation's history. Additional information includes national flag swatches and key maps highlighting the country's geographical location in context. I found this particular section to be highly informative and extremely useful for quick reference work; the text is concise and to the point, and packs a tremendous amount of information into a small space.

World Geography touches on fascinating topics ranging from the formation of the universe, geology, climate, biodiversity, the human family, global conflicts, and standard of living to name only a few. Interspersed with the narrative are effective, well-designed visualizations including maps, charts, graphs, and imagery that serve to illustrate and support each topic. Descriptions are concise, readable, and appealing to a wide audience; the section discussing the formation of our universe and solar system has sparked a number of lively discussions with our six year-old, who has spent far more time with this atlas than I could have imagined. The visualizations here are particularly effective in starkly illustrating the imbalance of wealth and power around the globe.

World Cities introduces the cartographic portion of the atlas and is devoted entirely to cartographic representations of 70 large urban centres throughout the world. A distinctiveness can be seen in these maps; the streets of Moscow and Central Delhi radiating outwards like spokes in a wheel; bridges spanning the Danube to connect the two distinct communities of Budapest; the sinuous chaos of Central Jerusalem; and the organized grids of Manhattan and downtown Toronto. The subsequent section entitled *World Maps* presents small-scale physical and political maps for each continent followed by a collection of larger-scale outputs displaying the most notable and densely populated areas organized from north to south in a clockwise sequence.

The cartography here is of extremely high quality, meticulously designed and detailed with the end user in mind. Projections are mainly conical, azimuthal or cylindrical and have been selected to minimize distortion of size and distance. The subtle use of hillshading, described as a trademark of Philips' cartography, provides the viewer with an impression of the landscape's topography without detracting from or competing with other map elements. Our six year-old casually pointed out a mountain range without a second thought which, for me, served to prove the effectiveness of the technique beyond any doubt. These maps have been meticulously plotted

and prepared down to the finest detail, and it shows in the results; they are visually pleasing, easily navigable, and highly informative.

The organization of this atlas serves to ensure that users are able to navigate its contents and locate information with ease. The geographical glossary and index are well-organized and provide both English and Indigenous location names in common usage. I found it equally pleasurable to use as a reference source for locating particular features and places or as a volume for perusing at leisure. I would highly recommend this atlas both as a reference work (particularly if your library has invested in previous editions), and as an excellent addition to your own reference collection. After spending a number of hours with this edition, I am eagerly anticipating the next release of the Oxford Atlas of the World to discover its coverage of the significant world events that have occurred since its last publication.

Tracy Sallaway
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Trent University
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From the Reviews Editor:

Thanks to those who submitted book reviews and to all who have expressed interest in reviewing! I'll continue to request review copies from publishers - but please let me know if you have read a book of interest to the ACMLA and would like to submit a review, and if you have any suggestions for titles/sources. Here are the review guidelines:

Review Format

1. Bibliographic Citation
This should include: author, title, edition, place of publication, publisher, date, number of pages, price (if known) and ISBN. Example:

> Bussey, Ben and Spudis, Paul D. The Clementine Atlas of the Moon. Cambridge: Cambridge University Press, 2004. 316p. $80.00 US. ISBN 0-521-81528-2.

2. Content
The review should describe and critically evaluate the work. Typical review elements include: scope, purpose and content of the work; intended audience; writing style; background and authority of the author; how the work compares with other titles on the same subject; its usefulness as a research tool; any unique features; and its suitability for library collections.

The length of the review is at the reviewer's discretion, but should normally reflect the importance of the work. A typical review is about 500 words.

3. Your name, title, institutional affiliation, city and province/state

Editorial Policy

Opinions expressed in reviews are those of the reviewer, not of the ACMLA. The Reviews Editor may make minor edits, without communicating with the reviewer. Should the Editor determine that a major revision is required, she will contact the reviewer for discussion.

