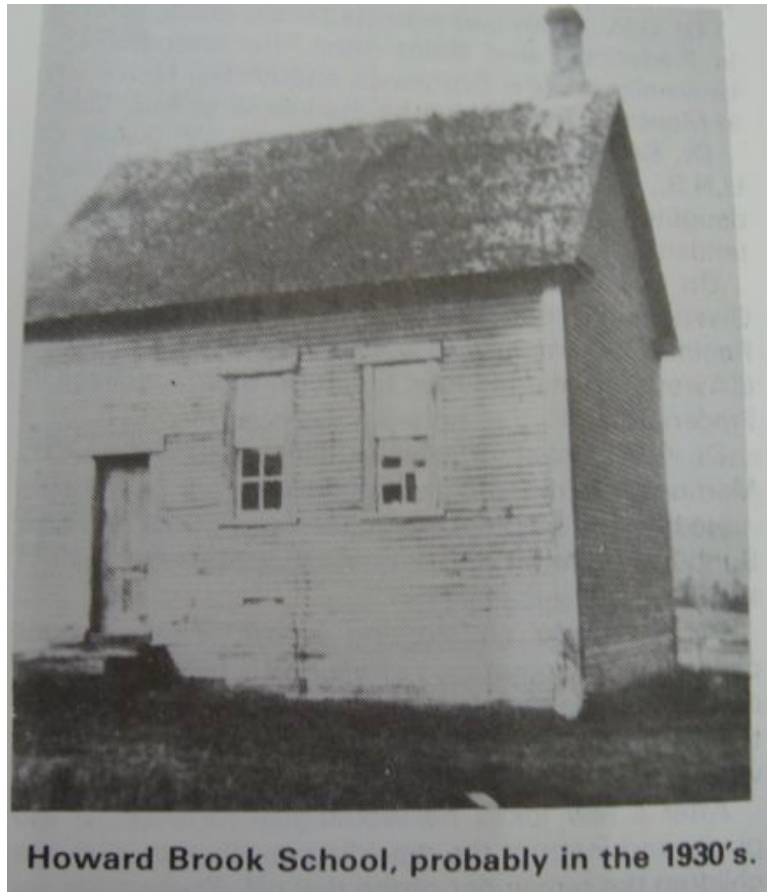


THE HISTORY OF SCIENCE EDUCATION: 1931-1940

BY: JILL DYER, KERRI SEARS & TINA O'TOOLE



Source: A History of Schools in Carleton County

HYPOTHESIS

Where our time period falls during the Great Depression and the onset of World War II, we think that education will not be a top priority. We are assuming that most people will be more concerned with staying at home to work and that they would not have been able to afford to send their children to school. In regards to curriculum, we do not feel that there would be a set curriculum for the province. We assume that each individual schoolhouse would be responsible for their curriculum.

DISCUSSION OF SOURCES

The sources that we used for this research project include both primary and secondary sources. We got our resources from a few different places. We were able to find curriculum based primary documents from the government document section of the Harriet Irving Library

and were fortunate enough to obtain textbooks from schools in New Brunswick from the 1930's from family members. We also used the HIL to find our secondary sources.

N.B. books with an * were used as primary and secondary sources.

Primary Sources

- *Physiology and Hygiene* Ed. John W. Ritchie and Joseph S. Caldwell. Toronto: The Educational Book Company, Limited. 1928. *
- *Health and Human Welfare* Ed. William E. Burkard, Raymond L. Chambers, Frederick W. Maroney. Toronto/Halifax: The Ryerson Press. 1937.
- *General Science*. Ed. William H. Snyder. Boston/New York/Chicago: Allyn and Bacon. 1925. *
- *Annual Report of the Schools of New Brunswick 1932-33 by the Chief Superintendent of Education*. Fredericton NB: 1934.
- *Programme of Studies for New Brunswick Schools, Grades I to VI*. Ed. Hon A. P. Paterson. Saint John: J. & A. McMillan, Limited, Printers. 1939.
This book was important because it is the new curriculum that was tested throughout New Brunswick in 1938 and approved by the Board of Education for use in all schools in 1939.
- *Annual Report of the Department of Education of the Province of New Brunswick for the School Year Ended June 30th 1938*. A. P. Paterson. Fredericton 1939.
This resource contains numerous reports from those directly involved in Education at the time; reports from the director of educational services, the chief superintendent, inspectors' reports, and trustees' reports, as well as statistics from the time period.

