Realizing the Educational Potential of an Open Sourced Web Publishing Platform

Beth A. Roberson, Ph.D., Carleton University
to Ottawa PC Users Group
8 November 2017
Canadian Aviation & Space Museum
Outline:

- Developing Omeka
- Accessibility
- The CUDRG
- *Envisioning Technologies*
- The Virtual Gets Physical
Serious Web Publishing

Create complex narratives and share rich collections, adhering to Dublin Core standards with Omeka on your server, designed for scholars, museums, libraries, archives, and enthusiasts. Learn More

Download Omeka
Linux, Apache, MySQL5, PHP5

System Requirements
No server? Try Omeka.net!

Omeka in Action

Tour Omeka

News

Omeka.net Refreshed and Renewed
August 28, 2017

Today marks the launch of a new look for Omeka.net, and many new benefits for users. Now is the time to sign up for an account to take advantage of our new pricing structure, enhanced functionality options, and additional storage. We’ve reduced the prices for our most popular plans: Plus Plan is now $35 a [...]
Democratizing history through digital media and tools.

The ROY ROSENZWEIG CENTER FOR HISTORY AND NEW MEDIA (RRCHNM) is a multi-disciplinary team that develops online teaching resources, digital collections and exhibits, open-source software, and training in digital literacy and skills.

https://rrchnm.org/
Technology Ecosystem

Web Content Management Systems
(WordPress, Drupal, Joomla, MediaWiki)

Library and Archival Repository and Digital Collections Systems
(Fedora, Dspace, Greenstone, CONTENTdm)

Museum Collections Management and Online Exhibition Systems
(TMS, KE Emu, PastPerfect, Pachyderm)

[Omeka]
Visit our wiki to view other Omeka-powered sites and add your own!

L’Arxiu de la Paraula
L’Arxiu de la Paraula is an archive of sound recordings and visual material from cultural activities held at the Barcelona Athenaeum since 1973. The collection is organized thematically by kind of event, such as visual arts, science and technology, film, literature, music, and philosophy.

Project developed by Ateneu Barcoïnès (Barcelona Athenaeum).

Gothic Past
A resource for the study of medieval buildings in Ireland, Gothic Past draws on the archival collections of the Irish Art Research Centre at Trinity College Dublin. The visual material on the site includes photographs of medieval Irish architecture and sculpture created since the 1930s as well as a collection of moulding profiles from building throughout Ireland.

Project developed by the History of Art Department and the Library of Trinity College Dublin and the Roy Rosenzweig Center for History and New Media at George Mason University, Fairfax, Virginia.

Battersea Arts Centre Digital Archive

Identities: Understanding Islam in a Cross-Cultural Context

http://omeka.org/showcase/
Omeka is a web publishing platform for sharing digital collections and creating media-rich online exhibits.

Getting started is easy with Omeka with our hosted service.

Learn which plan is right for you

http://www.omeka.net/
Omeka.net host many types of sites and accommodates different user goals. Explore some of the possibilities.
BIG STUFF

Big Stuff is a site for people interested in the preservation and display of large technology and industrial heritage. We are a community of museum professionals, academics, consultants/contractors, volunteers and private owners who come together every three years for a conference to talk about the challenges of large technology conservation, and our ideas and innovations for solving these challenges.

We welcome people who want to get involved - please contribute to our blog, share details of your large technology based project or organisation, join our volunteer conference organising team - or suggest another way we can collaborate to save and enjoy old machines. Students are especially welcome!

Our ISSN number for the conference series is ISSN: 2207-2845.

1909 electric air compressor at Zollern Maschinenhalle, the main colliery site at Dortmund, Germany.
Documentation

Getting Started

Before installing Omeka, find system requirements, installation instructions, and how others use Omeka for a variety of projects.

Getting Started with the Software Application

- Intro to Omeka 2.0 (movie)
- Preparing to Install
- Installation
- Hosting Suggestions
- Try Omeka Before Installing

Getting Started with Project Planning

- Site Planning Tips
- Sites Using Omeka
- Feature List 2.x (PDF)
- Try Omeka Before Installing
- Workshop Tip Sheet (PDF)

How Might You Use Omeka

- Teach with Omeka
- Project Planning Case Studies
- Org vs Net
- Using Omeka with Other Tools and Platforms

Working with Omeka Admin

This documentation is for Omeka 2.0+. For Omeka 1.0–1.15+, please see 1.x Documentation

- What’s New in 2.0? (movie)
- Using the Omeka Admin 2.0
- Working with Dublin Core
- Managing Items 2.0
- Managing Files 2.0
- Managing Collections 2.0
- Managing Item Types 2.0
- Managing Tags 2.0
- Managing General Settings 2.0
- Managing Security Settings 2.0
- Managing Navigation Settings 2.0
- Managing Item Type Elements
- Managing Search Settings 2.0
- Managing API Settings
- Managing Appearance 2.0 (site-wide)
- Managing Themes 2.0
- Managing Navigation 2.0
- Managing Appearance Settings 2.0
- Managing Plugins 2.0
- Managing Users 2.0
- Media Files
- Configuring Thumbnail Creation
- Retrieving Error Messages
- Shortcodes
- Screenscasts
- Search

http://omeka.org/codex/Documentation
Build a Website – Start Here!

Before building a website in Omeka.net, we recommend you first plan out your content. For advice on thinking about digital projects and planning them before building a website, you might want to browse through Digital History: A Guide to Gathering, Preserving, and, Presenting the Past on the Web, by Dan Cohen and Roy Rosenzweig. Need some inspiration? Look at this list of websites built in Omeka.net.

Getting Started with the Dashboard

Omeka’s administrative panel or Dashboard is where you go to manage all of the functions and information in an Omeka website, such as adding items, creating collections, modifying item types, building an exhibit, and managing its plugins and themes.