REGIONAL NEWS

Compiled by Tomasz Mrozewski

Alberta

Edmonton Map Society
David Jones

The Edmonton Map Society has held two meetings since our last report. Our Fall meeting was on December 1, 2016. John Horrigan discussed two previously unrecorded, manuscript maps from the estate of the late Capt. William Gibson. The first, THE WATER COMPANIES[,] ROYAL ENGINEERS[,] WORK IN EGYPT & PALESTINE, 1917 - 1919, is a campaign map of the Water Company's work, including maintenance of the essential Suez water pipeline. The pipeline enabled the British to advance to Gaza and supplied them while they struggled to take the city. The map also includes key water infrastructure maintained by the WC throughout Palestine. A second, untitled map shows the plan of a divisional base believed to be located near Sarona. This area played an important role in the creation and administration of both the Palestine Mandate and the new state of Israel. Very little (if any) work on the Water Companies has been done. Drawing on their unpublished War Diaries and a boon of recently published works, Mr. Horrigan summarized his research to date and attempted t to contextualize the maps within the larger events of the war.

Joseph Patrouch discussed his researches on "The Imagined Landscapes of the Holy Roman Empire in 1570 as portrayed in Abraham Ortelius' Theatrum Orbis Terrarum: (A Work in Progress)."

Our Winter meeting was on March 9, 2017. Frank Tough presented: "Little is known of the interior: The application of historical cartography to determine the Crown's effective control over the Métis of the Île-à-la Crosse region, Saskatchewan." In the landmark Métis rights case, R. v. Powley, the Supreme Court of Canada employed the concept of effective control to determine the temporal benchmark for ascertaining if particular practices (e.g., hunting) were integral to a Métis way of life. If practices and activities that were integral to a Métis way life were not explicitly extinguished by the Crown prior to 1982, then such practices and activities are protected constitutionally as Métis Aboriginal Rights. The determination of the date of effective control is an empirical problem requiring detailed historical and geographical research. Several interrelated activities indicate the Crown or state's ability to establish effective control. However, and often overlooked by legalists, exploration and mapping activities (where things were) and changes to property rights (regulations concerning land use and ownership) are important benchmarks of the state's presence in an "unknown" region. With respect to the contemporary need to clarify Métis Aboriginal Rights, this analysis will focus on the use of historical cartographic sources to demonstrate how the Crown's spatial knowledge of the Île-à-la Crosse region indicates the extent of its effective control.

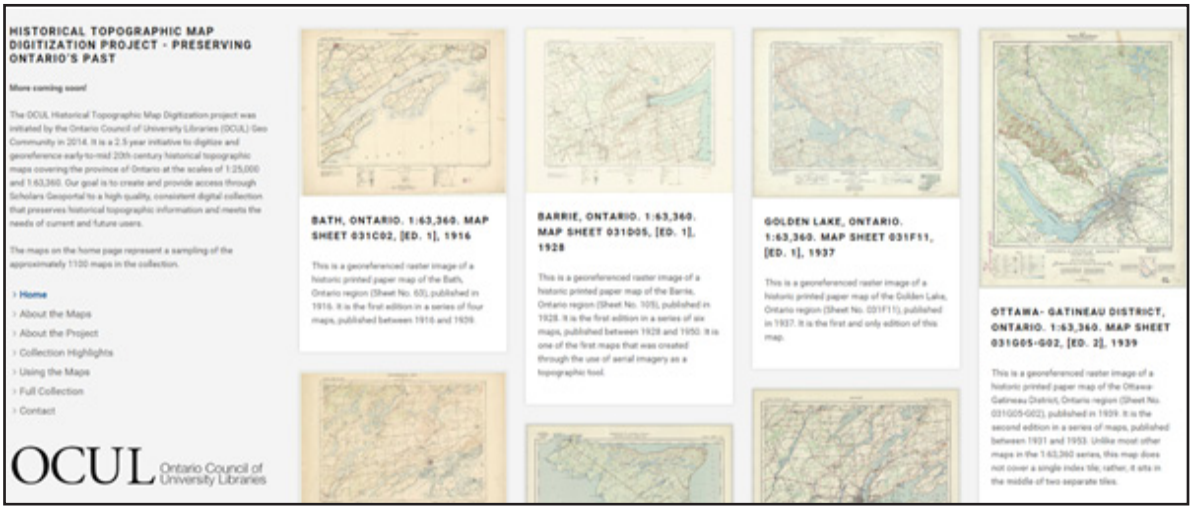
Kisha Supernant presented "Mapping Metis Mobility? Using GIS to Map Archaeological Landscapes in the Canadian West." Relationships between artifact assemblages and cultural identities are complex and difficult to disentangle. The Canadian west during the 1800s provides an interesting historical, cartographic, and archaeological case study that has potential to shed light on the dynamics of settlement, material culture, and the mobile nature of Métis peoples. While the historical record of the Metis is reasonably well-understood, the archaeological record of the Metis has received less attention. In this presentation, Kisha provided an overview of her recent research on the practice of Metis overwintering in in Alberta and Saskatchewan, exploring the connections between the archaeological record and Metis identity. She discussed the ways she uses GIS-based analyses and mapping techniques to examine the ways in which we might try to make sense of the complex geographies, kinship networks, and identities of the Metis in the 19th century and today.

