

Interactive Map Representation and Demographic Analysis of the Nominal Roll of  
Officers, Non-Commissioned Officers and Men 15th Battalion C.E.F 1914

15th Battalion Memorial Project

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Deliver to:

15th Battalion Memorial Project  
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## Executive Summary

This report has been authored by a team of student consultants at Ryerson University as part of a contracted agreement with the 15th Battalion Memorial Project. The Ryerson University consulting team has accomplished this project through the completion of four phases. The first phase included the creation of a comprehensive database template through the consolidation of three data sources: Nominal Roll of Officers, Non-Commissioned Officers and Men of the 15th Battalion C.E.F 1914, the Commonwealth War Graves Commission registry of 15th Battalion C.E.F casualties 1914-1918, and the Record of Service cards for members of the 15th Battalion. The second phase included the entry of each enlistee (1,139 in total) from the 15th Battalion Nominal Roll as a single record into the database. The third phase involved the creation of interactive maps to show the 15<sup>th</sup> Battalion enlistees with next of kin addresses in Canada as well as a map of the world, with both maps including pop-up windows to provide more detailed information. In the fourth phase, the team provided a comprehensive brochure of the 15<sup>th</sup> Battalion Nominal Roll's demographic composition. With the help of maps, charts, tables, and diagrams, this phase provides analysis and insight about the demographics of the battalion.

The team acknowledges the limitations of the project. It is significant to note that the database is limited by the legibility of the data sources. Additionally, discrepancies between data sources were found during the data entry process, but decision rules were implemented to try to account for these. The interactive maps were limited by the availability of geographic reference sources. Therefore, current country boundaries were used to present WWI data. Additionally, detailed information about each individual in the interactive maps is only available for the men with next of kin addresses located in Canada, which only represents 56% of the Nominal Roll.

In future, this project can be used to expand upon the existing database and interactive maps. It may also serve as a model for the creation of maps and databases for other battalions.

## Background

Canada's involvement in World War I was integral to the formation of a national identity. When Britain declared war in 1914, Canada was automatically at war. At the time, Canada had a regular army of just 3,110 men and a fledgling navy. However, within a few weeks of the declaration of war, a volunteer army of 32,000 men had assembled at Valcartier Camp. By the end of the war, over 600,000 Canadians would end up fighting in Europe. This was a truly impressive number considering that the population of Canada was only 8,000,000 at the time. WWI was the first war in which Canada fought as a unit distinct from British troops. It was also the first time that Canadians were led by a Canadian commander. The contributions of Canada throughout the course of World War I are renowned and are an essential part of Canadian history.<sup>1</sup>

The first contingent of Canadian soldiers, the Canadian Expeditionary Force (C.E.F), left Canada during the fall of 1914. At Valcartier, 17 numbered battalions were formed. Toronto's 48th Highland Regiment was in large part responsible for the recruitment of the 15th Battalion C.E.F, one of three highland battalions in the Canadian Expeditionary Force. The 15th Battalion C.E.F departed Canada on October 3, 1914, aboard the SS Megantic and would not return to Canada until May, 1919. When the battalion left Canada, its strength was 46 officers and 1109 non-commissioned members. Eventually, over 6000 men would end up serving with the 15th Battalion throughout World War I.<sup>2</sup>

The 15th Battalion Memorial Project was founded in 2007 with the purpose of commemorating all of the members who served with the 15th Battalion C.E.F during the Great War 1914-1918. The project consists of volunteer retired officers who served with the 48<sup>th</sup> Highlanders of Canada. The project's initial focus was on the erection of memorials throughout Europe to acknowledge the accomplishments and sacrifice of Canadians throughout the course of The Great War. However, the intensive research required for this task has allowed the Project to amass a wealth of information which can now be used for further projects. The Memorial Project aims to make information about the 15th Battalion C.E.F accessible to the public for the purposes of public interest, genealogical inquiry, and academic research.

