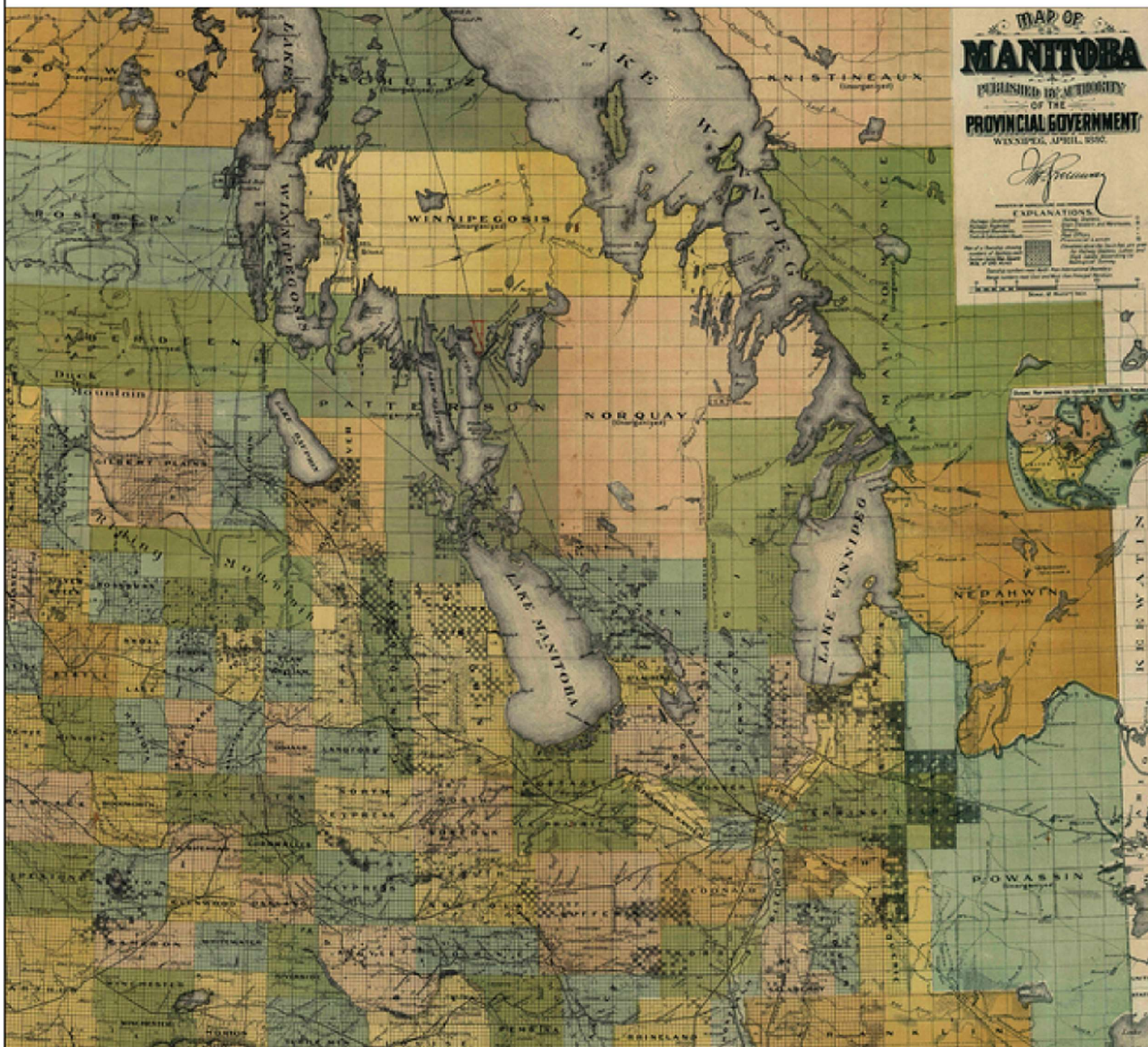


ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES

# BULLETIN

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ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES

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## City Character Prints: The Poster Maps Published by Archar Inc., Toronto, Ontario.

### Feature Article

*Rhys Stevens*  
*Librarian III, University of Lethbridge*

**Keywords:** Map ephemera, promotional posters; pictorial maps

### Abstract

Archar Inc. of Toronto, Ontario was one of the most prolific publishers of pictorial poster-maps of North American cities during the 1970s and 1980s. Their “City Character Prints” were three-dimensional perspective maps created by artists to evoke the unique spirit of a place by including illustrations representative of city symbols, historical facts and cartoon-like caricatures of prominent citizens. Costs of poster production were subsidized by collecting advertising fees from local businesses and attractions in return for promotion on the finished map.

### Introduction

Pictorial maps inhabit a curious place within the cartographic genre. They do not portray scientific representations of the earth's surface and are of relatively limited use for navigation and direction-finding. Instead, they combine map elements with images and text in such a way as to tell a visual story or to capture a sense of place (Hornsby, 2017). The addition of pictorial elements to maps has a long history, but the pictorial form of mapmaking became especially common in the United

States. It was there that they are considered to have reached their "golden age" as a significant part of popular culture, beginning in the late 1920s until the 1960s (Hornsby, 2017).

In the late 1960s and early 1970s, several publishers found success in producing pictorial views of North American cities which were sold as poster art (Stevens, 2023). One of the most commercially successful was Archar Inc., of Toronto, Ontario who created a line of three-dimensional perspective maps called "City Character Prints."<sup>1</sup> This name was well-chosen in that each of their maps included images that attempted to evoke the unique spirit of a place. Rather than showing *only* a city's topography, vegetation, street system, and buildings, Archar's posters *also* included cartoon-like illustrations representing local symbols, people and events that infused playful energy into their urban views. The result was an unpretentious, nonthreatening map that invited visual exploration (Southworth & Southworth, 1982, p. 88).

### Archar's City Character Map Formula

Archar Inc. was in business between 1972-1985, and during that time, they employed artists and illustrators to create more than 100 maps of cities throughout the United States and Canada (See Appendix A). Each artist had their own unique style but, in general, each map they produced followed a standardized formula that employed common elements. Commenters have pointed out that "...the consistency [of Archar maps] is so strong that one has a difficult time distinguishing cities at first look since the graphic sauce which is overlaid on all the cities tends to obscure their differences" (Treib, 1980). Five common elements on Archar's city views included a prominent title, representative city symbols and local characters in the corners, textual annotations detailing quirky historical facts, cartoon illustrations of citizens engaged in everyday activities, and strategically located advertisements that identified local businesses and attractions who had paid an advertising fee to feature on the map itself.

1. **Map Titles** - Archar prominently titled their maps with the name of the city that was being pictured. Large and creative fonts (and sometimes map borders) were employed to provide a sense of a city's character. The title of Archar's *New Orleans* (1983) map, for example, imaginatively integrates a trumpet and saxophone in homage to the city being the birthplace of jazz music. Similarly, their *Detroit* (1973) map integrated a car wheel into the letter 'O' in the word Detroit in recognition of its "motor city" heritage.



Figure 1: Detail of title of New Orleans (1983) poster-map. Source: David Rumsey Historical Map Collection.

<sup>1</sup> The company's maps were initially part of their "City Design Prints" series though this name was later changed to "City Character Prints" in mid-1978, seemingly after the name was trademarked. A separate publisher, Trans Continental Cartographers Ltd., Vancouver, B.C. produced a similarly named line of maps called "City Character Maps" from 1969-1974.

2. **Representative City Symbols & Associated Characters** - most instances, a city symbol (e.g., state flag, seal, etc.) or a caricature of an individual meant to represent the city and its people would be featured in a map corner. The *Pittsburgh* (1978) map, for example, shows "Pa Pitt", a personification of the City of Pittsburgh, Pennsylvania, and a group of the city's legendary steelworkers. Likewise, the lower-left corner of the *Philadelphia* map (1980) includes a group of sports figures representing the city's four professional sports teams. In the lower right appears a caricature of Benjamin Franklin, who, as legend has it, conducted his famous kite experiment in Philadelphia in 1752 to investigate the nature of lightning and electricity.

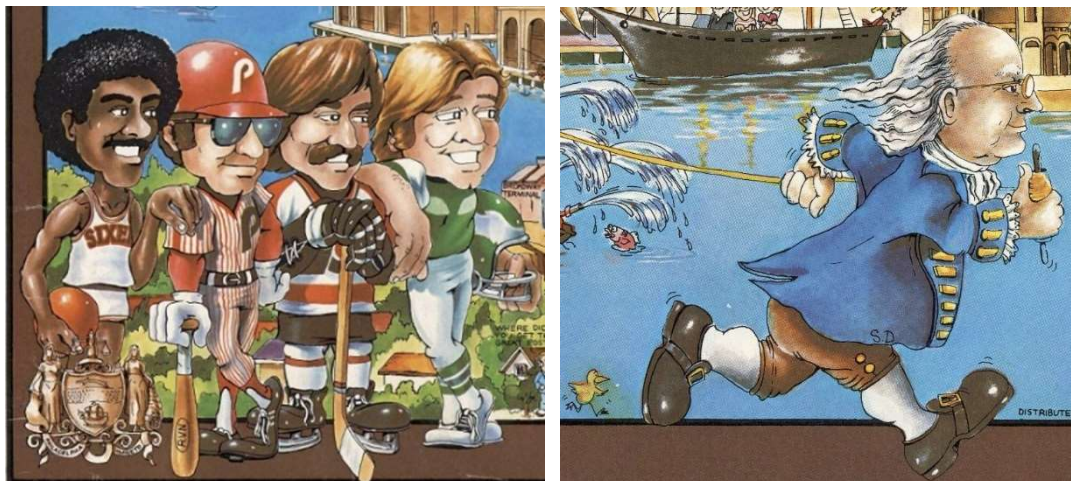


Figure 2: Details from *Philadelphia* (1980) poster map. Left: Professional sports figures caricatures appearing in lower-left corner; Right: Detail of Benjamin Franklin caricature appearing in lower-right corner. Source: David Rumsey Historical Map Collection.

3. **Textual Annotations Detailing Noteworthy or Quirky Facts** – Snippets of text scattered about Archar maps describe details about each city, its culture and people. This information may include unusual stories, historical anecdotes, or little-known facts. For instance, an annotation on the *Montreal* (1974) map reads, "La deuxième plus grande ville française du monde – second largest French city in the world." Another example, from the *Indianapolis* (1980) map, contains an apocryphal story about the origin of the local Hoosier nickname given to inhabitants of the State of Indiana. It states, "Where did the name Hoosier come from? Some say it was the response to 'who's there' to the knock on the door."
4. **Cartoon Illustrations of Citizens Engaged in Everyday Activities** - Dotted throughout Archar's maps are many cartoon-like drawings of local citizens going about their everyday activities. These often-humorous "street scenes" show individuals participating in the life of the city, whether attending a sports event, driving a motor vehicle, conversing with friends along a sidewalk, or even doing something outlandish like floating down the Niagara River in a barrel toward Niagara Falls as shown on the *Buffalo* (1982) map.
5. **Strategically Located Advertisements Identifying Local Businesses & Attractions** – Only those city businesses and local attractions who had paid an advertising fee were identified within the signage, billboards or vehicles depicted on Archar maps. Radio stations, banks, hotels, and airlines were the most frequent advertisers, but local

bookstores, printers, clothiers, newspapers and restaurants were usually present. Almost no empty spaces existed on maps as airplanes, hot-air balloons, helicopters, and watercraft of all shapes and sizes filled the skies and waterbody features. For example, in the *New York City* (1982) map, note the Aer Lingus jumbo jet in the skyline and the WCBC FM101-branded sailboat on the city's East River.

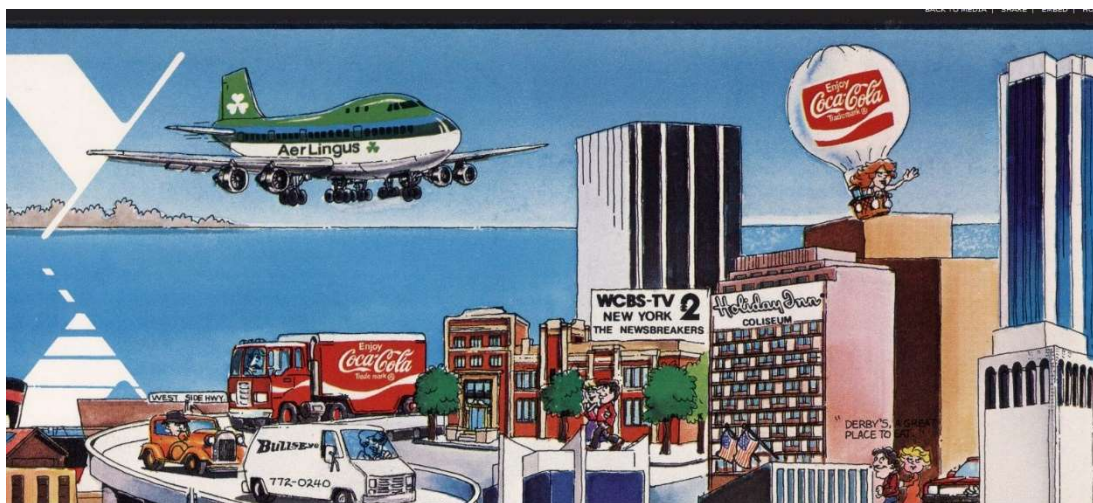


Figure 3: Detail of illustration of Aer Lingus jumbo jet and other advertisements as shown on New York City (1982) poster-map. Source: David Rumsey Historical Map Collection.

### Advertisements & Advertisers Subsidized Cost of Publication

Production of a single Archar poster map could take an on-site artist and several assistants about five to six months to create ("Charm city with a few surprises", 1977). Archar would offset the cost of map production and publication as a for-profit enterprise by having its sales agents visit local businesses and attractions to offer an advertising placements fee in return for promotion on their in-progress map. In 1977, for example, the sponsorship fee for the Baltimore map was between \$250 to \$1,000. Other city poster-map publishers active during this period (e.g., Trans Continental Cartographers, Ltd. of Vancouver, B.C.) also made use of this "subscription" model of cartography to support business operations (Stevens, 2023). Once completed, Archar's maps were available for purchase from business sponsors and directly from Archar by mail order. Sizes available were either large (29 by 39 inches) or small (14 by 18 inches).

### Archar's Business Associates & Artists

Archar, Inc.<sup>2</sup> was incorporated in 1972, and its earliest business associates included Robert "Bob" Baird, John Baird, Russ Baird, and first company president Stuart Sellars. The inspiration for their

<sup>2</sup> Short form for both "Art Chart" and "Artistic Characterizations."

venture may have come from John Baird, as he had previously worked selling advertising for British Columbia-based map publishers Trans Continental Cartographers and Inter Continental Cartographers and found himself free to compete with them (Russ Baird, personal communication, November 10, 2023). In their first few years of operation in the early-to-mid 1970s, Archar's most frequently identified artists were Swaena Lavelle, Bob Hastings and Tom Dodds, who primarily produced maps of cities in the Upper Midwest and Ontario.

In 1975, Stuart Sellars left Archar to start Archar (Western) Inc. and Archar International, Inc.<sup>3</sup> operated separately from Archar, Inc. despite their map publications remaining similar. Kim Forrest is credited as the artist who created many of the Archar (Western) maps, including a series of Hawaiian island tourist maps (e.g., *Hawaii The Big Island*, 1979). Archar International produced several maps and guidebooks for locations in Britain, Ireland and Mexico City. A second pictorial map publisher set up by Archar alumni was La Maison Descartes, which was incorporated by Russ Baird and Jean-Louis Rheault in 1978. Yet another was Unique Media, Inc., which John Baird and Swaena Lavelle started in 1979. In producing their map of *Los Angeles* (1979), Lavelle and Baird published report consulting a myriad of sources which included books, maps, photographs, historians, civic leaders, tourists, and friends in addition to visiting hundreds of places (Krier, 1979).

Though most of the company's early artists would leave after several years to pursue other opportunities, many talented artists were evidently available to produce Archar's City Character Prints. These Archar artists and illustrators included Don Inman, Bing Chapelle, Lawrence Peckmezian, Barbara Spurl, Bozidar Damjanovic-Benedict, Cindy Delpart, Georgina M. Bernache, Gayle Lavery, Shunichi Yamamoto, Donald Liu, Francesca Profili, Gerry Castello, Susan Dewar, Robert Van Nood, David Cooper, Gayle Grout, and Margaret Munro.

Archar's business operations would last approximately 14 years before the company officially went bankrupt in 1985. Prior to bankruptcy, many of Archar's map copyrights were sold to Don Scott Associates, Inc. (now Buffalo Games), who would go on to produce more than 80 City Character Prints jigsaw puzzles featuring many of Archar's original maps until the early 1990s.

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<sup>3</sup> The companies now operate as TGI Maps (Travel Graphics International).

**References**

Charm city with a few surprises. (1977, May 22). *Baltimore Sun*, 53.

Horsby, S. J. (2017). *Picturing America: The golden age of pictorial maps*. University of Chicago Press.

Krier, B. A. (1979, Oct. 18). City in caricature: Putting L.A. on the map. *The Los Angeles Times*, 81; 97.

Southworth, M. & Southworth, S. (1982). *Maps: A visual survey and design guide*. Little, Brown. <https://archive.org/details/mapsvisualsurvey00sout>

Stevens, R. (2023). The cartoon-style poster maps of Trans Continental Cartographers Ltd., Vancouver, B.C. *Bulletin - Association of Canadian Map Libraries and Archives (ACMLA)*, (172), 19-25. <https://doi.org/10.15353/acmla.n172.5459>

Treib, M. (1980). Mapping experience. *Design Quarterly*, 115, 1-32. <https://doi.org/10.2307/4091019>.

