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NOTE ON OCEAN STEAM NAVIGATION.

BY SANDFORD FLEMING, LL.D., C.M.G., ETC.

(Read 17th December, 1892.)

I ask your permission to offer some remarks on a subject which cannot fail to command the attention of the members of the Institute.

We are all familiar with the wonderful development of that service, which has brought countries widely separated by the sea, into nearer and closer relationship. We have had our attention directed to the further development of ocean steamships and likewise to projected "fast lines" to Europe, which, by abridging the period of the Atlantic voyage, are designed to bring the two continents into closer intercourse.

I do not doubt that in due time these projects will in some form be carried out with the gratifying result that they will tend to advance Canada among the nations by more firmly establishing her position on the highway of the world's commerce.

It is not my present purpose to dwell at any length on the possibilities of the future with regard to the application of steam machinery to the navigation of the ocean. My immediate object is to revert for a moment to the infancy of our present steam marine, to go back to the day when the first steam-ship started on her voyage across the Atlantic, when the passage between America and Europe by the agency of steam power was regarded as an experiment.

Sixty years ago the voyage was made by sailing ships. The fathers of many of us could have testified how long, how tedious and how trying the voyage then was, for it occupied frequently from one to two months. In modern times the trip across the Atlantic is reduced to a single week, for indeed by some of the best steam-ships it is generally accomplished in less than seven days, and we are encouraged to believe that before many years the passage will be made in a still shorter period.

A few weeks back the Engineering Society of Liverpool had the subject under examination, and it was then brought out in discussion that the Atlantic had been crossed by steam-ships no less than 3,800 times within the twelve months ending the 1st of October last, being on an average more than ten departures, that is five from each side, per day for every day in the year. It was moreover affirmed in the discussion that "a 26-knot speed is not beyond the scope of advancing improvements."

As the narrowest part of the Atlantic extends from Great Britain to Newfoundland, the distance could be traversed by a 26-knot ship in 63 hours. Even a 22-knot ship (and this rate is about the present limit) could perform this part of the voyage in 75 hours. Thus it appears that enormous as has been the steamship development in the past, practical men do not consider it has reached its final stage. The ratio of increase may in future be diminished, but with all the evidence of progress before us, is it unreasonable to expect that a few years hence (assuming Newfoundland within the Canadian confederation) improved steam-ships will bring the shores of the Dominion within less than three days from the shores of the Mother Country, and that the passage will be made with the regularity of a daily ferry?

As Canada has acted a primary part in inaugurating the ocean steam service as it now exists, and which is so full of promise for the future, it appears to me becoming that we should cherish the memory of her sons, who, by their energy, skill and enterprise prominently aided in its development. Of those whose lives were closely identified with its first inception, the last survivor, Mr. James Goudie, lately died, and his death suggests that before the year comes to a close, steps should be taken to pay honor to the men who built and sent to sea the first regular steam-ship "to battle with the billows of the Atlantic." Is it not our duty to remember gratefully our fellow-country-men, who had the courage to undertake, and who successfully accomplished an enterprise, great in its conception and yet immeasurably greater in its consequences? It is no mere figure of speech to claim that these early efforts to which I will now allude, in no small degree assisted in inaugurating a system of inter-communication by sea, which has revolutionized commerce, and advanced the cause of civilization in the four quarters of the globe.

A paper was read last year before the Literary and Historical Society of Quebec by one of the Vice-Presidents, Mr. Archibald Campbell, on the passage made by the steamship "Royal William," nearly 60 years ago. Mr. Campbell enters into full particulars of the event, furnishes a diagram of the vessel together with letters from various individuals, comprising the ship architect, the builder, the captain and others in support of the claim that the first ocean steamship was built in Canada. Among other authorities, he refers to Mr. Kivas Tully, who, he states, "delivered a most valuable lecture in Toronto thereon before the Canadian Institute in 1877." Mr. Tully's paper cannot be found, but with the aid of the Assistant Secretary of the Institute, who has examined the minutes, I have learned that it was read on Saturday, December 1st, 1877. There is a full report in the *Globe* of Dec. 3rd following, which I have examined. Mr. Tully gives a full and interesting account of the researches made by himself and others. Mr. Tully's paper is undoubtedly a valuable record and I respectfully suggest it should be published in our proceedings.

Mr. Campbell and Mr. Tully agree in the main; in my judgment the following conclusions are incontestably established:—

1. The first steamship to cross the Atlantic was built by a joint stock company at the yard of Campbell & Black in Quebec, in the year 1830-31.* (See information in foot-note for which I am indebted to the kindness of Mr. Archibald Campbell, since this paper was read.)

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*According to the Register of the "Royal William" in the Customs House, Port of Quebec, dated 22nd August, 1831, the subscribing owners, as Trustees of the incorporated "*Quebec and Halifax Steam Navigation Company*," representing sixty-four shares, were William Findlay, William Walker and Jeremiah Leaycraft, of Quebec, Merchants.

SHAREHOLDERS OF THE INCORPORATED COMPANY.

Parties constituted and declared to be one body corporate and politic by the name of "*The Quebec and Halifax Steam Navigation Company*," under 1st Wm. IV., Cap. 33 of Lower Canada Statutes:—John Forsyth, Wm. Walker, Wm. Finlay, John Caldwell, Jeremiah Leaycraft, Henry Le Mesurier, William Price, Matthew Bell, George Keys, William Pemberton, George Pemberton, Henry Pemberton, John Saxton Campbell, Robert Paterson, Robert Shortis, James Hamilton, James Gibb, Chas. Felix Aylwin, Hypolite Dubord, Noah Freer, Augustus Freer, Charles A. Holt, Francis Bell, James Hunt, Samuel Neilson, Wm. Lampson, John Leather, Robert Shaw, Wm. Phillips, John Ryan, James Stanfeld, Wm. Sheppard, Thos. Tucker, John Jones, jr., Benjamin Torrance, Wm. Henderson, Alexander Simpson, James Clearihew, Peter Paterson, Charles Francis Roy, George Black, Joseph Stone Shaw, John Kacey, Duncan McCallum, Colin McCallum, Joseph Dyke, Robert Pope Ross, John Fraser, John Malcolm Fraser, John Bell, John Miller, James Saunders, James McKenzie, Margaret Urquhart, John Lambly, Alexander Morrison, Thomas Gordon, David Logan, George Taylor, Allison Davie, Robert Dalkin, John Munn, John Douglas, Archibald Campbell, Wm. Henry Roy, Wm. Carter, John McLeod, John Kerr, Robert Daunton, Robert Richardson, Thomas Gibb, Dominic Daly, Joachim Mondor, James Edie, Alexander Clarke, John Richardson, George Moffat, Peter McGill, Adam L. McNider, John Torrance, Robert W. Harwood, Hector Russel, Hart Logan, Lewis Gugy, Chas. Wm. Grant, Horatio Gates, Nathaniel Jones, Wm. Ritchie, James Brackenridge, Wm. Budden, Andrew Shaw, Samuel Cunard, Richard Harney, sr., Richard C. Tremain, Henry Prior, John Rutchford, jr., Alex Murison, Frederick W. Clarke, Edward De Blois, James Mitchell, J. G. A. Creighton, Thomas Grassie, Joseph Starr, Andrew Belcher, George Rundell, James Bridge. Robert Romans, Adam Esson, Temple Lewis Piers, John Alexander Barry, James Bain, George Smith, John Howe, George Russel, Alexander McDonald, James McDonald, William Carritt, J. Tobin, Mickel Tobin, George P. Lawson, Edward Potter, James H. Tidmarsh, Alexander Keith, Eliza Leggatt, William Brahm, Henry Lockeyer, Adam Dechezineany, Nicolas Le Cain, George Handley, Conrad West, John Stayner, Richard Marshall, Richard Davis, James Ritchie, Charles Delvolf, John Johnson, John Johnson, jr., Chas. Fairbanks, Alexander Primrose, Alexander McGregor, John Munro, David Hare, Thos. Maynard, Thos. Grant, Andrew Fraser, Peter McNab, Robert Downes, James T. Avery, Robert Dawson, Wm. Black,

2. The designer of the ship and superintendent of its construction was Mr. James Goudie, born in Quebec, *1809*, and who died *1892*.

3. This ship was launched in the spring of 1831, with more than ordinary ceremony. The governor of the province Lord Aylmer was present

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Jonathan Tremain, J. Boggs, George Hartshorne, Wm. Mortimer, John Barron, Wm. Stairs, Wm. M. Allan, Joseph Austin, George Innis, Patrick Ross, James Leisham, Wm. F. Young, Rufus Black, Joseph Danby, George Turner, George Barton, Samuel Davis, Francis Le Cain, James Wilkie, Samuel Mitchel, David Starr, James Robb, James L. Stair, Ed. M. Archibald, E. Ross, I. Primrose, James McNab, Jasper Reoust, *Allan McDonald, I. Shannon, Joseph* Allison, George Young, Wm. Young, Philip J. Holland, Daniel Starr, L. Yates, Wm. McCara, Charles Keefler, Charles Rigby, Wm. Foster, John Romans, Wm. Woodill, Jas. Donaldson, Benjamin Schneller, Alexander Rankin, Thos. H. Peters, James A. Street, Alex. Fraser, jr., John Fraser, Andrew Crane, Joseph Allison, Hugh Morrell, Wm. Lock, Joseph Cunard, Richard Blackstock, Christopher Clarke, Gilbert Henderson, Robert Henderson, Patrick Henderson, Joseph Russel, John Hawbolt, James Letson, Asa Willard, J. M. Johnson, Alex. P. Henderson, John S. Willaston, Thomas C. Allan, Wm. Carman, jr., George Taylor, Henry Cunard, Wm. Eade, Ed. McQuillan, Joseph Samuel, Mary Little, Daniel Kieth, Caleb McCully, *Alexander Sherriff, John Samuel, Gorwin Rainie, Francis Peabody, Martin Cramey, Alexander* Key, Noah Freer, Francis Durette, James Black, James McDonald, John Torrance, William Price, William Walker, and John Jones.