The Dashboard is located at ‘/admin’ relative to your website’s URL (yoursite.omeka.net/admin). To login, go to http://yoursite.omeka.net/admin. This username and password is the same as your login for omeka.net. For the next steps, go to the following help sections:

- Choose a look for your website and modify the site’s navigation and homepage, by picking and configuring a theme and installing your plugins.
- Upload sources and files by Adding Items.
- Need to edit or add more fields to describe the types of sources you are adding? Modify or add an item type.
- Build an exhibit with the items in your site using the exhibit builder plugin.
- Create a basic web page for discussing your project by using the Simple Pages plugin.

http://info.omeka.net/build-a-website/
Exhibit Builder 3

This plugin is available for all plans.

The Exhibit Builder plugin allows you to develop online exhibits, or special web pages, that combine items from your Omeka archive and may include narrative text.

Exhibits are composed of pages, generally an initial page that introduces your exhibit and subsequent pages composed of the items from your Omeka database that you wish to highlight and/or relate to each other. Exhibit Builder exhibits may be as short as one page or consist of multiple pages. You can make the pages of an exhibit hierarchical.

The layout of exhibits in Exhibit Builder 3.0 is highly customizable, with the pages composed of smaller units called blocks. There are three content block types which come with Exhibit Builder 3.0: file with text, gallery, and text block. Plugins, Geolocation for example, can also add in content blocks.

Configuring

Select Plugins in the top navigation of your admin. If you have not yet activated Exhibit Builder, you need to do so before configuring. Select Configure to choose the sequence in which your exhibits appear. Exhibits may be ordered by date added, alphabetically by name, or most recent.

- Choose the order of your Browse Page Exhibit display from the dropdown menu.
- Don't forget to save your changes.

Getting Started

Once you have activated and configured the Exhibit Builder plugin, Exhibits should appear in the left navigation bar. Clicking on it will take you to the Browse Exhibits page (admin/exhibits in your installation).

http://info.omeka.net/build-a-website/manage-plugins/exhibit-builder-3/
Accessibility Statement

The Omeka team is committed to making Omeka an accessible option for building collections and exhibits online. We are working to make Omeka’s core code accessible and will continue to make accessibility for persons with disabilities a priority as we develop the code. Omeka strives to adhere to W3C web design standards and to be compliant with Section 508 of the Americans with Disabilities Act (pdf).

The following statements apply to Omeka versions 2.3 and higher.

Front End (Public view)

The public view of Omeka has the following features to improve accessibility:

- **ARIA** (Accessible Rich Internet Applications) landmarks for tabbing through page content, when not using a mouse or using a screen reader;
- Ability to skip navigation menu and go straight to content when using a keyboard or screen reader to navigate the site (in all RRCHNM-produced themes);
- Semantic HTML5 markup.

These features are included in the core code as well as the plugins and themes which come bundled with Omeka for download (Plugins: Exhibit Builder, Coins, Simple Pages; Themes: Thanks Roy, Berlin, Seasons).

There are also Skip Nav and ARIA Landmarks on all Omeka themes produced by RRCHNM which do not come bundled with the download of Omeka from Omeka.org (Emiglio, Santa Fe, Minimalist, Rhythm).

Please note that although the core code for Omeka and its bundled themes and plugins conform to the above standards, sites built with Omeka which have been customized or which are using non-RRCHNM themes and plugins may lack some or all of these options. While we encourage developers to consider accessibility, we cannot ensure that their code includes ARIA Landmarks, SkipNav in the themes.

Back End (Administrative view)

The administrative dashboard of Omeka has the following features for accessibility:

- Ability to skip navigation menu and go straight to content when using a keyboard or screen reader to navigate the site. If you do not skipnav, the sequence is: settings (top navigation bar), plugins (left navigation bar), content;
- ARIA landmarks for screen readers on the Admin Dashboard, designating the header, navigation, footer, and main body content;
- Semantic HTML5 markup.
VPAT™
Voluntary Product Accessibility Template®
Version 1.3

The purpose of the Voluntary Product Accessibility Template, or VPAT™, is to assist Federal contracting officials and other buyers in making preliminary assessments regarding the availability of commercial "Electronic and Information Technology" products and services with features that support accessibility. It is assumed and recommended that offerers will provide additional contact information to facilitate more detailed inquiries.

The first table of the Template provides a summary view of the Section 508 Standards. The subsequent tables provide more detailed views of each subsection. There are three columns in each table. Column one of the Summary Table describes the subsections of subparts B and C of the Standards. The second column describes the supporting features of the product or refers you to the corresponding detailed table, e.g., "equivalent facilitation." The third column contains any additional remarks and explanations regarding the product. In the subsequent tables, the first column contains the lettered paragraphs of the subsections. The second column describes the supporting features of the product with regard to that paragraph. The third column contains any additional remarks and explanations regarding the product.

Date: January 21, 2015
Name of Product: Omeka.net
Contact for more Information (name/phone/email): Ken Albers, kalbers@gmu.edu