**Appendix A**

Listing of known Archar Inc. Poster Maps, see attachment.



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## **Alma Rosé: The Violinist of Auschwitz**

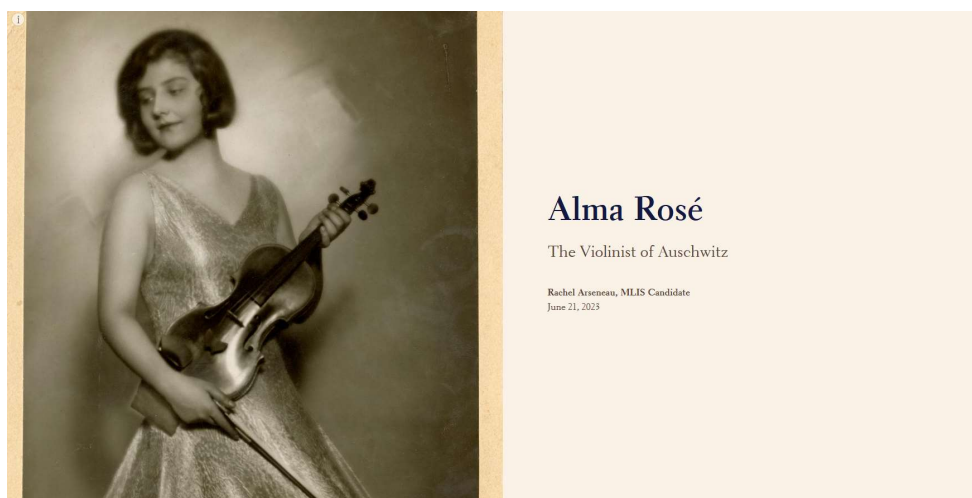
### **Digital Exhibit**

*Author: Rachel Arseneau  
MLIS Candidate, Western University*

**Keywords:** Story map, Music, World War II, Auschwitz, Alma Rosé, Violinists

#### **Abstract**

Alma Rosé was the niece of Gustav Mahler and a violinist herself based in Austria. After fleeing from the rise of Nazi Germany, Alma eventually found herself captured and sent to Auschwitz-Birkenau where she used her musical talents to lead the women's orchestra until her death in 1944. This StoryMap follows the life of Alma through her performances across Europe, her attempts to flee Nazi capture, and her time in Auschwitz-Birkenau.



[Access at: <https://storymaps.arcgis.com/stories/89d73b78d8d046c191d82172ed5a41b8>]

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**Publishing historical air photos in Alma Digital: A case study  
featuring the University of Ottawa Library's new DAMS**

**GIS Trends**

*Section Editor: Martin Chandler, Cape Breton University*

*Author : René Duplain  
Research Librarian (GIS), University of Ottawa*

**Keywords:** Aerial imagery, air photos, Alma Digital, DAMS, digital repository, Omni, special collections

**Abstract**

Air photos have been used to support GIS-related research projects at the University of Ottawa, particularly in the field of climate science. The University of Ottawa Library houses a large collection of historical paper air photos and have recently increased efforts to further digitize this collection. Traditionally, the photographs have been searchable through a custom ArcGIS Online Web App, but this standalone portal has been limited in the accessibility and discoverability of these resources. In 2021, the University of Ottawa Library implemented Alma Digital as its institutional DAMS, which allowed its digital assets to be searchable directly within the library catalog, Omni. Following the implementation of this DAMS, close to 1,000 of the Library's digital air photo collection were added to this platform. This has provided a new discovery portal for these digital air photos. Work to improve the discoverability, organization, and description of these resources, as well as numerous digitization projects, is still ongoing.

## Alma Digital

University libraries, including the University of Ottawa Library, are constantly striving to improve how to manage their collections of digital assets. As Kaplan (2009) describes, “Whether you are affiliated with a university, a school, an archives, a museum, or an independent organization, you are most likely currently dealing with the difficulties of digital preservation.” Implementing a Digital Asset Management System (DAMS) presents one potential solution to this issue as an option to store, describe, and disseminate digital resources. In describing DAMS, Xing (2021) argues that implementing such a system “increases the efficiency of managing contents and helps maximize the value of content.”

In 2020, the uOttawa Library’s Systems Librarian for Digital Repositories, Carolyn Sullivan, and partners began investigating the use of a DAMS to help address two specific goals from the uOttawa Library’s Strategic plan (Strategic plan 2025, n.d.):

- *Make collections easier to discover, access, and use*
- *Expand, preserve and promote our unique and special collections*

It was recognized that the uOttawa Library’s digital collections had limited accessibility and were being stored on unstable media. This applied to resources from Archives and Special Collections as well as items from other special collections, such as digitized historical air photos. As part of their investigation, Carolyn and partners conducted a thorough research and consultation project, which included a survey of DAMS used by other CARL (Canadian Association of Research Libraries) institutions, ultimately leading them to three candidates for a new DAMS: Islandora, Hyrax, and Alma Digital. It was determined that the latter was the best fit for the uOttawa Library given available resources and staff time.

Alma Digital is built-in to Alma, the Ex Libris product selected back in 2018 as the library services platform used by all OCUL (Ontario Council of University Libraries) institutions, including uOttawa (OCUL, 2018). Although not an open-source product and not included in the OCUL Alma subscription, the clear connection to Alma made integrating the Library’s digital assets within Alma Digital relatively straightforward, while also allowing items within the DAMS to be searchable (e.g., by keyword) within the front-end library catalog, Omni. Since its launch in June 2021, the uOttawa Library has used Alma Digital to improve access to digitized rare books, replace its existing video hosting platform, and promote the digital air photo collection via the new “Collection Discovery” tab where assets can be grouped by collections/sub-collections.

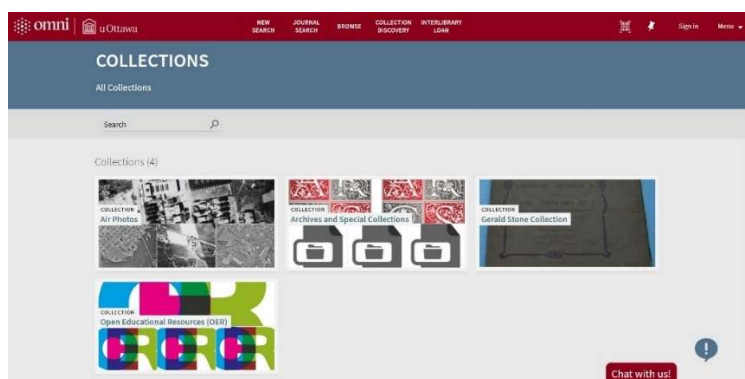


Figure 1: Collections discovery tab in Omni

## Air photos

### *uOttawa Library Collection*

Air photos, also commonly referred to as aerial photographs or aerial imagery, began early in Canada in the early 1920s. These resources, catalogued and disseminated by the National Air Photo Library (NAPL), include a complete coverage of all of Canada, over 90% of which are in black and white and a much smaller portion in colour and/or in infrared imagery (The Collection at National Air Photo Library, 2022). Traditionally, air photos were taken “for mapping, charting of the sea coasts, building of highways, town planning and any ground activity, including disasters, where a measure of size or change had to be made” (Carbonetto, 1983). While these are still relevant applications of air photos in more modern times, recent advancement in GIS and remote sensing have also allowed these digital images to be used in projects involving landscape validation, feature identification and characterization, terrain classification, and more (Carvalho & Reef, 2022; Gomez et al., 2015; Knuth et al., 2023).

The uOttawa Library’s air photo collection is comprised of approximately 300,000 air photos ranging from the 1920s to the early 2000s spanning much of Canada. Of this collection, roughly 190,000 have been described (i.e., have some metadata) and approximately 5,000 have been digitized. For the past several years, these paper and digital resources were shared via a custom [ArcGIS Online Web Application](#), where users could explore the collection using an interactive map with each photo being represented by its centre point (centroid). Using this Web App, users could browse through the collection, find basic metadata by photo (e.g., flightline and photo number), request paper photos for consultation, and download digital photos—stored on internal servers—for their projects. This standalone application was made available to users via a research guide entitled “Cartographic Resources.” However, it was also recognized that this Web App had many limitations, with no easy way to filter photographs by flightline, by year, and/or by region. The digital photos had also not been inventoried in the library catalog, meaning that users would need to know to look in the Web App to find photos.

In response to these challenges in the accessibility of these digital resources, the decision was made to begin integrating the digital air photo collection into the new library DAMS. It was believed that the DAMS would improve the management of this collection in the following ways:

- 1) **Accessibility**: Adding these air photos to the library catalog would allow users to be able to discover these assets directly within Omni. Users could search for photos, classified in Omni as “Images” Resource Type, by flightline, National Topographic System (NTS) number, or other relevant metadata.
- 2) **Preservation**: Although the DAMS does not necessarily represent a long-term preservation solution, following the LOCKSS principle (Lots of Copies Keeps Stuff Safe), keeping three or more copies in two or more locations would be ideal for short-term storage and preservation purposes.
- 3) **Organization**: A DAMS would allow us to organize digital collections by “special collection” more easily than it might be in another platform, including the current Web App. This would be particularly helpful for sub-collections that do not necessarily have a clear geographic link (e.g., sharing features).
- 4) **Shareability**: Given that all OCUL institutions already use Alma and Omni, air photos within Alma Digital, or at least their records and metadata, could be more easily shared with OCUL partners. Likewise, other OCUL institutions that might also utilize Alma Digital for

their digital air photo collections could, in turn, share these with uOttawa. Overall, such an approach would make shared air photo collections easier to discover, foster collaboration between OCUL institutions for future digitization projects, and reduce duplication of effort.

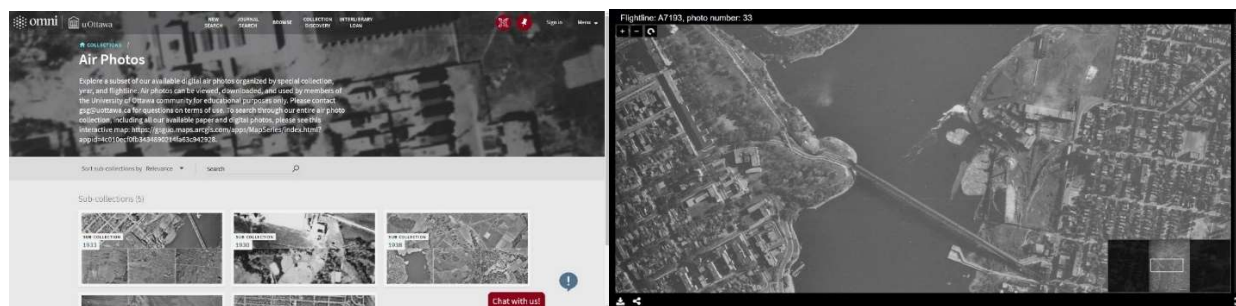


Figure 2: Left- Air photos collection within Omni, Right- Viewer/downloader of a random air photo (flightline: A7193, photo number: 33) within Omni

Given that these images can take up a lot of storage, particularly higher resolution (1,200 dots per inch) photos in TIF format, it was determined that a lower resolution (300 dots per inch) version of these resources in JPG format would be more appropriate for the DAMS, with the higher resolution continuing to be stored on internal servers. This approach also offered multiple versions of these resources that could serve different purposes for users.

### Research and GIS

Digital historical air photos have been found to be useful resources for supporting GIS research in Canada (Roberti et al., 2021; Millard et al., 2013). At uOttawa, air photos have most frequently been used in climate science, as demonstrated by research at the [Laboratory for Cryospheric Research](#) led by Dr. Luke Copland (Laboratory for Cryospheric Research, n.d.). In 2020, the uOttawa Library collaborated with Prof. Copland and Parks Canada for a joint purchase of around 800 air photos in the Yukon in the 1940s and '50s from the National Air Photo Library (NAPL). Professor Copland has used such aerial imagery in his work to model the loss in glacier ice, stating “The purchase and scanning of historical air photos by the University of Ottawa Library [...] has provided invaluable information as to how glaciers are changing across Kluane National Park in the Yukon and elsewhere.” This work has been vital to recognizing the impact of climate change in the Canadian Arctic, because, as Professor Copland points out, “These glaciers have been retreating increasingly rapidly over the past few decades, with ice losses in this region at currently some of the highest rates in the world.” Just a few digital air photos can be used to support such research projects and publications (Schaffer et al., 2017; Kochtitzky et al., 2019; Kochtitzky et al., 2020). The ongoing work at the Laboratory for Cryospheric Research represents a success story for the use of air photos as assets supporting research at uOttawa, but these resources are underutilised in many other disciplines and could support a much wider variety of research projects.

### Future trends and projects

Air photos, particularly in digital format, are useful resources that can help drive research within at outside uOttawa. As such, it is imperative to prioritize making these resources easier for users to discover, access, and download, to help meet their research needs across disciplines. Utilizing

the Library DAMS as a new mechanism to integrate digital air photos into the library catalog offers a new discovery portal for these assets and is a step in the right direction.

With the assistance of the uOttawa Library's Specialist (Digital Humanities), Roxanne Lafleur, and her co-op students, in collaboration with the Specialist (GIS), Pierre Leblanc, who has considerable institutional knowledge of these resources, new air photo digitization projects have been undertaken in recent months. These projects have been focused on special collections that have been determined to be (a) useful to users, (b) able to be completed within a reasonable period (i.e., within a semester) given limited resources, and (c) feasible to upload to the DAMS (i.e., with complete metadata). A recent example of such a project includes the Bostock special collection which contains just over 800 photos. This collection, which includes photos from across Canada highlighting various geomorphological features, was recently digitized and will soon be added to the DAMS.

Such projects take time, funding, staffing, and expertise. This applies for scanning the photos (e.g., determining what parameters to select), organizing and describing them (e.g., gathering metadata by flightline and creating a detailed inventory by photo), and uploading them to Alma Digital (e.g., by mapping the metadata schema to fit with Alma Digital's Dublin Core fields). Now that a portion of the digital air photo collection has been added to the DAMS, these challenges are better known, and procedures are being established to make this process more efficient. In parallel to these efforts, work is ongoing to update the ArcGIS Online Web App to improve the interface, link with the photos uploaded to the DAMS, and ultimately better meet the needs of users.

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I would like to acknowledge the following individuals who have significantly contributed to the digitization, description, and/or integration of our air photo collection to our Library's DAMS for this project: Carolyn Sullivan, Systems Librarian for Digital Repositories, University of Ottawa; Pierre Leblanc, Specialist (GIS), University of Ottawa; Roxanne Lafleur, Specialist (Digital Humanities), University of Ottawa; Dr. Luke Copland, Professor & University Research Chair in Glaciology, University of Ottawa; and Bailey Burkard, Co-op student, University of Ottawa.

### **Sources**

Carbonetto, K. (1983). The National Air Photo Library. *Urban History Review / Revue d'histoire urbaine*, 12(1), 67–72. <https://doi.org/10.7202/1018997ar>

Carvalho, R. C., & Reef, R. (2022). Quantification of Coastal Change and Preliminary Sediment Budget Calculation Using SfM Photogrammetry and Archival Aerial Imagery. *Geosciences (Basel)*, 12(10), 357-. <https://doi.org/10.3390/geosciences12100357>

*The Collection at National Air Photo Library*. (2022, April 25). Government of Canada. Retrieved March 21, 2024, from <https://natural-resources.canada.ca/maps-tools-and-publications/satellite-imagery-and-air-photos/air-photos/national-air-photo-library/collection-national-air-photo-library/9693>

Gomez, C., Hayakawa, Y., & Obanawa, H. (2015). A Study of Japanese Landscapes Using Structure From Motion Derived DSMs and DEMs Based on Historical Aerial Photographs: New Opportunities for Vegetation Monitoring and Diachronic Geomorphology. *Geomorphology (Amsterdam, Netherlands)*, 242, 11–20. <https://doi.org/10.1016/j.geomorph.2015.02.021>

Kaplan, D. (2009). Choosing a Digital Asset Management System That's Right for You. *Journal of Archival Organization*, 7(1–2), 33–40. <https://doi.org/10.1080/15332740902897360>

Knuth, F., Shean, D., Bhushan, S., Schwat, E., Alexandrov, O., McNeil, C., Dehecq, A., Florentine, C., & O'Neel, S. (2023). Historical Structure From Motion (HSfM): Automated Processing of Historical Aerial Photographs for Long-Term Topographic Change Analysis. *Remote Sensing of Environment*, 285, 113379-. <https://doi.org/10.1016/j.rse.2022.113379>

Kochtitzky, W., Jiskoot, H., Copland, L., Enderlin, E., McNabb, R., Kreutz, K. and Main, B. (2019). Terminus Advance, Kinematics, and Mass Redistribution During Eight Surges of Donjek Glacier, St. Elias Range, Canada, 1935 to 2016. *Journal of Glaciology*, 65(252), 565-579. <https://doi.org/10.1017/jog.2019.34>

Kochtitzky, W., Copland, L., Painter, M. and Dow, C. (2020). Draining and Filling of Ice Dammed Lakes at the Terminus of Surge-Type Dañ Zhùr (Donjek) Glacier, Yukon, Canada. *Canadian Journal of Earth Sciences*, 57, 1337-1348. <https://doi.org/10.1139/cjes-2019-0233>

*Laboratory for Cryospheric Research* (n.d.). Dept of Geography, Environment & Geomatics, University of Ottawa. Retrieved March 6, 2024 from <https://cryospheric.org/>

Millard, K., Redden, A. M., Webster, T., & Stewart, H. (2013). Use of GIS and High Resolution LiDAR in Salt Marsh Restoration Site Suitability Assessments in the Upper Bay of Fundy, Canada. *Wetlands Ecology and Management*, 21(4), 243–262. <https://doi.org/10.1007/s11273-013-9303-9>

Roberti, G., Ward, B. C., van Wyk deVries, B., Perotti, L., Giardino, M., Friele, P. A., Clague, J. J., Menounos, B., Anderson, L. S., & Freschi, S. (2021). Structure From Motion Used to Revive Archived Aerial Photographs for Geomorphological Analysis; An Example From Mount Meager Volcano, British Columbia, Canada. *Canadian Journal of Earth Sciences*, 58(12), 1253–1267. <https://doi.org/10.1139/cjes-2020-0140>

Schaffer, N., Copland, L. and Zdanowicz, C. (2017). Ice Velocity Changes on Penny Ice Cap, Baffin Island, Since the 1950s. *Journal of Glaciology*, 63(240), 716-730. doi: 10.1017/jog.2017.40

*Strategic plan 2025* (n.d.). uOttawa Library. Retrieved March 4, 2024, from <https://www.uottawa.ca/library/strategic-plan>

ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES  
**BULLETIN**

**Exploring Canadian Geospatial Data with GeoPandas in  
Colab Notebooks**

**Software & Data Reviews**

*Section Editor: Nicole Stradiotto, Brock University*

*Author: Christopher Macdonald Hewitt,  
Assistant Professor (PT), Western University, Research Associate, Wilfrid Laurier University*

**Keywords:** Google Colab, Python, GeoPandas, Open Source, Statistics Canada, Cartography

**Abstract**

Google Colab with the GeoPandas Python package is an effective platform for GIS analysis. Following a tutorial prepared by the author, this review discusses how users can load, project, query and visualize GIS data through graphs and maps. Future directions of where this platform could be taken are also discussed. Lastly, the benefits and drawbacks of GIS analysis with Google Colab are presented.



