

World Situation

The world was changing quickly as the colonial powers were in competition to seize colonial territories for trade and economic benefit. This gave way to a number of wars and conflicts around the world. It also witnessed the transformation of Japan from a feudal empire to a state that was to rapidly become industrialized and be able to compete with the European powers. This culminated in the bloody Russian-Japanese War fought in Manchuria as well as a great naval victory of Japan over Russia in 1905 that made it a significant world power.

The United States completed its manifest destiny (to occupy the continent) with the purchase of Alaska then began to extend its authority over the islands of Hawaii, Puerto Rico, Cuba, Philippines as well as some Latin American countries. Some of this expansion was the result of the Spanish American War which was precipitated by the sinking of the battleship Maine that had been sent to Havana to protect US citizens. The Spanish American War served as an excuse for the occupation of the Philippines by the United States just as they were becoming independent from Spain. This resulted in a long bitter war of independence that lasted 4 years and claimed over 100 000 lives but it was seen as necessary by the United States to develop trade in the Pacific and bring the benefits of civilization to the country. This war made the United States a world power along with the other countries that were engaged in colonial expansion.

Britain expanded its colonial empire under Queen Victoria (the many Victorian colonial wars) until the map of the world was largely coloured red representing the British colonies. The expression “The sun never sets on the British Empire” captured this situation. The loss of Khartoum to the Sudanese by General Gordon (1885) stirred the British public to raise an army and retake the city. Canadian voyageurs, famous for their river work in Canada, took part in this campaign along the Nile River. Soon after there was one of the most significant wars at the turn of the Century, the South African War in which Britain wanted to take over the Boer territories adjacent to South Africa. Major gold mines had been found and many British miners were demanding the protection of Britain. This was a long and bungled campaign in which the British army was unable to defeat the Boers who were mobile and resourceful farmers. There were a huge number of military casualties and a dreadful loss of life to Boer civilians in prison camps. Canada sent over more than 7000 men, in infantry, artillery, and cavalry. Canada’s richest man, Lord Strathcona, personally raised a cavalry regiment to participate in the war. Most of the mounted troops were from the West and were commanded by officers from the Northwest Mounted Police. They were accustomed to mobile warfare and they did well. A number of Canadians received the Victoria Cross for bravery in these campaigns. This war was the beginning of modern warfare and set the stage for World War I. Many of the leaders in the Boer War were also leaders in the Great War.

In Europe, Prussia emerged from the German wars of unification. This made Germany a major power following the Franco-Prussian war (1871) in which Germany defeated France. The siege of Paris and the Paris Commune planted the seeds of a strong socialist movement in France. Alliances and diplomatic maneuvering that occurred in Europe over the next few decades led directly to the First World War.

In the world of science and technology the second century of the industrial revolution had begun with a dramatic rate of change in manufacturing, transportation, communications, buildings, medical sciences, music, agriculture, trade, and travel. Electricity came into use in the 1880's with the abundant waterfalls in Ontario and Quebec leading to its use in a variety of industries such as pulp and paper, sawmills, and manufacturing.

In 1876 the telephone was introduced, the carpet sweeper invented, and salicylic acid was shown to be effective in treating pain. Each area of innovation complemented and magnified the changes occurring. Rails stretched across the nations, telegraph systems brought communities together, more lethal armaments were created, large steam ships were launched, cities with skyscrapers appeared (initially the term skyscraper referred to high flying birds), and large numbers of drugs extracted from plants, purified and made into novel dosage forms (Upjohn developed friable pills that disintegrated on ingestion in 1884 and soon after had a list of 186 products with 56 different drugs).

Creation of Canada

The uniting of Upper and Lower Canada with New Brunswick and Nova Scotia through the British North America Act (An Act for the Union of Canada, Nova Scotia, and New Brunswick, and the Government thereof; and for Purposes connected therewith...) in 1867 which formed the Dominion of Canada effective July 1, 1867. The reference to Union of Canada refers to Upper and Lower Canada, subsequently referred to as Ontario and Quebec. There had been discussions among the colonies for some time and a conference in P.E.I. in 1864 that established the general base for the union. It was the leadership of Sir John A. Macdonald of Upper Canada that made this union a reality. It also helped to have Britain supportive of this move. Britain was reluctant to spend a lot of money to protect Canada now that the Civil War was over and a large American army was on the border. At the time, Quebec represented 43% of the Canadian population and there was an equal balance between French and English in Canada. This was the situation in which early constitutional arrangements were made. Now, the population and structure of Canada has changed so that Quebec has slipped to half that number and resulted in a minority that now feels threatened.

Following Confederation, the new Canada extended to the prairies with the purchased the Hudson's Bay Company (1870), spread to the Pacific with the incorporation of British Columbia (1871), then added Prince Edward Island in 1873. Britain transferred the Arctic to Canada in 1880. The new nation had a huge, empty area with little funding available to build a nation that would match the United States. They relied on their links to Britain for identity, tradition, and stability. Defence was entrusted to the Royal Navy.