Ontario

Ontario Council of University Libraries (OCUL) Geo Community
Amber Leahey

OCUL Historical Topographic Map Digitization

The Ontario Council of University Libraries (OCUL) Geo Community, is pleased to announce the release of over 1000 early topographic maps of Ontario, now available from an interactive website http://ocul.on.ca/topomaps.



With funding from the OCUL regional library consortia, the Geo Community collaborated to digitize, georeference, create metadata for, and develop an interactive online website and navigation tool in the Scholars GeoPortal, which allows any and all users to find and access these historically significant maps. The maps, which are now comprehensively inventoried, are part of the early National Topographic Map series at the 1:63360 and 1:25000 map scales. The maps, which span the period of 1906 to 1977, provide a historical reference for towns and cities across Ontario, and allow users to explore changes over time to human and natural environments. This digital collection represents the single most comprehensive set of Ontario topographic maps from these early series to be made available online.

Map display and zoom feature

Open access from the Scholars GeoPortal

The OCUL Historical Topographic Map Digitization Project contributors will be seeking feedback about the project and evaluating next steps at the upcoming Association of Map Libraries and Archives (ACMLA), Carto Conference, to be held in Vancouver, B.C.

For more information contact the project team at topomaps@scholarsportal.info.

University of Waterloo
Eva Dodsworth

This term, the Geospatial Centre has had a lot of reference requests from non-typical student and faculty groups. The Intact Centre of Climate Adaptation (ICCA) has been working hard with our reference staff, acquiring data and helping them with their analysis needs. Students from the Masters of Practitioners Studies program have asked for customized GIS workshops on the topic of Climate Change. Students from Earth Sciences have returned this term inquiring about additional data. Due to specific inquiries, the Geospatial Centre has acquired quite a bit of new data, like Halton Region, Mississauga, and SWOOP 2m DEM 2015. We have also created an Ontario waste water treatment sites data, by geocoding addresses points. There has also been a lot of interest in historical census data, so we have put our students on the task of transcribing attributes from older microfilm into Excel. We hope to reveal this project in the upcoming months. We continue to have fun with ArcGIS Online StoryMaps and other templates, and have recently completed another project showcasing our historical air photos: Kitchener-Waterloo 1955 to present: https://uwaterloo.ca/library/geospatial/collections/digital-projects/kitchener-waterloo-1955-present

Individual Story Maps:

- Dundas 1851 and Today: http://arcg.is/2jRscUm
- Galt 1867 and Today: http://arcg.is/2jR7u7c
- Ottawa 1911 and Today: http://arcg.is/2jRvLKn
- Toronto 1857 and Today: http://arcg.is/2jRaAbw
- Toronto 1888 and Today: http://arcg.is/2jRs5bv
- Toronto 1912 and Today: http://arcg.is/2jRt8s7

This year, Markus and I will be attending the URISA Inter-Mountain GIS conference in West Yellowstone, Montana, so sadly we will be missing the ACMLA conference.