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Supporting Features</th>
<th>Remarks and explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) When software is designed to run on a system that has a keyboard, product functions shall be executable from a keyboard where the function itself or the result of performing a function can be discerned textually.</td>
<td>Supports with Exceptions</td>
<td>Improved labeling of forms and keyboard options for click/drag operations (reordering pages, creating exhibit pages) necessary to be fully accessible.</td>
</tr>
<tr>
<td>(b) Applications shall not disrupt or disable activated features of other products that are identified as accessibility features, where those features are developed and documented according to industry standards. Applications also shall not disrupt or disable activated features of any operating system that are identified as accessibility features where the application programming interface for those accessibility features has been documented by the manufacturer of the operating system and is available to the product developer.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(c) A well-defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that Assistive Technology can track focus and focus changes.</td>
<td>Supports with Exceptions</td>
<td>Creation of strong default focus styles necessary to comply.</td>
</tr>
<tr>
<td>(d) Sufficient information about a user interface element, including the identity, operation and state of the element shall be available to Assistive Technology. When an image represents a program element, the information conveyed by the image must also be available in text.</td>
<td>Supports with Exceptions</td>
<td>Fixing of labels on form elements and a mechanism setting alt text (or changing the field drawn from) necessary to make fully accessible.</td>
</tr>
<tr>
<td>(e) When bitmap images are used to identify controls, status indicators, or other programmatic elements, the meaning assigned to those images shall be consistent throughout an application's performance.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(f) Textual information shall be provided through operating system functions for displaying text. The minimum information that shall be made available is text content, text input caret location, and text attributes.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(g) Applications shall not override user selected contrast and color selections and other individual display attributes.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(h) When animation is displayed, the information shall be displayable in at least one non-animated presentation mode at the option of the user.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(j) When a product permits a user to adjust color and contrast settings, a variety of color selections capable of producing a range of contrast levels shall be provided.</td>
<td>Supports with Exceptions</td>
<td>Contrast for link text in admin interface should be increased to improve accessibility.</td>
</tr>
<tr>
<td>(k) Software shall not use flashing or blinking text, objects, or other elements having a flash or blink frequency greater than 2 Hz and lower than 55 Hz.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(l) When electronic forms are used, the form shall allow people using Assistive Technology to access the information, field elements, and functionality required for completing the form.</td>
<td>Supports with Exceptions</td>
<td>Ensuring that all form elements have labels and an improved system for identifying form errors are necessary to complete the form.</td>
</tr>
<tr>
<td>Criteria</td>
<td>Supporting Features</td>
<td>Remarks and explanations</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>(a) A text equivalent for every non-text element shall be provided (e.g., via &quot;alt&quot;, &quot;longdesc&quot;, or in element content)</td>
<td>Supports with Exceptions</td>
<td>Alt text should be improved – either from different metadata field or allow manual input – to be fully accessible.</td>
</tr>
<tr>
<td>(b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.</td>
<td>Supports with Exceptions</td>
<td>No closed captioning provided for documentation videos.</td>
</tr>
<tr>
<td>(c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(d) Documents shall be organized so they are readable without requiring an associated style sheet.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(e) Redundant text links shall be provided for each active region of a server-side image map.</td>
<td>Fully Supports</td>
<td>Might become necessary depending on how the image annotation plug-in is engineered.</td>
</tr>
<tr>
<td>(f) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.</td>
<td>Fully Supports</td>
<td>Might become necessary depending on how the image annotation plug-in is engineered.</td>
</tr>
<tr>
<td>(g) Row and column headers shall be identified for data tables.</td>
<td>Supports with Exceptions</td>
<td>Row headers needed on some tables to be fully accessible.</td>
</tr>
<tr>
<td>(h) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.</td>
<td>Supports with Exceptions</td>
<td>Complex tables, particularly in the admin interface, need more markup to make them accessible.</td>
</tr>
<tr>
<td>(i) Frames shall be titled with text that facilitates frame identification and navigation</td>
<td>Supports with Exceptions</td>
<td>Frames from embedded elements, such as recaptcha and tinyMce, need titles to be more accessible.</td>
</tr>
<tr>
<td>(j) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.</td>
<td>Fully Supports</td>
<td></td>
</tr>
<tr>
<td>(k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.</td>
<td>Supports with Exceptions</td>
<td>Geographic information should be given in text or comply with the provisions of this part, when compliance cannot be accomplished in any other way.</td>
</tr>
<tr>
<td>(l) When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by Assistive Technology.</td>
<td>Supports with Exceptions</td>
<td>Embedded Google maps do not have available text equivalent elements.</td>
</tr>
<tr>
<td>(m) When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with §1194.21(a) through (f).</td>
<td>Does not Support:</td>
<td>Reordering of elements via javascript does not have text equivalent elements.</td>
</tr>
<tr>
<td>(n) When electronic forms are designed to be completed on-line, the form shall allow people using Assistive Technology to access the information, field set, and functionality needed to complete the form, and to submit completed forms to the destination designated by the form.</td>
<td>Supports with Exceptions</td>
<td>Creation of exhibit page elements does not have text equivalent action.</td>
</tr>
<tr>
<td>(o) Improved error response system needed to comply.</td>
<td>Supports with Exceptions</td>
<td>Improved labeling of &quot;required&quot; elements needed to comply.</td>
</tr>
</tbody>
</table>
POSTS

OCTOBER 17, 2017 EDIT

Upcoming Event: A Symposium on Interdisciplinary Research, History Exhibits and Pedagogy

Join us for our upcoming event happening from December 8 to December 10, 2017 entitled Disability | Technology | Inclusion: A Symposium on Interdisciplinary Research, History Exhibits and Pedagogy.

Swail card reader, c.1968

The multidisciplinary event seeks to draw researchers and teachers from across the university and beyond to discuss and workshop the ongoing work of Carleton University’s Disability Research Group (CUDRG).

For more information and to register click here.

https://cudisabilityresearchgroup.wordpress.com/
Historical Insights into Educational Technologies for People who are Blind or Partially Sighted in Canada, 1860 - Present

Through the experiences of both users and innovators, this virtual exhibit endeavours to tell the stories of the people and technologies that have shaped, and been shaped by, social, cultural and historical understandings of disability, blindness and vision loss in Canada from the nineteenth century to the present.

Created by Carleton University's Disability Research Group:

Adrian Chan, Department of Systems and Computer Engineering

George Duimovich, Macdonald Library

Ray Hanes, School of Social Work

Dominique Marshall, Department of History

Beth A. Robertson, Institute of Interdisciplinary Studies

Recently Added Items

X-ray apparatus (c.1940s), Artifact No. 1987.2154.001, CSTMC, Ottawa ON. Photograph taken by Beth A. Robertson, 28 June 2017.