While the United States did not have designs on Canada at the time of Confederation, the Fenians, a group of Irish nationalists, sent armed groups into Canada in their battle against Britain to liberate Ireland. Several battles were fought (one battle at Prescott resulted in 48 deaths) and the Fenians were driven out often with the ineffective assistance of the United States

which did not support these activities.

The United States has always had a major impact on activities in Canada. Following its rapid economic growth during the Civil War the United States had become a major industrialized nation. Canada had strong trade ties with the United States and Canada was torn between the U.S. and Britain in many economic and cultural movements. During this period the US was extending its international trade, often by imposing it on smaller countries in Latin America. Canada was slower to develop manufacturing but there was rapid technological growth in Upper Canada as the population grew and trade with the US continued to increase with some discussion of free trade.

The first major action by the new government following Confederation was the decision for transcontinental expansion. In 1868 the government purchased the Hudson's Bay Company's land and incorporated it into the Dominion of Canada. There was no discussion with the people living in the West leading to misunderstandings and later an insurrection in the Red River Colony (Selkirk Colony). The seizing of power by Louis Riel in the Selkirk Settlement (1870) was a major event in Canadian history. Unrest in the colony leading to the arrest and execution of Thomas Scott was a turning point. The people in Winnipeg at this time were intent on joining Canada but were angry that they were not consulted on the sale of the Hudson's Bay Company nor the decision to make Manitoba a province. The election of Riel to "provisional president" and the sentencing to death of Thomas Scott was seen as a revolution by the federal government and an expedition under General Wolseley was sent out by the federal government. Order was restored (the federal government assumed authority) and Riel fled to the U.S. While there he was elected as a Member of Parliament for several terms but never returned to Canada to take his seat for fear of being arrested. His place in Canadian history is still being debated.

British Columbia, while not included in Confederation, indicated a desire in 1867 to join and this occurred in 1871 with the promise of a rail connection. In the same year, the U.S. purchased Alaska from Russia. The borders around Canada were nearly complete.

Transportation had a major impact on development in Canada. Railways were begun in 1850's and steam boats were on most of the inhabited rivers and lakes. It is reported that in 1868 Teddy Roosevelt, hero of the Spanish-American War and later President of the United States, took a steam boat trip on Lake Superior to Nipissing to go fishing. This is indicative of an accepted, reliable, mode of transport that was easily accessible to those with the money to purchase it. Later trans-continental railways were built in the U.S. and were completed ten years earlier than in Canada. This enabled Teddy Roosevelt to go hunting in the Okanagan Valley in British Columbia.

Railroad construction spread west from Toronto to the Lakehead in the 1870's and reached Winnipeg in 1882. This made the movement of goods and people much easier so that settlers and traders began to move to Winnipeg, the gateway to the West. Construction moved quickly once past Winnipeg with the easier conditions on the prairies and the rails reached the Rocky Mountains where they were slowed by the terrain. Just inside the Rocky Mountains they met the rails being laid from Vancouver at a much slower pace due to the enormous engineering

difficulty in the mountains. The junction was achieved in 1885 near Kicking Horse Pass and even today the sight of the rails and tunnels through this region is an amazing experience.

The age of sail reached its zenith in the 1870's and 1880's with large sailing ships being built in Nova Scotia. Transportation of grain, cotton, and tobacco from the U.S. to Britain and Europe represented 70% of the business with the Caribbean adding another 10%. While sailing ship costs were lower than iron ships they tended to require more maintenance, had a relatively short lifespan, and could carry less cargo and this hastened their demise.

The Metis who were involved in the Selkirk Colony uprising for the most part went further West to Saskatchewan and Alberta. The rebellion was a major challenge to the Canadian government even though it was not involving many people. It became a major political issue as it challenged the authority of the new government which had just purchased the Hudson's Bay Company and the legal situation was unclear. It did, however, focus national attention on the West and the need for better communication and government organization. This hastened Manitoba becoming a province in 1870 although the provincial boundaries were much smaller than those later established. Winnipeg grew to be the major city in the West. Lady Dufferin (wife of the Governor General) on a visit in 1877 found the ladies attending a ball to be the equal of those in the East and commented that six years previously they would have come in moccasins and danced the Red River jig. The population of Manitoba in 1871 was 25 000 (152 000 in 1891), the whole of the Northwest territories was only 56 000 in 1880, while the population of Canada was 3.7 million of which 1.6 million lived in Ontario. The low population of the West, only 11% in 1901 with many settlers, climbed to 30% by 1925 and has remained at that level since.

In addition to the early settlers, the federal government leased out large blocks of land to ranchers along the foothills of the Rocky Mountains. These ranches were owned by rich business men and politicians as well as by some English royalty. Cowboys came up from the United States along with herds of cattle. By 1886 Alberta cattle were sent by rail to the East coast then to Britain.