## Introduction

Google Colab is a Jupyter Notebook that you can operate in your web browser, made available by Google (n. d.). Users upload their data or can access it through a link. The content that a user might add to a Colab file is the same as a regular Jupyter Notebook: a mix of narrative explanatory text, code, and output including visualizations (Google, n. d.). Multiple Python packages are already installed, including GeoPandas, which allows users to manage geographic data with a traditional Pandas dataframe (Van den Bossche et al., 2022; Van den Bossche et al., 2023). In this review, Google Colab and the GeoPandas package are evaluated in accordance with a 1-hour workshop developed by the author using both. First, the tutorial itself will be described in detail. This will be followed by a discussion of the merits of the GeoPandas package in a Google Colab environment for GIS analysis.

## Tutorial

The tutorial can be accessed [here](#) and it is divided into four sections. These include an introduction, projections, information on working with data, and map production. It was presented virtually at the fall 2023 GIS Day conference. It was also incorporated into an introductory GIS course at Western University. Participants were instructed to have a Google account beforehand and were provided with the link. There were no other requirements.

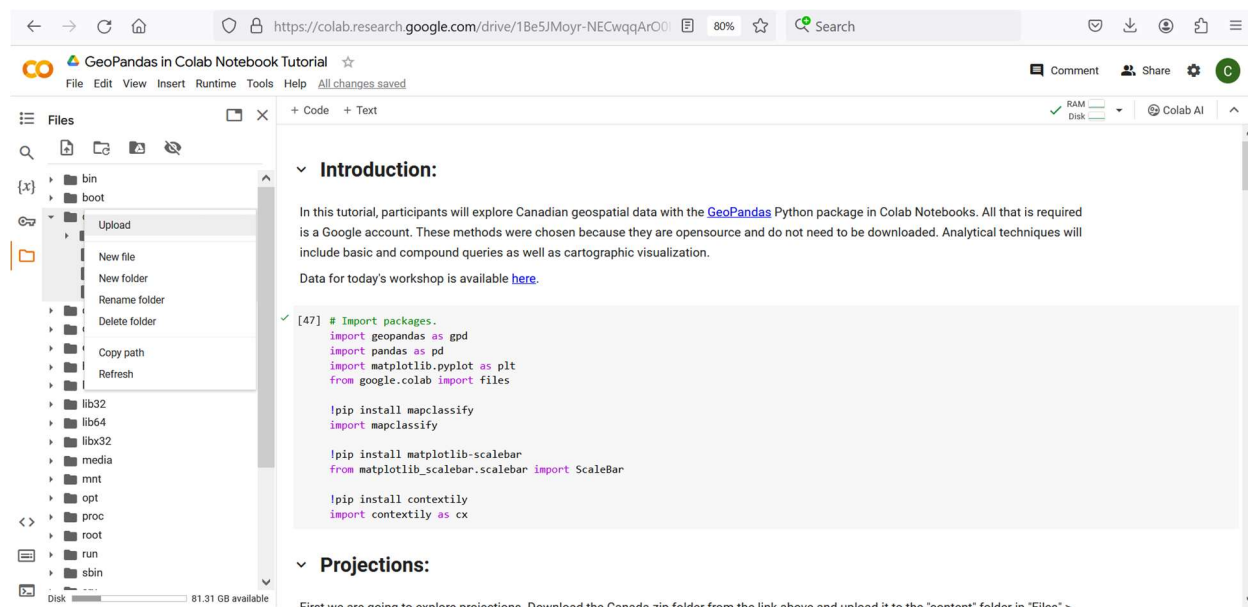


Figure 1: Uploading data

Readers are encouraged to experiment first-hand with the tutorial at the link above, but what follows is a narrative explanation summarizing the experience. Users are first instructed to download the data which were provided by the author but originated from *Scholars Geoportol* and the *Computing in the Humanities and Social Sciences (CHASS)* website (Ontario Council of University Libraries, n. d.; University of Toronto, 2010). They are then required to upload it to Google Colab and place it in the 'content' folder (Figure 1). Next, the required GeoPandas, Pandas and matplotlib.pyplot packages are imported and the mapclassify, matplotlib-scalebar and contextily packages are installed and imported. Projections are discussed with a map of

Canada from the 2001 census. The first projection is the North American Datum 1983, which is the default projection of this dataset. The Canada map is then reprojected in the WGS 84 / World Mercator (EPSG 3395) and the NAD83(CSRS) / Statistics Canada Lambert (EPSG 3348) projections, and visualized. This task is to demonstrate: 1) how to easily reproject data and 2) how the shape of large land bodies such as Canada's changes on a map with different projections. Code is provided to export the map at 300 DPI (Figure 2).

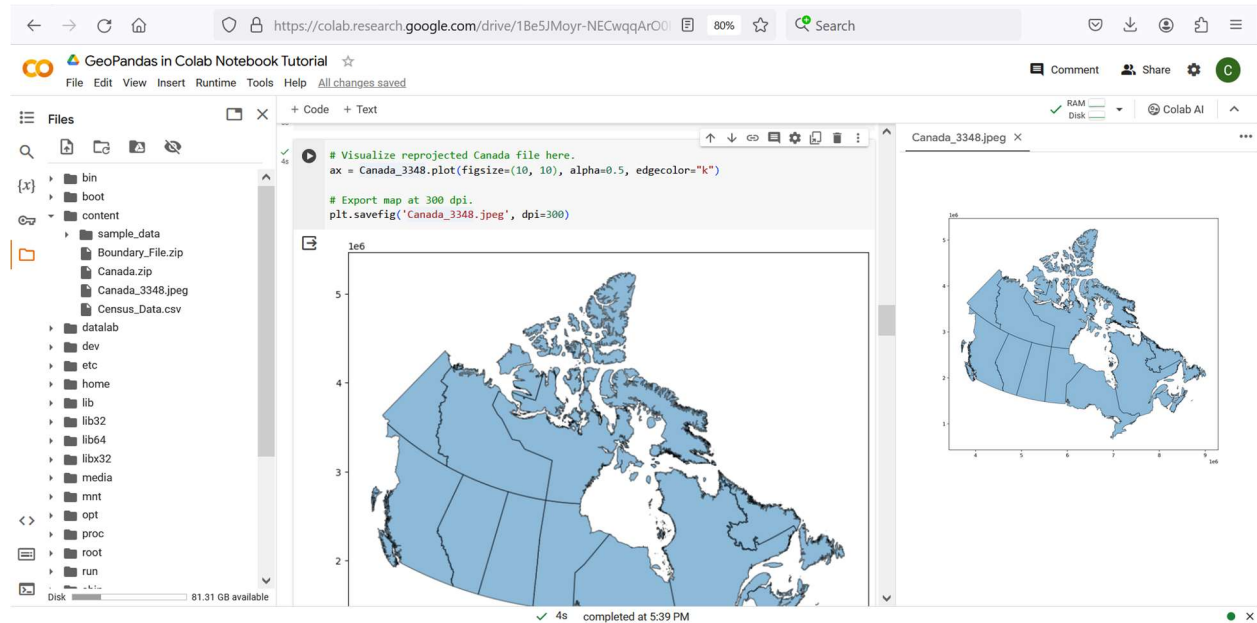


Figure 2: Exporting Map of Canada

Next, the notebook section "Working with data" is presented, and users are prompted to access 2016 Census data for the St. Catharines Census Metropolitan Area (CMA). Data columns were renamed, and data tables were joined together. Then, graphs including boxplots, histograms and scatter plots were visualized to showcase the value to statistics education. Multiple queries were presented. For instruction purposes, the Python code for some queries is not complete, allowing participants to fill in the code themselves. Lastly, map production is presented with different choropleth classification schemes and colour ramps. The final cell has participants add in a scale bar. Code is provided to export the map at 300 DPI.

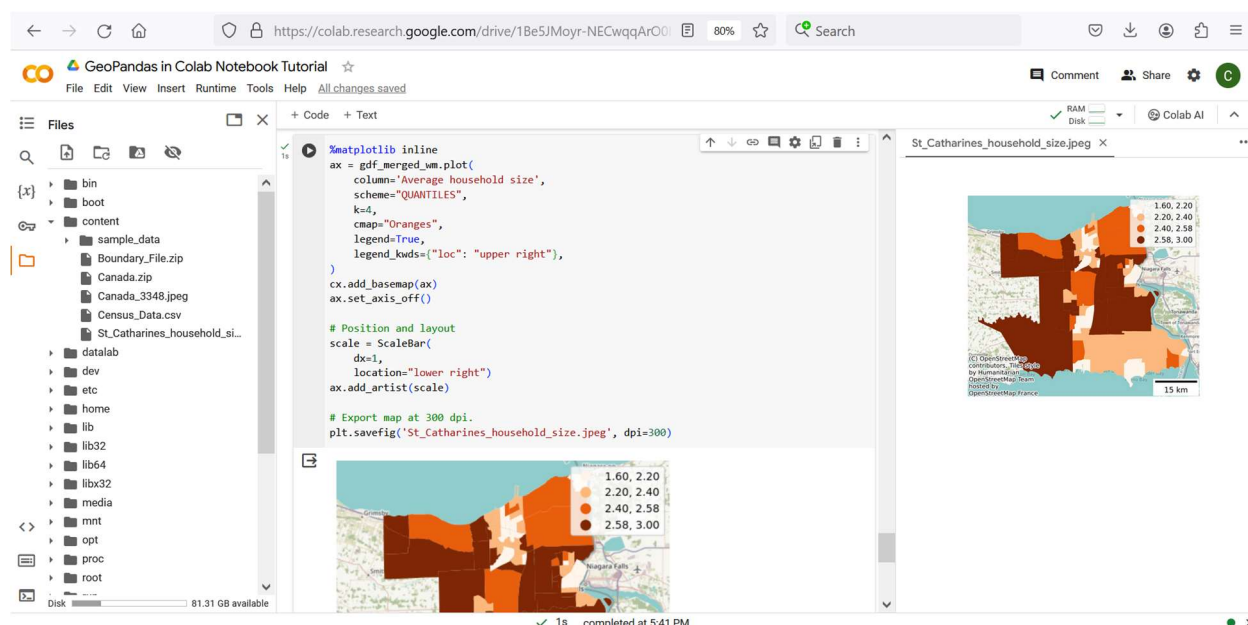


Figure 3: Exporting Household Size Map of St. Catharines CMA

## Future Directions

There are a number of future directions that students and researchers could take using the skills introduced in this tutorial. For one, the package's different uses and functionality—including clips, overlays and spatial joins, as well as links to other Python packages such as PySAL—can be viewed through the link to the GeoPandas documentation (Van den Bossche et al., 2022; Arribas-Bel et al., 2020). Additionally, from a statistics perspective, it would be straightforward to incorporate aspatial and spatial statistical tests into the scripts (e.g. Rogerson, 2021). Lastly, to build user confidence, more sections of code could be left incomplete for users to fill out.

## Discussion

There are multiple benefits to running the code and analysis on an online platform such as Google Colab. For one, no software, packages or updates need to be downloaded as they are all accessed on the Google cloud. This is contrary to RStudio, for example, where new software and packages need to be downloaded and updated from time to time (RStudio Team, 2020). Another important benefit is the ability to easily collaborate on projects. In Google Colab, notebooks can be shared like any other document with viewing or editing mode enabled. Viewing mode works for course content to students as was demonstrated here. Alternatively, editing mode allows multiple authors to edit and revise a document at the same time from different locations. Thus, the notebook is an excellent tool for collaborative projects.

However, there are a selection of drawbacks to this framework. For one, researchers have to upload the data or check the link each time they run the code. This could take time, especially in a class setting if the input files are large. Also, the packages not part of Google Colab have to be installed each time you run the code. Additionally, while the output maps can be printed as images, the entire notebook cannot be downloaded as a PDF. This functionality would be extremely helpful for those who wish to present the notebook as a document.

## Conclusion

In conclusion, this tool will make an important contribution to collaborative research in the GIS field as well as teaching the foundational elements in introductory GIS and geography-based statistics. As was demonstrated in the tutorial, geospatial data can be easily viewed, reprojected and particular variables visualized. The links to other packages would enable further spatial analyses to be performed. Incorporated graphs and statistical tests highlight the value to geography-focused statistics education as well. Thus, there are many benefits to using a Google Colab notebook for GIS or statistical teaching and analysis.

## References:

Arribas-Bel, D., Knaap, E., Barcelos, G., Shao, H., Gaboardi, J., Sauer, J., et al. (2020). *PySAL*. <https://pysal.org/>

Google. (n. d.). *Welcome to Colaboratory - Colaboratory*. <https://colab.research.google.com/notebooks/intro.ipynb>

Ontario Council of University Libraries (n. d.). *Scholars GeoPortal*. [geo.scholarsportal.info](http://geo.scholarsportal.info)

Rogerson, P. A. (2021). *Spatial Statistical Methods for Geography*. London: Sage.

RStudio Team. (2020). *RStudio: Integrated development for R*. Boston: RStudio, Inc. <http://www.rstudio.com/>.

University of Toronto (2010). *Computing in the Humanities and Social Sciences*. <http://chass.toronto.edu/facilities/>

Van den Bossche, J., Fleischmann, M., McBride, J., Ward, B., Wolf, L., & Richards, M. (2022). *GeoPandas 0.dev+untagged*. <https://geopandas.org/en/stable/index.html>

Van den Bossche, J., Jordahl, K., Fleischmann, M., McBride, J., Wasserman, J., Richards, M., et al. (2023, June 6). *geopandas/geopandas: v0.13.2 (Version v0.13.2)*. Zenodo. <http://doi.org/10.5281/zenodo.3946761>

ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES  
**BULLETIN**

**Navigating Conflict: The Strategic Significance and Evolution  
of Navigation Techniques in the Azores Islands during World  
War I and World War II**

**Student Voices**

*Section Editor: Saman Goudarzi, McMaster University*

*Author: Justiina Taika Salo Devries  
Student, McMaster University*

**Keywords:** Azores Islands, History of Cartography, Military Cartography, World War I, World War II, Navigation Techniques

**Abstract**

Situated strategically in the Atlantic Ocean, the Azores Islands emerged as pivotal theaters during World War I and World War II and profoundly shaped these global conflicts through its geographic significance and technological advancements. In this paper, the evolution of navigation techniques, routes, and the strategic importance of the Azores according to the changing nature of warfare was analyzed. Through an examination of historical narratives and technological progress, insights were made into how the islands developed into critical hubs for naval and air operations. Advancements in airport infrastructure, telecommunications, and harbor facilities transformed the Azores into essential nodes for transatlantic shipping, communication networks, and surveillance in the Atlantic theater. Navigational strategies, informed by technological innovations, optimized air routes and access to strategic bases which bolstered military capabilities in both conflicts. Through the exploration of the relationship between technological progress, evolving warfare dynamics, and geopolitical significance, the enduring impact of the Azores Islands on shaping global conflicts throughout history was revealed.

## Introduction

The Azores Islands, nestled in the vast expanse of the Atlantic Ocean, served as a pivotal theater during the tumultuous periods of World War I and World War II. Beyond their picturesque landscapes and azure waters, these islands played a strategic role, influencing the course of naval and aerial operations. This paper aims to investigate the advancement of navigation techniques and navigational routes used in World War I and World War II in the Azores Islands according to the changing nature of warfare.