A model of x-ray that may have been used in the medical screening of displaced people and migrants in the 1940s and early 1950s. Artifact No....


A catalogue showcasing a selection of braille watches, as well as alarm clocks and timers, including within the funds of the Canadian National...
Browse Exhibits (6 total)

- The Emergence of Braille Technologies, 1860-1951
- Roland Carlanneau and the Converto-Braille, 1960-1989
- The Canadian National Institute for the Blind: Memories, Voices and Technological Futures, 1918-2016
- The Talking ATM: Innovation, Access and Human Rights Activism, 1984-2016
- Refugees, Disability and Technology in Transnational Postwar Canada, 1946-1955
Browse Collections (4 total)

Private Collections
- Items related to assistive or adaptive technology and access more broadly conceived, located in the homes and collections of private citizens.
  - View the items in Private Collections

New Sun Joy MacLaren Adaptive Technology Centre, MacOdrum Library, Carleton University
- View the items in New Sun Joy MacLaren Adaptive Technology Centre, MacOdrum Library, Carleton University

Canadian Science and Technology Museum, Collections, Library and Archives
- View the items in Canadian Science and Technology Museum, Collections, Library and Archives

Swall Collection. The National Research Council of Canada, Library and Archives
- This collection, sourced from the archives of the National Research Council of Canada, compiles some of the articles written by James Swall, a...
  - View the items in Swall Collection. The National Research Council of Canada, Library and Archives
Browse Items (55 total)

X-ray apparatus (c. 1940s), Artifact No. 1987.2154.001, CSTMC, Ottawa ON. Photograph taken by Beth A. Robertson, 28 June 2017.

A model of x-ray that may have been used in the medical screening of displaced people and migrants in the 1940s and early 1950s. Artifact No. 1987.2154.001, CSTMC, Ottawa ON.

A catalogue page of braille watches and other time-interval devices, c.1950, Canadian National Institute for the Blind fonds, Container 63, [textual materials, ([121-020029-5]), R3647-0-9-E, Library and Archives Canada, Ottawa, ON.

A catalogue showing a selection of braille watches, as well as alarm clocks and timers, including within the fonds of the Canadian National Institute of the Blind at Library and Archives Canada.

Refugee case file, 1951

An image of 'blind displaced person' case file put together for the CNIB to facilitate selection of individuals to be sponsored and resettled in Canada. The attached photograph depicts a young family, including husband, who was blind, sitting beside...

Passenger ship with International Refugee Organization banner, c.1951

This is an image of a passenger ship, MS SCAFFYN, docked, prominently displaying a banner of the International Refugee Organization in 1951.
Early Braille: The Slate and Stylus

Pictured here are two objects commonly referred to as a slate and stylus. Although size, shape, material and form can vary, the slate is made of two flat and rectangular pieces of opaque plastic that are hinged together, making it possible to slide a piece of paper between. One side of the slate is solid with a number of slight depressions, while the other side is marked by a series of holes or cells – four along the top and twenty-eight along the side. The stylus consists of a curved wooden handle to be held by the user, with a short metal tip at the end. By holding the wooden handle, one can press down on the stylus through the slate and indent Braille cells on heavy paper.

The provenance of this object cannot be fully understood without first acknowledging its origins in the development of braille and its subsequent introduction to Canada. Louis Braille is famously credited with inventing a raised system of dots to be used for reading and writing by persons who were blind in 1829 in Nantes, France. This system, eventually named “braille” after its founder, joined several other forms of embossed or indented prints at the time, including that which was developed by William Moon and others. The development of braille was hand in hand with the slate and stylus, a device adapted from an earlier version of a printing slate invented by Charles Barbier. The slate and stylus made for consistent and efficient writing, and facilitated the adoption of braille across the continent and beyond from the early nineteenth century onward.

Braille would evolve over the next century and into the twentieth, as it became a truly global phenomenon. By 1900, braille was used throughout Europe. Although North American schools still offered instruction in embossed and other indented printing systems such as New York point, braille was adopted by many. As Ernst Hamm has written, Canadians had little to do with the development of braille as a system, but braille and its attendant technologies, like the slate and stylus, was nevertheless influential to the history of persons who were blind in Canada, particularly in the education system.

L’Institut Numériques de Montréal was the first institution of the kind to adopt braille as a system at its establishment in 1861. The Halifax School for the Blind in Nova Scotia began instructing students in embossed print when it first opened its doors in 1871, but soon switched to braille by 1879. The Ontario Institute for the Blind (OIB) in Brantford continued to teach New York point for several years after other institutions had transitioned to braille. Even so, the Montreal Association of the Blind, founded in 1908, declared itself in favour of braille in 1914. OIB still continued instructing students in New York point.

OIB began receiving pressure from its students, however, and particularly past graduates such as Edgar R.F. Robinson, a long-time activist who founded the Canadian Free Library for the Blind (CFLB) in 1906. One of the first institutions in Ontario to be founded and administered by individuals who were themselves blind, the CFLB was a significant advocate for those who were blind or partially sighted in Canada. By 1914, CFLB began purchasing several of its books in braille and proved to be substantial competition for the OIB. The then superintendent of the OIB, Herbert F. Gardner actively opposed the CFLB and its efforts, including its preference for braille. Gardner argued that the braille system was favored if for no other reason than that it was invented by Louis Braille, whom Gardner viewed as less capable than sighted inventors and educators such as himself. After a Royal Commission in...
The Evolution of Braillewriters, 1899-1940

The invention of the braillewriter would inspire many more similar inventions from the late nineteenth century onward. More so, this innovation would come on a global scale. The Picht braillewriter, for instance, would emerge from Germany only seven years after the Hall. The braillewriter was developed by Oscar Picht, director of the Provincial School for the Blind in Breslau, Germany, and later director of the State Blind Institute Berlin-Steiner. The Picht braillewriter was first manufactured in 1899 by the company B.R. Herde and F.R. Wegnit, and continued production until the 1930s.[1]