From the Editor:
This is Tomasz Mrozewski's last *Regional News* issue, as he will be taking over the *Geospatial Data and Software Reviews* column. Thank you Tomasz for your continued contribution!

I would like to introduce Marilyn Andrews, from the University of Reginal Library, who will be taking over *Regional News* effective Spring/Summer issue. Please welcome Marilyn to the *ACMLA Bulletin* and help her with her new role by contributing your news-worthy items! Marilyn can be reach at:

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NEW MAPS

Compiled by Cheryl Woods

Canada Raised Relief Map
Scale: 1:1,500,000
Publisher: Hubbard
Year of Publication: [2016]

Canada Fast Track road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Saskatchewan Fast Track road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

South Central Ontario Back road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Toronto Downtown Explorer map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2017

Alberta, Saskatchewan road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

British Columbia, Alberta road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Manitoba Back Roads map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Vancouver Island road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Kitchener, Waterloo, Cambridge Fast Track road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Moncton street map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Aurora, Newmarket street map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Barrie, Orillia street map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Rive-Sud de Montreal street map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Cottage Country Back road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

The World Specialty map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Ottawa, Gatineau Fast Track road map
Scale: NA
Publisher: MapArt/CCC Maps
Year of Publication: 2016

Afghanistan – with Kabul & 5 Cities
Scale: 1:2,000,000
Publisher: Gizi Map
Year of Publication: 2017

Iran
Scale: 1:2,000,000
Publisher: Gizi Map
Year of Publication: 2017

Kyrgyztan
Scale: 1:750,000
Publisher: Gizi Map
Year of Publication: 2017

Thailand
Scale: 1:1,500,000
Publisher: Nelles Verlag
Year of Publication: 2017

Tanzania-Rwanda-Burundi
Scale: 1:1,500,000
Publisher: Nelles Verlag
Year of Publication: 2017

Philippines-Manila
Scale: 1:1,500,000/1:17,500
Publisher: Nelles Verlag
Year of Publication: 2017

Malaysia West-Singapore
Scale: 1:1,500,000/1:15,000
Publisher: Nelles Verlag
Year of Publication: 2017

Brazil: Amazon
Scale: 1:2,500,000
Publisher: Nelles Verlag
Year of Publication: 2017

Bangkok, Greater Bangkok
Scale: 1:15,000/1:75,000
Publisher: Nelles Verlag
Year of Publication: 2017

Collins Pocket Map London
Scale: 1:12,500
Publisher: Collins
Year of Publication: 2017

Collins Scotland Road Map
Scale: 1:550,000
Publisher: Collins
Year of Publication: 2017

Collins France Road Map
Scale: NA
Publisher: Collins
Year of Publication: 2017

Collins Touring Map Ireland
Scale: NA
Publisher: Collins
Year of Publication: 2017

Collins World wall map
Scale: 1:22,000,000
Publisher: Collins
Year of Publication: 2017

Spain, Portugal
Scale: 1:1,000,000
Publisher: Michelin
Year of Publication: 2017

Italy
Scale: 1:1,000,000
Publisher: Michelin
Year of Publication: 2017

Saint Martin
Scale: 1:15,000
Publisher: Kasprowski Publisher
Year of Publication: 2017

Île Maurice / Mauritius
Scale: 1:85,000
Publisher: IGN
Year of Publication: 2016

GEOSPATIAL DATA AND SOFTWARE REVIEWS

Edited by Andrew Nicholson

Ontario Open Data

Reviewed by Andrew Nicholson
Coordinator of GIS and Research Data Services, University of Toronto Mississauga

Description and Metadata

The Province of Ontario has been making some of its datasets "open" from late 2013 as part of its "Open Government" initiative. In early 2014, the province accelerated open data efforts with the launch of an open data voting process for the public, and the subsequent publishing of over 175 datasets under an open licence. 2016 saw further enhancements with the announcement of the Ontario Open Data Directive from the government making it so that the "default" treatment of government data would be open. The release of the Open Data Directive also corresponded with the release of over 500 government datasets into the "open" realm.