Secondary Sources

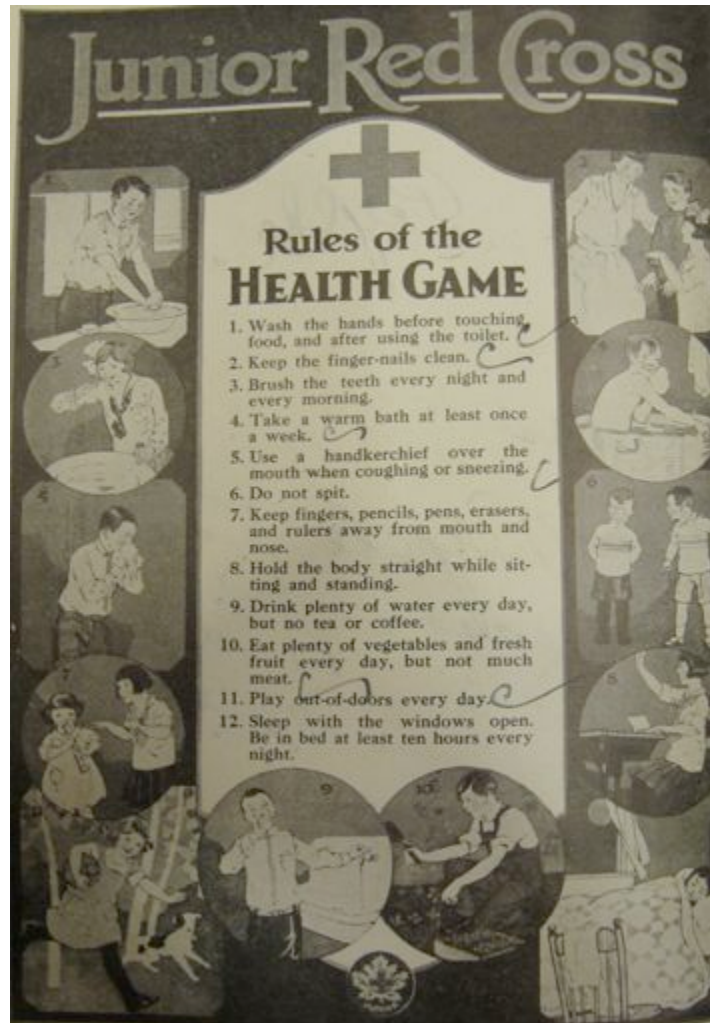
- *Two Centuries of Educational Progress in New Brunswick: 1784-1984*. Publisher: The Department of Education Province of New Brunswick.
This resource contains a wealth of information on the evolution of teaching in New Brunswick. It highlights many events in the history of education in this province.
- Belanger, Claude. "The Statue of Westminster (1931). *Studies on the Canadian Constitution and Canadian Federalism*. February 2001.
This resource contains information on Canadian history and gave us information on the Statue of Westminster.
- *The Bennett Administration: 1930-1935*. Ed. Richard Wilbur. The Canadian Historical Association Booklets, Number 24. Ottawa 1969.
This booklet follows Bennett's time as Prime Minister and his successes and failures as the leader of our country.

- The Premiers of New Brunswick. Arthur T. Doyle. Brunswick Press. Fredericton, New Brunswick. 1983.
This book informs us about Premiers of New Brunswick from 1867-1970. It gives us some background information and tells us about notable aspects of their time in office.
- www.canadianencyclopedia.com - King, William Lyon Mackenzie. Retrieved on November 9, 2010.
This webpage was valuable in supplying information about Mackenzie King's time as the Prime Minister of Canada.
- www1.canadiana.org - The Great Depression. Retrieved on November 9, 2010.
This webpage gave us a lot of information on The Great Depression.
- New Brunswick's Population Growth Strategy in Historical Perspective. Greg Marquis. Paper delivered at the New Brunswick and Atlantic Studies Research and Development Centre Conference. St. Thomas University. May 9&10, 2008. Pg4.
This paper speaks in depth about the history of New Brunswick's growth in population.
- www.thecanadianencyclopedia.com. Timeline 1930's. Retrieved on November 12, 2010.
This webpage was helpful when we were looking for interesting things that happened in Canada and in the world.
- www.about.com. The History of Penicillin. Mary Bellis. Retrieved on Nov 13, 2010.