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<sup>1</sup> Nicholson, G. W. L. 1962. *Official History of the Canadian Army in the First World War: Canadian Expeditionary Force 1914-1919*. Queens Printer and Controller of Stationary: Ottawa, Canada.

<sup>2</sup> Veterans Affairs Canada. *Canada and The First World War*. Retrieved on February 13, 2012, from <http://www.veterans.gc.ca/eng/history/firstwar/canada>.

The Geographic Analysis program curriculum at Ryerson University has trained the team to understand the relationships between people, location, and distance. Extensive experience with Geographic Information Systems (GIS) software packages has made the team familiar with preparing, mapping, and presenting data for analysis of economic, social, urban and environmental issues. The team will further the goal of creating a definitive source of information about the 15th Battalion through the creation of a database and preparation of an interactive map for the 15th Battalion Memorial Project's website. The focus of this project will be on the original 15th Battalion members that left Valcartier on October 3, 1914.

## **Methodology**

The project was completed through four interrelated phases. During Phase 1, a database was created to aggregate all attribute categories found across the three provided data sources. Phase 2 involved the development of a comprehensive digital database of the original 15th Battalion C.E.F. through manual data entry of relevant information, representing all provided data sources. Phase 3 entailed the creation of multiple interactive maps for presentation on the 15th Battalion Memorial Project website. During Phase 4, the team prepared an in depth demographic analysis of the original 15th Battalion C.E.F. in order to provide insight into the composition of the battalion and provide static maps and charts to display the data. Each of these phases was completed according to the schedule outlined in the Response to the RFP, which allowed the team to achieve our objective of providing high quality databases, maps, and analysis to assist the 15th Battalion Memorial Project with achieving their goals.

### *Phase 1: Database Creation*

The team developed a database for all records in the 15th Battalion Nominal Roll using Microsoft Excel. A template was created to include all categories of information found on the Nominal Roll of Officers, Non-Commissioned Officers and Men of the 15th Battalion C.E.F 1914, the Commonwealth War Graves Commission registry of 15th Battalion C.E.F casualties 1914-1918, and the Record of Service cards for members of the 15th Battalion. These categories were then filtered according to the client's preference during a scheduled meeting. This revised template, reflecting all changes requested by the client, was then used by the team for data entry.

### *Phase 2: Data Entry*

In this phase, the Nominal Roll of Officers, Non-Commissioned Officers and Men of the 15th Battalion C.E.F 1914, was divided into seven equal parts and a copy of the database template was made for each team member. Data entry was completed by all team members through a process that consolidated the three data sources. The information was cross-referenced across the data sources to ensure that the data was accurate and comprehensive. Where discrepancies

between sources were discovered, the team chose to include the data from the 15th Battalion Record of Service cards because these cards were updated throughout the war and provided the most recent information available. All completed individual team member databases were then combined to form the final database.

### Phase 3: Interactive Map

During this phase, the team created two interactive maps to be included on the 15th Battalion Memorial Project website. For the first map, the final database was filtered to only include the records with Canadian next of kin addresses. This Canadian address information was then geocoded for use in the interactive map. Geocoding is a process that assigns geographic coordinates to each next of kin address, allowing each address to be represented by a single point on the map. Where address information was incomplete or unidentifiable, geographic coordinates were assigned to the center of the area identified. For example, if the record only included Hanover, Ontario in the address fields, a point would have been placed in the center of the town of Hanover on the map. Similarly, if only the province of Ontario was provided, a point would have been placed in the center of the province of Ontario. Once a complete file of all Canadian records from the database was assembled, an interactive map was created to show next of kin addresses across Canada, as shown in Figure 1. Pop-up windows were created to show all of the data available for each point on the map, with each point representing a soldier from the 15th Battalion Nominal Roll.