The Ontario Open Data Directive can be found here: https://www.ontario.ca/page/ontarios-open-data-directive

In March 2017, when one visits the Ontario "Data Catalogue" you will find over 2,200 listings of provincial data, however on the left side of the screen there are a number of filtering options including "Status". From here the user will discover that only 25% of the 2200 datasets are truly "open", with 8% slated to be "opened", and 24% marked "Restricted". Curiously, 953 datasets have been tagged with a "Under review" status.

Of those datasets that are actually "open', it is worth noting that many of these datasets were actually already available on individual ministry websites. Such files consist primarily of agricultural, transportation, and geology based spatial datasets including among others Farmers Market locations, HOV lanes, and the "Built Boundary for Greater Golden Horseshoe".

When trying to see what geospatial files were listed under the other statuses, no results appear so it is difficult to determine even what data is under review or what is set to become opened at a future date.

The other non-geospatial data listings include Adoption, and Labour statistics, birth and death registrations, cultural events, and general police and crime counts.

Currency and Formats

The Ontario Data Catalogue offers up data in a variety of formats. Thankfully, the Catalogue includes strictly data files that can be easily used, reused, manipulated, and crafted into other products. No PDF documents are included unlike in other government open data catalogues.

For the GIS user, Ontario open data files include KML, KMZ files, and SHP. The vast majority of open data files are not surprisingly in CSV or Excel format. Frustratingly, this user also noticed many files using a ZIP extension, which was not the most helpful for describing the contents and potential usability of the files inside.

In terms of currency of the data, most files appeared to be from 2006 to 2012. Hampering the usefulness of the catalogue though is the fact that files do not indicate a date on the initial

summary listing, but only do so, once you click on the title to see the full metadata record.

Licensing

For Ontario data that is listed as "open", the province has made it available using a "Open Government Licence" allowing anyone to "copy, modify, publish, translate, adapt, distribute or otherwise use the information in any medium, mode or format for any lawful purpose" as long as they "acknowledge the source of the Information" with an attribution statement.

More information about the license can be found here: https://www.ontario.ca/page/open-government-licence-ontario

For Data catalogue items that are not "open", metadata descriptions are provided along with a Status update. For "restricted" data, a rationale is provided informing the user why this dataset is not "open". In browsing some of the restricted data, the most common explanations as why this data is restricted seems to be confidentiality with names included in the data, or the licenses of other data providers involved, such as Statistics Canada.

Conclusion

Unlike other provinces such as British Columbia and Manitoba, and even municipalities such as Vancouver and Toronto, Ontario appears to be wading cautiously into the sea of 'open data' with so many datasets still "restricted" or "under review". Nevertheless, some data is better than no data, and its open data directive is certainly a breath of fresh air after restricting access to datasets for many years. Lets hope they continue to develop this catalogue and make more data available in future.

From the editor:

This is Andrew Nicholson's last Geospatial Data and Software Reviews column. On behalf of the Bulletin staff team, I'd like to thank Andrew for all of his years contributing to the ACMLA Bulletin.

I would like to announce that Tomasz Mrozewski, Laurentian University, is replacing Andrew as Geospatial Data and Software Reviews editor. You will find his column in the next issue of the Bulletin - Spring/Summer issue.

GIS TRENDS

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COMMUNICATING DATA

Introduction

As technologies advance and create new opportunities for data sharing and visualization, approaches to scholarly communication adjust and evolve.

"Data publishing" as a distinct form of scholarly communication represents an exciting development for academic communities. Effective data stewardship rests at the core of communicating data, whether in spatial or in other formats. Library communities play a vital role in establishing communities of practice for data stewardship. This column will look at some recent developments which impact these practices focusing specifically on Research Data Management (RDM) and data archiving.