CERTIFICATE OF COLLECTOR OF CUSTOMS FOR PORT OF QUEBEC.

REGISTER OF STEAMSHIP "ROYAL WILLIAM."

No. 13. Port of Quebec Dated 18th May, 1833.

Name, "Royal William." Burthen, 363 60·94 tons. John McDougall, Master. Built at this port in the year 1831, which appeared by a former certificate of registry, No. 42, granted here the 22nd August, 1831, now delivered up and cancelled upon transfer of property.

Name and employment of surveying officer. (Signed) C. SECRETAN, Acting.

One deck and round-house, 3 masts; length, 160 feet; breadth taken above the main wales, 44 feet; height between decks, or depth of hold, 17 feet 9 inches. Schooner rigged with a standing bowsprit; square sterned; carvel built; quarter badges; scroll head; admeasurement afloat; propelled by steam, with wheels or flyers at each side.

Subscribing Owners.		*Shares.*
James Bell Forsyth,	of Quebec, Merchants.	Ten.
Jeremiah Leaycraft,		Ten.
Henry Le Mesurier,		Ten.
Other Owners.		*Shares.*
Mathew Bell,	of Quebec, Merchants.	Fourteen.
Noah Freer,		Ten.
Henry John Caldwell,		Ten.

De Novo, London, 22nd Nov., 1833.

A true copy.

Customs House, Quebec, 2nd March, 1891.

(Signed) D. D. O'MEARA,
Acting Registrar of Shipping.

The steamship "Royal William," McDougall, Master, cleared on Saturday, 3rd August, 1833, for London, and sailed at 5 o'clock, a.m., Monday, 5th August.

The "Royal William" arrived at Gravesend, 25 days passage from Pictou, Nova Scotia.

(Signed) W. DUNSCOMB,
Collector of Customs.

Port of Quebec, 5th February, 1872.

with his staff, the military authorities and the band of the 32nd Regiment. The event was further honored by the presence of Lady Aylmer who in the customary manner gave the vessel the name of the "Royal William" after King William IV., then on the throne.

4. The ship was towed to Montreal to receive her machinery,[*] and on being fitted for sea, her first voyage was to Halifax. Before setting out for England, she traded between Quebec, Halifax and Boston. She was the first British Steamer to arrive at the latter port.

5. In the list of owners appear the names of the three brothers Joseph, Henry, and Samuel Cunard of Halifax.

6. Her dimensions were length 160 feet; hold 17 feet 9 inches; breadth outside 44 feet; breadth between paddle boxes 28 feet; she had three masts schooner rigged; builder's measurement 1,370 tons; with accommodation for 60 passengers.

7. She left Quebec for London August 5th 1833, called at Pictou, Nova Scotia, to receive coal and overhaul machinery. She re-started from Pictou, August 18th, with seven passengers, 254 chaldrons of coal and a light cargo. She encountered a terrific gale on the banks of Newfoundland which disabled one of her engines. The passage from Pictou to London occupied 25 days.

8. Ten days after her arrival in London she was chartered by the Portuguese government to enter the service of Dom Pedro as a troop ship.

9. In 1834 she was sold to the Spanish government, was converted into a war steamer, and under the new name, of "Isabel Secunda," was employed against Don Carlos. A letter from the well known Alexander Somerville, who, as he tells us, joined the British Legion and became a colour-sergeant, appeared in the Toronto *Globe*, May 15th, 1876. This letter describes an incident which came under his own observation, May 5th, 1836, off St. Sebastian, Bay of Biscay. Mr. Somerville remarks, that the Canadian built ship "Isabel Secunda," (originally the "Royal William,") "was the earliest steamer of war in the history of nations to deliver a hostile shot."

10. After an eventful service for some years she was sent to Bordeaux for repairs, when her timbers were found to be somewhat decayed;

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[*] I am informed on excellent authority, that the engine, boiler and machinery were furnished by the Montreal works, known as St. Mary's foundry, Charles m. Grant, Baron de Longueiul, proprietor. The signature of the Baron, Charles Wm. Grant, is attached to the original list of shareholders of the incorporated steamship company, and it is stated by his descendants that he sunk of his private means in all about $40,000, in the venture of the "Royal William." S. F.

the engines, however, were in serviceable condition, and were transferred to a new vessel, a second "Isabel Secunda," to form part of the Spanish navy. What was left of the original "Royal William" remained a hulk in the French port.

Both Messrs. Tully and Campbell allude to the claims set up in the United States on behalf of a ship, "The Savannah," as the vessel which made the transatlantic voyage under steam at an earlier date. An article making this claim appeared in *Harper's Magazine*, for February, 1877. We there learn that the "Savannah" was built in New York and launched on August 22nd, 1818. She was 350 tons burden. A steam engine was placed on deck, and shifting paddle wheels were contrived so that they could be lowered over the sides of the vessel in calm weather and brought again on deck when the wind rose. She had small capacity for coal, indeed it is doubtful if she consumed coal, a description of fuel but little used in the United States in those day; at least one authority states that the only fuel consumed on the voyage was wood. It is not possible to differ from the conclusions formed by Messrs. Tully and Campbell that the "Savannah" was simply a sailing ship, to which had been added light paddle wheels capable of being driven by steam machinery, the whole of a somewhat rude description yet in a way available for keeping the vessel in motion when the wind failed.*

The "Savannah" crossed the Atlantic in 1819. She left Savannah on the morning of May 22nd and reached Liverpool on the evening of June 20th making the passage in less than thirty days. It is stated that steam was used on eighteen days, and the log records that the shifting paddles were used for a few hours at a time when the condition of wind and sea admitted, but it is obvious that the sails were chiefly depended upon throughout the voyage.†

The "Savannah" remained at Liverpool from June 20th until July 23rd when she sailed for the Baltic and at the ports where she called, excited some curiosity. On Oct. 10th she set sail from St. Petersburg on her homeward voyage and arrived at Savannah, Nov. 30th. There is no mention of the paddles having been used on the return voyage or indeed at any time after she left St. Petersburg. The writer in Scribner states that on the return of the "Savannah" to the United States the machinery was removed and she assumed her original character as a sailing ship. She was finally wrecked, and found a resting place on the south shore of Long Island.

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* A writer in *Scribner's Magazine*, May 1887, states, "the paddles were constructed to fold up and be laid on deck while not in use," and the "log" describes the process of shifting the wheels, which did not occupy more than 30 minutes.

† *Popular Science Monthly* New York, January 1893, after an examination of the Log of the Savannah, has the following: "The voyage to Liverpool began May 22nd, 1819. On the 24th, at 5 a.m. the Savannah got under way off Tybee Light and put to sea with steam and sails; at 6 a.m. left the pilot; at 8 a.m. took off the wheels in twenty minutes, this was to insure the wheels getting safely to Liverpool. The Savannah reached Liverpool, steaming up the Mersey, in twenty-nine days eleven hours from Savannah, having run eighty hours under steam." This information gives for the whole voyage 707 hours, of which 80 hours were under steam, and 627 hours without steam being used. Possibly the paddles were employed on eighteen days, for a few hours each day. S. F.

It may not be out of place to allude to information independently obtained with respect to both vessels. Some of the older citizens of Toronto will remember Captain Sutherland who commanded the steamer Magnet on Lake Ontario, before he met with his sad fate at the Desjardins Canal accident in 1858. He, it was, who thirty-four years earlier assisted in preparing the "Royal William" for her long voyage to England, and actually accompanied her as second in command as far as Pictou, when she left Quebec on August 5th, 1833. Many of the particulars described by Messrs. Tully and Campbell I had from the lips of Captain Sutherland, who related them to a number of gentlemen of whom Sir George Simpson, Governor of the Hudson Bay Company was one, on a passage by water from Toronto to Kingston about the year 1850. This independent testimony fully corroborates that which has been set forth respecting the "Royal William."

I had occasion ten years ago to make enquiries with regard to the "Savannah." I addressed a citizen of Savannah whose acquaintance I had made after the war, when he visited Canada. This gentleman at my request examined all the records to be found in his native city respecting the ship "Savannah" and her means of propulsion. He wrote me at length, and described the machinery attached to her as being of a somewhat rude description; there was nothing to show, he informed me, that it had been continuously employed on the voyage. I quote part of his letter: "She resembled very much in mould an old United States frigate. The hull was surmounted with a stack and three masts—fore, main and mizen—and was provided with side wheels of a primitive pattern, left wholly exposed to view, and so arranged that they could at any time be unshipped and the vessel navigated by sails only."