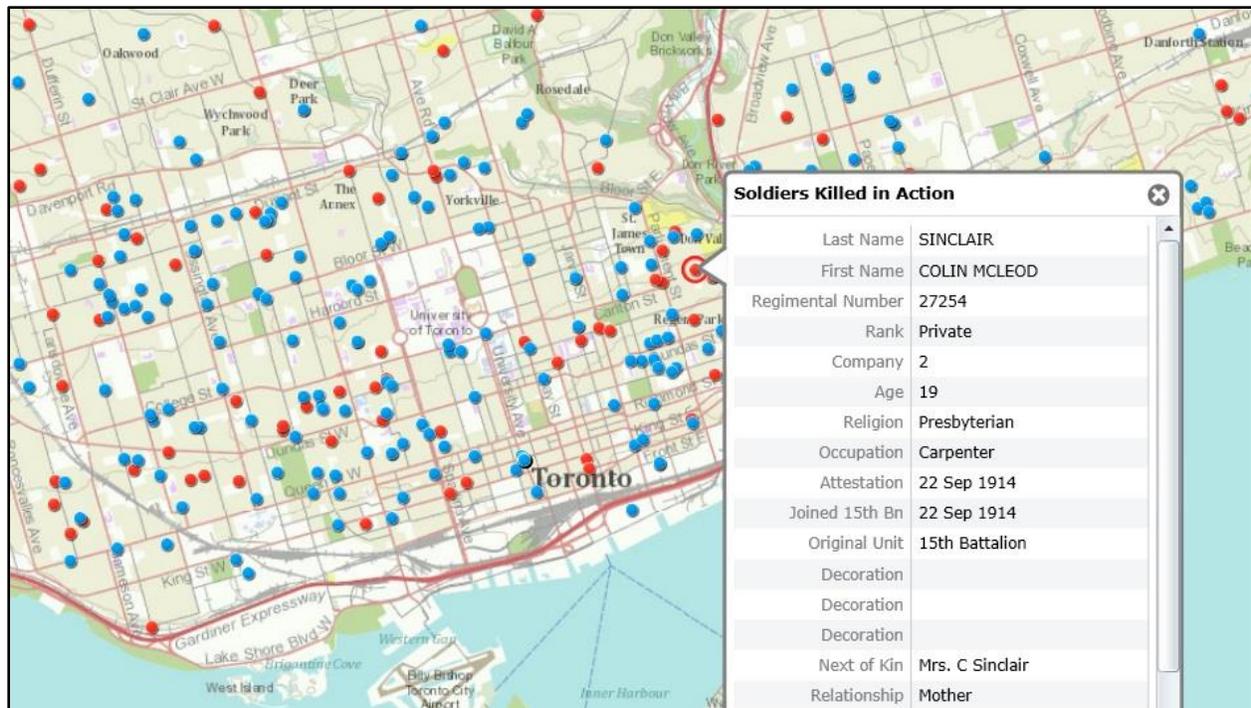


Figure 1. Canadian next of kin addresses for soldiers from the 15th Battalion Nominal Roll

Similarly, a separate database was created using counts from the complete database to show the breakdown of next of kin addresses by country. Totals per country were calculated to show the number of next of kin addresses, the number of soldiers who were killed, the number of soldiers who were wounded, and the number of soldiers who went missing during the war. These numbers were included for each country where next of kin addresses were located. The file was then joined to a geographic reference file containing the borders of all of the countries in the world and the new file, showing the counts per country with their geographic references, was used in the second interactive map, shown in Figure 2.