The research methodology included a comprehensive review of existing literature pertaining to this topic, supplemented by an analysis of historical maps obtained from repositories including the David Rumsey Map Collection, the Perry-Castañeda Library Map Collection, the James Ford Bell Library, and the Lloyd Reeds Map Collection. Moreover, the methodology involved searching for historical maps that could provide insight into the concurrent historical events aligning with the findings in the literature. Utilizing primary sources such as historical maps provided a firsthand glimpse into the geographical landscape and strategic considerations of the Azores Islands during World War I and World War II. This provided invaluable insights that deepened the understanding of navigational strategies and their pivotal role in shaping wartime operations.

The exploration of navigation techniques and routes in the Azores during the wars unveiled an intricate relationship among technological advancements, evolving warfare strategies, and the geopolitical importance of these islands. The significance of this complex relationship lies not only in the geographical importance of the Azores, but also in how these advancements were complexly intertwined with the dynamic shifts in warfare during both World Wars. Examining this historical narrative highlighted advancements in maritime and aerial navigation technologies, underscoring the interconnected relationship between evolving warfare and the navigational demands of military forces that defined the Azores Islands' role in global conflicts.

## Background

The combined landmass of the Azores archipelago, formed by the nine islands illustrated in Figure 1, had a population of approximately 234,530 in 1920 after the end of World War I (Santos, 2011) and an estimated 287,000 people in 1941 in the middle of World War II (Herz, 2014). The archipelago comprises of islands named Santa Maria, Terceira, São Miguel, Graciosa, Pico, São Jorge, Corvo, Faial, and Flores.

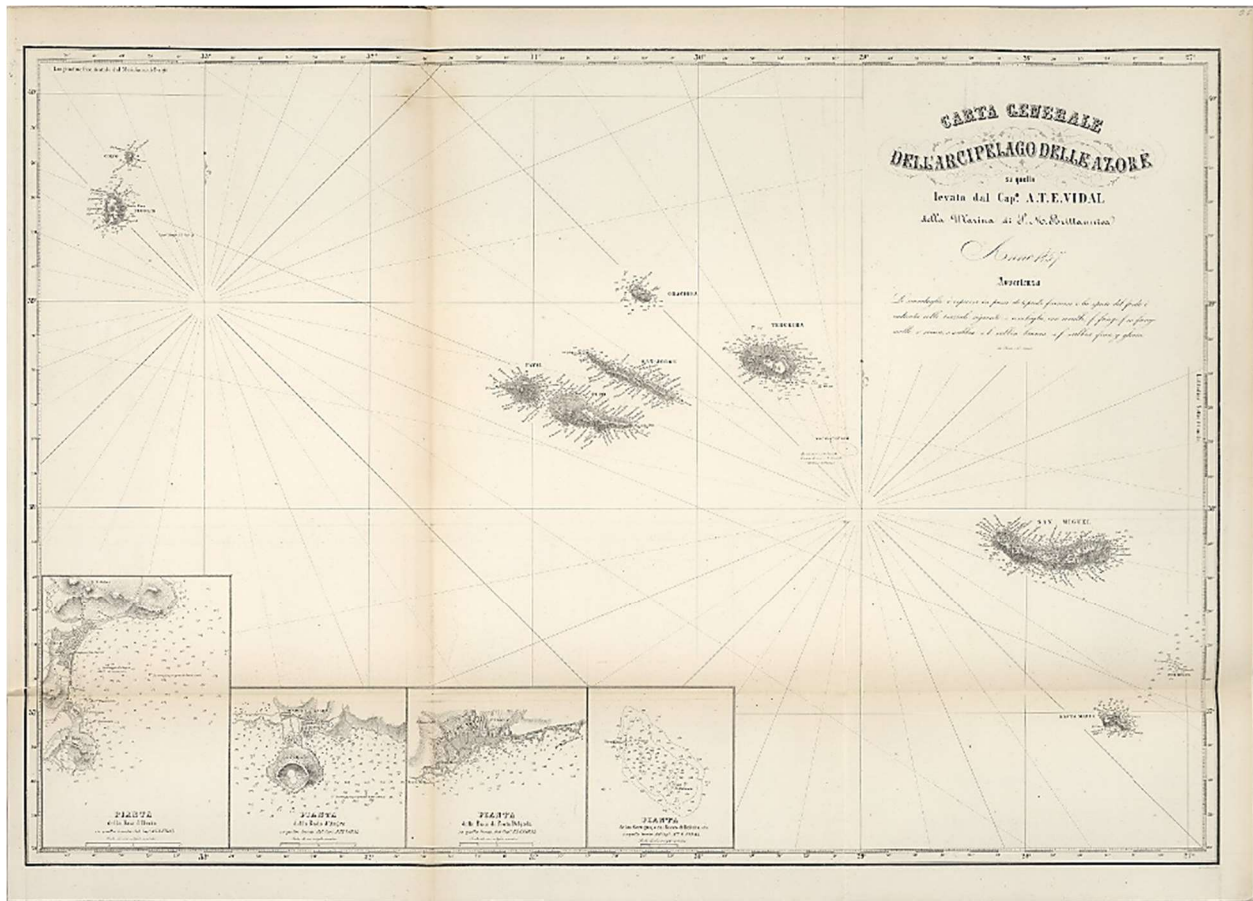


Figure 1: A comprehensive maritime atlas of Brazil and the South American Atlantic coast, crafted by Eugenio Rodriguez. This initial edition of the Atlas volume includes two accompanying text volumes. The maps contained within the Atlas were meticulously prepared by navigators and hydrographers under the supervision of Baron Roussin for Eugenio Rodriguez (Rodriguez, 1857).

The credit for the discovery of the Azores islands is frequently attributed to Gonçalo Velho Cabral, a Portuguese explorer who, in 1432, is said to have stumbled upon the archipelago while being off course during his return journey from Africa (Santos, 2011). Nevertheless, the existence of several pre-existing maps suggests a reasonably accurate, albeit not flawless, understanding of the location and makeup of the Azores archipelago before Cabral's landings. Figure 2 represents an example of the earliest portolan, or nautical, chart in the James Ford Bell Library that was made in 1424 by a Venetian cartographer named Zuane Pizzigano (James Ford Bell Library, n.d.).



Figure 2. The earliest portolan chart in the James Ford Bell Library, created in 1424 by Venetian cartographer Zuane Pizzigano. This manuscript chart on vellum measures approximately two by three feet in size. The 1424 Nautical Chart is characterized by its simplicity, lacking pictorial decoration and a separate decorated compass rose (James Ford Bell Library, n.d.).

The settlement of the Azores was never motivated by colonization for demographic growth or wealth accumulation, given the islands' limited resources and size (Littleton, 2022). Instead, the islands served as a crucial waystation, assisting expansion abroad. Historically, the Azorean economy depended on agricultural activities, with a specific focus on dairy farming, tobacco cultivation, and the growing of pineapples (Beier & Kramer, 2018).

The exploration of the historical connections between the archipelago and mainland Portugal, as well as America, provides insights into the strategic significance of the Azores in military warfare. This analysis highlights the pivotal role of the Azores as a strategic outpost and staging area for military operations which revealed its importance in shaping military strategies and alliances during past historical conflicts (Littleton, 2022).

### **Strategic Significance of the Azores Islands during World War I**

The Azores Islands held strategic significance during World War I due to their geographical location in the North Atlantic. They served as a crucial midway point between North America and Europe, making them strategically positioned for naval operations and communication lines. The



inaugural commander of U.S. naval forces stationed at the U.S. Naval Base in Ponta Delgada, Rear Admiral Herbert Dunn, distinctly outlined the strategic importance of the Azores in an entry written in 1917 (Rezendes, 2021). He specifically highlighted the significant harbor capabilities of Ponta Delgada and Horta (on Faial Island), underscoring their potential to serve as crucial sites for ship supply, ship repair facilities, and coaling stations (Rezendes, 2021).

Admiral Dunn emphasized that the strategic significance of occupying the Azores stemmed from the potential threat it posed if controlled by the enemy. The islands could have served as an ideal submarine base, posing a considerable obstacle to the successful transportation of troops and supplies across the ocean, given the proximity of convoy routes passing north and south of the archipelago (Daniels, 1922; Rezendes, 2021). They provided a potential base for naval forces, allowing control over important sea routes and acting as a refueling and repair station for ships. Controlling the Azores meant influence over key Atlantic shipping lanes. This was particularly significant in an era when maritime trade and the movement of naval fleets were paramount.

When WWI began in 1914, the Portuguese navy was outdated and limited in size, rendering it unable to confront a modern adversary directly. This inadequacy resulted from years of underinvestment, neglect, and continuous political instability (Ribeiro de Meneses, 2023). The few warships at the country's disposal were ill-equipped for a direct encounter with enemy surface vessels, lacking both mine-sweeping equipment and depth charges. Consequently, they were powerless against enemy submarines.

The initial indications of German submarine activity in the Azores emerged in 1915, heightening concerns among Azorean military authorities. Despite having communicated their presence to the Portuguese Ministry of War and the Navy at the onset of the conflict, the growing signs of German submarines in the region intensified anxieties among the Azores' military leadership (Rezendes, 2021). The German U-boat SM U-83 conducted a bombing raid on the harbor of Funchal in Madeira on December 3, 1916 (Hughes, 2020). This event triggered a series of developments that culminated in the bombing of Ponta Delgada by SM U-155 on July 4, 1917 (Hughes, 2020). The motive behind the latter attack was likely an attempt to destroy a coal depot, primarily utilized by U.S. ships for refueling and resupplying during their operations in the Atlantic Ocean region.

Following an agreement with Britain, the United States took on the responsibility of defending the Azorean Sea. The defense of this region was essential for safeguarding the passage of ships from the United States to Europe, North Africa, and the Mediterranean Sea (Work, 2004).

These routes were vital for commercial shipping heading to Britain and other Allied nations, transporting essential supplies such as foodstuffs and provisions from Africa, South America, and regions beyond Cape Horn and the Cape of Good Hope (Ponce, 2014). Other important supplies included military equipment, ammunition, food, medical supplies, and other provisions that were necessary to support the Allied forces engaged in combat operations. It was also important to protect crucial resources such as fuel and coal deposits, a German prisoner-of-war camp, wireless stations, telegraph cable hubs, and the local population itself (Work, 2004). As depicted in Figure 3, the Azores Islands became crucial for telegraphic communications due to their geographical location during WWI, whereas before the war its potential as a midway point in the Atlantic Ocean was not as evident.

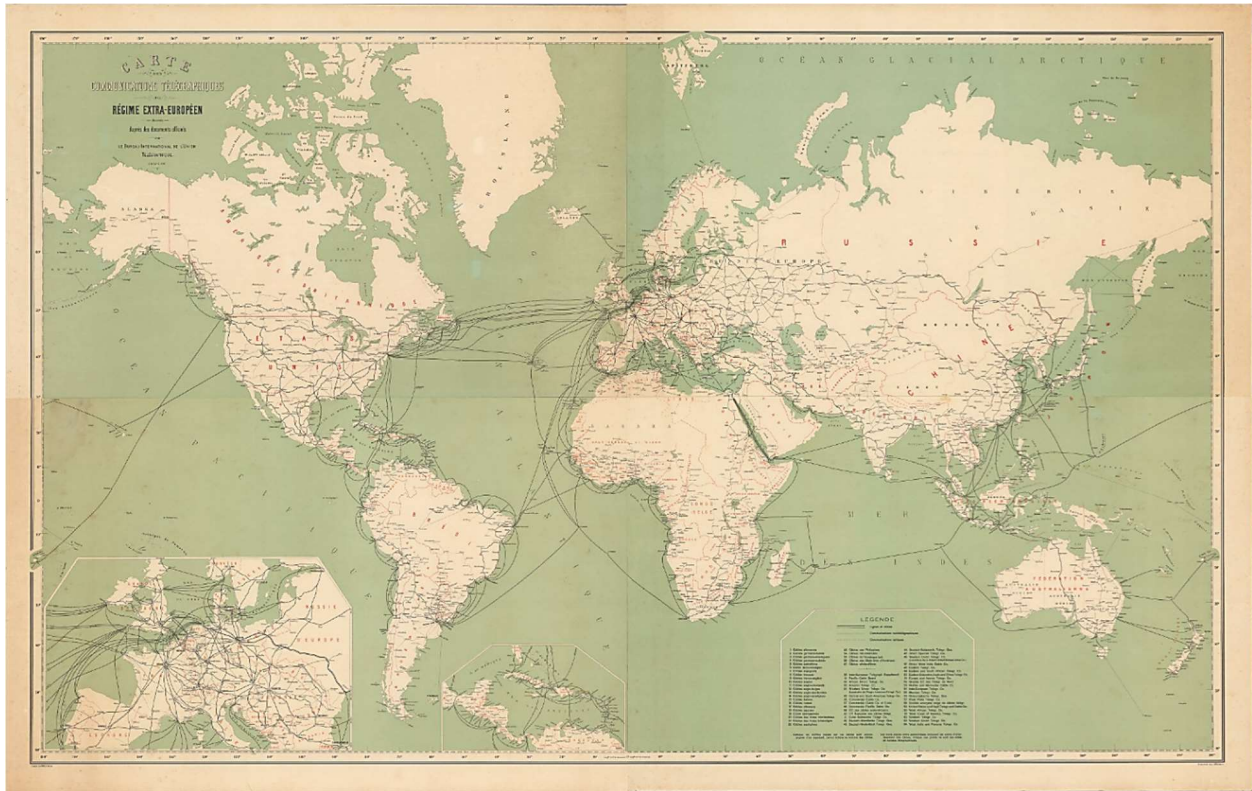


Figure 3. A map illustrating telegraphic communications in the non-European territories, compiled from official documents by the International Bureau of Telegraphic Administrations. This map is the only unrecorded World War I edition of the official map of the global telegraph system (Hoven, 1917).

### Navigation Techniques utilized during World War I in the Azores

Various navigation techniques were employed to facilitate naval and aerial operations during World War I. Celestial navigation continued to be a fundamental technique. Navigators relied on the positions of the sun, moon, stars, and planets to determine their location and course. While celestial navigation in the air was not considered a top military precedent, the development and production of instruments for this purpose were significantly influenced by military demand (Warner, 2005). This demand originated during World War I and continued to increase steadily in the years between the wars.

Dead reckoning was also used during the war, and it involved estimating a current position based on a previously known position, course, and speed. This method was commonly used in both naval and aerial navigation. Navigating through dead reckoning in the air during the first World War presented a distinct challenge and danger compared to navigation from the Earth's surface (Williams, 1984). The challenge posed by navigating through dead reckoning in the air was clear to pilots and navigators who had to contend with various factors such as the lack of visual references over vast expanses, variable atmospheric conditions affecting accuracy, limited technology compared to modern systems, the rapid movement of aircraft exacerbating errors, and the increased risk of getting lost over unfamiliar terrain or adverse weather conditions.

Detailed charts and maps were still crucial for plotting courses, avoiding obstacles, and understanding geographical features. These charts were often updated with the latest intelligence on enemy positions and sea conditions. Additionally, the use of radio navigation became more prevalent during WWI (Schroer, 2003). Radio signals, including radio direction finding, were employed for navigation and communication in the Azores. The combination of these navigation techniques showcased the adaptability of military navigators during World War I in the challenging and strategically significant region of the Azores Islands.

The changing nature of warfare in World War I, marked by the introduction of submarine warfare and the utilization of naval and air patrols, had a profound impact on navigational strategies and routes in the Azores Islands. The presence of enemy submarines in the waters surrounding the Azores Islands necessitated the alteration of traditional navigation routes (Ponce, 2014). Navigators had to consider the potential threat of submarine attacks and choose routes that minimized exposure to these underwater hazards.

The Germans aimed to deal a significant blow to the British economy by targeting these islands tactically positioned along crucial trade routes. The deployment of naval and air patrols around the Azores increased surveillance capabilities. Navigators had to factor in the presence of patrols when planning routes and adjust strategies based on potential encounters with friendly or enemy forces. The development of radio navigation technology, including radio direction finding, became crucial in the Azores. This technology allowed for more accurate navigation, communication, and the detection of enemy signals. Navigators in the Azores had to prioritize accurate weather forecasting as well due to the changing nature of warfare since meteorological information was essential for planning routes, avoiding adverse weather conditions, and ensuring the safety of naval and aerial operations.