Giving the "Savannah" the fullest credit for all that may be due to her, it cannot be affirmed that she crossed the Atlantic under steam, nor can it be pretended that she was the pioneer of the ocean steam-ship service of to-day, in any sense. It may with greater truth be held that the "Savannah" had a deterring influence on the further efforts of enterprising ship-builders, and that the introduction of transatlantic steamship service was actually retarded by the ill-success of the attempt of 1819. The mode of propulsion employed at intervals on the eastward voyage of the "Savannah" was abandoned and she returned to America under sail. Its partial use on the first voyage stimulated no effort to alter or improve the makeshift machinery used, or to introduce something more perfect and more permanent on ships subsequently constructed. It set in motion no attempt to send to sea a second "Savannah" to cross the Atlantic by steam power. The only other example on record of a vessel similar to the "Savannah" is the "Enterprise," a ship which made a voyage in 1825 to India assisted by steam. Like the "Savannah" she depended on her sails, using steam at intervals when there was no wind. This adventure, like that of the "Savannah," was entirely barren of any beneficial results. Attention continued to be directed to the improvement of ordinary sailing ships, and as a consequence there came into existence a magnificent class of vessels known as "clippers," propelled only by wind and sail. It was not uncommon for ships of this class to cross the Atlantic in half the time occupied by the "Savannah." If we except the "Royal William" in 1833, there is no record of any ship, propelled in whole or in part by steam, having made the passage between any British port and any American port for nearly twenty years after the performance of the "Savannah."

The "Royal William" exercised an influence of a directly opposite character. One result was to make clear that the transatlantic vessel of the future was to be a steam-ship. Sir Samuel Cunard with his two brothers were, as shareholders in the Quebec and Halifax Steam Navigation Company, part owners of the "Royal William." Cunard was a man of great business ability, rare shrewdness, and with much originality of character. The success which attended the experiment led him to foresee the possibility, nay the certainty of future triumphs. It became evident to his mind that sailing ships as mail packets were doomed. He at once grasped the situation, and determined the course which he subsequently pursued. His effort was to obtain a contract with the British Government for carrying the mails, and after constant perseverance and great delay, he finally succeeded in 1838. The service agreed upon was fortnightly in the first place, and afterwards weekly. The "Britannia," the "Acadia," the "Caledonia" and the "Columbia," were at once placed under construction, and these four vessels formed the beginning of the magnificent fleet of steamships which ever since have borne the honoured name of Cunard.

Quite distinct from the action of Mr. Cunard, and while his negotiations were in progress, the British and American Steam Navigation Company was founded by enterprising merchants in the Mother Country. This Company was formed in 1836, within three years after the passage of the "Royal William," and immediately the construction of the "Great Western" specially for the Atlantic voyage was undertaken; the "Sirius" was chartered for the same purpose. These were the first steamships to cross the ocean after the "Royal William." The "Sirius" left London on April 4th, 1838, the "Great Western" left Bristol three days later, and by a singular coincidence they both steamed into New York Harbour on St. George's day. Other steamships followed in rapid succession, among them I may mention the "Liverpool" and the "Royal William;" both were built in England, and both began their trips a few months after the "Sirius" and "Great Western." The latter "Royal William," the second of this name has led to some confusion, from being better known than the Quebec vessel built eight years or so earlier: and it has caused the first "Royal William" somewhat to pass out of memory.

To my mind it is incontestably established that the memorable voyage of the Canadian built "Royal William" from Quebec to London in 1833, must be held to be the first passage across the Atlantic under steam; that passage triumphantly demonstrated the practicability of steam navigation on a voyage between the two continents, notwithstanding the declaration of Dr. Lardner, who at that date pronounced it "perfectly chimerical, and" to use his own words, "they might as well talk of making a voyage from New York or Liverpool to the moon."

The Canadian built "Royal William" undoubtedly proved to be the pioneer of Atlantic steamships. It cannot be disputed that she was the forerunner of the Cunard line, and as such she was equally the forerunner of the thirty-four other lines which to-day run regularly between America and Europe. It must certainly be admitted that this pioneer ship has had no small influence on the ocean steam service of the globe —a service which embraces the great lines running to India, China, Japan, South Africa, South America and Australia, a service consisting of ships which may be counted by thousands with a gross tonnage of 12,000,000 tons. And to us Canadians and British subjects it is interesting to note that *two thirds* of this enormous tonnage belong to Great Britain, Canada and the Colonies, while the remaining *one third* may be claimed by all the other nations of the world.

We must all regard with satisfaction the circumstance that Canada has the proud distinction of having taken the initiative in applying science and mechanical skill to a purpose which has led to such splendid results. Is it not a national duty that we should honour the memory of the men whose skill and enterprise have in advancing these results done honour to Canada? Would it not therefore be becoming on the part of the Canadian Institute to initiate a movement to establish some enduring record in commemoration of the voyage of the "Royal William" in 1833, and in honour of those connected with her? The record might take the form of a brass memorial tablet, or as may hereafter be determined, placed in some fit position in the halls or corridors of the Parliament Buildings at Ottawa. This course is followed in the mother country, where records of great historical events can be seen in the entrance Hall of the Houses of Parliament at Westminster.

Whatever form the suggestion may assume, or wherever placed, it will be a lasting tribute to the skill and courage of the men associated with the first transatlantic steamship. Such a record is due to our country, and our countrymen, and the proposal having its origin in Toronto will be accepted as a graceful compliment to a sister city, where the "Royal William" was designed, constructed and sent to sea. The memorial itself will denote an incident in our annals of which all Canadians of whatever race, may feel allowable pride. It will indicate the point of commencement of a new era in the history of navigation. It will mark the part which Canada has played in the inauguration of a system of inter-communication which has contributed in a remarkable degree to the advancement of civilization; and which has exercised and will long continue to exercise an important influence on the destinies of the human race.

NOTE ON EARLY STEAMBOATS.

BY SANDFORD FLEMING, LL.D., C.M.G., ETC.

(Read 17th December, 1892).

There are many records of attempts to propel vessels by steam before the beginning of the century. The most successful were those of Mr. Miller, on Dalswinton Loch in Scotland in 1788 and of Mr. Symington on the Forth and Clyde Canal some twelve years later. These and other inventors devoted much time and money to accomplish the object they had in view and much credit is due to them for the ingenuity displayed:

but these early efforts were of the character of experiments, and it is generally conceded that the first really successful attempt to navigate water by steam power for regular public traffic was in 1807.

In that year a vessel named the "Clermont" was launched on the Hudson. She was built by Mr. Fulton, who had visited Scotland and profited by the efforts of Miller and Symington. Fulton was assisted with money by Mr. Livingstone, then American Minister at Paris. The "Clermont" was 130 feet long with a breadth of 16½ feet. Her engine was made in England, at the celebrated works of Boulton & Watt. She attained a speed of five miles an hour, proved a practical success and carried goods and passengers between New York and Albany for some years.

If we have the best grounds for stating that to Canada is due the honour of sending to sea the pioneer ocean steamship, we must fully acknowledge that the first steamboat in the world, regularly and continuously engaged in passenger traffic, was produced in the United States.

In 1809, two years after the "Clermont" made her trial trip on the Hudson, the first steamboat appeared on the St. Lawrence. I am indebted to Dr. S. E. Dawson for the following interesting details. "On November 3rd, 1809, the steamer "Accommodation," carrying ten passengers, left Montreal on Wednesday at 2 o'clock in the afternoon, and arrrived at Quebec on Saturday at 8 o'clock in the morning. She anchored every night, and that practice was continued for many years on the St. Lawrence, so that of the 66 hours which intervened between her departure and arrival at Quebec, 30 hours were spent at anchor; the trip was therefore made in 36 hours. This steamer was built for John Molson, the first of the name. She was 75 feet long in the keel and 85 feet long on deck."

In addition to these details, the following which appears in the *Quebec Mercury*, after the arrival of the vesssel on her trial trip, may be of some interest: "On Saturday morning at 8 o'clock, arrived here from Montreal, being her first trip, the steam-boat "Accommodation," with ten passengers. This is the first vessel of the kind that ever appeared in the harbour. She is continually crowded with visitants. She left Montreal on Wednesday at two o'clock, so that her passsage was sixty-six hours, thirty of which she was at anchor. She arrived at Three-Rivers in twenty-four hours. She has at present berths for twenty passengers, which next year will be considerably augmented. No wind or tide can stop her. She is 75 feet keel and 85 feet on deck. The price for a passage up is nine dollars, and eight down—the vessel supplying provisions. The great advantage attending a vessel so constructed, is that a passage may be calculated on to a degree of certainty in point of time, which cannot be the case with any vessel propelled by sails only. The steamboat receives her impeller from an open double-spoked, perpendicular wheel, on each side, without any circular band or rim. To the end of each double spoke is fixed a square board, which enters the water, and by the rotary motion of the wheel acts like a paddle. The wheels are put and kept in motion by steam, operating within the vessel. A mast is to be fixed in her for the purpose of using a sail when the wind is favourable, which will occasionally accelerate her headway."