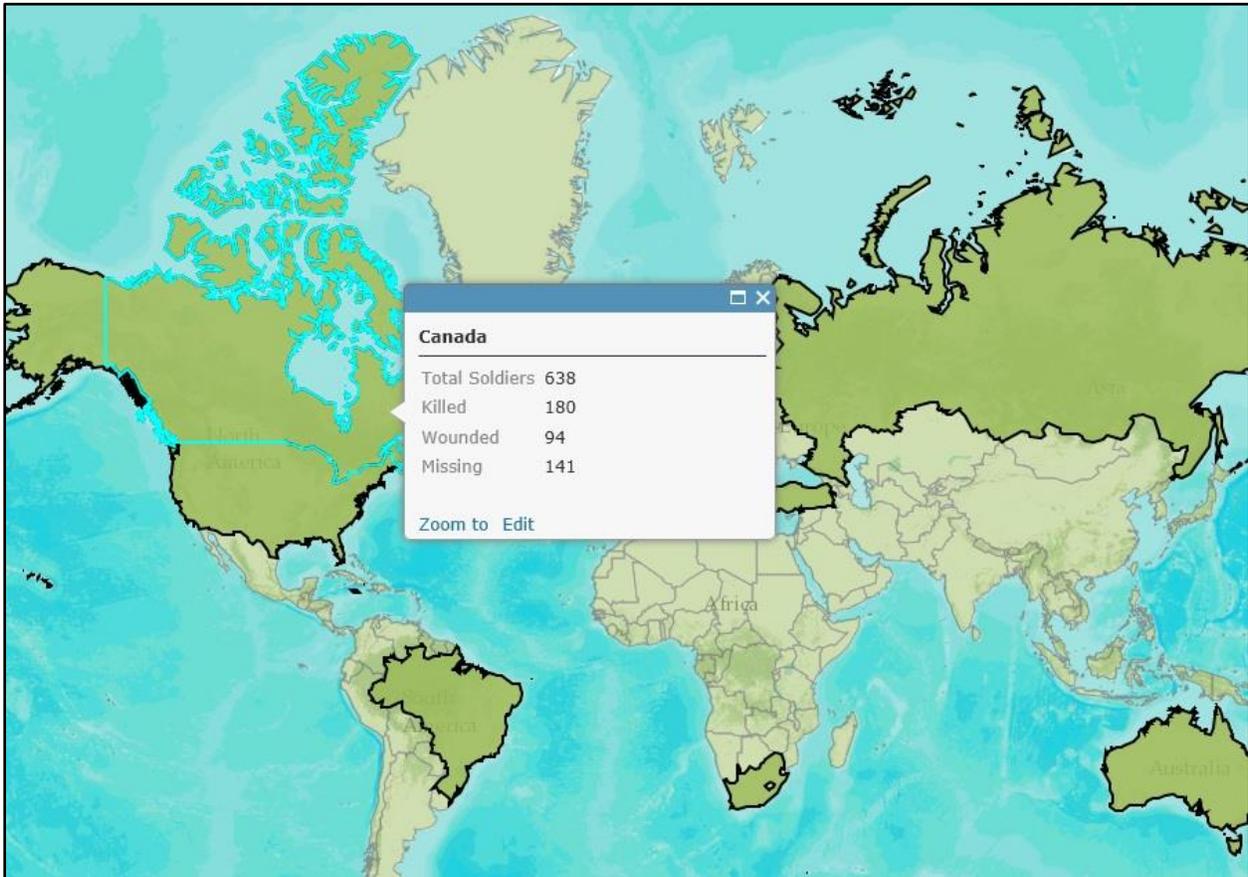


Figure 2. Next of kin addresses and descriptions by country

The interactive maps were created using ArcGIS Online, an online mapping service provided by Esri, the world industry leader in mapping software. This service was chosen for its technical offerings as well as the reliability of the software and availability of customer support. Although other open source software provided a greater variety of functions and tools, the software could not be relied upon to remain operational. ArcGIS Online provides consistent and accountable service with customer support to assist users with problems or queries.

#### *Phase 4: Demographic Analysis*

In this phase of the project, the team analyzed the demographic patterns and trends of the database information. General demographic patterns relating to names, ranks, religions, age, decorations, next of kin relationships, provinces, and countries were analyzed and presented in tables or charts. Additionally, patterns pertaining to the Battle of Saint Julien were included as well as a timeline for World War I in relation to the database. This information has been compiled into a brochure, attached as Appendix A, to present the data in a more user-friendly format that can be easily linked to from the 15th Battalion Memorial Project website.