The history of the West began with a few trading posts to which the Indians brought furs. Over time with the competition between the Hudson's Bay Company and the Northwest Company the number of posts in the interior increased with bitter competition between the two firms. After amalgamation of the two companies in 1823 there was a slow movement of missionaries and traders into the area. Traders from the U.S. began to come into Canada bringing whiskey and violence after 1870. The new federal government was faced with the need for some form of government presence in the area to protect the people and to exert sovereignty. This led to the formation of the Northwest Mounted Police and their long march from Winnipeg to the American trading post which was referred to as Fort Whoop Up (in Southern Alberta) in 1874. This coincided with the rapid decline in the buffalo on the prairies on which the Indians depended. A number of police forts were established over the next few decades resulting in a peaceful environment for incoming settlers because the police were trusted and also acted as the judge and jailer. Because the original problem of violence and theft was related to whiskey sales prohibition was legislated for the Northwest Territories. This in turn was the source of many problems and prohibition continued on and off in the area until almost 1930. The Yukon gold rush in 1890 once again called on the N.W.M.P. to maintain order and the influx of miners,

mostly American, forced the government to establish claim to the land and the border with the U.S. At the height of the gold rush the government also sent in the Yukon Field Force, a military unit, to help keep the peace. The exploits of the N.W.M.P. in the Yukon were extraordinary as the government of the day was very parsimonious with funding and the few staff available were forced to undertake many harrowing tasks. Their successes in the Yukon led to the permanent establishment of the N.W.M.P. later named the Royal Canadian Mounted Police.

Canada began treaty negotiations with the Western Indians beginning in 1871 resulting in the Red River settlement and then Treaty 6 which acquired most of Alberta, Saskatchewan, and part of Manitoba (an area of 121,000 square miles) for \$47 000. Successive treaties secured most of the land in the West until 1921. In British Columbia there were few treaties signed and the problem of aboriginal land claims continues today. In signing the treaties the Indians wanted to adapt to the new settlement world but the reservation system that was implemented became increasingly restrictive and racist over time leading to the destruction of the native culture and family.

The settlement of the West and the destruction of the buffalo herds created hardships and discontent for the Indians and Metis. Surveying the West in square blocks of land dispossessed many of the Metis living along the river who had adopted the long, narrow plots stretching back from the river. The railroads destroyed the freight business of the Metis as the Red River carts could not compete with the trains. The Indians were increasingly confined to the reservations. In this period of discontent Louis Riel was recalled from the United States and appointed as leader of the Metis, forming a provisional government at Batoche in Saskatchewan.

The Cree Indians led by their war chief Wandering Spirit had murdered nine settlers and missionaries as well as taking hostages at Frog Lake. There was also a battle near Fort Battleford in which several Northwest Mounted Police were killed. This was the Northwest Rebellion of 1885. There was a fear that this would erupt into widespread bloodshed as had occurred in the United States. Only a few years before in 1876 the Battle of the Little Bighorn had occurred with the destruction of General Custer and his 250 troops by Sitting Bull who had then come to Canada seeking sanctuary. Some of the Sioux settled in Canada but most were convinced to return to the United States a few years later by the N.W.M.P. and hunger resulting from the rapidly shrinking buffalo herds.

With the beginning of the Northwest Rebellion there was a flurry of communication with the new telegraph from Western communities to the government in Ottawa requesting that troops be sent to defend them. Eight thousand troops were speedily transported using the recently completed railway. Considering the distance and poor communication the response in the form of a campaign in the Northwest was surprising although the subsequent dilatory maneuvers were criticized. Although the Rebellion was led by Louis Riel, the military campaign was handled by the very capable Gabriel Dumont whose military plans were often ignored by Riel to avoid bloodshed.

To deal with this situation the federal government mobilized a large army and sent them west. Three columns under Middleton, the overall commander, who would march on Batoche, Colonel William Otter who would march to Fort Battleford, and General Thomas “Jingo” Strange who

would recruit local troops in Calgary and lead them to Edmonton. General Strange was an experienced British general who headed the Canadian army, founding the Royal Military College and the Canadian artillery. On retiring he purchased a ranch near Calgary. He organized a voluntary group of citizens, many with military experience, including a scouting group under the legendary Sam Steele of the Northwest Mounted Police. This column was quickly organized and went north to Edmonton as the population there was in a panic. They received a warm welcome in Fort Edmonton (a plaque commemorating this Alberta Field Force was placed at the fort but it and subsequent plaques have disappeared). They then went on to Frog Lake, rescued the hostages, and captured the renegade Indians.

In the campaign use was made of the rail lines through Regina, Swift Current, and Calgary as well as steamboats on the waterways of the Saskatchewan rivers. The campaign was a major initiative and had many consequences. It pumped a lot of money into the West, created a market for coal, improved transportation, and made federal politicians more sensitive to the problems in the West. The suppression of the rebellion and the hanging of Louis Riel in Regina, the capital of the Northwest Territories, had an impact in Quebec. The hanging of Louis Riel strengthened French Canadian nationalism as this was seen to be a policy against French speaking citizens. This led to the condemnation of the Conservative party that was in power at the time and the stigma lasted for many decades.