Research Data Management

"As publicly funded organizations, the agencies are strong advocates for making the results of the research they fund as accessible as possible. In promoting access to research results, they aspire to advance knowledge, avoid research duplication and encourage reuse, maximize research benefits to Canadians and showcase the accomplishments of Canadian researchers...

The objective of this statement of principles is to promote excellence in digital data management practices and data stewardship in agency-funded research. ..."[1]

The above excerpts come from Canada's Tri-Agency[2] Statement of the Principles on Digital Data Management. Released in January 2016, the statement was much anticipated by academic libraries and articulates many of the sound management practices we stand for. Such statements provide opportunities for library data experts to engage with our stakeholders including researchers, research offices, research ethics board as well as with diverse groups within our library organization.

Libraries have long argued for effective data management. In 2015, the Canadian Association of Research Libraries (CARL) launched the Portage Network.[3] This network fills an essential role, leading research libraries and associated stakeholders in developing a range of services and guidelines relating to stewardship of research data and the development of a national research data culture.

As one of its first accomplishments Portage has released the DMP Assistant. Freely available to all researchers in Canada the DMP Assistant is an online bilingual tool designed to help researchers develop and implement research data management plans. It takes researchers through a series of questions based on a template which address management of research data through all stages of the data lifecycle from start to completion of a research project (see *Figure 1*). It also offers the option of fulfilling DMP requirements of specific funders or using templates from organizations.

Those of us lending support to researchers working with spatial data will no doubt become familiar with the DMP Assistant, and provide guidance on aspects of data management in the context of spatial data.

[1]Canada's Tri-Agency Statement of the Principles on Digital Data Management, derived from http://www.science.gc.ca/eic/site/063.nsf/eng/h_83F7624E.html?OpenDocument, March 2017
[2]Tri Agencies include: Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC)
[3]For further information regarding Portage, see its web site at: https://portagenetwork.ca/

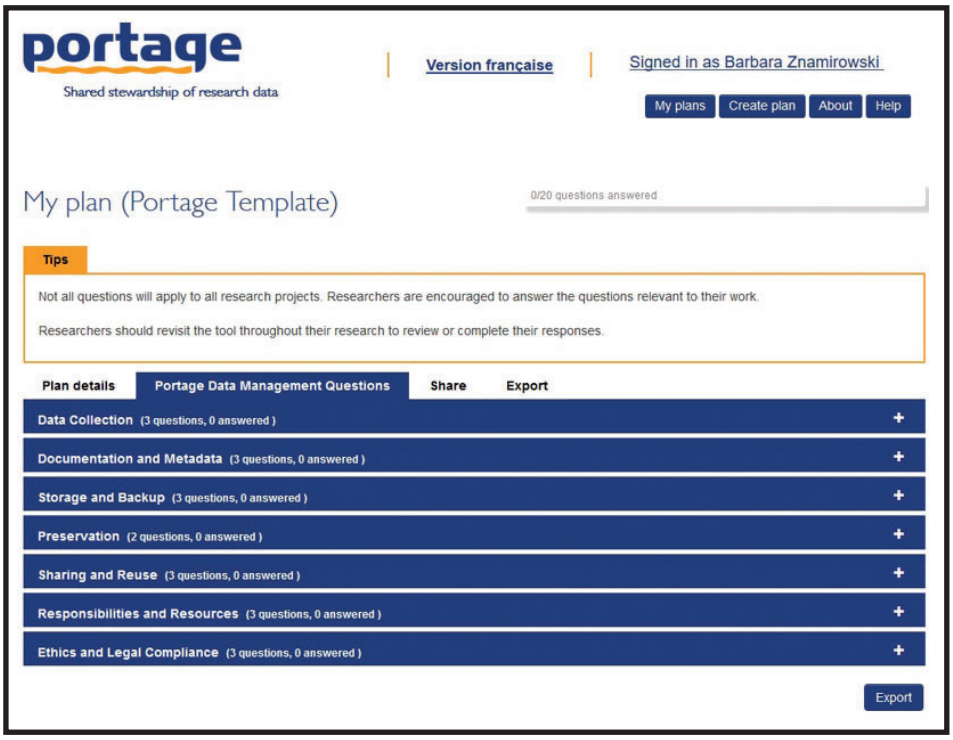

Figure 1: Portage DMP Assistant[4]