These extremely interesting details obviously written by an eye witness describe the second steamboat which ever made regular trips in American waters, or in any part of the world for trade purposes. That she proved successful as a commercial venture may be judged from the fact that within a few years after she commenced running Mr. Molson added two other steam-boats the "Swiftsure" and the "Malsham" of increased dimensions. The former vessel was 130 feet in length of keel and 140 feet on deck with a width of 24 feet. On her trial trip, in 1813, the "Swiftsure" made the passage from Montreal to Quebec in 22½ hours notwithstanding that the wind blew strong ahead the whole distance. She beat the fastest sailing packet on the line 14 hours in a race of 36 hours. The "Malsham" was built in Montreal in 1814, and was registered at the Custom House, Quebec, May 4th, 1815. In the registry she is described as a "steam vessel worked by steam, with wheels or flyers at each side."

The successful application of steam to the propulsion of vessels being established, it soon spread to other countries. As far as I have been able to investigate the matter, regular steam boats were seen for the first time in the following order: on the Hudson, in 1807; on the St. Lawrence, in 1809; on the Clyde, in 1812; on the Severn, in 1813; on the Mississippi, in 1814; on the Humber, in 1814; it was 1815 before the first steamboat, a small vessel named the "Marjorie," appeared on the Thames; the same year witnessed the "Frontenac" plying on Lake Ontario. The latter steamboat was built by the enterprise of the late Senator John Hamilton of Kingston, at a cost of £20,000.

The third vessel on the list, that launched on the Clyde, in 1812, was named the "Comet." She was built by Henry Bell. Her length was 40 feet with 10½ feet beam; her draught of water 4 feet; her speed under favorable conditions was four miles an hour. She continued to ply between Glasgow and Greenock a distance of about 20 miles, for some years. The "Comet" greatly improved appears to have been transferred to the River Forth where she did her work more efficiently; she ran for a considerable time between the terminus of the Forth and Clyde canal and Newhaven a distance of 27 miles at the rate of 7½ miles an hour.

Much importance has been attached to the efforts of Henry Bell, the builder of the "Comet." A grateful country has evinced its appreciation by erecting a noble monument to his memory. This monument is conspicuously placed on a promontory of the River Clyde, where it may be seen by every passenger passing up or down the river. The "Comet" was the first steamboat in Europe engaged in any serviceable purpose; three years before the "Comet" was launched, Canadian enterprise placed the "Accommodation" on the St. Lawrence, and for many years this vessel continued to run regularly, carrying passengers and freight between Montreal and Quebec.

All honor to the memory of John Molson, the master mind who caused to be built and who directed the movements of the first steamboat on Canadian waters! Can we do less than find a place for a second memorial tablet to commemorate an event of no small interest in the annals of our country?

NOTE ON POSTAGE STAMPS.

By Sandford Fleming, LL.D., C.M.G., Etc.

(Read 17th December, 1892.)

I am desirous of submitting to the Canadian Institute a matter which may possibly, to some, appear to be of little importance, but which nevertheless affects the daily lives of many of us, and in this point of view may claim public attention.

The system of adhesive stamps for the prepayment of letters came into operation during the last half century. There was not a single postage stamp in use in any part of the world before the year 1840. Now there are thousands of different kinds and they are used by millions daily by all the different nationalities of the world.

Postage stamps were officially established in the British Islands fifty-two years ago. The first foreign state to adopt them was the Canton of Zurich in Switzerland, in 1843. They were introduced into the United States in 1847. Throughout Europe they became common in 1849 and 1850. In Canada they were employed for the first time in 1851. Until that time the post office in the British American provinces had been controlled by officers appointed by the home government. On April 6th, 1851, the entire management was transferred from Imperial to Provincial authority and within the same year several important reforms were carried into effect. Previous to that date the charge for the carrying of letters was extremely high — inland postage averaged nine pence currency (15 cents) per letter. It was at once reduced to three pence (5 cents). For three years longer the charge on foreign letters remained at the old rates, viz, one shilling and fourpence currency (about 27 cents) on English, and sixpence (10 cents) on United States letters.

The first Post Master General for the Province of Canada was the Hon. James Morris, and it was under his administration that the reduction on the postal charge on inland letters was made, and adhesive stamps for their prepayment introduced. Canadian postage stamps, for the three penny rate, were first issued for public use on St. George's day, April 23rd, 1851.

It is with no desire to cast any reflection on Mr. Morris, under whose auspices great postal reforms were initiated, when I humbly point out that the stamps introduced by him were anything but faultless. Forty years, experience has established, that the designer whom Mr. Morris employed, failed to recognize the essential features which a postage stamp should possess; and strange as it may seem the worst features of the original faulty design still remain. From 1851 to the present date, the defective characteristics of the first stamp have in a greater or less degree been preserved in every successive issue.

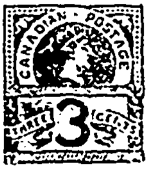
Stamps of different values are necessary for the prepayment of letters and postal packets, varying in weight. Obviously, a postage stamp should on its face, plainly indicate its value, so that it should present no difficulty to the person using it. The three-penny stamp in 1851 had on each of its four corners a small figure " three " (3) to denote its value, its designer seemingly ignoring the fact that one large figure would be plainer than four or any number of small figures We may trace to this source the crucial defect of every Canadian stamp since issued, for whatever changes have been made in those printed from year to year since their first introduction, the small figures to indicate their denomination have been constantly adhered to. When we examine the whole series there is a strong family likeness in this particular. Indeed the stamps in common use to-day so much resemble each other that many persons can distinguish them only by close examination. Take for example the three cent and the one cent stamps; in general design they are identical, and the figures 3 and 1 in each case are so minute as to be scarcely distinguishable in an artificial light, and more especially by persons advanced in years. It is true that with the intention of assisting the eye stamps are printed in different colours; red in one case, yellow in another, green in a third, and so on; but this mode of distinction in no way mends matters to those suffering from what is known as colour blindness. In truth it aggravates the evil, as some of the colours in use render the whole design, especially in certain lights, next to invisible. It is not surprising therefore, that one stamp is apt to be taken for another, as is frequently the case, unless care be taken to seek the aid of some person whose vision is in no way defective. It cannot be held that the class of persons who in various degrees are incapable of distinguishing colours, are of no account. According to the best authority it is estimated that one in every twenty is colour-blind. This rate would give for the whole Dominion not less than a quarter of a million souls who suffer from this incapacity. With justice and reason we may ask, why should this number, or any considerable number of the population, be disregarded in a matter which affects their daily lives? I can bear personal testimony to instances constantly arising from the difficulty in distinguishing the postage stamps in common use. In my own limited sphere scarcely a day passes without meeting with petty annoyances from the cause assigned. Personal inconvenience is of small consequence as a rule; but in this case it is an experience which suggests how enormous must be the aggregate inconvenience traceable to the same cause. Moreover, the sender of letters is not the only sufferer from these petty annoyances, as letters improperly stamped have been known to remain in the dead letter office, or have had double charges levied on delivery to the receiver.

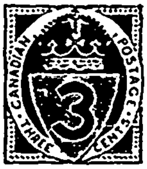
I have, by implication, cast blame on the individual responsible for the details of the first stamp issued. Referring to some old memoranda I there find the original design or rather its *facsimile* in the first proof from the engraver's plate, and I am thus reminded that the blame must rest to a large extent upon myself, inasmuch as, at the request of the Postmaster General I furnished the design bearing date February 1851. It must however be said that the stamp then issued is not the same in all respects as the present stamp. Among the changes which have been made, an effigy of the Queen's head has been substituted for *a beaver*. Her Majesty's portrait is always seen with satisfaction and few will fail to recognize the appropriateness of this change if they keep out of view the process of cancellation by the post office officials. The objection which must be taken to the stamps in use to-day throughout the Dominion is on the ground of the inherent defect which I have pointed out, a defect which they have inherited from the parent stamp of 1851.

Frankly acknowledging my own responsibility with regard to the objectionable feature referred to, I feel that a peculiar moral obligation is imposed upon me to endeavour to make such reparation as may be in my power, for the evils which have been transmitted to the present day through successive generations of stamps. Accordingly I take upon myself the duty of respectfully recommending that the design of our Canadian postage stamps be reconsidered and remodelled. With this in view I beg leave to offer two suggestions, viz.:—

First.—That the Queen's Head be retained but on a reduced scale and so placed that it will occupy the upper half of the stamp, leaving in the lower half ample space for a single large figure to denote the value. This course is now followed in some of the more recent English stamps, and I would instance the two pence half-penny stamp, used for foreign postage. If all our Canadian stamps were designed on this principle, the defects which have been mentioned would be removed.

Second.—Another course would be to substitute the Imperial Crown for the Queen's Head, placing it over a panel or shield on which would be inscribed in large plain figures the denomination of the stamp, in some such manner as shown in the sketch.





For those who fortunately can distinguish colours, no doubt much benefit is to be found in their use, in printing stamps of different values, but I hold that the employment of colours should be secondary as a means of distinguishing one stamp from another. I humbly submit that it should be held to be an essential feature of all stamps hereafter issued, that the distinctive number be so plain and so conspicuous and so unmistakable, as to be easily recognized by all persons under ordinary circumstances.

With great respect I submit these remarks for the consideration of the members of the Canadian Institute. If they commend themselves to the approval of this Society, the Council will, I do not doubt, deal with them in the mode which they conceive will generally best serve the public interests.