The Picht braillewriter featured here was built approximately 1900. It is made of black metal with a painted wood keyboard, also black except for the six wooden keys that are painted white on their top surface. The Picht is smaller and more compact than the Hall braillewriter, with an asymmetrical shape that flares out toward the keyboard. "Picht" is painted in gold lettering on the front, above the keys. Like the Hall, it consists of six keys on each end that progress from long to short as you move to the centre of the board, where a single oval space bar just outward in between. Similarly, the three left keys correspond to dots one, two, and three in a braille cell and the three on the right to keys four, five, and six. The Picht has a metal gooseneck, also like the Hall, which arches over the top of the machine and down to where the paper feeds through the rollers. This gooseneck has six small holes in the end, mirroring the six-dot pattern in braille.[3]

Other braillewriters that came later include the Blista braillewriter, also developed in Germany. The Blista was in many ways similar to the Picht except slightly larger and made from green metal and rubber rollers. This particular model comes attached to a handmade black case with a rectangular, slanted top that fastens to the base by means of a silver-plated latch to make for more convenient transportation.[5]

The Andersen and Sorensen braillewriter was produced in Copenhagen, Denmark, which was similar in size to the Picht, and made almost entirely of black cast iron. Like many other braillewriters, however, it would still retain the six wooden key design, with the space bar in between and jutting out from the others. It is square in shape, with six keys so that either the Picht or the Hall, but with a similar metal gooseneck curving up and back over the rollers.[6]
ENVISIONING TECHNOLOGIES

James Swail (1924–2005)

Dr. James Swail (1924–2005) was a researcher with the Radio and Electrical Engineering Division of the National Research Council of Canada (NRC) from 1947–1964. He became ill as a child and was left with a lifelong disability. After overcoming many obstacles, he became a high school student at the age of four. He went on to complete his education at McGill University, where he graduated with a Bachelor of Science in 1964. In the latter part of his career, he was employed as a researcher with the NRC. This would begin his long association with the NRC, which would last for almost forty years.

In 1969, Dr. James Swail wrote, "With the possible exception of blindness, electronics has done more than any other field of science to give the blind an independence on sighted helpers." Many of the devices that have been developed have given a long way toward making information of all kinds as well as entertainment available to blind people. "It is now possible to lay the competitive positions of the blind in a sighted world, in the future," he wrote. "It was largely due to the conviction that Swail had in electronics and its potential for improving the lives of the blind. Since then, Swail has dedicated himself to developing devices and methods to improve the lives of the blind. His work has contributed to the development of technologies such as electronic Braille devices, which have revolutionized the lives of the blind.

During his tenure with the NRC, Swail collaborated with some of the most prominent scientists of Canada, and developed more than thirty electronic instruments ranging from laboratory equipment and mobility devices to pencil card readers. These innovations, in turn, opened many doors for people who were blind or partially sighted to become employed in a variety of fields, including science, engineering, and the then burgeoning field of computer programming. Swail was awarded the Order of Canada in 1964 for his efforts, followed by the Order of Ontario in 1967.


James Swall began developing a series of punch card readers from the mid to late 1960s for the education and vocational training of computer programmers who were blind or partially sighted. Computer programming had already begun to come into its own by this time, and an increasing number of people who were blind or partially sighted had found employment in that field of work already. As Swall observed in 1969, “since the advent of the computer in common commercial use, an increasing number of blind persons have found employment as programmers. It has turned out that very little adaptation need be made for these people.”

One aspect of the work that still required sighted assistance, however, was the reading of a punched card. In early computers, a punched card contained the commands or data required to complete an assignment. The programmer therefore needed to be able to interpret the information conveyed on the card in order to perform the work required of them.

Although a design for a punched-card reader of this kind had already been developed in the United States, this device was still not practical and difficult to read. As a result, Swall and his colleagues began to design a machine that could enable programmers to quickly and easily read punch cards to complete their work. He produced the first prototype of this punched-card reader in 1966. Pictured here, it consists of a flat, metal rectangular base plate upon which the card was placed. An operator could manually move a metal carriage over the card along a track attached to the base. A raised scale at the edge of the plate is calibrated in braille numbers zero to eighty in order to indicate the position of the carriage in relation to the card. The carriage itself is marked by a row of twelve pins, with a second braille scale indicating the number of pins. Underneath the carriage is a corresponding row of twelve rollers that are lined up in the pins by gravity alone. The rollers are held against the surface of the card by spring tension. When the roller drops into a hole within the card, the pins rise from their typically lowered position on the device. An operator holds their finger against the surface of the carriage when it is moving along the track over the length of the card, until a pin rises, after which the operator stops the carriage and reads a reading from both corresponding scales. Importantly, this device allowed a card to be read within a matter of seconds.

Other models of the punch-card reader soon followed, but with significant modifications. Rather than use the mechanical system of the first prototype, by 1970 Swall had built another model of the punched-card reader. Pictured here, it consists of a similar metal base plate and carriage on a track as the initial design. Rather than use pins and rollers, however, Swall equipped this new device with photocells and vibrators. The carriage, equipped with photocells, would read the card and create an internal vibrating output through the back screen at the front of the machine with twelve braille markings that represented a calibrated scale.

Communicating Numbers: Talking Clocks and Braille Calculators, 1970-1975

Since James Swall began devising assistive technologies in the late 1960s, he placed a great emphasis on equipping devices with a range of non-visual sensory output that would allow a user to effectively interpret information being conveyed to them. It was therefore no coincidence that when Swall and his colleagues at the NRC began developing different models of accessible clocks and calculators in the mid-1970s, he designed these devices to provide both tactile output, as well as auditory signals. This ensured that the instruments were versatile enough to accommodate a range of different needs, preferences and circumstances of individual users.