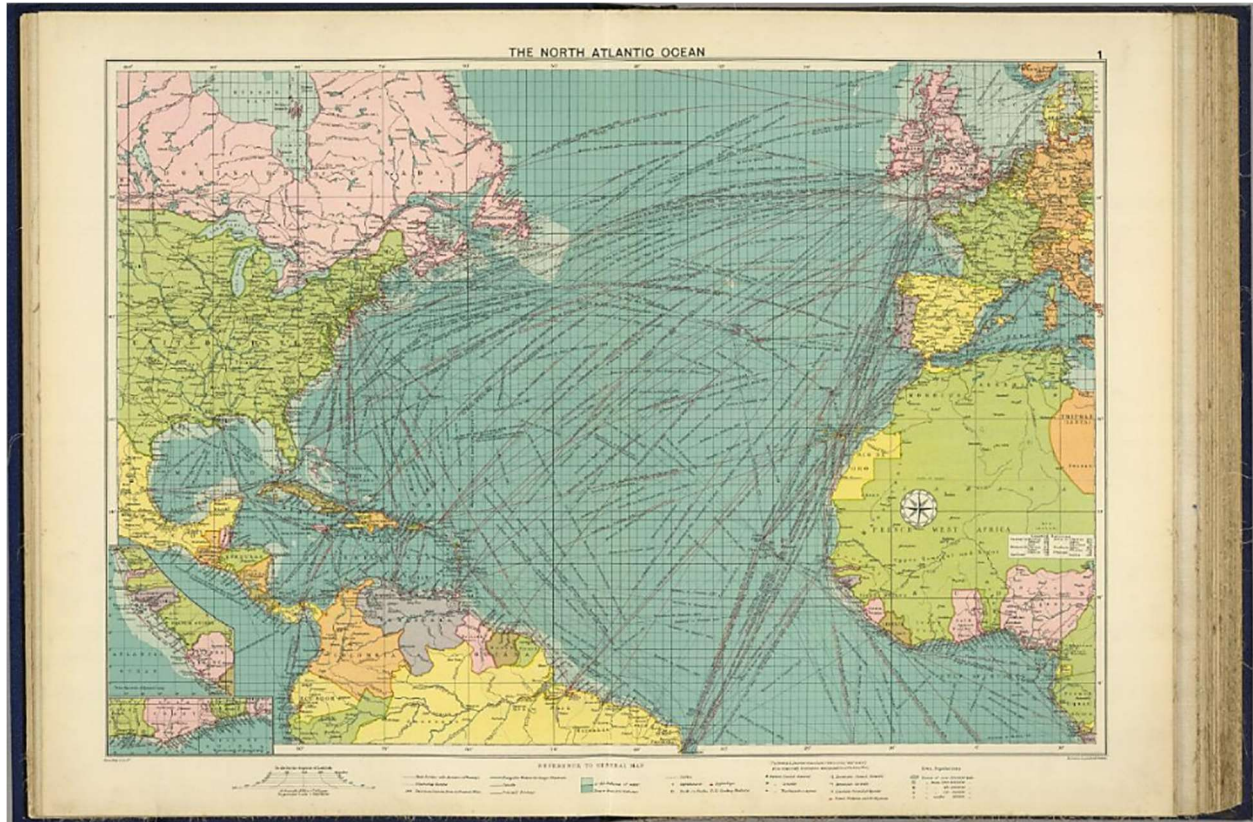
### **Technological Advancements Between World War I and World War II**

The period between World War I and World War II witnessed significant technological advancements globally, and the Azores Islands were no exception. While not as directly involved in the conflicts as other regions, the strategic importance of the Azores influenced the development and adoption of various technologies. The Azores saw improvements in airport infrastructure, including runway expansions, and the development of air facilities (Dennis, 1994). This was crucial for the increasing role of aviation in military and civilian activities.

Advancements in telecommunications technology led to the improvement of communication networks in the Azores. Enhanced telegraph and radio communication systems played a vital role in military coordination and intelligence gathering (van der Vleuten & Kaijser, 2005). During World War I, the Portuguese government effectively brokered collaboration with Great Britain, recognized as a significant strategic ally. The Portuguese objective was to establish a mutually beneficial arrangement where the British transatlantic telegraph companies would utilize Lisbon, the Azores, and Cape Verde as relay stations (van der Vleuten & Kaijser, 2005). Concurrently, the Portuguese government sought to establish communication links with its colonies, a goal for which it lacked the financial and technical resources.

Additionally, upgrades to harbor facilities were made to accommodate larger and more advanced naval vessels, reflecting advancements in maritime transportation. As illustrated in Figure 4, mail routes and steamship routes developed after World War I and the Azores Islands became

geographically important in terms of infrastructure and transportation routes across the Atlantic Ocean.



*Figure 4. This color lithographed map features two insets depicting portions of West Africa. The map illustrates mail routes and their durations, steamship routes, distances, navigable waters for large steamers, major railways, canals, lighthouses, cables, docks, lightships, coaling stations, as well as the locations of British and American consular offices, dockyards, naval stations, and other significant points of interest (George, 1922).*

This is a big improvement and change since before World War I the Azores Islands were not strategically utilized by other countries until it was deemed necessary during warfare. Prior to 1914, sailing routes and steamship routes did not traverse or incorporate the Azores Islands, as illustrated in Figure 5 depicting sailing and steamship routes from 1890, a period 24 years preceding the onset of World War I. The technological advancements in the Azores during World War I significantly improved navigational accuracy, safety, and situational awareness. These advancements not only benefited military operations but also had a lasting impact on civilian maritime activities in the region.

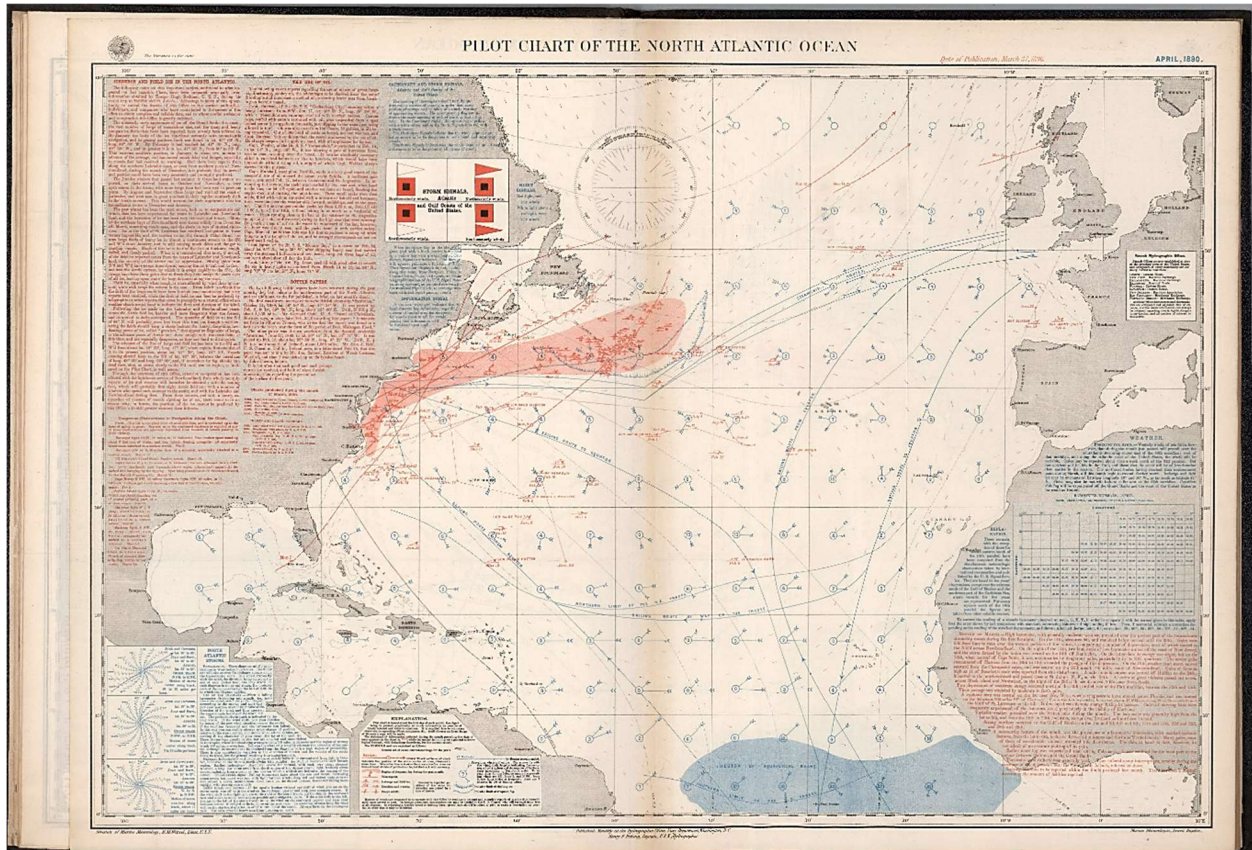


Figure 5. A maritime map depicting the North Atlantic Ocean in April 1890 is presented. The chart illustrates cities, shoals, coastlines, depths, sailing routes, islands, ocean currents, storm tracks, fog belts, weather forecasts, equatorial rains, wind force and directions. Additionally, it delineates icebergs, ice fields, and the extent of ice coverage (Witzel, 1890).

### Strategic Significance of the Azores Islands during World War II

The Azores Islands retained strategic importance during World War II for several reasons, influencing the decisions and actions of Allied and Axis powers. The Azores served as bases for naval and air operations, so controlling these islands provided a strategic foothold in the Atlantic that enabled naval forces to project power and control shipping routes. The Azores offered a central location for communication and surveillance in the Atlantic. Possession of the islands allowed for monitoring and control of maritime and aerial activities, enhancing situational awareness.

Initially neutral, Portugal, under António de Oliveira Salazar's leadership, grew concerned about potential Axis invasion during World War II (Rodrigues, 2008). As the Allies gained momentum, Salazar shifted allegiance in 1943, realizing that aligning with the victorious Allies such as Britain and America, particularly those controlling the Atlantic, was crucial for the survival of Portugal's authoritarian regime and its colonial empire in a post-war democratic world order (Rodrigues, 2008). The islands became a diplomatic and geopolitical asset for Portugal, providing leverage and bargaining power in international relations.

In 1943, the Allied Chiefs of Staff evaluated that having Allied facilities in the Azores had the potential to save around 51.5 million gallons of aviation fuel between November 1943 and April 1944 (Rodrigues, 2008). Due to the Portuguese central government's restriction on the Azores as a trading hub, the islands served mainly as stopovers for trading vessels. As steamships replaced sailing vessels, traffic to the Azores significantly declined in the late 19th and early 20th centuries. Despite a decrease in the percentage of stopovers, the overall volume of people and goods crossing the Atlantic increased, aligning with the early trends of globalization (Littleton, 2022). The presence of German U-boats and the threat of submarine warfare in the Atlantic heightened the strategic importance of the Azores. Allied forces sought to establish control over the region to protect shipping lanes and counter German submarine operations.

Additionally, the Azores served as a critical waypoint for transatlantic air routes. Aircraft flying between North America and Europe used the islands for refueling and maintenance, making them essential for long-range air operations. The Azores served as a base for search and rescue operations in the Atlantic (Herz, 2014). The islands played a role in supporting and coordinating efforts to rescue downed pilots and sailors, thereby enhancing the safety of Allied personnel. Accurate navigation was vital for responding swiftly to incidents and conducting effective search and rescue missions.

Furthermore, the Azores were also strategically positioned to provide a defensive shield for the eastern approaches to the United States and Allied territories in the Americas. Controlling the individual islands allowed for better defense against potential Axis threats in the Atlantic.

Terceira, as featured in Figure 6, was a key island during World War II due to its airfield, Lajes Field. The United States and Great Britain established an airbase on Terceira, known as Lajes Air Base, which played a critical role in transatlantic air traffic and anti-submarine warfare (Kochis, 2020). The airbase served as a refueling and maintenance stop for aircraft flying between North America and Europe.

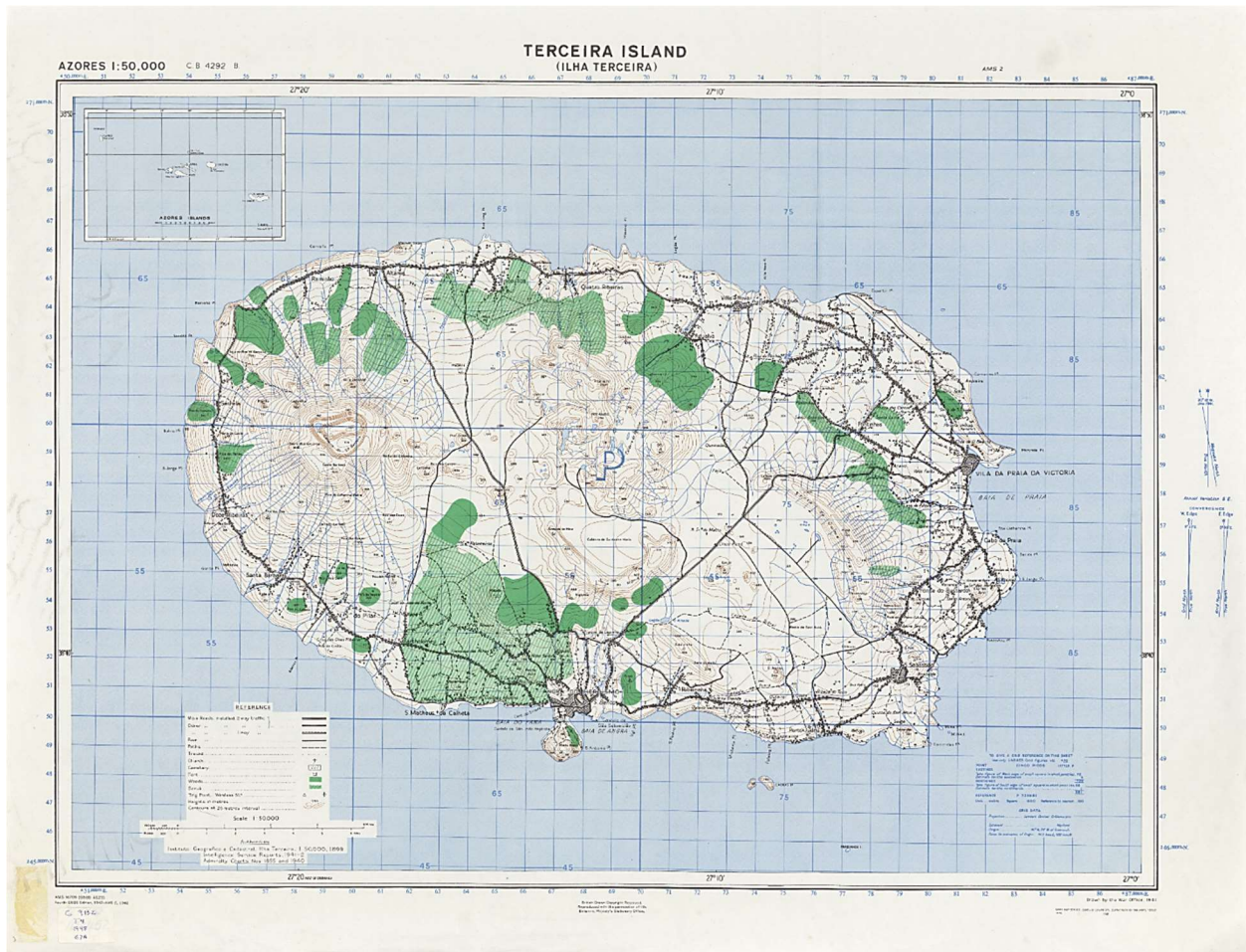


Figure 6. U.S. Army topographic map featuring Terceira Island with bearings and topographical information, along with an inset map featuring the Azores Islands. The map depicts the presence of roads and buildings (War Office, 1948).

São Miguel, the largest island in the Azores, also held great military significance. It hosted an airfield and served as a base for both Portuguese and Allied military operations. The island's strategic geographical position, as illustrated in Figure 7, made it important for surveillance and defense purposes. The initial airstrip was established on São Miguel Island, where the Portuguese forces established Air Base nr. 4 in 1941 (Monteiro, 2022). Following the establishment of the first airfield on Terceira Island, this airfield on São Miguel facilitated the first interisland land-to-land flight (Monteiro, 2022).

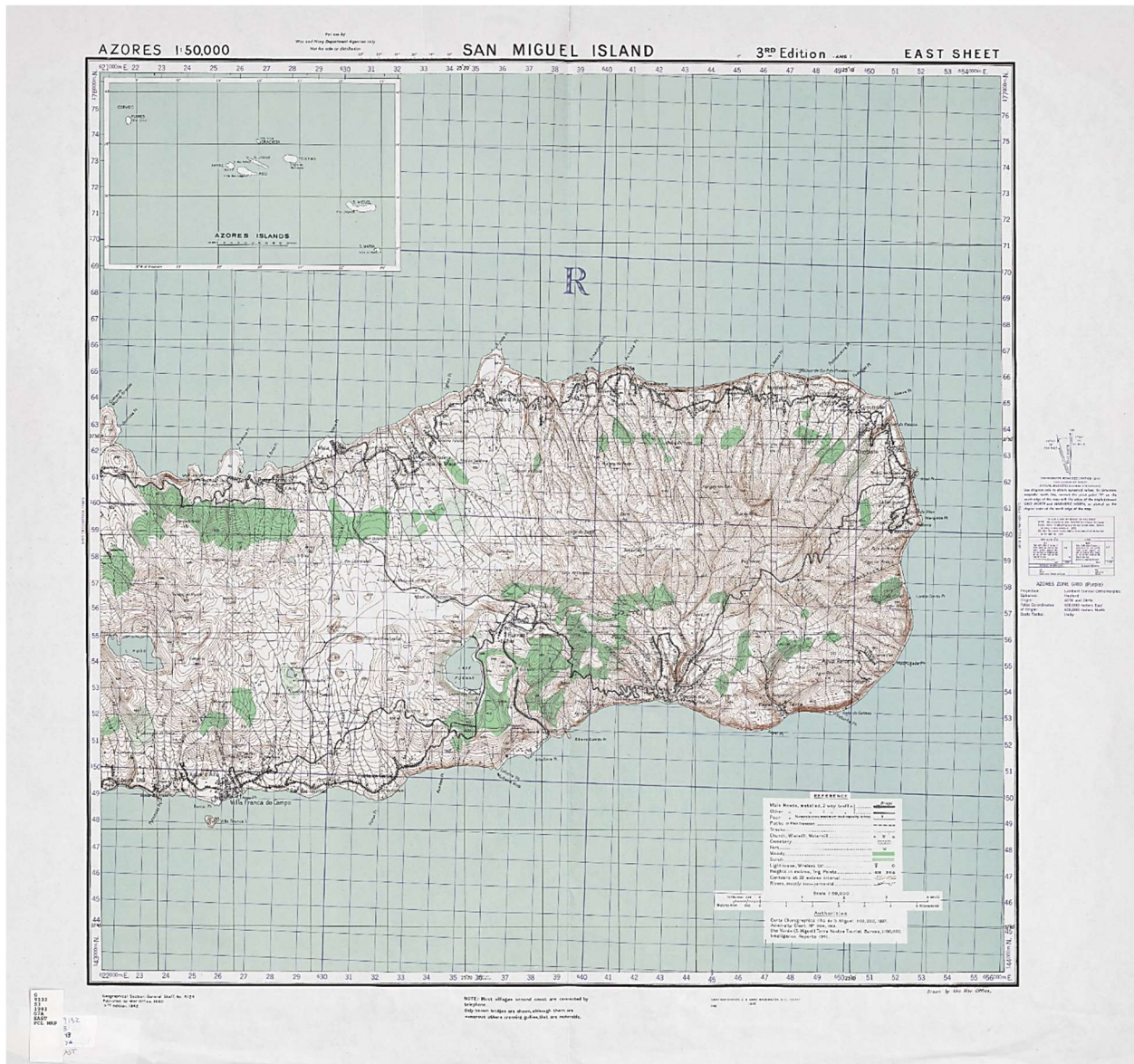


Figure 7. U.S. Army topographic map depicting São Miguel Island with bearings and topographical information, including roads, buildings, and lighthouses. Additionally, an inset map of the Azores Islands is provided for reference with relation to the main area map (War Office, 1943).