Other important Portage initiatives to watch for include results from the recently announced "Dataverse North Working Group," which will develop a community of practice centered around the use of the Dataverse repository platform on Canadian campuses, as well as developments stemming from two recent white papers produced by Portage working groups: "Research Data Discovery and the Scholarly Ecosystem in Canada"[5] and "Research Data Management Training Landscape in Canada".[6]

Data Repositories and Archives

There are many options for depositing research data. Universities often offer more than one option, including sponsoring their own repository and recommending discipline-specific repositories. The Re3data.org Registry of Research Data Repositories and Scholars Portal's list of repositories by discipline[7] are useful in identifying suitable repositories.

The remainder of this column will consider Dataverse, an open-source tool developed by the Institute for Quantitative Social Sciences (IQSS) at Harvard University.

In her manuscript "Dataverse 4.0: Defining Data Publishing" Mercè Crosas provides an excellent overview of Dataverse's components. She sets the stage by arguing that data publishing is a form of scholarly publication in itself, with six key components. The first three components she describes as essential; they include "1) information about the data (metadata) to find, understand and reuse them, 2) a formal data citation to reference and find the data set, and 3) a trusted data repository to host the data and provide long-term

[4]Portage DMP Assistant template of questions, https://assistant.portagenetwork.ca/en/projects/my-plan-portage-template--926/plans/4462/edit (Derived March 24, 2017)
[5]Eugene Barsky, John Brosz and Amber Leahey, "Research Data Discovery and the Scholarly Ecosystem in Canada; A White Paper" prepared by the Portage Network, Data Discovery Working Group on behalf of the Canadian Association of Research Libraries (CARL), July 2016, found at: https://portagenetwork.ca/wpcontent/uploads/2016/07/Portage_discovery_white_paper_EN.pdf
[6]Jane Fry, James Doiron, Danny Létourneau, Laure Perrier, Carol Perry, Wendy Watkins, "*Research Data Management Training Landscape in Canada; A White Paper*", Prepared by the Portage Training Expert Group on behalf of the Canadian Association of Research Libraries (CARL), January 2017, found at: https://portagenetwork.ca/wp-content/uploads/2017/02/Portage_Training_White_Paper_EN.pdf
[7]Scholars Portal Research Data Repositories: Find Data by Discipline at: http://guides.scholarsportal.info/c.php?g=126730&p=828985

access." The next three Crosas describes as required in some contexts, and include: "4) support not only for public but also restricted data, 5) support for data publishing work-flows and versioning of data sets, and 6) support for Application Programming Interface (API) to deposit and get data and metadata for interoperability and extensibility."[8]

There are Dataverse repositories installed in universities and other organizations around the world. Leading Canadian examples include at the University of Alberta Libraries, British Columbia Research Libraries (ABACUS), Dalhousie (currently being implemented) and at the Ontario Council of University Libraries Scholars Portal.

Figure 2 shows a snapshot from Scholars Portal Dataverse. The Scholars Portal Dataverse is a repository primarily for research data collected by researchers and organizations affiliated with Ontario universities (although anyone is welcome to use Scholars Portal Dataverse to deposit, share and archive data). Researchers control levels of access, which can be defined right down to individual files. Files can be made public, be open to specific individuals, or kept completely private. All data are hosted securely on Canadian servers.[9]

Dataverse provides some options specific to spatial data including a supplementary tab for adding geospatial metadata fields including Geographic Coverage, Geographic Unit, and Geographic Bounding. Harvard's Dataverse has implemented an optional visualization component for some spatial formats including shapefiles using WorldMap. Ontario libraries are evaluating diverse options for visualization of spatial data and the opportunities and challenges they present.