THE MIGRATION OF THE EVENING GROSBEAK IN 1890.

BY J. B. WILLIAMS

(Read December 7th, 1891.)

In a chapter on the migration and diffusion of animals in his Principles of Geology, Sir Charles Lyell writes as follows :—" Besides the disposition common to the individuals of every species slowly to extend their range in search of food, in proportion as their numbers augment, a *migratory instinct* often develops itself in an extraordinary manner, when after an unusually prolific season, or upon a sudden scarcity of provisions, great multitudes are threatened with famine."

As instances of these irregular and spasmodic migratory instincts he mentions the Leming (*Mus lemmus*) in Lapland, (countless thousands of these little creatures, once or twice in a quarter of a century, leave their homes in the mountains, and march to the sea-coast ;) and the Springbok or Cape Antelope, which used to descend at intervals of three or four years from the interior of South Africa to the cultivated districts around the Cape.

Birds as well as quadrupeds are subject to these irregular migrations.

In April and May, 1888, great numbers of Pallas' Sand Grouse (*Syrrhaptes paradoxus*) migrated from their home in Tartary to Europe, and appeared in England, Scotland and Ireland in great numbers.

They were first seen near Warsaw, in Poland, on April 21st ; near Leipzig, in Saxony, on April 27th ; but they did not reach England until about the middle of May.

Though they laid eggs in several places, they do not seem to have reared any young that first summer.

With the hope that some of them might be acclimatized to the country, Parliament passed a special Act making it illegal to shoot them until January, 1892.

Great numbers were shot before the Act came into force, but there were several well authenticated instances, of those that survived the winter rearing young ones during the summer of 1889. A somewhat similar migration of the Sand Grouse occurred, twenty-five years before, in 1863.

The Rose-colored Pastor (*Pastor roseus*), a bird allied to the English Starling, affords another example of these irregular migrations. An immense flock of them, numbering many thousands, appeared in the neighborhood of Sophia, the capital of Bulgaria, in the month of June, 1889. They were very tame, and were easily caught by hand.

This bird's usual habitat is in Armenia, Persia, and Southern Russia.

A similar flock visited Bulgaria, twelve years before, in 1877.

In January and February, 1890, the city of Toronto was invaded by hundreds of Evening Grosbeaks (*Coccothraustes vespertina*).

This bird is described in Mr. Chamberlain's Catalogue of Canadian Birds as "an abundant resident of British Columbia, east of the Cascades, and occasionally found on the western slope, and in Vancouver Island. It is a common winter visitor to Manitoba, and a few specimens have been taken in Ontario." And in Ridgeway's Manual it is said to be an irregular winter visitor to Michigan, Wisconsin, Illinois, and Iowa.

There are records of their occurrence, in small numbers, in Ontario on four occasions, viz.: in the years 1854, 1866, 1871, and 1883; but in 1890 they came in numerous flocks, and some went as far as Montreal. In the States they visited Pennsylvania, New York, Vermont, New Hampshire, Massachusetts and Connecticut, States, which, with the exception of New York, they had never before been known to visit.

Some of them remained till the end of April, or beginning of May, after which they all seem to have returned to their usual habitat.

Their name was given them under the impression, which seems to have been erroneous, that they sang in the evening.

They belong to the large family of the *Fringillidæ* or Finches.

The conical shape of the beak is a distinguishing feature of this family, and this feature is more strikingly developed in the Evening Grosbeak than in any other finch of this continent, so that its beak is a very powerful instrument for cracking seeds and nipping off buds.

The European representative of the genus *Coccothraustes* is the Hawfinch (*C. vulgaris*), a bird that is often found in England. You will see from the specimen that I exhibit, that the conical bill is even more developed in this bird, than in the Evening Grosbeak.

THEIR APPEARANCE IN ONTARIO.

Mr. McIlwraith writes from Hamilton that "the Grosbeaks were first observed there on Dec. 19th, 1889. Flock after flock passed along, going east, till near the end of January, when for a few days none were seen. About Feb. 10th the return migration began, and was very active while it lasted ; but they were only noticed for three or four days."

Mr. Ernest E. Thompson reports that a flock of about twenty were seen at Lorne Park, fourteen miles west of Toronto, on Jannary 16th, and on January 18th Mr. Cross, and Master Charles Harvey, a son of our President, met with specimens in Rosedale, Toronto. A male bird, that Master Harvey procured then, he presented to our Museum. The white secondary quill feathers of the wing, in this specimen, are shaded with brown like those of the female.

The first time I saw any of these birds, was on January 22nd. I had gone out to Rosedale Heights with a gun, hoping to meet with some, as there had been a north-west wind on the previous day. After wandering about for some time, I heard what, at a distance, seemed like the creaking of a gate repeated over and over again. I walked in the direction of the sound, and, as I approached nearer, it increased to quite a number of quiet whistlings, and I saw, just in front of me, a flock of about fifteen Evening Grosbeaks. Their thick beaks gave them quite a parrot-like appearance as they ran about among the bushes, searching for seeds that had fallen on the ground. I followed them closely for some distance before they took any notice, and then the whole flock flew into a small tree by the roadside. I fired, and a pair of them fell. It was difficult to see the female bird as it lay on the greenish-brown herbage at the roadside, so closely did its plumage match the surrounding tints. The striking black, yellow, and white colours of the male bird were, of course, more conspicuous.

There are many birds that exhibit these striking differences in the colour of the sexes. The quiet tints of the female conceal the bird when sitting on its nest, and protecting its young, while the more striking colours of the male bird make him very conspicuous. Mr. Darwin attributes the bright tints of the male, very largely, to the preference of the females, and their continued selection of bright colored partners.

It often seems, however, to be the duty of the male bird to attract, not only the attention of the female, but also, that of any enemy that approaches too near her, and to lure away the enemy from the nest and eggs, by his attractive colours, or peculiar antics. The Scarlet Tanager, the Towhee, and Bob-o-link are, I think, examples of this.

The Grosbeaks were very numerous in the neighbourhood of the city until the end of January. There was very little snow about, and they fed largely on the ground.

Then, for about a week, they nearly all disappeared. On the night of February 7th, snow fell heavily, and on the 8th great numbers of them appeared again in, and around the city. They now fed largely on the Mountain Ash berries, and for three or four days were almost as common in the suburban streets as the English Sparrow.

This would be, according to Mr. McIlwraith's observations, the return journey of the main body of the migrants. Most of them had left by February the 10th, the very day on which the advance guard reached Hamilton.

Some were seen at Lorne Park on February 15th, and flocks were occasionally seen near Toronto until the middle of May, but none of them, as far as I have heard, remained to breed in this district.

Specimens were taken in Montreal at the end of January, and on February 5th. This is just the time, during which, they were absent from Toronto.

THEIR APPEARANCE IN THE STATES.

In the 1890 edition of the Birds of Pennsylvania, Mr. Warren says that they first appeared in that State on December 17th, 1889, and single birds, and small flocks, were seen until the middle of April, 1890. One flock, however, of about forty, remained at Montoursvill Lycoming Co., until the beginning of May.

Early in April, says an observer, they appeared restless, and on April 30th had separated into pairs, and seemed likely to build there, but were disturbed by a gunner, and all left on May 11th.

They were first seen in New Hampshire on January 4th; in Massachusetts January 8th; but are not recorded in Connecticut until the end of February. They seem to have entered the New England States *via* the north shore of Lake Ontario, and remained in them until the end of March.

THE CAUSE OF MIGRATION.

Sir Charles Lyell, in the passages already quoted, gives two causes for their irregular migrations, viz., an unusual increase in numbers, and an unusual scarcity of food.

Our Dr. Brodie thinks that the migrations of the Pine Grosbeak are often caused by the freezing of rain on the forests where the birds usually obtain food. Everything being then coated with ice, it is difficult for them either to perch on the branches, or procure seeds, and they come south for food.

These Pine Grosbeaks visited Toronto in great numbers while the Evening Grosbeaks were here. They were also very numerous six years ago, in February and March, 1884.

Professor Newton of England thinks that the Sand Grouse migrations to Europe were caused by great increase in numbers, and a consequent difficulty in procuring the means of existence.

The evening Grosbeaks, probably, breed in uninhabited districts, where they have no human and, perhaps, very few natural enemies. They may have so increased in numbers that their usual winter supply of food was inadequate for them, and hence the unusual extent of their migration. But whatever was the cause, they all seem to have returned to their usual haunts for the breeding season.

THEIR FOOD.

Their food was very various. In Ontario they fed on the berries of the Cedar and Mountain Ash, on apple seeds, choke cherries, haw-stones, and on the sprouted seeds of the Maple and White Ash.

They were very tame while in Toronto, often allowing themselves to be approached within a few feet, and many of them were caught alive, and kept for some time in cages. One female belonging to Mr. G. E. Atkinson is still living.

I have a mounted specimen of a male bird on the table, kindly lent by Mr. Blackburn, which shows very distinctly the whitish spot on the inner web of the two outer feathers on each side of the tail. Only a few of the males show this marking, the tail feathers being, generally, entirely black. The specimen exhibited, was taken in Toronto during the second week in February, 1890.