The new federal government began a number of initiatives that were required for an independent country. At an early stage the division of responsibilities between the provincial and federal government became a centre of dispute. Initially, the intent was to have a strong centralized government as in the UK. Over time, however, the provinces gained more power and jurisdictional issues continued into the future. At this time there was still a dependence on Britain, however, in many areas such as Defence (until the 1930's), International Affairs (until 1925), and Jurisprudence (repatriation of Constitution in 1982). People living in Canada until World War II were not Canadian citizens but British subjects. All legal documents at the time required people to divulge their national origin. Britain at this time was at the peak of its British Empire and was racist, religious, class conscious, repressed, and invincible. Many of these characteristics were in conflict with the views of Canadian colonists and later nationalists.

The railway was the major focus of government funding and the rails stretched across Canada, first to the lake head (Thunder Bay), then across to Manitoba reaching Winnipeg in 1882. Trade goods and settlers set out from Winnipeg by cart which took weeks to reach their destination. One pharmacist moved from Selkirk, north of Winnipeg, to Prince Albert and the move took six weeks by cart. Finally, in 1885, the railway across Canada was completed and the Canadian Pacific Railway linked Canada from sea to sea. It was built by private firms but was funded by the government with the added subsidy of 10 117 500 ha (25 million acres) of land along the right of way. The railway received every second section (one square mile) along the rail line to a distance of 24 miles. The project was massive for the size of Canada and has been the subject of a lot of discussion with regard to the subsidies, graft, and timing. It was important in establishing the border of Canada to prevent US settlers moving in and encouraging "manifest destiny" as had occurred in the Indian Territories and Mexico. It also allowed the moving of troops West during the rebellion, the development of engineering skills in railroad building, and British Columbia's union with Canada. Once finished it was a major factor in moving settlers to the

West. The role of Donald Smith, Lord Strathcona, in railway construction and the sale of the Hudson's Bay Company, made him the richest and most influential man in Canada. A similar rail expansion took place on Vancouver Island when Lord Dunsmuir built a rail line from Esquimalt to Nanaimo and received in addition to construction expenses a land grant of 2 million acres along with mineral rights. The mineral rights in the form of coal at Nanaimo made him an immensely rich man. At the time it was easier for government to give away land and mineral rights than to give the companies cash.

The opening up of the West to settlement required the land to be surveyed and it was accomplished by the Dominion Land Survey. In 1883 surveyors subdivided an area covering 27 million acres. In Alberta alone, more than 3000 townships (440 000 quarter sections) were surveyed for settlement between 1880 and 1920. The survey enabled the rapid settlement of the West and millions of people flooded in. Concurrently, telegraph lines were stretching across the nation improving communication for government, businesses, and families. This pace of development was unprecedented in the world and it changed the character of Canada from a staid British colony in Ontario and the Atlantic provinces to a dynamic, multinational, agricultural nation occupying a huge area.

The end of the century was marked by an upsurge in immigration, mainly from Europe but also from other countries. Agents were sent to Europe and United States to recruit settlers. Opening up the prairies to immigration began in 1905 and in the next decade there was a huge influx of settlers reaching a peak in 1913 when 400 870 immigrants arrived. Over a million immigrants arrived between 1909 and 1913 increasing Canada's population to 8 million. Of the 400 000 arriving in 1913, 150 000 came from Britain and 140 000 from the U.S. It was the remainder that created some concern among the British who considered the "northern races" to be superior and there were attempts to restrict immigration to the desired groups. One problem with this approach was that a high proportion of British immigrants and Canadian born citizens moved across the porous border to the United States where there was more economic opportunity. The need for more people, however, led to extensive recruiting and immigrants from all parts of Europe began to arrive to settle the West. This was a massive movement and changed the composition of Canada and the size of the country in terms of population and economic strength. It also fueled concerns by the Anglo-Saxon Protestants who believed that only immigrants from Northern Europe and France were acceptable. There was a belief that immigrants from Eastern and Southern Europe as well as from developing countries would lower the moral standards and increase crime. Also, many were not Protestants.

Religion played a major role in Canadian society. In Britain the government and royalty supported the protestant religion, specifically the Anglican Church. This is why the Queen is designated as the Defender of the Faith. There was active discrimination against Catholics and other religions. The persecution of religious groups in Europe was an important factor in their immigration to the new world. The Puritans fleeing to Massachusetts to practice their own religion were rigid in their views and did not allow other religious observance in their colony. In contrast to Canada, which maintained much of the British attitude to religion, the U.S. separated state and church in their Constitution. It stipulates that there can be no religious tests for public office, no established state religion, and no abridgement of the right to religious liberty. The freedom of religion in the U.S. led to an enormous number of missionaries going abroad,

including Canada, especially in the century following the end of the American Revolution (1785-1885). In opening the Canadian West to settlement, the Canadian government set out a requirement for church lands in each area settled. The religion of the church was to be determined by the community. While this sounds reasonable to us today, it represented a major shift in thinking at the time.