Images & Media

- A History of Schools in Carleton County 1784-1984. The Carleton County Retired Teachers Association. 1984.

TEACHING AND LEARNING RESOURCES IN SCIENCE EDUCATION



Source: Physiology & Hygiene Textbook

We found the following textbooks, which were used in New Brunswick between 1931 and 1940: General Science, Health and Human Welfare, Healthy Citizenship, Physiology and Hygiene. These examine the following themes: the human body and its general fitness, nourishment, healthcare, illnesses and cures, safety and first aid, animals and plants, the universe and the atmosphere.

We decided to classify the books into two separate categories. The first is what we consider Health (Physiology) today, and the second is what we would classify as General Science (Physics, Chemistry, Geology, Astronomy, and Agriculture). It should be noted that general science in the 30's was more for practical use than what we consider science today. There was a strong emphasis put on the care of the human body, most likely because medicines were not readily available in the 1930's. For example, even though Sir Alexander Fleming

discovered penicillin in 1928 it was not widely used until the 1940's.ⁱ As well, people needed to be ready to work.

In the textbook, 'Physiology and Hygiene', there is a lot of time spent discussing the human body and how to care for it. The book lists 'the great laws of health' and states that all 8 laws must be followed if we are to keep our health and strength. For example, law 3 states that the body must get rid of poisonous wastes and law 7 states the mind must be cheerful, and not disturbed by constant fretting, anxiety, or care.ⁱⁱ

The 'General Science' textbook covered a number of topics and its primary objectives were (1) to furnish a fund of scientific information that will help pupils to interpret their environment; (2) to inculcate in young students the habit of thinking from cause to effect and back from effect to cause.ⁱⁱⁱ (General Science, Preface) Most of the scientific problems in the text are studied in relation to human welfare.

Due to financial difficulties in the early 1930's many schools lacked the necessary resources they needed in order to teach effectively. Teachers lacked certain 'objects for teaching' but district inspectors at the time also felt that ingenious teachers could make their own resources, thus saving the district money.^{iv}

CONTEXT OF EDUCATION IN NEW BRUNSWICK

We were surprised to learn that in the 1930's teachers instructed their students similar to how we do today. In the Curriculum documents of 1939, the teachers were encouraged to teach in a way that will engage students by including their interests; this is what we call activating prior knowledge today. Many of the topics that were studied were focused on the students who lived in the country, however, there were many students who came from the city. This leads to concerns about inclusionary practices. The Administration was less concerned with the student's factual knowledge and more concerned about sparking their interests in a particular subject.^v *"The methods used should be those of observation and experience, with free discussion, rather than a preparation for a written examination on facts. Notes should be the record of the child's own work and observation, not facts dictated by the teacher or copied from the blackboard."*^{vi}

The Curriculum documents have been broken down for each grade over three terms; autumn, winter, and spring. The summer term was excluded because students needed to be available to work in the fields. This practice is still used today. In parts of District 14, students go back to school at the end of the summer two weeks earlier than the rest of the province, so that they can have time off during harvest season. Today, this is commonly known as Potato Break.