THE BRESSA PRIZE.

(Translated from the Italian, and read 3rd April, 1892.)

In the year 1836, Cesare Alessandro Bressa, Doctor of Medicine, died at Mortara, Italy, leaving to the Royal Academy of Science of Turin, the means for awarding biennial prizes as follows:—

The net income of the first two years is given as a reward to that Scientist of any nation, who during the past four years has made the most remarkable and useful discovery, or produced the most celebrated work in connection with Physical and Experimental Science, Natural History, Pure and Applied Mathematics, Chemistry, Physiology and Pathology, not excluding Geology, History, Geography or Statistics.

The net income of the second two year period is given for the same services, but competition is confined to Italian Scientists.

As the principal is over 100,000 francs, the biennial prize amounts to about $2,500.

The prize for 1891-92 must be given to Italians only. That for 1893-94 will be open to the world, and the Canadian Institute will give to any of its members, all particulars which have been or may be from time to time communicated.

For their information a summary is given of a document recently received from the Academy of above mentioned learned body.

The works for which the prize is claimed, are in the first instance considered by a committee of the Academy, and at the end of 1890 the following works were by that primary judicial committee referred to a second committee for a report:

1. *Bertrand.* Calculation of Probabilities.
2. *Hæckel.* Treatise on Radiolaria, Syphonifera and Deep Sea Cornaceous Sponges.
3. *Hertz.* Notes on the Transmission of Electrical Impulses.
4. *Lie.* Theory of Transformation Groups.

As to the first, though of the highest value, the committee did not think it fulfilled the conditions of the bequest. The report on the others s as follows:—

"E. Hæckel's work contains descriptions of the radiolaria, siphonifera and deep sea cornacuspongiæ, collected by the "Challenger" in her voyages from 1873-1876. The naturalists on the "Challenger" made large and valuable collections of the organisms living in the depths of the Ocean, and the British Government entrusted to Hæckel the study of the above groups mentioned. In 1860 he had already made known to science a number of radiolaria, and in his monograph on calcareous sponges and medusæ, had laid the basis of a new branch of biological study—comparative morphology—and had indicated the fundamental properties of protoplasm. From 1860 to 1888 he continued his studies on radiolaria. To this epoch belong his writings on the considerations which induced him to establish the kingdom of the *Protista*—intermediate between the animal and vegetable kingdoms.

"In the first treatise offered for this competition, Hæckel increased the known species of radiolaria from 810 to 4,318, but beyond its importance to systematic zoology, we must consider the very great value of the anatomical and physiological portion of the work. The second relates to siphonifera. The delicate structure and the fragility of these animals, their life in colonies and the many instances of their polymorphism, render their study extremely difficult, and Hæckel's notes have great value, not only on account of the new forms described, but also for the general theory of their organisation, embryogeny and philogeny—and the concerted work of the individuals and the colony. In the third treatise Hæckel describes systematically the corneous sponges of the deep seas, studies them histologically, and treats generally of the position of this group, and the proper classification of the porifera. In this memorandum are described the most important phenomena of the structure of hydroids and sponges. The three treatises form a work of 2,300 pages, with 200 illustrations, drawn in great part by the author. They are undoubtedly the greatest work of the four years 1887-90, in respect of zoology, and acquire still more value as being part of a vast book through which the author, studying the fundamental phenomena of life, and the development and relations of organisms, has acquired the reputation of one of the greatest naturalists who ever lived, and has inscribed his name by the side of those of Linnæus, Lamarck, Cuvier and Darwin.

"We now pass to the works of Hertz. These are to the number of nine, and on account of their volume, but an imperfect account of them can be given.

"Although the number of electrical phenomena known and studied in all their particulars is very great, our knowledge of the nature of electricity and the internal mechanism of these phenomena is very limited. The influence of a body, electrified either by a shock or a current, is exercised upon distant bodies without our knowing how this influence is transmitted across the intervening space. Faraday was particularly interested in this subject, and used certain devices for representing the condition in which electrical magnetic influence might in such a case be exercised. Maxwell, availing himself of the powerful aid of mathematics, carried the study of the theory of the causes of electrical phenomena a step farther, and proved that the luminiferous ether was the means for transmitting electrical influence, and, invading the field of hypothesis, founded the electro-magnetic theory of light, according to which all the phenomena of light are thought to be electro-magnetic in their nature. Some proofs were found to favor this theory, but they were indirect and incomplete. *Hertz* proposed to study experimentally the propagation of electric impulses, and availed himself of the extremely rapid oscillations which occur when an electric discharge takes place in certain circumstances. Suppose, for example, a conducting body electrified and put in connection with another not electrified, by a wire—when the wire fulfils certain conditions, the electricity, instead of distributing itself over the two bodies, and suddenly readjusting the equilibrium, rapidly oscillates from one to the other body, and does not equilibrate till after a great many such oscillations. By ingenious experimental arrangements, *Hertz* succeeded in shewing that electrical impulses, to which these oscillations give rise in surrounding space, propagate themselves with a definite velocity, and this was the first direct confirmation of the ideas of Faraday and Maxwell, that electrical activity could be transmitted between two bodies without interposing a third. He showed that the propagation of these impulses on wires and through air took place in the same way as that of light and sound. He measured the velocity of that transmission, and found in air an equal velocity to that of light. He studied the reflection of electrical vibrations on metallic reflectors, and found in this respect again, complete analogy with that of light. He showed that in wires and in the air we could have continuous waves formed by electrical vibration, as in the case of sound. He made a great prism of insulating material, and demonstrated that a ray of electrical vibration made to fall upon one of its sides, was refracted like a ray of light. He found that the index of refraction of that substance was about the same for light and electrical vibrations. All these experiments came in wonderfully to confirm the electro-magnetic theory of light, and every one perceived the great importance of the labors of Hertz, in correlating and referring to the same cause two such important parts of physics—two such large classes of phenomena. Besides this principal consequence of the experiments mentioned, Hertz has arrived at other conclusions, among which may be mentioned the proof that electrical movements, occurring within insulating bodies, produce on external bodies electro-dynamic effects, and that the ultra-violet radiations determine the discharge from two bodies of different potential, when the difference of potential without the influence of these radiations is insufficient therefor.

"The theory of transformation groups, by Prof. *Sophus Lie*, of the University of Leipzig, is a work of capital importance, in which are gathered together the original researches which science owes to *Lie*, into the internal structure of groups of transformation in general, and especially those of contact. The results of such researches apply to analysis and differential equations in mechanics, as well as to various geometrical problems. The richness and value of the theories of *Lie* have been widely recognized. Illustrious French mathematicians, such as Darboux, Poincaré, Picard, Goursat, have published works based upon them, and refer to him with the greatest admiration.

"In preceding competitions, the committee entrusted with the final investigations, have placed the names of the authors in order of merit, yet, without having wished to dictate thereby how the Academy might be pleased to vote. In the present case the committee does not feel enabled to act in that manner—they have examined three eminent works, relating to different sciences, and present the three without any distinction of their merits. Your vote will determine which best answers the desires of the founder of the prize."

THE GREAT CENTRE; AN ASTRONOMICAL STUDY.

BY J. C. HAMILTON, LL.B.

(Read 6th February, 1892.)

The paper opened with a short review of the history of astronomy. With reference to the special branch of the subject, it summed up the teachings of Pythagoras, as to harmony in the movement of the spheres, and the central fire of Philolāus, around which the heavenly bodies were supposed to perform a circling dance. Farthest off were the fixed stars, then in order the five planets the moon and the earth.

The beautiful theory of the harmony of the spheres was not lost sight of by our great poet, as is seen in the famous dialogue between Lorenzo and Jessica, (Merchant of Venice, Act 5, Sc. I.)

Reference was made to the theory of the Great Centre by other poets, such as Edgar A. Poe, in "Eureka"; and Addison, calling it the "Heaven of Heavens," in No 580 of the Spectator; Tennyson's last verse of "In Memoriam"; and Dryden's lines:

> "This place; the highest mansion of the sky
> I'll call the Palace of the Deity."

The "Mystery of the Seven Stars" was then discussed. As satellites revolve around planets and planets around suns, so the solar system moves around a grand centre. This holds good in regard to the constellations and known systems of the universe in an inconceivably magnificent extent. What that centre is may be asked. It was shown that strange reference to the Pleiades was made by Job; that the priests of Belus noted their rising and setting two thousand years before Christ, and astronomers point to this region as one of amazing majesty. The Greeks called them Pleiades and said they were the seven daughters of Atlas and Pleiône, of whom all but one, Meropé, were united to immortal gods and placed in heaven after death. Their names are Alcyoné, Meropé, Maia, Electra, Taygeta, Steropé and Celeno. The Greek name for the group has its origin ascribed sometimes to the word signifying to sail, as their rising was looked for by the sailors of the Mediterranean; but another derivation makes them the heavenly doves.

Our Mohawks have a legend as to the seven stars in which seven brothers who unfortunately fell in love with the same fair squaw, were translated to heaven on her untimely death. The Chippewas of Lake

Superior, with less romance, called the Pleiades *Madodisson* or the sweating stones, referring to the hot stones arranged in a group in their vapour baths.