In reaction to immigration and European cultural differences a reform movement, mainly religious, began that would last a long time. It encompassed alcohol prohibition, public health, Sunday observance, education, women's suffrage, and restrictions on immigration from Asia. The use of alcohol in particular was an interesting area as many cultures coming to Canada included the use of alcohol. A large number of unmarried men coming to work in Canada gathered in the saloons as there were few other activities for them and drunkenness was prevalent. With the abuse of alcohol there were the associated vices of prostitution, gambling, and crime.

The Canadian population grew slowly from 1871 to 1901, only half as fast as that of the US, mainly due to many Canadians moving to the US. This changed in the decade beginning in 1901 when a massive immigration wave arrived increasing the population from 5.3 million to 7.2 million, an increase of 34%. Most of these people were to settle the West and by 1910 most of the homesteads available were taken. This coincided with a high demand for wheat which could be grown and shipped to Europe at relatively low cost. Agriculture was a major sector of the Canadian economy and the population was predominantly rural. Winnipeg was the only substantial city in the Prairie Provinces.

Britain's entry into a war in South Africa had a strong impact on Canada both in nationalism and in support for the British Empire. Canadian volunteers in large numbers signed up and were sent to South Africa. Many of those recruited were British who had just immigrated to Canada and were patriotic in volunteering for service. Lord Strathcona funded the creation of a cavalry unit, Lord Strathcona's Horse. The government funded the Canadian Mounted Rifles, artillery, infantry, and other support elements. The war was generally supported and generated a sense of national identity for Canada and initiated some needed reforms to its military structure and equipment. It also resulted in politicians, especially in Quebec, discussing the need for an independent foreign policy.

In 1905 the provinces of Alberta and Saskatchewan were formed from the Northwest Territories. They began to organize a provincial infrastructure with government employees, new buildings, and new institutions such as universities.

In the world of sport, Canadians were mesmerized by the performance of Tom Longboat, an Onondaga (Six Nations) Indian who was a remarkable runner. In his first race at age 19 he won a 19 mile race with a time of 1 hour and 49 minutes. He won a number of races leading to his performance at the Boston Marathon in 1907. He set a record of 2:24:24 a new record by five and a half minutes. This record was not broken until the course was made easier. He continued to race as an amateur and professional and won more races and set new records.

Medical Advances

A major advance in medical science was the work of Rudolf Virchow, the founder of cellular pathology. His thesis was that the cell was the bearer of life and abnormalities in the cell were responsible for disease. This destroyed all the previous theories of disease and heralded the beginning of modern medical science. The differing affinity of some cells to pharmacologic agents was the foundation for modern drug therapy.

The linking of science to clinical observations was a major advance in medical practice and a leading figure in this field was William Osler, a Canadian physician, who was one of the founders of Johns Hopkins Hospital in Baltimore. He was a dominating force in medical practice and teaching and his book on the subject was widely used. During the era of 1875-1900 he was an iconic figure. Osler instituted a medical program with two years of basic science followed by two years of clinical training.

Surgery before anesthetics was a painful and traumatic event that was only used as a last resort. Amputation was the main form of surgery with arms, legs, and breasts removed. The procedures were performed as rapidly as possible while holding the patient down and cautery with a hot iron was used to stop the bleeding and to sterilize the wound.

Semmelweis discovered the pathogenesis of puerperal fever in obstetrics 1847 and despite opposition began to use techniques that reduced infection. In turn, this led to Lister in 1867 publishing the results of his research into using antiseptic solutions in surgery (Listerism). This rapidly became an accepted procedure and reports of the use of carbolic acid (phenols) in surgery began to appear in the Canadian medical literature in 1868. Public health measures were also put into place to prevent typhus and cholera.

Infectious disease was a major problem as shown by a Yellow Fever outbreak in Memphis, Tennessee that killed over 14 000 people in 1878. An Asian flu epidemic in 1889-90 began in Russia and travelled around the world and is estimated to have killed 1% of the population. In 1903-08 a plague in India killed an estimated four million people. In Canada there were epidemics of typhus/typhoid, smallpox, diphtheria, and whooping cough. Although immunization was known it was not widely available due to the rural nature of Canada. This rural dispersion of people also conveyed a benefit as it contained the rapid spread of the disease.

The American Civil War in which both sides lost about 100 000 men in combat also lost almost double that number due to disease. This led to changes in public health, trauma treatment, and the production of medicines. The large scale manufacture of patent medicines and common medication made medication available and accessible due to the low cost. This manufacturing base led to the rapid introduction of many new products. Many of these improvements flowed over the border to Canada.

Medical care on the Prairies was initially scarce and poor. Until 1875 the Hudson's Bay Company employed only one physician, Dr. MacKay, for the whole of the region. Only after the settlers arrived was there a growth in the various services needed, including doctors and pharmacists. It was said that only recent graduates and alcoholics were interested in leaving a lucrative, comfortable medical practice in Eastern Canada to come West. Some were

missionaries. Despite this negative view, many physicians came to the Canadian West and surprisingly, many had specialized training.