Cross-curricular training was a common practice between literacy and science. Students are taught the basics of science in the first three years of school. The program gets divided into three parts for grades four through six. If students attended a one-room schoolhouse, these grades were taught in a three-year rotation.^{vii}

In September of 1936, the schools introduced the free textbooks program for the first five grades, and they had to be returned to the schools at the end of the year. This program continues today.^{viii}

In 1937, the province set up a committee to standardize the Curriculum and Textbooks administration so as to narrow the gap and organize what was being taught. After establishing the committee, they were able to make recommendations in regards the curriculum. The outcome of the committee and its meetings was the 6-3-3 plan; this means that each child would attend six years of elementary school, three years of intermediate school, and three years of high school. However, this plan was not fully incorporated until the 1950's when grade twelve was added to the program.^{ix}

In addition to the new structure, correspondence schools were introduced in the fall of 1939. These schools were implemented to help encourage continuing education, especially in the rural areas. These courses were offered for free until students reached eighteen years of age.^x

According to the Annual Report of the Department of Education, 1938, when the number of students in the classroom is greater than fifty a classroom assistant needs to be hired according the law. This generally would only occur in the poorer areas, which often could not afford the extra assistant. If they were able to afford the assistant, that person was used to instruct the first two grades. *"There is a feeling among some Trustees that anyone who can read is able to teach little children, when we, who know something about the matter are convinced that the beginners are the ones that require the services of the best trained teachers."* – J.T. Lejeune^{xi}

All of these advancements were implemented for the continuing efforts of reinforcing the foundation of education for all students in New Brunswick.



Source: History of Schools in Carleton County

BROADER SOCIAL AND SCIENTIFIC CONTEXT IN NEW BRUNSWICK

The decade we researched, 1931-1940 was a time of political change in New Brunswick. This is shown by the fact there were 3 premiers during this time. Charles D. Richards served as premier of New Brunswick for two years in the midst of the great depression. Even though times were tough his brief administration can be credited with instituting public bidding on Crown Land and fishing rights.^{xii} His political career as a Conservative member began in 1920 and continued until he became both premier and attorney general. He resigned from the government two years later to accept a Supreme Court appointment.^{xiii}

Leonard Percy Dewolfe Tilley became premier in 1933. Unfortunately for Tilley he would be remembered for nothing more than the fact he held the premier's position during the height of the great depression and led his government to defeat in 1935.^{xiv} Tilley was the son of Sir Samuel Tilley, one of the most respected politician's in NB history also known as the man who brought NB into confederation. L.P.D. Tilley was known for his impractical political judgments and administrative incompetence and became the butt of jokes throughout his career. In the legislature Peter Venoit mocked him more than once with the quotation "nothing in my head I bring, only to my name I cling" and that seemed to reflect the attitude of most associated with

Tilley.^{xv} In 1935 Tilley's government was defeated and he accepted an appointment as a Judge of the County Court.

Albert Allison Dysart led his Liberal Party to an upset over the Conservatives in 1935. It was the first time that the province elected a Roman Catholic as premier. As a means to create employment Premier Dysart launched a number of road and bridge building projects. It was also during this time that paving the roads and snow ploughing the provincial highways began to happen on a larger scale. The Dysart government also passed the Civil Service Act in 1938, which gave public servants some job security.^{xvi} In 1939 Dysart led his government to another victory but resigned a year later to accept a position as a Judge of the County Court.

The New Brunswick population was on the rise from 1931-1941 and rose from 408,219 to 457,401. In the Maritimes there were low levels of investment and a heavy debt load however these provinces fared better than the rest of Canada during the Depression in regards to the unemployment rate. Some sectors in New Brunswick, such as the fishery and farming communities, actually grew during this time period.^{xvii}

BROADER SOCIAL AND SCIENTIFIC CONTEXT IN CANADA

The Statute of Westminster, the last of the Imperial Acts of the Parliament of Great Britain, was applied to all of Great Britain's dominions in 1931. This meant that Canada now had equal status to Great Britain, giving Canada access to more independence and more governmental responsibility. Canada was given "full power to make laws having extra territorial operations" as the federal parliament assumed responsibilities that were formerly those of Great Britain.^{xviii}

By 1933, unemployment levels had reached 30% and did not fall below 12% until 1939. The depth of this crisis showed the lack of involvement of the Canadian government and the absence of a true welfare system. To alleviate the pressure the government created the National Unemployment Insurance Plan in 1940.^{xix}