Conclusions

The introduction of Research Data Management support services within academic library communities has resulted in new opportunities to work with researchers at various stages of the research process. We look forward to working further with all stakeholders as we strengthen communities of practice for data stewardship.

GIS Trends: Note from the Editor
Submissions and Feedback

GIS Trends is a place to share ideas, observations and discoveries in the area of GIS and other spatial technologies. If you have something you would like to share please write to me. We also welcome feedback on GIS Trends articles. Proposals for articles and feedback should be sent to: bznamirowski@trentu.ca Thanks for reading and contributing! Barbara Znamirowski, Editor, GIS Trends

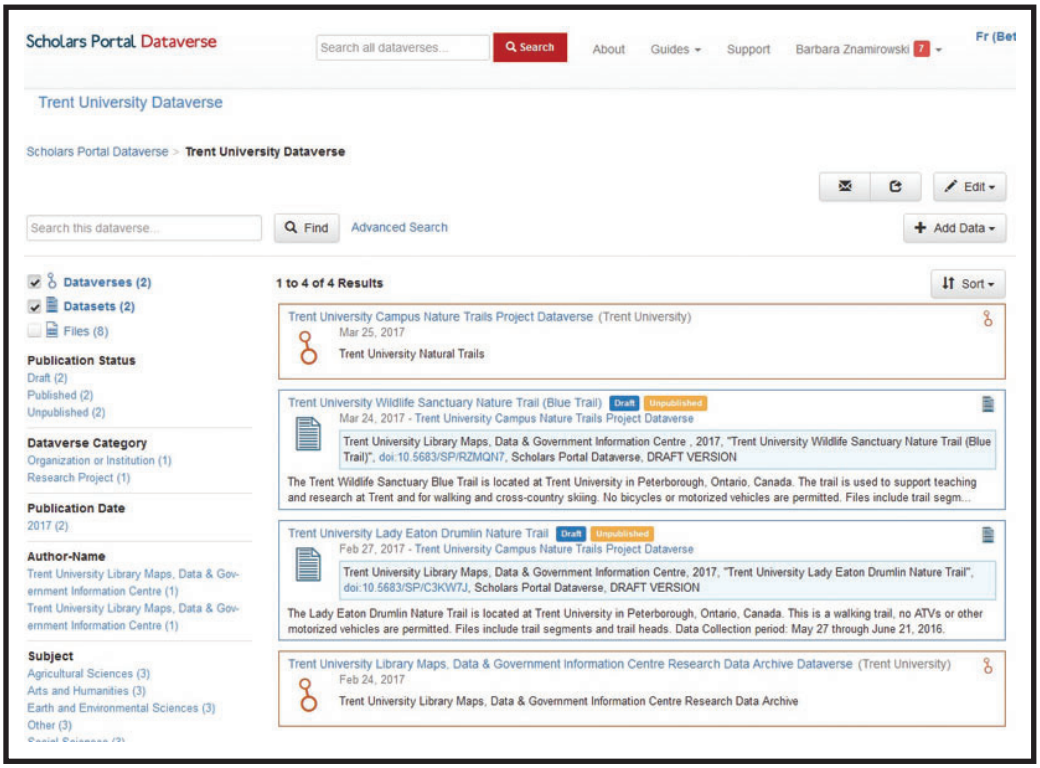

Figure 2 – Scholars Portal Dataverse

[8]Crosas, Mercè, "Dataverse 4.0: Defining Data Publishing" (Manuscript), from http://scholar.harvard.edu/files/mercecrosas/files/springer-dataverse4-datapublishing-20150817.pdf (derived on 18 March 2017).
[9] For further information on Scholars Portal Dataverse see the guide at: http://guides.scholarsportal.info/dataverse

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