### **Limitations**

#### *Limitations of the Database*

The team encountered limitations during the creation of the database and in the application of the complete database for analysis. Because the project was limited to the timeframe of a single Ryerson University school semester, the group made the decision to limit the database entries to only the 1139 records from the Nominal Roll of Officers, Non-Commissioned Officers and Men 15th Battalion C.E.F 1914. This limits the data and analysis to a very specific group of men within the 15th Battalion.

Another limitation of the database is the possibility of data entry error, which may occur whenever data is entered manually. To try to prevent these errors, decision rules were established before the team began entering data into the database, which ensured that all members of the team handled problems or discrepancies in the same manner. When the team encountered a discrepancy in the data, information from the Record of Service cards was given priority because the cards were updated throughout the war. There was also the issue of the legibility of the Record of Service cards. In some cases, information on the cards was indecipherable. When this occurred, the team was forced to omit the data from the database. Additionally, it is assumed that some of the information recorded on the cards was not accurate. For example, some enlistees lied about their age in order to serve in the military before they reached the required age for enlistment. They may also have given an incorrect next of kin address. It is also important to note that the geographical data is based on next of kin addresses, which may not have been the individual's home address. These errors may skew the analysis and presentation of the data and may create accuracy problems within the database.

#### *Limitations of the Interactive Maps*

There are also some limitations of the interactive map of Canada, which shows the Canadian next of kin addresses for members of the 15th Battalion Nominal Roll. The biggest limitation of

this map is that it is limited to the 638 records with Canadian addresses. Therefore, only 56% of the Nominal Roll is included in the interactive map. Additionally, Newfoundland is shown as a part of Canada even though it would not have been during World War I. The interactive map shows Canada's current borders and includes the 3 records that have next of kin addresses in Newfoundland.

Another limitation is that, while all of the Canadian addresses are represented on the map, the placement of some points may skew the spatial patterns. As mentioned above, incomplete or indecipherable addresses were assigned to points at the center of the identifiable geographic area. For this reason, some points may be located where towns would not have existed at the time of World War I or there may be clusters over a point in the center of a town that would not be representative of where next of kin addresses would be located within the town.

There are also limitations in the functionality of the map. There is no search tool built into the map, which would allow users to find individuals by their name or regimental number. However, the team has provided a file with an alphabetical list of names and their corresponding regimental numbers and next of kin addresses. This file can be searched to find individuals by their name or regimental number. The addresses can then be copied into the search tool in the interactive map to find the individual on the map by their addresses.

The main limitation of the interactive world map is that the map uses current world boundaries to show data from World War I. Due to the time constraints of the project, a file could not be created to show the boundaries of countries from 1914, and no geographic reference files for these boundaries are available. This limits the way that the data can be shown on the map. Some countries do not exist on the current map of the world that would have existed and contained next of kin addresses during World War I. For example, the Ottoman Empire is not shown on the map. However, all of the next of kin addresses from the region identified Turkey in the address fields. Therefore, next of kin addresses are shown in the current borders of Turkey on the interactive map.

### **Future Direction**

There are many potential future applications for the interactive maps and the database. The database could be expanded to include additional categories of information. For example, data available through public records could be included, such as attestation paper reference numbers as well as additional information available on these documents.

The data can also be expanded upon to include the other 5000 Records of Service cards for the 15th Battalion. This would provide a complete analysis of the battalion, including those who joined the 15th Battalion at a later date. This would allow for a more detailed and comprehensive interactive map to be created for the 15th Battalion.

Additionally, a file could be created to show the 1914 country boundaries. While this would be a larger project, it would help to better represent the data at both the Canadian and the worldwide scale.

Furthermore, this process could be used as a model for the creation of databases and maps for other battalions. These databases could be combined to create a larger dataset of Canadian soldiers who served during World War I.

# Appendix A