Only six Pleiades are usually seen, though as many as sixteen have been made out by keen observers without artificial aid (Mr. A. M. Clarke's article on *The Pleiades, in Nature*, April 15, 1886, Vol. 33, p. 561.) Hipparchus mentions the possibility of discovering a seventh member of the group, Ovid too, "Quae septem dici, sex tamen esse solent."

The story of the "Lost Pleiad" is immeasurably antique and cosmopolitan as a myth or a tradition. The Pleiades are included in the great constellation of the Bull.

They are with us a winter constellation. Their position is best found by following with the eye the line made by the belt of Orion northward past Aldebaran and the Hyades.

Alcyoné is of the third magnitude, but was not 1750 years ago the lucida of the collection. The leading place was first assigned to Alcyoné by Tycho Brahe in the sixteenth century. Galileo detected nearly fifty stars in the Pleiades. M. C. Wolf, in 1875, at Paris, made a chart which included stars to the fourteenth magnitude to the number of six hundred and twenty-five, contained in a rectangle 135'×90,' in which Alcyoné occupies a nearly central position. By the photographic object glass, stars of the Pleiades down to the seventeenth magnitude have been deciphered, and more than one thousand four hundred have been placed on the photographic retina.

The Pleiades are immensely far off. None of them has any sensible parallax, nor are we informed of their intrinsic lustre, mutual distance or gravitating mass. Recent investigations of the structure of the Pleiades group shew a surprising miniature sidereal system, the richness and variety of which bewilder theoretical conceptions, and recall as anomalous the accumulated wonders of the Magellanic clouds. Groups are collected within the main groups, systems revolve apart, the subordination of which to the laws of a general federative union, leaves their internal liberty of movement unshackled.

The furthest of the suns forming the group are seventy-one times as distant from us as from the centre of their own system; consequently Alcyoné blazes upon them with five thousand times the brilliancy of Sirius. "It would seem," says Mr. Clark, "a star rather than a sun."

A learned Canadian, of eminent name and lineage, Mr. R. G. Haliburton, Q.C., F.R.G.S., now residing abroad, has made a study of primitive traditions as to the Pleiades. He has discovered a yearly calendar regulated by these stars. He has become known in connection with the so-called "Pleiades Year." A work published on the Continent "Die Pleiaden," has been dedicated to him as the pioneer in this interesting field of research, and Mr. Piazzi Smith, late Astronomer Royal of Scotland, borrowed largely from Mr. Haliburton in his book on the Great Pyramid.

Mr. Haliburton has long been promising to embody the result of his investigations in book shape. Failing this, I am, through correspondence and reference to his published essays, able to give some of the facts and observations. And so, without too much anticipating the promised story, which we will hail with pleasure, I will cull from the rich supply he lays before us.

In his pamphlet entitled "New Materials for the History of Man, 1863," Mr. Haliburton shows that the Festival of the Dead was, in ancient times, regulated by the Pleiades. The memory of the Deluge was by the Mexicans, the Egyptians and the Jews associated with the same time of the year—the middle of October. Among the Aztecs, as well as the Egyptians, the Deluge was commemorated at the beginning of the year of the Pleiades, that is when that constellation culminated at midnight. The Deluge and time were considered synonymous by the ancients. In Europe the last day of October and first and second of November are designated as the festivals of *All Hallowe'en*, *All Souls* and *All Saints*. They are connected with the commemorations known amongst all nations as the Festival of the Dead or the Feast of Ancestors, and this reminds us of the Voyage of Ulysses to the Gardens of Alkinoos, the abodes of the dead. . . . The Pleiades long retained their name Hesperides, Stars of the Evening, even when they had ceased to regulate the year, when their pleasant influences had been forgotten. They were also by the Latins called Vergiliæ or harbingers of the spring; and by the Hebrews *Chimah*, or the *Cluster or group of Stars*. The Pleiades gain twenty-eight days on the tropical year in every two thousand years. Hence the Pleiades that now culminate at midnight on 17th November, did so in October two thousand years ago. The Bull constellation including the Alcyonic group, bore the name Tar, Ataur and Attyr in Egypt. Hence the Latin *Taurus*. The year of the Tar and stars of Attaur, have left their impress on the very mountains of Great Britain. Many a hill is known as a Tor. Our ancestors raised the "Seven Altars" on these hills to the stars of the Tar, and to this day the pleasant influence of the Pleiades, commemorated by Job and celebrated by

Australian savages, is still lingering in Britain under the popular traditions as to the good King Arthur. It is worthy of note that the name of this king meant in Egypt a hill, (Bunsen's Egypt, I., 465.)

The era when the Pleiades left their impress on the calendars and traditions of nations, must, says Haliburton, in *Nature*, Vol. 25. 100, be very remote, so much so that such researches are like investigations into the fossils that tell of organisms that lived in a world and breathed an atmosphere different from our own. He found a tradition on the African Gold Coast, that the Pleiades are young women, six of whom are very beautiful, but the seventh is so plain that she conceals herself from sight.

Some tribes of the Australians dance in honour of the Pleiades, because "they are good to the black fellows." The negroes too, say "these stars are good to the darkies." The natives of both North and South America regard the Pleiades as beneficent stars, and dance in their honour. M. Mädler, of Dorpât, in 1846 developed the theory that Alcyoné, the lucida of the cluster, is the centre of gravity of the solar system, the luminous hinge around which our sun and the planets move through space. The theory had been mooted by Wright in 1750, and Lucretius had some fanciful notion as to our system revolving around a common centre: Lib. 1, de rerum Natura. "The theory of Madler, that Alcyoné, the brightest of the group is the central sun of the universe is most interesting," says Haliburton, on account of the fact that such was the actual belief of early ages. "The ancients in very remote ages undoubtedly believed that it was the centre of the universe, and that Paradise the primeval home of our race and the abode of the Deity, and of the spirits of the dead, was in the Pleiades, traces of which ideas we even find among savages."

With the Pleiades two sacred birds were connected. In Samoa there is a sacred bird called Manu-lii, the bird of the Pleiades. The Hindoos believed that Brahma came from an egg. The Greeks had similar traditions; Castor and Pollux sprang from an egg. So also Semiramis, and she was brooded over by a peliad or dove.

From Britain to Japan these stars are popularly known as the "Hen and Her Chickens," and the "Hen-Coop." In Mexico the Kingfisher was a sacred bird; so with the Greeks it was called the Halcyon, the bird of Alcyoné or Paradise; and the Halcyon days were the summer days at the end of autumn, which we should now render heavenly days. Mr. Haliburton found that among the Brahmins of Tyroloc, the name of November was *Kartica*, the month of the Pleiades. In Polynesia there was a year regulated by the rising of the Pleiades at the sunset, and their being visible all night long. He also found a three days' feast observed in Australia in honour of the Pleiades, and traces of the primitive Pleiades calendar he has discovered existing all over the world. These stars are apparently six in number; yet among civilized and savage races in Europe, in India, China, Japan, Africa and America this diminutive group is not merely regarded as seven stars, but what is more surprising, as "The Seven Stars," though the far brighter stars of the Great Bear might seem to deserve the title. In the Feast of Tabernacles, the Berber tribes build their temporary tents with a hole at the top, in order that the young men being instructed, may see the Pleiades passing overhead. The Jews were found to have the same custom. "We can now understand," says Haliburton, "the vestiges in Egypt of a popular belief that the Pleiades are in some way connected with the Great Pyramid, the existence of which was observed with feelings of surprise by Prof. Piazzi Smith."

Colonel Vyse is credited with noticing this phenomenon when making researches in Egypt some years since. Six of the pyramids at Gizeh have openings facing north, leading to straight passages which descend at inclinations of from 26° to 28°, the direction being parallel to the meridian. A person standing at the bottom and looking up, would have seen the Pleiades passing overhead when the Great Pyramid was built in 2170 B.C. Prof. P. Smith suggests that its seven chambers commemorated the seven Pleiades.

The Berbers of Morocco had a name for Alcyoné which was given because they said Paradise is there, and the Pleiades are the centre of all things. In Sahara are ancient mosques and temples where the year is still regulated thus, there being a tube from the top of the building, small above and larger below, through which the southing of these stars is observed.

"I am persuaded," says Haliburton, "that the day is coming when the learned will admit that these stars are the 'Central Sun' of the religious calendars, myths, traditions and symbolism of early ages, an era however so marvellously remote that investigations respecting it bear the same relation to the study of anthropology and to the science of religion, that paleontology does to natural history."

The essayist said in concluding: We have now reached as far in our enquiry as time will permit. It is admitted that it is still one of theory and speculation in advance of demonstrative and practical astronomy. Among objections to the selection of Alcyoné as Stellar Queen, may be that she is not of first astronomical rank, but of the third magnitude, while all the others of the group are of lesser apparent proportions. Some may suggest the great Aldebaran or Sirius the immense central sun, or perhaps Arcturus, with a diameter exceeding ninety millions of miles. Could he be placed between our orb and the sun, he would fill nearly all the intervening space. Yet as we have seen, the old Chaldeans, the Egyptians, the Berbers of Morocco, savage myths and folk lore, Job and the poets point to the same great centre. The inference is boldly drawn that a spot so comparatively small and insignificant as our planet, or even the solar system compressed into one great mass, cannot with reason be regarded as the future place of bliss. If in that are to be gathered the mighty intelligences and the innumerable redeemed of all ages, the argument is advanced that Alcyoné, the great lucida of the group, the physical centre of the universe, may be also its spiritual and divine centre.