Joseph Priestly was intrigued by the gases given off by the brewing process and captured the gas, called fixed air, in water producing a pleasant sparkling water in 1767. In the next decade a Manchester apothecary, Thomas Henry, offered artificially carbonated water as a medicine. He claimed that they had health benefits for “putrid fevers, dysentery, bilious vomiting, etc.”. He recommended taking it in combination with lemonade and this is likely the first sweet, artificially fizzy drink. The success of artificial mineral waters led to many commercial products in Europe. In Geneva a mechanic, Nicholas Paul, and a financier, Jacob Schwepes, developed a method of carbonating water. Schwepes took the invention to Britain and it was a commercial success, widely recommended by physicians by 1802. In America the natural carbonated mineral waters were very popular and led to the development of processes to make artificial soda water. Dispensing systems were developed and adopted by apothecaries so that by 1820 they were very popular. Wine was initially used to flavour the drink, now called a spritzer, then fruit syrups (strawberries, raspberries, pineapples, sarsaparilla). The Eli Lilly Company founded in 1876 created a market for medicinal products from plants. As a result they had a wide range of flavouring agents and used them to create a line of flavoured drinks many of which contained alcohol. The firm also began development of capsules as a dosage form and also sold empty capsules to other firms, a tradition they maintained for over a century. Soda fountain equipment was soon available for distribution. In 1886, John Pemberton, a pharmacist, who was creating patent medicines made a sweet syrup, then added coca leaves (cocaine had been identified in the leaves in 1855) and kola nuts (caffeine had been identified in the nuts) to make it invigorating and it was named CocaCola. The discovery was taken over by others and became a commercial success although the coca (containing cocaine) had to be removed in 1906 with the introduction of narcotic legislation. Other popular drinks were also developed by pharmacists in this era; Pepsi-Cola, A&W Root Beer, Dr. Pepper’s, and Canada Dry Ginger Ale.

Patent medicines produced in this period were composed of medicinal substances, innocuous ingredients, and sometimes toxic material. They made extravagant claims for a wide range of complaints in their advertising. This was such a profitable business that advertising was extensively used and up to a third of all advertising was for patent medicines. Some advertisers in the United States were spending over one million dollars in 1895. Patent medicine business was the first to recognize the importance of trademarks, advertising, and logos. An example of a widely advertised product was Lydia Pinkham’s Vegetable Compound which had substantial sales over several decades. The excesses of advertising gave a bad name to advertising and to medicine manufacturers.

The manufacture of patent medicines in large quantities was based on improved techniques and equipment. Initially most patent medicines were in liquid form but the development of tablets quickly shifted most products to this less expensive, convenient, and stable dosage form.

Growth of Pharmaceutical Industry in Canada

Pharmacists often prepared larger quantities of various medications than they needed in their practice and would sell these to other pharmacists or physicians. There was a rapid increase in population and wealth which created a dynamic marketplace for the individual pharmacists and small wholesalers. The size and growing complexity of the market for traditional medication, explosion of patent medicines, demand for cosmetics and toiletries, health supplies of various sorts, and some of the new pharmaceuticals based on medical sciences. Over the century the population growth and demand for medication resulted in the drug wholesale firms becoming full time wholesale operations with no retail component. In the period 1820 to 1900, especially in the latter period, there were a large number of wholesale firms established across Canada, the earliest being Kerry, Watson and Co. (Montreal), 1815; Evans and Sons (Montreal), 1820; Brown and Webb (Halifax), 1824; and J. Winer & Co. (Hamilton), 1830. Over the next 50 years a large number of wholesalers appeared in cities across Canada. These regional wholesale firms found it difficult to maintain a stock of the expanded product lines and to deal with the growing national manufacturing firms. There was a sense that major changes were needed if they were to remain in business and compete. A major burden was the need to manufacture standard products for pharmacies. The wholesale firms did not have the staff, equipment, facilities, or packaging/labeling requirements for the growing demand. The products distributed tended to vary substantially from firm to firm and the quality standards were criticized by the federal government analysts. For example, Laudanum was to contain between 0.7 and 0.8% morphine but samples tested ranged from 0.19 to 1.48%! This was the impetus for combining to form a single national wholesale firm to produce high quality products for distribution to pharmacists across Canada. This was a late development compared to the United States where large regional wholesale/manufacturing plants were established as early as 1807 in Philadelphia giving their home remedies (patent medicines) trade names. This marked the beginning of trade names for pharmaceuticals in North America.