Santa Maria, the southernmost island depicted in Figure 8, housed an airfield that became part of the overall air defense network in the Azores. The airfield on Santa Maria played a role in anti-submarine operations and contributed to the overall security of the region (Smith, 1998). Furthermore, Santa Maria's flat terrain and favorable weather conditions made it well-suited for constructing and operating airfields (Herz, 2014).



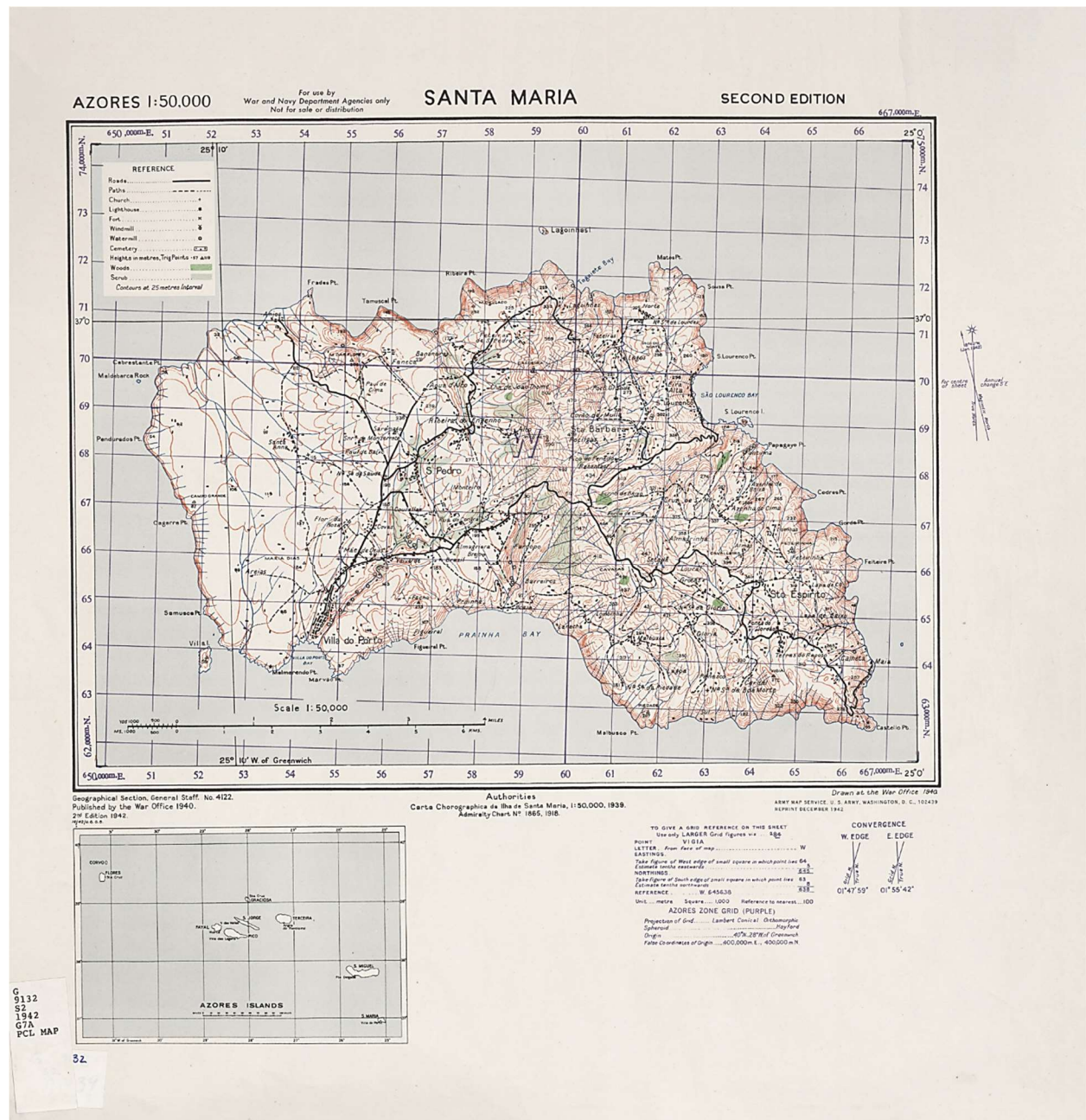


Figure 8. U.S. Army topographic map illustrating Santa Maria Island with bearings and topographical information showcasing buildings, roads, and lighthouses. An inset map of the Azores Islands is also included for reference (War Office, 1942).

Lastly, during World War II, Flores held strategic significance due to its location in the Atlantic Ocean. As one of the westernmost islands in the archipelago, as depicted in Figure 9, Flores served as a vital outpost for monitoring and controlling maritime traffic in the region. Its strategic position allowed for surveillance of shipping routes and provided early detection of enemy naval activity (Herz, 2014). Despite having a smaller-scale airfield compared to Santa Maria, Flores still contributed to supporting transatlantic air traffic between Europe and North America, serving as an emergency landing site and refueling point for aircrafts traversing the Atlantic (Herz, 2014).

Moreover, allied forces stationed on the island utilized its vantage point to detect and report enemy submarine activity, enhancing the protection of convoys traveling through the region.

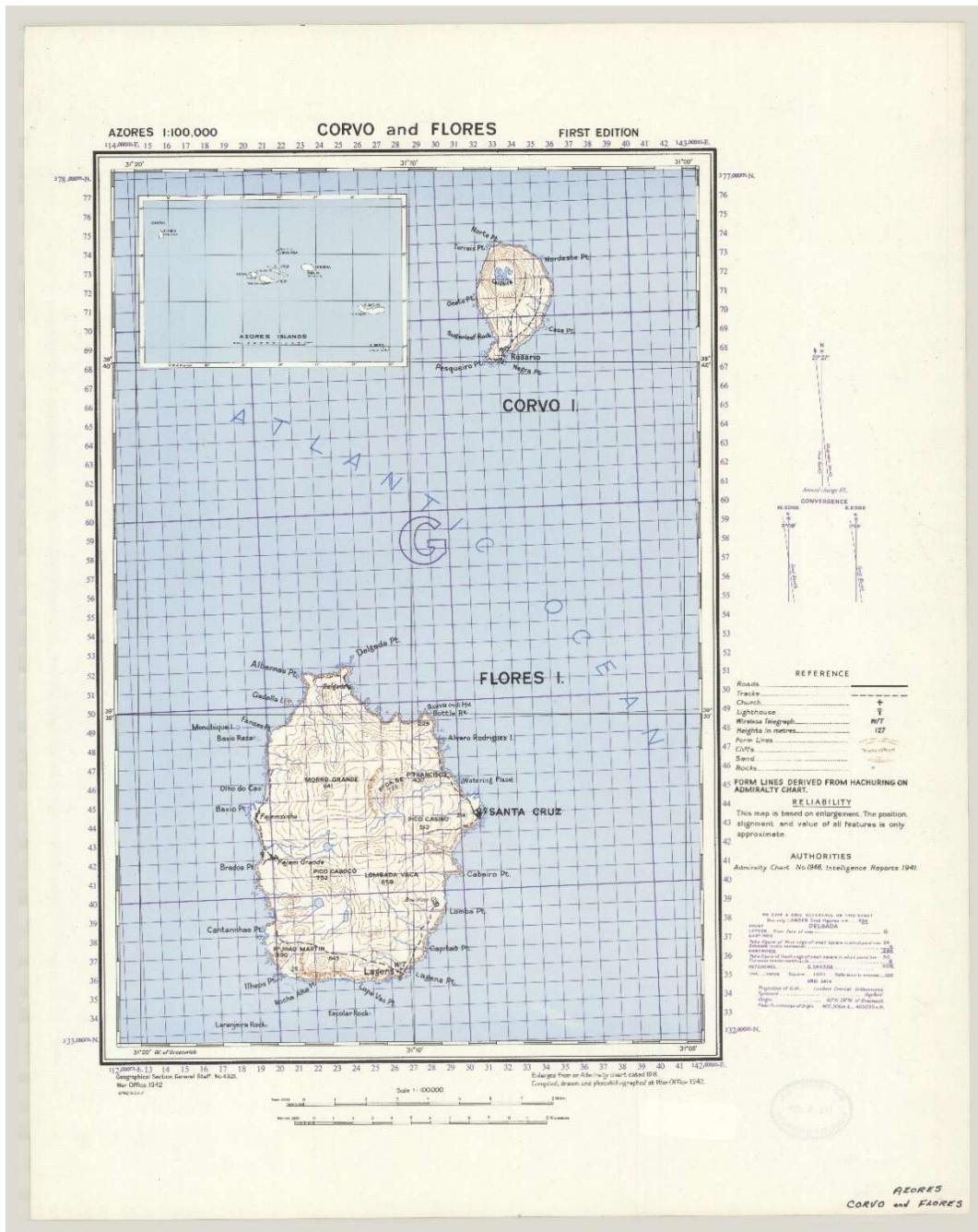


Figure 9. British War Office topographic map depicting Flores Island and Corvo Island with bearings and topographical information showcasing buildings, roads, lighthouses, and wireless telegraphs. The map was enlarged from an Admiralty chart dated 1918. An inset map of the Azores Islands is also included for reference (War Office, 1942).

## **Navigation Techniques utilized during World War II in the Azores**

Advancements in navigation techniques during World War II played a multifaceted role in military operations in the Azores. From precision bombing to improved reconnaissance and anti-submarine warfare, these innovations significantly influenced strategic planning and the execution of military campaigns in the Atlantic theater. Enhanced navigation techniques, including radio navigation aids and improved maps, contributed to more precise aerial navigation (Craven, 1948). This increased accuracy was essential for strategic bombing campaigns and targeted military operations.

In terms of aerial reconnaissance, advances in aerial navigation allowed for more effective reconnaissance missions. Military aircraft could now navigate with greater precision, providing accurate intelligence on enemy positions, naval activities, and potential threats in the Azores (Rezendes, 2021). Additionally, submarine operations relied on advancements in underwater navigation techniques. Improved sonar systems and navigational instruments allowed submarines to navigate more accurately and engage in covert operations in the waters surrounding the Azores (Manstan, 2018).

The changing nature of warfare during World War II, marked by the expanded use of aircraft and submarines, had a profound impact on navigational routes and strategies in the Azores. The strategic significance of the Azores in the Atlantic Ocean led to the adaptation of navigational approaches to accommodate the evolving nature of conflict in the region. The increased use of aircraft, especially long-range bombers and patrol planes, influenced the establishment of transatlantic air routes (Herz, 2014).

The Azores, strategically located in the middle of the Atlantic, became crucial as a refueling and maintenance stop for aircraft flying between North America and Europe. Navigational strategies focused on optimizing these air routes to ensure efficient and safe transits. The construction of air bases on various Azores islands, such as Terceira and São Miguel (Kochis, 2020; Monteiro, 2022), became essential for supporting air operations.

Navigational strategies were designed to facilitate easy access to these bases, ensuring effective deployment and maintenance of aircraft. The expanded use of submarines, particularly German U-boats, in the Atlantic heightened the importance of anti-submarine warfare strategies in the Azores (Lardas, 2021). Navigational routes during the war were adjusted to prioritize areas where anti-submarine warfare patrols and defenses were most effective in countering submarine threats. Moreover, advances in meteorological technology were applied to enhance weather forecasting, which influenced navigation. Accurate weather predictions were crucial for planning and executing military operations around the Azores. In summary, the precise application of navigation skills and technologies contributed to the strategic significance of the Azores in the Atlantic theater.

## **Conclusion**

In conclusion, the Azores Islands emerged as a pivotal theater during the turbulent periods of World War I and World War II, transcending their idyllic landscapes to assume a crucial strategic role in global conflicts. The strategic importance of the Azores during World War I was underscored by their geographic positioning in the North Atlantic. Serving as a vital midway point between North America and Europe, the Azores played a key role in naval operations and communication lines.

World War I navigation techniques included celestial navigation, dead reckoning, and the emerging use of radio signals. Between the wars, the Azores witnessed technological advancements, with improvements in airport infrastructure, telecommunications, and harbor facilities. World War II brought forth a renewed strategic importance for the Azores, influencing decisions and actions of both Allied and Axis powers. The islands served as potential bases for naval and air operations, communication hubs, and surveillance points. Terceira, São Miguel, and Santa Maria emerged as key islands during World War II, hosting airbases crucial for transatlantic air traffic, anti-submarine warfare, and overall defense.

The adaptation of navigational approaches ensured efficient air routes and optimized access to strategically located air bases on various Azorean islands. The heightened threat of submarines demanded adjustments in navigational routes, emphasizing areas where anti-submarine patrols were most effective. This investigation into the advancement of navigation techniques and navigational routes in the Azores during these wars revealed a dynamic interplay between technological progress, the changing nature of warfare, and the geopolitical significance of these islands.

## Bibliography

Beier, R., & Kramer, J. (2018). A Portrait of the Azores: From Natural Forces to Cultural Identity. In U. Kueppers & C. Beier (Eds.), *Volcanoes of the Azores: Revealing the Geological Secrets of the Central Northern Atlantic Islands* (pp. 3–26). Springer. [https://doi.org/10.1007/978-3-642-32226-6\\_2](https://doi.org/10.1007/978-3-642-32226-6_2)

Corvo and Flores: Azores 1:100,000 (1st ed.). (1942). [Topographic Map]. War Office. <https://digitalarchive.mcmaster.ca/islandora/object/macrepo%3A70831>

Craven, W. F. (1948). *The Army Air Forces in World War II: Europe, torch to pointblank, August 1942 to December 1943*. Office of Air Force History. [https://books.google.ca/books?hl=en&lr=&id=I51f9ZnutCIC&oi=fnd&pg=PR1&dq=Aerial+Bombing+Accuracy+in+the+azores+in+world+war+2&ots=z1PNDgUmdy&sig=axpr8lbykMgOBxOEDqP3-SwZKgU&redir\\_esc=y#v=onepage&q&f=false](https://books.google.ca/books?hl=en&lr=&id=I51f9ZnutCIC&oi=fnd&pg=PR1&dq=Aerial+Bombing+Accuracy+in+the+azores+in+world+war+2&ots=z1PNDgUmdy&sig=axpr8lbykMgOBxOEDqP3-SwZKgU&redir_esc=y#v=onepage&q&f=false)

Daniels, J. (1922). *Our Navy At War*. GH Doran.

Dennis, N. (1994). Airline hub operations in Europe. *Journal of Transport Geography*, 2(4), 219–233. [https://doi.org/10.1016/0966-6923\(94\)90047-7](https://doi.org/10.1016/0966-6923(94)90047-7)

George, P. (1922). *The North Atlantic Ocean* [Atlas Map]. C. S. Hammond & Company. London: George Philip & Son, Ltd. The London Geographical Institute.

Herz, N. (2014). *Operation Alacrity: The Azores and the War in the Atlantic*. Naval Institute Press.

Hoven, G. V. von. (1917). *Carte des communications télégraphiques du régime extra-européen dressée d'après des documents officiels par le bureau international des administrations télégraphiques*. [Composite Map]. F. Lips. <https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~340627~90108878:Composite->

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com?sort=Pub\_List\_No\_InitialSort&qvq=q:atlantic%20ocean%20world%20war%201;sort:Pub\_List\_No\_InitialSort;lc:RUMSEY~8~1&mi=4&trs=36

Hughes, T. (2020, December 3). 104 years ago torpedoes sink 3 ships in Funchal. *Madeira Island News Blog*. <https://www.madeiraislandnews.com/2020/12/104-years-ago-torpedoes-sink-3-ships-in-funchal.html>

James Ford Bell Library. (n.d.). *Portolan Charts—Bell Library: Maps and Mapmakers*. The 1424 Nautical Chart. Retrieved March 7, 2024, from <https://apps.lib.umn.edu/bell/map/PORTO/1424/index24.html>

Kochis, D. (2020). Lajes Field: Why This Airbase Is Important to U.S. Strategic Interests. *The Heritage Foundation*, 3566. <https://www.heritage.org/sites/default/files/2020-12/BG3566.pdf>

Lardas, M. (2021). *Battle of the Atlantic 1942–45: The climax of World War II's greatest naval campaign*. Bloomsbury Publishing.