The first prototype of such a device was a digital clock Swall constructed in 1973. Pictured here, it is turquoise in colour and of a rectangular cubical shape. A red, rectangular digital display is positioned at the top end, which registers into a tactile display on the front end of the device—a gold-coloured metal and translucent plastic plate. Three black buttons on the side below the tactile display cried the different settings of the machine. The device also produces auditory output through a circular, thin-plated speaker on the left side of the device, hence its sufficient name the "talking clock".[1]

At roughly the same time, Swall also developed a calculator that conveyed numbers in a similar fashion, pictured here. For this invention, he adapted a Texas Instrument calculator, which he built into a metal, rectangular transparent frame. Similar to the clock, the visual digital display feeds into an auditory and tactile board display that features braille numerical symbols. A speaker to the side of the device allows for auditory output as well.[2]

Both clock and calculator were never commercially produced and were therefore limited to the laboratories of the NRC. Nevertheless, these devices were significant innovations. In many respects, they represent very early precursors to synthetic voice clocks, calculators and even talking computer applications that are today at the forefront of many assistive technologies for people who are blind or partially sighted in Canada and beyond.


Roland Galarneau and the Cypihot-Galarneau Corporation, 1960-1972

Roland Galarneau (1922-2011) was an important Canadian innovator in the computerized production of braille, as well as the founder of the Cypihot-Galarneau Corporation in 1970 - a not-for-profit organization that would significantly influence the development of computer-based assistive technologies in Canada and beyond.

Galarneau was born in 1922 in Hull, Quebec. With only two percent vision, he was sent to L'Institut Nazareth for his primary education. This institute was one of the first in Canada to instruct students in braille since its founding in the mid-nineteenth century. Galarneau's experience there undoubtedly influenced him. Upon graduating from the institute, and without the funds to pursue further studies, Galarneau operated a canteen at the Iroquois Company in Hull. When the factory closed after the Second World War, Galarneau gained employment as a janitor for the federal Department of Public Works. With a growing family and determined to continue his education, he began taking night courses in engineering through the University of Ottawa. Meanwhile he trained himself to perform mechanical work and was soon promoted to the position of machinist with Public Works. In 1951, he built one of the first of many inventions in his basement. A powerful microscope, which he called a "Telescope," allowed him to read printed material. This gave him access to a far greater array of literature on electronics, which he read at length. Through this private study, he was eventually struck with an idea to develop a machine that would automatically translate written texts into Braille.[1]

In the early 1960s, Galarneau obtained several different models of braille printers from a Mrs. Fernand Tremblay of Montreal; devices which are now held with the collections of the Canadian Science and Technology Museum and featured within an earlier section of this exhibit. He carefully studied the design and functions of these trailblazers, even building one of his own.[5] He then used this knowledge to begin working on a device called the "Converto-Braille" - a machine that would quite literally transform braille production in the years to come.

Galarneau laboured to make his idea a reality in the basement of his home from 1966 onward. Meanwhile, Jeanne Cypihot, a woman living in Montreal who was also blind, heard about Galarneau's work. She generously invested in his design, offering $1,200 to the project. Others soon followed suit, including the Canadian National Institute for the Blind. In 1970, Cypihot-Galarneau Services was born.[6]

Roland Galarneau's company initially dedicated itself to making educational materials more accessible to aspiring college and university students who were blind or partially sighted. When, in 1972, the company was awarded a local initiatives grant, Galarneau hired twelve employees. Some converted textbooks into braille, while others recorded books onto cassettes in collaboration with the University of Ottawa, forming the first French-language tape library in Canada that would eventually carry as many as 3,500 titles. At the same time, Galarneau laboured to perfect his machine.[7]
The Converte-Braille: A Transformative Prototype, c. 1972

In 1972 the first "Converte-Braille" was finally complete and functioning. By that time, it had taken over 10,000 hours of work to develop the 138,000 connections required to make this innovation a reality.[1] The machine was essentially a computer linked to an electromechanical typewriter—a device that was frequently used as an interface for early mainframe computers and could transmit typed messages through telephone relays.

Galanteau acquired these telephone relays and a collection of other components with the help of Robert Doerner, an electrical engineer with Bell Canada, Ltd., and Bell Canada of the Northern Electric Co., Ltd., two enthusiastic supporters of Galanteau's work. The teleprinter produced a perforated tape that provided the required memory for the computer, which could scan and translate text into braille at approximately 100 words per minute.[2]

The device, pictured here, sits on a metal stand. Tape could be fed through the rollers near the top front of the grey-painted rectangular metal base. The machine was powered by a black cylinder labeled "Superior Electric" motor at the right-hand side of the machine. Above and towards the back end of the machine were several holes from which the perforated tape was fed across a larger metal Northern Electric cylinder to the left of the device. This series of cylinders were, in turn, attached to a complicated set of trip boards at the rear of the machine.[3]

The Development of the World’s First Talking ATM

Since RBC had already established a business relationship with T-Base Communications, it seemed a natural fit for the bank to work with the company once more to create what no one had ever done before—a fully accessible Automated Teller Machine. Ted Murphy, then a new hire with the RBC, was tasked with working alongside T-Base, NCR, and other stakeholders to begin developing this technology in April 1997.

Both the Stacks and Ayotte agree that Murphy was key to making the talking ATM a success, mainly due to how he helped facilitate user testing that the Stacks insisted was crucial to creating a practical and long-term solution. Working alongside T-Base Communication and NCR, Murphy and his colleagues at RBC came up with a number of prototypes. A select, but varied group of consumers subsequently experimented with these models to see if they were indeed practical. Although the concept of usability and user testing was becoming increasingly popular in industrial design by this time, this was one of the first instances when a corporation implemented such testing to develop an assistive technology for customers with disabilities. Murphy described this process as central to developing the adaptive technology, which in turn helped the RBC conceptualize the needs of customers with disabilities more effectively than ever before.