In 1872 a young pharmacist in Philadelphia, Henry K. Wampole, opened a business to manufacture and sell pharmaceuticals. He opened a plant in Toronto in 1893 to serve the Canadian market and was very successful with several expansions of the plant. The pharmacist hired in Philadelphia to open the plant and run the Canadian operation was Charles E. Frosst. In 1899 Frosst moved to Montreal and established his own firm, Charles E. Frosst & Co. Hired associates were William S. Ayerst, Frank W. Horner, Gerald Dillon, and Samuel Thompson. Both Ayerst and Horner later established pharmaceutical firms in competition with Frosst. Frosst built his business on excellence, affordability, and reliability. He stressed the fact that the firm was Canadian. It had a major influence on Canadian pharmacy and a leadership position until a fire destroyed their research laboratory. They were pursuing research into the use of medical isotopes at the time. They were purchased by Merck in 1964 and existed as Merck-Frosst until 2009 when the name was shortened to Merck.

The research based pharmaceutical firms began in the United States with firms such as Eli Lilly hiring a chemist and botanist before 1880 and had a separate research building in 1911. J.K. Lilly, son of the founder Eli Lilly, graduated in Pharmacy from the Philadelphia College of Pharmacy in 1880. At the time, Joseph P. Remington was teaching there and many of his graduates moved into the pharmaceutical industry with a focus on producing high quality products. In Europe, the Swiss and German firms were developing research departments and developing new drugs such as Salvarsan (1910).

The U.S. firms established branch plants in Canada during this era. Several pharmaceutical manufacturers in the United States began branch plants in Canada (parentheses represent Canadian operation): Pfizer 1849 (1951), E.R. Squibb 1860? (1925), Parke Davis 1866 (1887), Abbott Laboratories 1888 (1929), Smith Kline and French 1841, Warner Chilcott 1856, A.H. Robins 1866 (1949), Eli Lilly 1876 (1938), Searle Pharmaceuticals 1888 (1951), Purdue Fredrick 1892, Wyeth 1860 (1883), Cutter 1903 (1920)), Cyanamid 1903 (1934), Merck (1929), Merrell 1905 (1947), Norwich – Eaton (1944), Purdue Frederick 1892 (1956), Ortho (part of Johnson and Johnson) (1951), Rorer 1910 (1968), Mead Johnson 1900 (1923), and Syntex 1944 (1962).

British firms also established Canadian operations: Burroughs and Wellcome (1906), Glaxo began as Allen and Hanbury in 1715 (1902).

In this period the Canadian firms of E.B. Shuttleworth, later Dow Pharmaceuticals, (1879), Charles E. Frosst (1899), Sharpe and Dohme (1911), Mowatt & Moore (1920), Winthrop laboratories, later Winthrop-Stearns (1919), and Ayerst, McKenna and Harrison (1925) were established.

Pharmacy

Pharmacists after a lengthy apprenticeship in which they learned compounding, business practices, material medica (the action of drugs), and some chemistry, would take a licensing examination. There was not enough business (people with cash) to exist on the proceeds of compounding so they sold a variety of other products. The main product line was patent medicines although other outlets also sold them. Pharmacies carried gift ware, shaving supplies, bandages, tobacco, cosmetics, and household chemicals and remedies.

A major concern of pharmacists was the large number of quacks and sellers of dubious remedies. They sought to limit the sale of medication to pharmacists although the tradition of physicians selling medication was long established, originating in times when there were no pharmacies in some communities. In seeking legislative protection pharmacists lobbied for pharmacy legislation, self governing professional status, and a system of education to raise the level of practice.

The Canadian Pharmaceutical Journal was established in 1868. It was founded as a consequence of the failure to pass legislation (Federal Pharmacy Act) that would unite the profession. It became an important form of communication among pharmacists in a period when transportation was slow and there were few forms of communication other than publications. The Canadian Pharmaceutical Society originally performed a communication function but it was dissolved in 1871 (later to be established as the Canadian Pharmaceutical Association in 1907). The journal reprinted relevant material from British and American publications and advocated for reform of pharmacy practice in Canada. Much of the vision for pharmacy was due to the editor, E.B. Shuttleworth, who was also the Dean of the Ontario College of Pharmacy and later a drug manufacturer. During this period pharmacists were active in lobbying the federal and provincial governments to avoid unfair taxes and unnecessary regulations. The high cost of alcohol due to taxes was to be a major issue for pharmacists for many decades. Pharmacists were also upset at

the unfairness of manufacturers paying only half the tax that they had to pay.

In Quebec prior to 1864, compounding and dispensing were performed and controlled by physicians. Pharmacists in Montreal formed the Montreal Chemists Association in 1864 and they held meetings in 1868 following Confederation to create The Quebec College of Pharmacy. The physicians were opposed to the use of this name so the Quebec Pharmaceutical Association was created in 1870 to regulate pharmacy practice. Examinations began the next year with 11 candidates.