Littleton, S. D. (2022). *The Strategic Significance of the Azores*. Air War College. <https://apps.dtic.mil/sti/citations/AD1189478>

Manstan, R. R. (2018). *The Listeners: U-boat Hunters During the Great War*. Wesleyan University Press.

Monteiro, A. (2022). Santa Maria Island and the Aviation in the Azores: The return of time through the inversion of space. *L'aviation et Son Impact Sur Le Temps et l'espace*, 51–59.

Ponce, J. (2014). Commerce Warfare in the East Central Atlantic during the First World War: German submarines around the Canary Islands, 1916–1918. *The Mariner's Mirror*, 100(3), 335–348. <https://doi.org/10.1080/00253359.2014.935145>

Rezendes, S. (2021). The American Naval Base in Ponta Delgada, 1917–19. *Marine Corps History*, 7(1), 24–45.

Ribeiro de Meneses, F. (2023, May 22). *Warfare 1914-1918 (Portugal) | International Encyclopedia of the First World War (WW1)*. International Encyclopedia of the First World War. [https://encyclopedia.1914-1918-online.net/article/warfare\\_1914-1918\\_portugal](https://encyclopedia.1914-1918-online.net/article/warfare_1914-1918_portugal)

Rodrigues, L. N. (2008). Crossroads of the Atlantic: Portugal, the Azores and the Atlantic community (1943-57). *European Community, Atlantic Community*, 456–467.

Santos, R. L. (2011). Azoreans to California. *Alley-Cass Publications*. [https://dspace.calstate.edu/bitstream/handle/10211.3/136646/Bob\\_Santos-Azoreans\\_To\\_California.pdf](https://dspace.calstate.edu/bitstream/handle/10211.3/136646/Bob_Santos-Azoreans_To_California.pdf)

Schroer, R. (2003). Navigation and landing [A century of powered flight 1903-2003]. *IEEE Aerospace and Electronic Systems Magazine*, 18(7), 27–36. <https://doi.org/10.1109/MAES.2003.1226532>

Smith, R. K. (1998). *Seventy-five Years of Inflight Refueling: Highlights, 1923-1998*. Air Force History and Museums Program.

van der Vleuten, E., & Kaijser, A. (2005). Networking Europe. *History and Technology*, 21(1), 21–48. <https://doi.org/10.1080/07341510500037495>

War Office. (1942). *Santa Maria* (2nd ed.) [Topographic Map]. U. S. Army Map Service. <https://maps.lib.utexas.edu/maps/ams/azores/txu-pclmaps-oclc-6587511-santa-maria.jpg>

War Office. (1943). *San Miguel Island* (3rd ed.) [Topographic Map]. U. S. Army Map Service. <https://maps.lib.utexas.edu/maps/ams/azores/txu-pclmaps-oclc-6567737-east.jpg>

War Office. (1948). *Terceira Island* [Topographic Map]. U. S. Army Map Service. <https://maps.lib.utexas.edu/maps/ams/azores/txu-pclmaps-oclc-6550971-terceira-island-1948.jpg>

Warner, D. (2005). *Celestial navigation aloft: Aeronautical sextants in the US*. <http://fer3.com/arc/imgx/Celestial-Navigation-Aloft.pdf>

Williams, R. R. (1984). *Navigation: From Dead Reckoning to Navstar GPS*. Air & Space Forces Magazine. <https://www.airandspaceforces.com/article/1284navigation/>

Witzel, H. M. (1890). *Pilot chart of the North Atlantic Ocean: April, 1890* [Atlas Map]. U.S. Hydrographic Office, Bureau of Navigation, Navy Department. [https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~346747~90114232:Pilot-chart-of-the-North-Atlantic-O?sort=Pub\\_List\\_No\\_InitialSort&qvq=w4s:/where%2FNorth%2BAtlantic%2BOcean;q:atlantic%20ocean%20nautical%20chart;sort:Pub\\_List\\_No\\_InitialSort;lc:RUMSEY~8~1&mi=4&trs=185](https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~346747~90114232:Pilot-chart-of-the-North-Atlantic-O?sort=Pub_List_No_InitialSort&qvq=w4s:/where%2FNorth%2BAtlantic%2BOcean;q:atlantic%20ocean%20nautical%20chart;sort:Pub_List_No_InitialSort;lc:RUMSEY~8~1&mi=4&trs=185)

Work, R. O. (2004). Naval transformation and the littoral combat ship. *Center for Strategic and Budgetary Assessments*. <https://csbaonline.org/uploads/documents/2004.02.18-Littoral-Combat-Ship.pdf>

ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES  
**BULLETIN**

**Book Reviews**

*Compiled by: Paul Pival*  
*Research Librarian, University of Calgary*

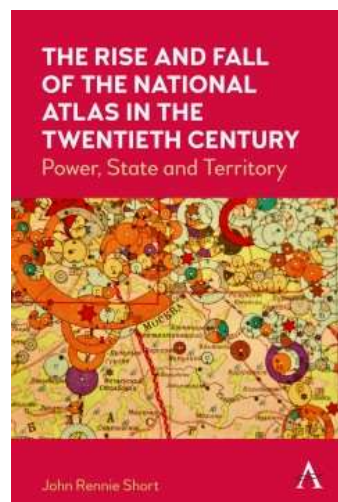
**Books reviewed in this issue:**

- *The Rise and Fall of the National Atlas in the Twentieth Century*, By John Rennie Short.  
Reviewed by Andrew Nicholson, University of Toronto Mississauga Library
- *Canada's Place Names and How to Change Them*, By Lauren Beck  
Reviewed by Karen Jensen, Concordia University Library
- *Vermeer's Maps*, By Rozemarijn Landsman  
Reviewed by Rebecca Bartlett, Carleton University Library

**The Rise and Fall of the National Atlas in the Twentieth Century, By John Rennie Short**

Reviewed by Andrew Nicholson, University of Toronto Mississauga Library

**Review**



Short, John Rennie. *The Rise and Fall of the National Atlas in the Twentieth Century*. London: Anthem Press, 2022. 182 p. \$40.00 US ISBN: 9781839983054

In 1899, the national government of Finland published what scholar John Rennie Short argues is the first comprehensive national atlas. Over the next 100 years, more than 70 countries would follow the lead of Finland in producing their own national atlases.

In less than 200 pages, Short goes on to chronicle this phenomenon in his book *The Rise and Fall of the National Atlas in the Twentieth Century*, in which he performs a close reading of national atlases produced over the twentieth century from over 40 nations, including

multiple editions for several of the countries. To present a balanced perspective, the author selected national atlases from countries that ranged from quite rich to relatively poor. The author was also careful to select national atlases from both capitalist and communist countries in the review. To help the reader, the author provides a listing of reviewed countries and their national atlas editions in the Introduction. For example, the Atlas of Canada is frequently mentioned, with the author reviewing six editions from 1905 to 1993.

Overall, this book aims to explore how nations undertook the publication of a national atlas for various purposes throughout the twentieth century. As the author discusses throughout, the national atlas was often viewed as coproduction between science and state, with national governments, especially in younger nations, seeing its publication as a means to define the boundaries of the nation-state, reinforcing claims to power and governance over a territory. The author frequently brings up the notion of “cartographic anxiety” in governments and the national atlas as a byproduct of this tension.

Although the majority of the book is spent reviewing national atlases of the twentieth century, Short begins the book with a short overview of atlas publishing prior to 1899, noting that there were early national atlases focused on topographical surveys for England & Wales, as well as France appearing in the second half of the 1500s. By the 1800s, national atlases were also being published in many new Latin America countries as they gained independence from colonial powers.

Apart from geopolitics, Short highlights the gradual evolution of the national atlas and how it came to include scientific facts about a country. This was especially apparent as some countries began to issue new editions of its national atlas. For example, the author points out that the *Atlas of the United States* published in the 1970s, took on a more land-based, environmental focus for readers.

National atlases also came to be important for highlighting social conditions of a nation. This often included the use of statistics, graphs, and charts as well as maps. Visualizations depicting births, mortality rates, crime, and economic development were just some of the themes that appeared in the national atlases over the century.

Ultimately, Short determines that the National Atlas reached its peak of popularity and influence between 1960 and 1980, after which many countries opted to publish distinct thematic atlases for separate audiences and for different purposes. While print atlases may have been overtaken by the internet and the use of geo technologies (GIS, GPS, etc) by the end of the century, the author is not convinced the days of the national atlas are completely over.

For a relatively short book, *The Rise and Fall of the National Atlas in the Twentieth Century* includes plenty of history and insights covering politics and social history of the twentieth century. Throughout the text, the author has included many colour illustrations from the pages of atlases being discussed. I highly recommend this book as a fine addition to any academic library collection focused on cartography and world political history,

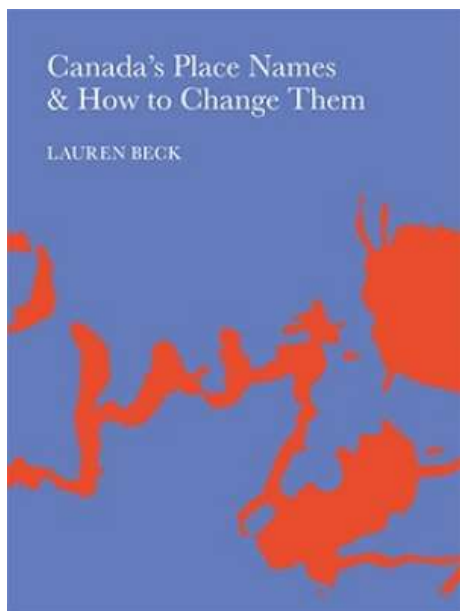
[Image from: <https://antheypress.com/the-rise-and-fall-of-the-national-atlas-in-the-twentieth-century-pdf>]



## Canada's Place Names and How to Change Them, By Lauren Beck

Reviewed by Karen Jensen, Concordia University Library

### Review



Beck, Lauren. *Canada's Place Names and How to Change Them*. Montreal, QC: Concordia University Press, 2022. 251p. \$34.95 CDN/US. ISBN 978-1988111391.

This thorough, timely book serves as a valuable contribution to the field of toponymy. According to the publisher, it is “The first book to demonstrate how inadequately place names and visual emblems represent the presence of women, people of colour, and people living with disabilities.” As examples throughout the text show, changing names that are offensive has been an ongoing effort since at least the 1980s, but has been gathering steam in recent years with the publication of Canada’s Truth and Reconciliation Commission report in 2015. The author, Lauren Beck, specializes in the visual culture of the early-modern Atlantic world, with interests in text-and-image relations, historical cartography, and marginalized voices. She holds the

Canada Research Chair in Intercultural Encounter and is Associate Professor of Hispanic Studies at Mount Allison University.

The first chapter, “Knowing in Place,” introduces the complexity of Indigenous names. I found the discussion of the Tl’azt’en (Dakelhne) name Chuzghun for a lake near Prince George, British Columbia, to be a particularly evocative description of how one Indigenous group named a place. Beck goes on to describe how many Indigenous place names can be read visually, often as seen while one experiences the landscape and narrates its story. The next chapter, “A Brief History of Settler-Colonial Naming Practices in Canada,” provides an overview of how place naming developed in North America and Canada. Canada’s place names were mostly created by explorers, missionaries, traders, and corporations. Beck notes that “Naming in this sense reinforced the doctrine of discovery and a related epistemological frame called ‘firsting,’” tied to the goal of possessing territory and legitimizing claims of ownership.

“Gender and Canada’s Place Names” highlights more specific forms of toponymy, such as hagiotoponyms commemorating saints, as opposed to eonyms used in Indigenous place names. As Beck points out, “There are also considerably more hagiotoponyms in central and eastern Canada than in the west, which reflects not just who determined these names but when. Most of western Canada’s names were assigned by nineteenth- and twentieth-century settlers rather than by earlier missionaries.” She also mentions the proportion of places named for female saints in Quebec (20%). A more equal distribution may evolve as places honouring male saints are renamed; this is likely to be aided by the amalgamation of villages. Further in the gender chapter, Beck mentions somatonymy, describing place names inspired by parts of the human body. North American men in the trades during the nineteenth and twentieth centuries bestowed names that today are deemed offensive or refer to women. Beck discusses names including the term

squaw. While this word is familiar to many, not everyone is aware of either its derogatory nature or the campaigns over the years to erase it.

“Indigenous Names in a Settler-Colonial Context” describes the problems with settlers using Indigenous words in names. We learn that official names for First Nations reserves are not necessarily the names used by community members. Finally, Beck notes that Indigenous peoples themselves may have made the decision to use settler terms in place names. However, whether correcting inaccurate names based on Indigenous words or completely re-naming settler names, there is an opportunity, as Beck notes: “The use of Indigenous names fosters a climate in which reconciliation or a form of restitution can be made on the part of settler states.”

“Marginalized Groups and Canada’s Place Names” discusses European minorities, Asian minorities, Black minorities, people living with disabilities, and names created for outsiders (tourists). While discussing changing names that include outdated terms for Black people, Beck describes how efforts to rename Negro Point to Seaview Point in 1995 drew public outrage as this would have erased Black presence and white negligence in the Halifax region. Residents of Negro Point chose to keep this name rather than change it partly to “reaffirm marginalized presence rather than hide away the harmful behaviour of white namers.”

The preceding chapters lead to the central issue: “How to Discuss and Change Names.” This chapter includes recent case studies, some illustrating the process of de-commemoration. For example, Beck points to the 2022 name change of Ryerson University to Toronto Metropolitan University in response to the 2017 student-led campaign due to Egerton Ryerson’s involvement in the Indian Residential School System. One obstacle was thought to be the expense of re-branding that goes along with a name change and the possibility of alienating donors. The latter concern was also a factor in McGill University’s initial decision not to rename its sports team, the Redmen; alumni valued a sense of tradition. Nevertheless, students were calling for change as early as 1992, and it finally happened in 2020, three years after they organized a new campaign. Beck believes that the racism stays in plain sight by keeping red, a signifier of Indigenous race, in the new name Redbirds. This chapter reiterates the importance of ensuring community input and warns that changing names can be a gradual process. Throughout the book, Beck aptly demonstrates that how potential name changes are discussed may be the most important part of the process.

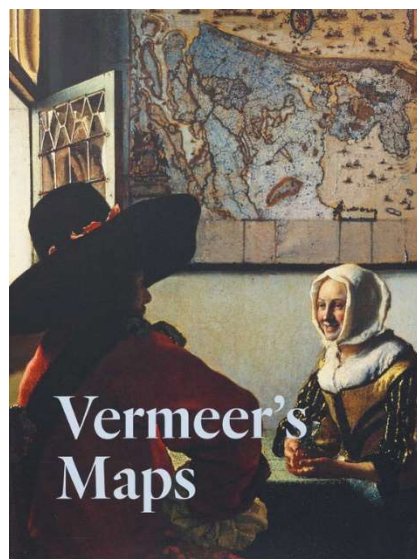
Beck closes by recommending places adopt two or more official names or join settler and Indigenous names with hyphens, preferring chronological order whenever possible (hybrid naming). Finally, she emphasizes the need for research to justify name changes. Even if a name change is unsuccessful, there is value in documenting existing names to clarify their origins and support future efforts. This interesting book is suitable for both public and academic libraries.

[Image from: <https://www.concordia.ca/press/placenames.html>]

## Vermeer's Maps, By Rozemarijn Landsman.

Reviewed by Rebecca Bartlett, Carleton University Library

### Review



Landsman, Rozemarijn. *Vermeer's Maps*. New York: The Frick Collection, 2022. Hardcover, 128 pages, 68 color illustrations. \$39.95 US. ISBN 9781636810249

Rozemarijn Landsman's *Vermeer's Maps* highlights a specific and captivating intersection of cartographic and art history with this exploration of four specific wall maps that seventeenth-century Dutch artist Johannes Vermeer included in several of his paintings.

*Vermeer's Maps* is divided into two chapters, the first of which is Maps and Mapmakings in Seventeenth-Century Holland. Vermeer's attention to detail in his depictions of the maps was such that Landsman is able to provide many details about each map, which varies based on available sources but includes histories of the printers, cartographers, politics, and geographies involved. The background of each identified map is supplemented with discussion about the intended audience and usage. Readers with knowledge of sixteenth- and seventeenth-century Dutch and European geography and history will be well served, as references to sub-national regions and their changing relationships with one another are common in this chapter.

The second chapter, titled Beyond Delft: Vermeer's Wall Maps, probes numerous aspects of Vermeer's inclusion of these specific maps in his art. Drawing on sources as varied as a 1676 inventory of Vermeer's possessions and modern radiography analyses of his paintings, Landsman probes questions such as where Vermeer may have seen the maps he so accurately depicted, why he chose those specific maps, how he so accurately rendered them, and reasons he may have adjusted the position of maps in his paintings – or in one case, removed a map altogether.

Landsman, who specializes in seventeenth-century Dutch art and earned her PhD in Art History and Archaeology from Columbia University in 2023, clearly did extensive research for this book which is suited to an academic audience. Nearly 150 notes and citations are referenced in the text in addition to a lengthy bibliography at the end, which includes research in multiple languages.