In the end, what comprised the talking ATM was an NCR machine retrofitted with an audio interface that would guide users through the process of performing essential tasks like taking out and depositing money, paying bills, and checking accounts. T-Base developed the scripting for the machine and NCR worked alongside to equip the machine with an output jack within which users could plug in earphones. The installation was also made less difficult by the fact that RBC had begun using OS/2, an IBM operating system that predated and later competed with Microsoft Windows. This system was much more adaptable than the one that had come before it, and was hampered by proprietary restrictions in comparison to ATM systems at many other leading banks of the time.

The fact that the RBC’s ATMs used OS/2 made retrofitting the audio interface all the more easier and remarkably quick to accomplish. Within just six months, RBC launched the first talking ATM with much fanfare on October 21, 1997. Above is an image of a man with his guide dog making use of the earphones to deposit money into the machine at the official launch. A dozen more ATMs across the country were equipped with the same audio interface by the spring of 1998, at which time T-Base Communications also began installing them on Deloitte ATM machines in San Francisco. This first talking ATM marked a significant transition in terms of personal banking more broadly. New accessible ATMs are the standard for many banks across North America. The majority of ATMs at RBC and elsewhere have upgraded to more sophisticated operating systems, while the scripted audio is now computerized script to speech. Yet, the audio interface first installed in 1997 has changed very little otherwise. The audible instructions, jack for earphones and blanking out of the screen remain intact as the talking ATM has now become a mainstream technology.

*** Many thanks to the Royal Bank of Canada for allowing the research group to take photos of contemporary talking ATMs at their Royal Bank branch at 99 Bank Street, as well as for generously sharing archival material that made this research possible. ***
Where Activism and Innovation Collide: Creating a More Accessible Financial Sector in Canada

Chris Stark and Marie Laporte-Stark first approached BCG about lack of access to important financial information in 1984, when they first moved to Ottawa. After struggling to buy a mortgage and eventually losing money on investments due to not being given notices they could read, the couple decided to take action. But over a period of several years in which they attempted to resolve their concerns with bank officials "it became clear that the bank viewed our desire for access to information as a matter of charity," Laporte-Stark has written. [1] The Starks eventually filed a formal Human Rights Complaint in 1991. Their activism would be followed by other significant developments.

In 1992, the Access to Information Act, first implemented in 1981, was amended as a result of recommendations made by the Canadian Disability Rights Council (CDRC), with the support of the Canadian Human Rights Commission and Information Commissioners at the time, John W. Graeme. The CDRC argued that the Access to Information Act was essentially useless to individuals who were blind as partially-sighted unless there was a mandated requirement to provide all Canadians with a format they could access.[2] The amendment that came as a result of the CDRC’s request specified that federal agencies must provide alternate formats of government documents to individuals with sensory impairments.[3]

Sharyn Ayotte heard of this amendment from a friend, as it was not widely promoted, especially to those who might benefit from the change the most. As an emerging entrepreneur in the tech industry, she took interest. Ayotte lost her sight at age 21 as a result of light emission tests she conducted with agen in situ while employed at an R&D laboratory researches. She subsequently retrained to become a computer programmer, which she did briefly, but then obtained a position in marketing and sales with a computer company—a job she was highly successful at.

In 1990, Ayotte set out to start her own business with one other business partner, financial broker Ian Fowler. The company, initially called T-Base Research and Development, focused on information security issues. While establishing the company, however, Ayotte faced limited access to information that would equip her with the knowledge to run her business successfully. Upon hearing about the amendment to the Access to Information Act, she requested access to government documents pertaining to emerging federal policies on the Information Highway. Industry Canada initially refused to provide her with the documents in an alternative format she could read, despite their own legal obligation to do so. Undeterred, Ayotte continued to push for these documents, and after a ten-month battle, was finally granted access.[4]

This experience compelled Ayotte to convince her business partner to change course. Rather than security, Ayotte argued that they should instead focus on accessibility. By 1994, Ayotte renamed the business to T-Base Communications. To facilitate the new direction of the company, Ayotte formed the Communication Access Team that consisted of herself and four other women, Mary Taylor, Dalis French, Laurie Bowes and Melissa Fowler. All friends, they affectionately referred to each other as the GYS: Taylor, the graphic designer and artist, was "Sophisticat", French, the art director, was "Artisocrat". Bowes, the writer and editor, was "Stricrat". Fowler, who headed communications and administration was "Communicat". Ayotte was appropriately known as "Advocat".[5]

The Talking ATM: Innovation, Access and Human Rights Activism, 1984-2016

The Talking ATM

Chris Stark and Marie Laporte-Stark

SHARK - A LEGACY OF ACTIVISM

Where Activism and Innovation Collide: Creating a More Accessible Financial Sector in Canada

The Development of the World’s First Talking ATM

An Interview with Chris Stark and Marie Laporte-Stark

An Interview with Sharyn "Charlie" Ayotte
The following is an interview with Leona Emberson, a specialist in independent living skills with the Canadian National Institute for the Blind (CNIB) at their Ottawa office on January 25th, 2016. Within the interview, Leona speaks of her experiences with the CNIB, the shifts in technology and the importance of universal design. Near the end of the interview (25:10), Leona demonstrates a classic slate and stylus. Please find a full transcription of this interview below. You can also access the transcription through the items menu, listed to the left of the screen.

25 January 2016, CNIB Office, Ottawa, ON Office

Interviewee: Leona Emberson
Interviewer: Beth Robertson

Leona Emberson:

My name is Leona Emberson and I am a specialist of independent living skills here at the CNIB. I have been here 10 years but I have been a client of CNIB my whole life.