In Toronto, the Toronto Druggists Association fought against medical control in 1867 and expanded their organization to become the national Canadian Pharmaceutical Society. To improve communication they founded the Canadian Pharmaceutical Journal with E.B. Shuttleworth as editor. They attempted to have legislation similar to that in Britain for the regulation of Pharmacy but were not successful. After several attempts to obtain provincial legislation a Pharmacy Act was passed in 1871. It established the Ontario College of Pharmacy and dissolved the Canadian Pharmaceutical Society which had been involved in pharmacy education. Education was mainly apprenticeship and more than 20 years would pass before a two year course under the direction of the Ontario College of Pharmacy was established.

The Nova Scotia Pharmaceutical Society was formed in 1875 and a Pharmacy Act was passed in 1876. Pharmacists were required to pass an examination in order to practice but there was no requirement for a pharmacist to operate a pharmacy (this was changed in 1892). The first examination was held in 1878. In 1879 physicians were allowed to become members if they were operating a pharmacy.

In 1878 the Manitoba Pharmaceutical Association was formed. In order to educate pharmacists the Manitoba College of Pharmacists was created in 1899 in a building built for that purpose and which housed the Association. Winnipeg was the distribution hub for the West and drug wholesales were established early. The first record of a wholesale firm was 1873 when J.F. Caldwell opened a wholesale and retail operation in Winnipeg. This was followed by Langridge and Wilson in 1882 and Martin, Rosser and Company in 1884. The most interesting initiative, however, was that of David Bole who came to Winnipeg in 1895 after operating a retail and wholesale firm in Regina. Business opportunities were limited in the territories so he moved to Winnipeg and entered a drug wholesale business there. It was very successful but he was a very ambitious person. Wholesale pharmacies at that time were small retail-wholesale operations that made many of the standard drug products used in pharmacies. As a result the quality and consistency varied considerably. Bole brought together all the major wholesalers in Canada and in a grand merger combined 18 companies into the National Drug and Chemical Company of Canada in 1905. This was not only the pre-eminent drug wholesale in Canada, it was also the largest drug manufacturer of pharmaceuticals and patent medicines as well as cosmetics. It maintained a leading position as a drug wholesale for many years. Bole retired in 1922 as the leader of the firm. In addition to this accomplishment he also served in many civic organizations in Winnipeg and as a Member of Parliament.

Although the New Brunswick Pharmaceutical Society was formed in 1873, it did not officially

become the regulatory body until 1884. Licensure required 5 years of practice of which 2 years in dispensing were mandatory. The first examinations in 1885 had six candidates. The Society did not engage in pharmacy education.

The Northwest Pharmaceutical Association was formed in 1892 and was located in Regina. In the territories pharmacists from Ontario had migrated along with the settlers. A notable pharmacist was David Bole who was born in Ontario and graduated from the Ontario College of Pharmacy in 1880. He opened a pharmacy in Ontario but decided to head west and took the train to Regina in 1882 where he began one of the first pharmacies in the Northwest Territories. With his brother-in-law he established Dawson, Bole Company which was both a retail and wholesale company. He also developed a number of patent medicines, the most successful being Gin Pills. He then moved to Winnipeg where he was very successful and this provided the base to his future consolidation of the wholesale industry in Canada as National Drugs.

Pharmacy licensing bodies were being organized in response to the growth of towns and cities from the flood of immigrants. This reflected the increased number of pharmacies and the desire of the pharmacists to have some regulatory control so that the quacks and untrained people would not be providing a service. This was to protect the public and also to protect the livelihood of the pharmacists. Later the organizations would split into two separate organizations, one to protect the public and one to represent the interests of the pharmacists (or pharmacy owners).

The most common treatments in the 1880's were: cupping, opium, tartar emetic, chloroform, bromide/ergot, aconite, chloral hydrate, enemas, and milk.

References

- Bothwell, Robert. *The Penguin History of Canada*. Toronto: Penguin Group, 2006.
- Bumstead, J.M. *A History of the Canadian People*. Toronto: Oxford University Press, 2003.
- Collin, J. and D. Beliveau. *Histoire de la Pharmacie au Quebec*. Montreal: Musee de la pharmacie du Quebec, 1994.
- Duffin, Jaclyn. *History of Medicine*. Toronto: University of Toronto Press, 1999.
- Kahn, E.J. *All in a Century: The First 100 Years of Eli Lilly and Company*. Indianapolis: Eli Lilly and Company, 1975.
- Norrie, K., D. O'ram, and J.C.H. Emery. *A History of the Canadian Economy*. 3rd ed. Toronto: Thomson-Nelson, 2002.
- Raison, A.V. *A Brief History of Pharmacy in Canada*. Toronto: Canadian Pharmaceutical Association, 1967.
- Sonnedecker, G. *Kremers and Urdang's History of Pharmacy*. 3rd ed. Madison: Lippincott, 1963.
- Standage, T. *A History of the World in 6 Glasses*. Toronto: Anchor Canada, 2006.
- Stuart, J.A.D. *The Prairie W.A.S.P.*, Winnipeg: Prairie Publishing Company, 1969.

Waite, K. *Medis: The Story of Canada's Leading Drug Wholesaler*. Montreal: Medis Health and Pharmaceutical Services, 1994.