Alongside the informative text, dozens of colour illustrations interspersed throughout make this a compelling book to pore over. Highlights include two-page spreads of each of the maps identified in the paintings, details of cartouches, side-by-side comparisons of symbology in different editions of the same map, and close-up details of Vermeer's renderings. The illustrated Appendix functions as a quick reference to the paintings and maps discussed throughout, notably providing a clear chronology of each map and its various editions.

*Vermeer's Maps* is a worthwhile addition to library collections on art, cartography, or seventeenth-century Dutch history, and provides both researchers and more casual readers with plenty to consider and threads to further explore.

[Image from: <https://shop.frick.org/vermeers-maps>]

ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES  
**BULLETIN**

**IASSIST / Carto / 2024**  
**Uncharted: Navigating the Future of Data**

**ACMLA NEWS**



IASSIST and the ACMLA would like to invite you to join us for the 49th Annual IASSIST conference and 57th annual Carto conference being jointly held in Halifax, Nova Scotia, from May 28-31, 2024 to talk about the future of data in libraries, archives, and data services.

The motto of Halifax is “e mari merces”, or “wealth from the sea”; this wealth was originally measured in fish, but today we could equally think of the wealth to be found in an ocean of data. Artificial intelligence, climate change, and a host of other influences are moving us into uncharted territory. This conference challenges you to chart new pathways and to think about using data to navigate our way to a better future together.

The conference will be held in-person, centering networking opportunities and interaction. We welcome submissions for papers, presentations, posters, demos, workshops, and lightning talks that embrace our conference theme, "Uncharted: Navigating the future of data," by looking towards emerging trends and topics of particular relevance to data and geospatial professionals

working within libraries, research and data services, and archives. Possible topics include (but are not limited to):

- Geospatial and data services of the future
- Maps and data for social justice
- Environmental impact and sustainability
- Artificial Intelligence
- Reproducibility
- Partnerships and collaboration
- Data and geospatial literacy
- Data management and archiving
- Data discovery, access, and metadata
- Data governance and ethics

Questions about presentation submissions may be sent to the Program Co-Chairs (Sophia Lafferty-Hess, Zack MacDonald, Kristi Thompson) at [programme.lists@iassistdata.org](mailto:programme.lists@iassistdata.org).

For information about travelling to Halifax, check out [the conference website](#).

ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES  
**BULLETIN**

**Honorary Member Award:  
Barbara Znamirowski**

**ACMLA NEWS**



Barbara Znamirowski | Head, MaDGIC Trent University Library and Archives was nominated by Colleen Beard, Librarian Emeritus, Maps, Data, & GIS Library, Brock University and seconded by Marcel Fortin, Head of the Map and Data Librarian, University of Toronto Libraries.

From their nomination letter:

*This award is bestowed on a member who has, “made a distinguished contribution to their profession and whom the Association chooses to honour.” This award is presented on an irregular basis. Honorary members receive a lifetime membership.*

*With the recent announcement of Barbara’s retirement, she will have been involved with ACMLA and the OCUL Geo and Data Communities since 1983. One notable success early in Barbara’s career was her exhaustive work with SSHRC to secure significant ongoing funding for the*

*Association for several years. Subsequently, members were able to participate in conferences and meetings through travel funding where otherwise not possible. Her exceptional grant writing skills resulted in several funding awards.*

*During her tenure Barbara authored several articles for the Bulletin that reflects cutting edge technologies, practices, and shared knowledge - one that earned her a best paper award in 2015, "A New View From Space: Making Terrasar-X Data Accessible To The Canadian Research Community". Her co-authored chapter in Historical GIS Research in Canada, "Stories of People, Land, and Water: Using Spatial Technologies to Explore Regional Environmental History", is also a noteworthy contribution to map librarianship and GIS applications. Her publication record is indeed extensive. More recently, Barbara was editor of the regular Bulletin feature "GIS Trends" (2015-2022) – writing several articles for this column herself.*

*Barbara's unwavering display of professionalism, dedication, and leadership to raise the awareness of maps, data, and GIS at all levels, especially bridging relations with government partners, is evident through her many years of participation in ACMLA/CARTO. Her contributions through committee work, extensive publication activity, conference presentations and workshops, and mentorship, makes her an excellent recipient for the ACMLA Honorary Member Award.*

Congratulations Barb, from all of us.



ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES  
**BULLETIN**

**2023 AGM Minutes / 2023 AGA Procès-verbal**

**ACMLA NEWS**

**AGM 2023 Meeting Minutes, June 14, 2023**

**Attendance** (31 attendees)

In-person attendees: Francine Berish, Queen's University; Martin Chandler, Cape Breton University; Meg Miller, University of Manitoba; Zack MacDonald, Western University; Amber Leahey, Scholar's Portal; Julia Guy, University of Calgary; Dan Jakubek, Toronto Metropolitan University; Sylvie St-Pierre, Université de Québec à Montréal; Anne Hakier, Université de Montréal; Barbara Znamirowski, Trent University; Colleen Beard, Brock University; Andrew Nicholson, University of Toronto Mississauga; Sarah Zhang, Simon Fraser University; Larry Laliberte, University of Alberta; Wenonah Van Heyst, Brandon University; Bonnie Gallinger, University of Alberta; Rebecca Bartlett, Carleton University; Nicholas Field, University of Toronto; Reg Nelson, Lakehead University; Stéfano Biondo, Université Laval; Roger Wheate, University of Northern British Columbia; Sherri Sunstrum, Carleton University; René Duplain, University of Ottawa

Online attendees: Christine Homuth, McMaster University; Courtney Lundrigan; David Jones; Kaelan Caspary, Ontario Tech University; Kate H; Rhys Stevens, University of Lethbridge; Rosa Orlandini, York University; Siobhan Hanratty, University of New Brunswick

**Agenda**

1. Quorum established (including members online and in person)
2. Minutes of the 2023 AGM: Zach
3. Call to the discussion of the 2022 minutes
  - Approved
4. Agenda put forward for the AGM
5. Third item: 2022 Honours Award (skipped and rescheduled for Carto 2023 Banquet)
6. Reports:
  - 2022 Annual Report of the President presented by Francine Berish and René Duplain
    - Report is available in French and English
    - Current ACMLA executives were listed by René
    - Francine: ACMLA executive team is meeting quite regularly
    - ACMLA's significant activities presented by René:

- New membership types were introduced (e.g., student membership, unaffiliated membership)
      - Hybrid conference planned
      - Increased virtual social events and discussions
      - Transition of AMCLA editorship from Eva Dodsworth to Meg Miller
    - Francine: The executive is reviewing the rules of procedures
      - They don't have the intent of approving it at the AGM
      - A new electronic draft of the updated rules of procedure will be distributed to the membership based on the feedback gotten in the AGM
  - Past President Report presented by Martin Chandler
    - Recipient of Honorary Member Award will be revealed at the CARTO banquet
    - Recipient of Cathy Moulder Paper Award will be revealed at the CARTO banquet
    - Guidelines for the Honorary Membership Award were drafted as there were previously no guidelines
  - Treasurer Report presented by Dan Jakubek
    - 2022 budget presented
    - 2023 budget (Jan 1 – June 7) presented
    - 2023 projected budget presented
    - Stefano Biondo: Will it be possible to re-introduce institutional ACMLA memberships? His institution will not cover the cost of an individual ACMLA membership but will reimburse him for an institutional membership.
    - Rosa Orlandini: Historically, the ACMLA institutional membership was tied to the publication of the ACMLA Bulletin. The reasons why this type of membership was dropped is because there was confusion regarding who at a specific institution would have the right to vote at the AGM.
    - Francine: The ACMLA was hoping the addition of the unaffiliated membership type would capture people who did not have institutional funding.
    - Call to approve the 2023 projected budget
      - Approved
7. Association Executive Call presented by Francine and René:
- There are a number of ACMLA executive positions where members are in the midst of serving 2-year terms
  - There are also a number of non-executive ACMLA positions available that are not officially on the executive team (e.g., the French Editor of the ACMLA Bulletin, the Regional Editor of the ACMLA)
8. CARTO 2024 – call for hosts presented by Martin Chandler
- Currently in discussion to have the 2024 conference in Halifax, NS with IASSIST
  - Zack MacDonald: Tentatively volunteers Western University in London, Ontario as the host for CARTO 2025
9. Other Business:
- Motion brought forward by Francine Berish to investigate the reestablishment of a group that comprises those in technical and analyst roles
    - Motion moved by Martin Chandler
    - Seconded by Zack MacDonald
    - Call for discussion:

- Rosa Orlandini: The executive team's discussions regarding the reestablishment of such a group should include those in technical roles (e.g., gis technicians, specialists...)
- Barbara Znamirovski: If a group like this is formed, the Association needs to examine how to increase inclusivity to those in these specific roles and investigate what potential barriers exist (e.g., financial barriers). A SSHRC grant used to support some of those group meetings in the past.
- Meg Miller: Ontario has a lot of weight in these discussions. How can the ACMLA help technicians (e.g., case building support, gathering statistics) or connect technicians with each other (e.g., mentorship)
  - Motion carried
- Colleen Beard: Noticed a change in the Honorary Membership guidelines and wanted some insight
  - Martin Chandler updated the guidelines based the Honours Award guidelines
  - Colleen Beard: Traditionally, the Honorary Membership and Honours Award have been two separate entities. Thinks the new Honorary Membership guidelines should be re-examined to distinguish it from the Honours Award
  - Understanding established that Martin Chandler would update the guideline's wording, in consultation with Colleen Beard, by the next AGM
- Motion to approve the changes too the Paper Award and the Student Paper Award guidelines by Martin Chandler
  - Motion carried
- Francine Berish and René Duplain commit to continuing the discussion of the draft ACMLA rules of procedures with the membership via email (folks can comment online with their thoughts)
  - Meg Miller: The goals of updating the rules of procedures is to make them relevant to the current climate (as times have changed and they haven't been updated in 10 years)
  - Rosa Orlandini: Was part of the taskforce updating the bylaws and is happy they are being re-examined
  - Courtney Lundrigan, who was also part of the taskforce updating the bylaws 10 years ago, to send documents from that taskforce to the ACMLA executive team
- Motion to adjourn
  - Motion moved, Motion carried

### **Procès-verbal de l'AGA 2023 de l'ACACC, 14 juin 2023**

#### ***Présence*** (31 participants)

Participants en personne: Francine Berish, Queen's University; Martin Chandler, Cape Breton University; Meg Miller, University of Manitoba; Zack MacDonald, Western University; Amber Leahey, Scholar's Portal; Julia Guy, University of Calgary; Dan Jakubek, Toronto Metropolitan University; Sylvie St-Pierre, Université de Québec à Montréal; Anne Hakier, Université de

Montréal; Barbara Znamirowski, Trent University; Colleen Beard, Brock University; Andrew Nicholson, University of Toronto Mississauga; Sarah Zhang, Simon Fraser University; Larry Laliberte, University of Alberta; Wenonah Van Heyst, Brandon University; Bonnie Gallinger, University of Alberta; Rebecca Bartlett, Carleton University; Nicholas Field, University of Toronto; Reg Nelson, Lakehead University; Stéfano Biondo, Université Laval; Roger Wheate, University of Northern British Columbia; Sherri Sunstrum, Carleton University; René Duplain, University of Ottawa

Participants en ligne; Christine Homuth, McMaster University; Courtney Lundrigan; David Jones; Kaelan Caspary, Ontario Tech University; Kate H; Rhys Stevens, University of Lethbridge; Rosa Orlandini, York University; Siobhan Hanratty, University of New Brunswick

- Quorum établi (y compris les membres en ligne et en personne)
- Procès-verbal (PV) de l'Assemblée générale annuelle (AGA) de 2023 : Zach
- Appel à la discussion sur le PV de 2022
  - Approuvé
- Ordre du jour proposé pour l'AGA
- Troisième point : Prix d'honneur de 2022 (sauté et reporté au banquet de Carto 2023)
- Rapports :
  - Rapport annuel 2022 du Président présenté par Francine Berish et René Duplain
    - Le rapport est disponible en français et en anglais
    - Les dirigeants actuels de l'ACACC ont été listés par René.
    - Francine : Les membres de l'exécutif de l'ACACC se réunissent assez régulièrement
    - Les activités significatives d'ACACC ont été présentées par René :
      - De nouveaux types d'adhésion ont été introduits (par exemple, adhésion étudiante, adhésion non affiliée).
      - Une conférence hybride est planifiée
      - Augmentation des événements sociaux et des discussions virtuelles
      - Transition de la rédaction de l'ACACC d'Eva Dodsworth à Meg Miller.
    - Francine : L'exécutif est en train de revoir les règles de procédure
      - Ils n'ont pas l'intention de l'approuver lors de l'AGA.
      - Une nouvelle version électronique des règles de procédure mises à jour sera distribuée aux membres sur la base des commentaires reçus lors de l'AGA.
    - Rapport de l'ancien président présenté par Martin Chandler
      - Le nom du récipiendaire du prix du membre honoraire sera révélé lors du banquet CARTO.
      - Le nom du lauréat du prix Cathy Moulder Paper Award sera dévoilé lors du banquet du CARTO.
      - Les lignes directrices pour le prix du membre honoraire ont été rédigées car il n'y avait pas de lignes directrices auparavant.
    - Rapport du trésorier présenté par Dan Jakubek
      - Présentation du budget 2022

- Présentation du budget 2023 (1er janvier - 7 juin)
- Budget prévisionnel 2023 présenté
- Stefano Biondo : Serait-il possible de réintroduire les adhésions institutionnelles à ACACC? Son institution ne couvrira pas le coût d'une adhésion individuelle à l'ACACC mais lui remboursera une adhésion institutionnelle.
- Rosa Orlandini : Historiquement, l'adhésion institutionnelle à l'ACACC était liée à la publication du Bulletin de l'ACACC. La raison pour laquelle ce type d'adhésion a été supprimé est qu'il y avait une confusion quant à savoir qui, au sein d'une institution spécifique, avait le droit de voter à l'AGA.
- Francine : L'ACACC espérait que l'ajout d'un type de membre non affilié permettrait d'inclure les personnes qui n'ont pas de financement institutionnel.
- Appel à l'approbation du budget prévisionnel 2023
  - Approuvé
- Appel de l'exécutif de l'association présenté par Francine et René :
  - Il y a un certain nombre de postes exécutifs de l'ACACC où les membres sont en train de servir des mandats de deux ans.
  - Il y a également un certain nombre de postes non exécutifs de l'ACACC qui ne font pas officiellement partie de l'équipe exécutive (par exemple, l'éditeur français du Bulletin de l'ACACC, l'éditeur régional de l'ACACC).
- CARTO 2024 - appel à hôtes présenté par Martin Chandler
  - Actuellement en discussion pour que la conférence de 2024 ait lieu à Halifax, NS avec IASSIST
  - Zack MacDonald : Les volontaires provisoires de l'Université Western à London, Ontario comme hôte de CARTO 2025.
- Autres questions :
  - Proposition de Francine Berish d'étudier le rétablissement d'un groupe composé de techniciens et d'analystes.
    - Motion proposée par Martin Chandler
    - Appuyée par Zack MacDonald
    - Appel à la discussion :
      - Rosa Orlandini : Les discussions de l'exécutif concernant le rétablissement d'un tel groupe devraient inclure les personnes jouant un rôle technique (par exemple, les techniciens SIG, les spécialistes...).
      - Barbara Znamirovski : Si un tel groupe est formé, l'Association doit examiner comment accroître l'inclusion des personnes occupant ces rôles spécifiques et étudier les obstacles potentiels qui existent (par exemple, les obstacles financiers). Dans le passé, une subvention du CRSH (SSHRC) a permis de financer certaines réunions de ce groupe.

- Meg Miller : L'Ontario a beaucoup de poids dans ces discussions. Comment l'ACACC peut-elle aider les techniciens (p. ex. soutien à l'élaboration de cas, collecte de statistiques) ou mettre les techniciens en contact les uns avec les autres (p. ex. mentorat) ?
  - Motion adoptée
- Colleen Beard : A remarqué un changement dans les lignes directrices concernant les membres honoraires et souhaite obtenir des informations à ce sujet.
  - Martin Chandler a mis à jour les lignes directrices en se basant sur les lignes directrices relatives aux récompenses honorifiques.
  - Colleen Beard : Traditionnellement, le titre de membre honoraire et le prix d'honneur sont deux entités distinctes. Elle pense que les nouvelles lignes directrices relatives au titre de membre honoraire devraient être réexaminées afin de les distinguer du prix d'honneur.
  - Il a été entendu que Martin Chandler mettrait à jour la formulation de la ligne directrice, en consultation avec Colleen Beard, d'ici la prochaine AGA.
- Proposition d'approuver les changements apportés aux lignes directrices du Prix de l'article et du Prix de l'article étudiant par Martin Chandler.
  - Motion adoptée
- Francine Berish et René Duplain s'engagent à poursuivre la discussion sur les règles de procédure de l'ACACC avec les membres par courriel (les membres peuvent faire part de leurs commentaires en ligne).
  - Meg Miller : L'objectif de la mise à jour des règles de procédure est de les adapter au climat actuel (les temps ont changé et elles n'ont pas été mises à jour depuis 10 ans).
  - Rosa Orlandini : elle a fait partie du groupe de travail chargé de la mise à jour du règlement intérieur et se réjouit qu'il soit réexaminé.
  - Courtney Lundrigan, qui a également fait partie du groupe de travail chargé de la mise à jour des statuts il y a 10 ans, enverra les documents de ce groupe de travail à l'équipe exécutif de l'ACACC.
- Motion d'ajournement
  - Motion proposée
  - Motion adoptée