R.B. Bennett and his Conservative party came to power in 1930 and stayed there until their defeat in 1935. The years were not easy for Bennett and his government as the Depression led to widespread despair and stagnation. Bennett tried to affect change in the country and his 'New Deal' was supposed to be the savior of his party and country. As part of the 'New Deal', he promised legislation establishing a uniform wage, an eight-hour day, a maximum workweek, unemployment insurance, new health, accident and sickness insurance and an old age pension. The only parts of his New Deal legislation he had been able to introduce were the 48-hour week bill, the weekly day of rest bill and the minimum wages bill.^{xx}

(Wilbur, p15) “Bennett’s historic contribution rests on his recognition of the need to increase the federal government’s control of the economy.”^{xxi}

Mackenzie King and his Liberal party were in power from 1935-1948. King was an effective opposition leader and led his party to win the majority vote in 1935 under the slogan, “King or Chaos”. King negotiated trade agreements with the U.S. and Great Britain in the 1930’s and wanted to reduce trade barriers.^{xxii}

Other Points of Interest

(Found on www.canadianencyclopedia.com)

- **1932** – The TransCanada Telephone System was established.
- **May 26, 1932** – Parliament passed an Act establishing the publicly funded Canadian Radio Broadcasting Commission (CRBC). This was replaced in 1936 by the Canadian Broadcasting Commission (CBC).
- **1935** - Eli Burton and his students at the University of Toronto began development of the first working model of an electron microscope in North America.
- **Nov 18, 1936** – The Toronto Globe purchases the Mail and Empire newspaper from the Globe and Mail.
- **Sept 1, 1937** – The first regular flight of Trans-Canada Air Lines (now Air Canada) took place.

BROADER SOCIAL AND SCIENTIFIC CONTEXT IN THE WORLD

There was much unrest in the world during the 1930’s, specifically in the Asian and European continents. The League of Nations was established in the 1920’s after the First World War with its primary intent to avoid another war. However, with the onset of World War II in the 1930’s, the League proved to be unsuccessful after many upsets; the departure of Japan, Italy, Austria, Hungary, the Soviet Union, and Germany. The departures of these countries from the League lead to more unrest. Italy invaded Ethiopia in the Second Italo-Abyssinian War, the rise of tension between China and Japan in the Second Sino-Japanese War, and the attempted coup d’état between the Spanish Army Generals and the Government of the Second Spanish Republic in the Spanish Civil War that erupted in Spain. To add to the turmoil, misinformation about Germany invading the Netherlands and Romania left the Netherlands, Romania, Britain, and France in mayhem.

In Canada, “King was forced to pay more attention to international affairs, from the Ethiopian Crisis to the Munich Crisis, and he hoped war could be averted through appeasement. He insisted that the Canadian Parliament would decide on Canada’s participation if war came, and to make such a decision more palatable, particularly to French Canadians, he promised that

there would be no conscription for overseas service.”^{xxiii} All of these circumstances led to the rise of World War II, and when Germany invaded Poland in September 1939, this caused Britain to react by declaring war on Germany. “Canadian Parliament was recalled in an emergency session, and, with only token opposition, declared that Canada was at war. King called a snap election early in 1940 and his government was returned with an increased majority. Co-operation between the government and business labor leaders shifted Canadian industrial production to a wartime footing. The remarkable industrial expansion involved special financial arrangements with the US and economic planning on a continental scale. Early German victories led to some Canadians advocating conscription but, fearing a political crisis, King tried to compromise. He introduced conscription for the defense of Canada in 1940.” In the same year, the United States stopped the shipments of airplanes, as well as all supplies to operate planes to Japan under the Export Control Act, which was deemed an unfriendly act by the Japanese. This Act in turn, led to the bombing of Pearl Harbor a year later.

Other Points of Interest^{xxiv}

(Found on www.canadianencyclopedia.com)

- **Feb 27, 1933** – The German Reichstag (parliament building) in Berlin was destroyed by fire.
- **May 1937** – The German zeppelin Hindenburg caught fire at Lakehurst, NJ, killing 36 passengers.
- **Dec 21, 1937** – Walt Disney’s Snow White and the Seven Dwarfs, the first full length animated talking picture, was shown in Los Angeles.
- **1938** – A German research team of Otto Hahn, Fritz Strassmann and Lise Meitner held experiments that led to the splitting of a uranium nucleus into two fragments, and a release of energy that Meitner called ‘fission.’
- **Dec 1, 1938** – the movie Gone with the Wind, starring Clark Gable and Vivien Leigh, premiered in New York.