My first probably true memory of being involved with the CNIB was through a summer camp that would help once a week when I was probably about to enter grade 8. It was just a weekly summer group where we got together and we did ... we went to a water park and we went horseback riding ... so probably my first involvement. Then after that for a period, I did have some mobility training from CNIB orientation mobility training learning how to get around my high school. And then there was really no involvement until I started working at the CNIB the Joseph Center for summer employment and then that eventually led into working here full-time. When I first started working for CNIB, it was actually a camp counselor at the summer camp I was working with clients to help them to participate in the different activities at the summer camp and working at the front office, working in the dining hall, that sort of thing. Then I transitioned into, once I finished my college education, which was as a rehabilitation instructor for the blind. I then became employed here at the Ottawa office.

I am a specialist of independent living skills. My job involved teaching people how to either gain the independence in their personal lives or regain independence or maintain it so it rather
The following is an interview with Richard Marsolais, a specialist in independent living skills with the Canadian National Institute for the Blind (CNIB) at their Ottawa office on January 25th, 2016. Within the interview, Richard speaks of his experiences with the CNIB, and the rapid shifts in technology he has witnessed. Near the end of the interview (26:19) Richard demonstrates three pieces of technology: a braille note-taker, a Victor Stream reader and an Iphone. Please find a full transcription of this interview below. You can also access the transcription through the Items menu, listed to the left of the screen.

25 January 2016, CNIB Office, Ottawa, ON Office

Interviewee: Richard Marsolais
Interviewer: Beth Robertson

Note: Interview opens with Richard Marsolais giving his name, followed by Beth A. Robertson with first question.

Beth Robertson: ... And when did you become involved with the CNIB?

Richard Marsolais: 21 years ago ... as a client. I started losing my vision to retinitis pigmentosa, which is an eye condition that you're born with... its hereditary and eventually leads to total blindness. So at that time, I decided to go to the CNIB and I started learning braille for reading, labelling and different things I might need for presentations and stuff like that. And from there, the rehab teacher introduced me to her type of work and said maybe that was a line of work I might want to look at. She took me out to some clients and I really enjoyed it and at the time I was in the travel industry and didn't feel comfortable there anymore so ... after seeing this position, I did some investigation and everything. That's how I became what we call a specialist in independent living skills at this time. I started at CNIB as an employee in 1994. Before they were called rehabilitation teachers and now we're called specialist in independent living skills.

Beth Robertson: And that leads to my next question. So how has your role and work at the CNIB changed over time?
An interview with Robert Bender, 2016

The following is an interview with Robert Bender, an assistive technology specialist with the Canadian National Institute for the Blind (CNIB) at their Ottawa office on January 25th, 2016. Within the interview, Rob speaks of his experiences with the CNIB, the shifts in technology, especially since the 1980s and some of his personal insights into the role of technology within the lives of people who are blind or partially sighted. During the interview (10:43), Rob demonstrates JAWS—a popular screen reader program. Please find a full transcription of this interview below. You can also access the transcription through the items menu, listed to the left of the screen.

Envisioning Technologies – Oral Interviews Transcriptions

25 January 2016, CNIB Office, Ottawa, ON Office

Interviewee: Robert Bender

Interviewer: Beth Robertson

Robert Bender:

My name is Rob Bender. I am an assistive technology specialist at CNIB in Ottawa.

Beth Robertson:

When did you first become involved with the CNIB?

Robert Bender:

As a person who is blind as well, I was involved with the CNIB probably since the age of 3 or 4. I actually began working for CNIB in 1988. I was actually the volunteer coordinator for about year and I moved into my chosen field. I was able to get a job in Sudbury. I was there for 20-some odd years and I've been in Ottawa 2010.

Beth Robertson:

What is your chosen field?
The following is an interview with Sharlyn "Charlie" Ayotte, at her Ottawa home on April 13, 2016 with Beth A. Robertson from Carleton University’s Disability Research Group. Within the interview, Ayotte describes where her passion for access to information emerged, her activism for both herself and others, the founding of F-Base Communications in the early 1990s, as well as the various innovations that the company produced or helped design while she was the CEO. These innovations included InfoTouch, the on-demand publishing system for alternative formats, and the talking ATM installed at RBC in Ottawa. Please find a full transcription of this interview below. You can also access the transcription through the Items menu, listed to the left of the screen.

Ayotte is pictured here on the day of the interview, proudly holding a red kerchief she had designed for her beloved guide dog Teddy and which reads, "I am Your Customer. One Voice. More Choice," a statement that in many ways describes her own approach to advocacy.

13 April 2016, Ottawa, ON

Interviewee: Sharlyn Ayotte

Interviewer Beth Robertson

Beth Robertson

Today is April 13, 2016. I am here with Sharlyn Ayotte, otherwise known as 'Charlie' at her residence in Ottawa. My name is Beth Robertson. I'm with Carleton University’s Disability Research Group.

Today I’m going to ask Charlie about her past experiences with the uses of assistive technologies. And my first question is just asking you to tell me about yourself and how you first became interested in assistive technologies?

Sharlyn:

Okay - isn’t it hard to start though? It's like, I'm in my 60's at this point in my life. I've been in Ottawa for over 30 years. I lost my eyesight - most of my eyesight - at age 27 and became interested in different technologies at that point in time. Certainly not involved with computer technology, but with things like talking book machines and things like that, in order to read. From there I had to plan another career. I was at the time, when I lost my sight, working in a research laboratory and my job was in R&D. I was responsible for taking the light measurements of light emitting diodes to check out to see what the batches were and which ones were good and which ones were bad, etc. I lost my sight while doing those light emission experiments using argon and neon lasers.
Envisioning Technologies:
An Exhibit on the History of Communications in Canada

Through stories of innovation, change, and progress, this exhibit explores the role of technology in shaping communication in Canada. Visitors will learn about key developments in the field, from early telegraph systems to modern digital communications. The exhibit includes interactive displays, artifacts, and multimedia presentations to engage and educate viewers on the rich history of communications.