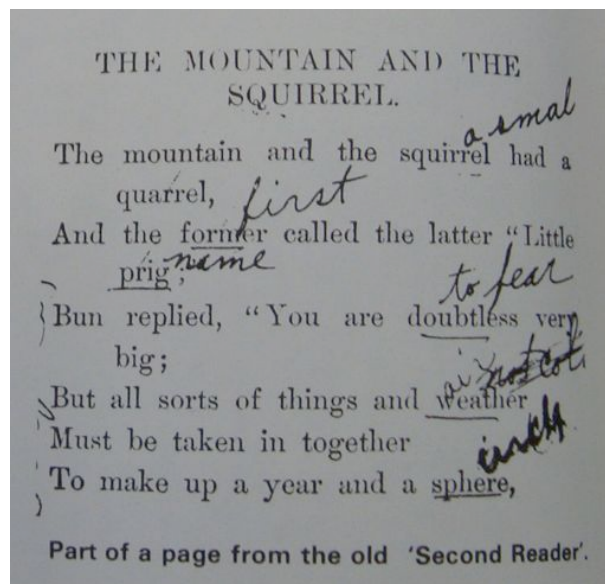
RELATION OR SIGNIFICANCE OF STUDY FOR EDUCATION IN NEW BRUNSWICK TODAY

There is not a lot of time devoted to science in the school system today; despite the fact that it is included in the new policy, NB3 21C. However teachers are able to incorporate the subject by using cross-curricular training. As student interns, we have seen where teachers hold science as an important subject, unfortunately due to time constraints, science is generally a subject that is put on the backburner in favor of mathematics and literacy, which seem to mirror the 1930’s policies. For example, in the 1939 Natural Science Programme of Studies, teachers were encouraged to use nature poetry as a way to express science through literature.

“There are many lovely poems, dealing with all phases of nature, which the children will enjoy, and the reading of which may well become a part of the activities connected with the Natural Science course.”^{xxv}

Instruction that moves across the curriculum and encompasses a number of subjects is evident when reading through the Programme of Studies. As seen in the quote below, when in science class, students were encouraged to use and obtain other skills that would be useful to them in other classes and help them to become well rounded students.

“Activities centered in Natural Science give many opportunities for varied learning experiences, and for the use of various skills. The keeping of records of observations will require the ability to write well. Reports on outings will necessitate training and good English expression. Sketches and drawings to illustrate notes will call for the development of artistic ability. Appreciation of the glories of the autumn hills or the lush green of the springtime landscape will lead to the reading of many beautiful literary selections. Experiments in garden or laboratory will demand mathematical skill. Construction of birdhouses, etc., will engage the creative ability.”^{xxvi}



Source: *A History of Schools in Carleton County*

CONCLUSIONS

To our surprise, the methods and styles of teaching that were imposed during the 1930's are similar to what we teach today. Inclusionary practices and cross-curricular training are evident in the subjects that were taught. The style is all about observations and sparking an interest in students rather than copying from the chalkboard and listening to lectures.

Despite our hypothesis, education was proven to be of importance. Every effort was made to give students an opportunity to have an education. Even if students were unable to attend school, they were given the opportunity to use the distance education program and summer schools for free until they were eighteen.

Science in the 1930's was based on a more practical experience. Students were encouraged to not only learn from the book, and experiments, but to go outside as health was of significant concern. The students were able to contribute more in regard to practicality because of their lifestyle. In the section of the curriculum documents concerning domestic animals (cow, horse, sheep, and pig), characteristics, and care, it was noted that, "Pupils in rural districts will usually be able to contribute more firsthand knowledge of this than the teacher."^{xxvii} It is not only practical studies, but it is relevant to the lifestyle of the students. Because of the relevance to the students, we see this program of studies more useful in everyday life. Students are therefore, able to retain and use the course material. Whereas, the science curriculum today reflects the advancements in the science industry over the last eighty years, students have to be more technically trained for higher education.

Despite our hypothesis, education was proven to be of importance. Every effort was made to give students an opportunity to have an education. Even if students were unable to attend school, they were given the opportunity to use the distance education program and summer schools for free until they were eighteen. This service still continues today, however, it is instructed through Community Colleges. Even during the Depression, when resources were limited there was the creation of a new Programme of Studies 1939, the Free textbook program 1936, and new administrative education positions were created, such as the 1st Minister of Education in 1936, A. P. Patterson.

Though the content that was taught in the 1930's was different and more practical for the time period, it is interesting to see that with all of the advances we have had in the last 80 years, the teaching styles have remained the same.

ⁱ www.about.com. The History of Penicillin. Mary Bellis. Retrieved on Nov 13, 2010.

ⁱⁱ *Physiology and Hygiene* Ed. John W. Ritchie and Joseph S. Caldwell. Toronto: The Educational Book Company, Limited. 1928. Page 9.

ⁱⁱⁱ *General Science*. Ed. William H. Snyder. Boston/New York/Chicago: Allyn and Bacon. 1925. Preface.

^{iv} *Annual Report of the Schools of New Brunswick 1932-33 by the Chief Superintendent of Education*. Fredericton NB: 1934. Inspector reports p. 13.

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- ^v *Programme of Studies for New Brunswick Schools, Grades I to VI*. Ed. Hon A. P. Paterson. Saint John: J. & A. McMillan, Limited, Printers. 1939. Page 110.
- ^{vi} *Programme of Studies for New Brunswick Schools*, Page 110.
- ^{vii} *Programme of Studies for New Brunswick Schools*, Page 110.
- ^{viii} *Two Centuries of Educational Progress in New Brunswick: 1784-1984*. Publisher: The Department of Education Province of New Brunswick Page 15.
- ^{ix} *Two Centuries of Educational Progress in New Brunswick: 1784-1984*, Page 16.
- ^x *Two Centuries of Educational Progress in New Brunswick: 1784-1984*, Page 16-17.
- ^{xi} *Annual Report of the Department of Education of the Province of New Brunswick for the School Year Ended June 30th 1938*. A. P. Paterson. Fredericton 1939. Inspector in Dist. 2 p.41.
- ^{xii} *The Premiers of New Brunswick*. Arthur T. Doyle. Brunswick Press. Fredericton, New Brunswick. 1983. Page 55.
- ^{xiii} *The Premiers of New Brunswick*, Page 56.
- ^{xiv} *The Premiers of New Brunswick*, Page 57.
- ^{xv} *The Premiers of New Brunswick*, Page 58.
- ^{xvi} *The Premiers of New Brunswick*, Page 62.
- ^{xvii} New Brunswick's Population Growth Strategy in Historical Perspective. Greg Marquis. Paper delivered at the New Brunswick and Atlantic Studies Research and Development Centre Conference. St. Thomas University. May 9&10, 2008. Page 4.
- ^{xviii} Belanger, Claude. "The Statue of Westminster (1931). *Studies on the Canadian Constitution and Canadian Federalism*. February 2001.
- ^{xix} www1.canadiana.org - The Great Depression. Retrieved on November 9, 2010.
- ^{xx} *The Bennett Administration: 1930-1935*. Ed. Richard Wilbur. The Canadian Historical Association Booklets, Number 24. Ottawa 1969. Page 15.
- ^{xxi} *The Bennett Administration: 1930-1935*, Page 19.
- ^{xxii} www.canadianencyclopedia.com - King, William Lyon Mackenzie. Retrieved on November 9, 2010.
- ^{xxiii} www.canadianencyclopedia.com - King, William Lyon Mackenzie. Retrieved on November 9, 2010.
- ^{xxiv} www.thecanadianencyclopedia.com. Timeline 1930's. Retrieved on November 12, 2010.
- ^{xxv} *Programme of Studies for New Brunswick Schools, Grades I to VI*. Ed. Hon A. P. Paterson. Saint John: J. & A. McMillan, Limited, Printers. 1939. Page 109.
- ^{xxvi} *Programme of Studies for New Brunswick Schools, Grades I to VI*, Page 109.
- ^{xxvii} *Programme of Studies for New Brunswick Schools, Grades I to VI*, Page 116.