This, as we have seen, has some weight with men of science, but is mainly found as yet in poetic musings. Such may be included in the Laureate's conception of

"One far off divine event,
To which the whole creation moves."

THE ABENAKIS OF SAINT JOHN RIVER.

BY EDWARD JACK.

(Read 23rd January, 1892.)

When Champlain landed at the mouth of the St. John River in the year 1604, he found a number of Indians living there. In answer to his inquiries as to what they called this river, he received this reply, Ouigoudi; now the name of St. John River in Abenaki as well as in Micmac is Wallostook, the word Ouigoudi meaning camping ground. Singularly enough this error has been continued down to our day, and one of the ferry boats which cross the harbor of St. John is called the Ouangondy, a corruption of the word Ouigoudi, arising from a misprint in a history of Nova Scotia in which the word was thus printed. Had the parties who thus misnamed this steamboat asked the Aborigines who were camped near the city, what they called the St. John, they would have received a correct answer. Lescarbot in his "Histoire de la Nouvelle France" says, that when in 1606 he came to the River St. John, "being in the town of Ouigoudi, for thus I can properly call an enclosed place full of people, he saw in a great thicket about eighty savages."

Just opposite the city of Fredericton also, there is a collection of mean huts in which some of the Abenakis of the St. John reside, this they to-day call Ouigoudi. At the time of Champlain's arrival, the banks of the St. John were inhabited by the Abenakis, a branch of the great Algonquin family; their descendants tell me that their ancestors came from the west, and that before the white men arrived among them they worshipped the sun and moon.

The Great Spirit was called by them Ketsi Niouaskoo, and the Evil Spirit Matsi Niouaskoo. One of my Indian friends said to me he had read about the latter in his catechism, and that he is the devil.

It is stated in the relations of the Jesuits that in the year 1642 some Algonquins who were attending a religious celebration at Montreal, having ascended the mountain, one of them pointing to the hills situated to the south and east, said to the French, that the Hurons who then were their enemies, had driven their ancestors from this country, some of whom had fled to the country where the Abenakis now live. The first missionary to visit the St. John was Pierre Biard, of the Society of Jesus, who was sent to Acadia in 1610-11, through the exertions of the Duchess of Guercheville and other ladies of the French Court. Biard in a letter to Claude Aquavia says· "I beseech you by the merits of Jesus Christ to remember us and these most solitary countries, assuredly we are sowing in great poverty and tears, may the Lord deign some day to grant us a harvest of joy." In another: "Our days and nights flow sadly along, what consoles us is the hope that God who reanimates the downcast heart will shortly come in his mercy and assist us in our wretchedness."

In 1611 Biard ascended the St. John in company with Biancourt, and celebrated Mass on an island six leagues from its mouth. This island is probably one of those which are situated not far from what is now called Oak Point. According to Abbe J. A. Maurault, the Abenakis (men of the east) formerly inhabited what are now Maine, New Hampshire and New Brunswick, extending even as far as the shores of Nova Scotia. This tribe formerly consisted, according to him, of several divisions. He enumerates the following as being the chief:

1st. The Kanibesinnoaks, those who live near the lakes; these were called Canibas by the French.

2nd. The Patsuikets, those of the Land of Fraud, because there were among them many New England savages, who according to the Abenakis had established themselves by fraud on the Merrimac River, and extended themselves as far as the Connecticut; they were only one division of the Sokokis.

3rd. The Sokowakiakis, men of the south; these resided in the southwest part of Maine and in New Hampshire; the French called them Sokokis.

4th. The Nurhantsuaks, those who travel by water, because they resided on the upper part of the Kennebec, and on the shores of the lakes.

5th. The Pentagoets, who were also called Penaouabskets, those of the stony country; these resided on the Penobscot, where the shores were in many places covered by stone.

6th. The Etemankiaks, those of the country of snow-shoe hides; these resided on the River St. Croix and on the St. John. The Abenakis called this territory Etemandi, because there were here great quantities of moose and caribou, from whose hides excellent snowshoes were made.

7th. The Oualastegouiaks, these resided on the River St. John; later they were called the Mouskouasoaks, Muskrats, because they lived like these animals on the banks of the river. The remains of this tribe and those of the Etchemins are now called Melecites. These Indians now occupy the greater part of New Brunswick, and it is with them that the writer has to do at present.

Abbe Maurault gives the meaning of the word Malouidit as being those of Malo, which he says was the name given to the Metis among them, because the greater part of their fathers came from St. Malo. He also says that the Abenakis called the grain which was introduced among them by the French, Maloumenal, Malo grain. The early connection of the Abenakis with the English is shown by their word for king which is Kinzames, this evidently comes from that of King James, who ruled England from 1603-1625. This or a similar word is used for the name of Queen Victoria, as any one may learn by going into one of the Abenakis school houses, and asking the dusky little scholars who are very tractable and who excel much in writing. The chief settlement of the Abenakis on the St. John was at Augh-Pa-Hac, head of tide six miles above Fredericton, at the point where the still water meets the rapid. John Gyles, who was a prisoner among the Abenakis from 1689 to 1698, was taken to this place. About the first of July 1881, the writer being desirous of visiting the vicinity of Augh-Pa-Hac, all traces of which have completely disappeared, engaged one of the most intelligent of the Abenakis to pole him to the place in his bark canoe. Noticing a good chance to land and have our dinner, we went ashore near a cold spring; when the meal was finished, the Abenaki took out his pipe and enjoyed a good smoke. This made him more communicative than usual, for they are not a people who are fond of much talking. He said that "when the first white man came to St. Anne's Point just above Fredericton, he found an Indian sitting on a bench in front of his wigwam; the Indian motioned to the white man to be seated, and as the latter was taking his place on the bench the former out of respect moved a little away, then the white man moved nearer, until the poor Indian was pushed entirely from off the seat." I asked him why his people liked the French better than the English; in reply he said that "When the English took Quebec they promised to treat us Indians as well as the French did, but they never have and never will; the French lived among us, learned our language and gave us religion, they were just like ourselves; this is why we thought so much of them." After ascending the river for a mile or two more we came opposite the foot of what is now called Hart's Island; this the Abenaki said was formerly called Old Town by the Indians.

Here it was that the Abenakis lived in summer; their wigwams placed around the island formed a sort of stockade, the centre being reserved as a place for dancing. The Mohawks, he said, had often attempted the destruction of the Indians of the St. John, and once in particular they would have been successful but for an aged squaw, who was so wise that all the tribe listened to her opinions with respect. "One evening long before the whites had come among us," said my Indian whose words I give as nearly as possible, "this woman with her grey hair falling down over her shoulders, rushed into the centre of the encampment calling out "there is trouble, there is trouble;" she was soon surrounded by the anxious braves who wanted to know what she meant. Look at Wi-Jo-Sis, (Curry's Mountain) a hill on the opposite side of the St. John, back of it a great party of Mohawks are hidden, and they are only waiting for night to attack and kill you all, if you are not ready to meet them; a council was at once called and a course of action determined upon. Some old Indians call this mountain We-Jo-Sis Po-Te-Wis, or Little Council Mountain, because in old times the Mohawk braves always went there first to hold a council before attempting to attack the Abenakis on Nkarne-Odan (Hart's Island), they would stop on this mountain for days watching the Abenakis. In order to deceive the Mohawks, the Melicites concluded to have a big dance; while this was going on the braves one by one slipped out, leaving none but the old men and women to keep it up. Before leaving however, they had agreed upon a particular sign by which they could distinguish each other in the dark as they were crawling through the long grass, or among the thick bushes which surrrounded the island, and he who did not respond to this sign was to be dispatched immediately and his bleeding head to be thrown among the dancers. The Mohawks, as night advanced, stole along noiselessly to the Melicite village, but wile had been met with wile, and before day dawned many a Mohawk's head had been thrown among the dancers, with the whispered command, dance harder, dance harder. All of the Mohawk braves were slain, the others were killed as easily as you would cut a chicken's head off, or knock down a lamb. Some three or four had been reserved however, whose noses and ears were cut off and they were allowed to return home in order to show the Mohawks how they would be treated should they try the like again." As my friend had again thrown off all reserve and become talkative, I seized upon the occasion to note down what he said. I had been speaking about the food of the Aborigines. "You want to know what vegetables we used before the white man came among us; we will go over to the island, and I will show you the Indian potatoe; when I was a little papoose I remember coming here with my mother for them, I picked them up as she dug them with a hoe. We will find the

Indian potatoes here," said my friend, as he pushed his canoe ashore, landing at a spot shaded by alders, where he began to dig with his hands, and soon brought to light what seemed to be a lot of very small potatoes strung together at equal distances; we wanted to see the plant of which they were the roots. After a good deal of looking among the tops of the alders, the Melicite brought us some leaves of the common bind weed, which had climbed up among them; it is of the same family I believe as the sweet potatoe. "There is another root," said the Melicite, "which our fathers used, we call it Indian rice, I often use it, it is very white and nice and is excellent in soup." From the description which he gave of the plant it must have been the yellow lily, which grows in rich damp ground on the shores of the St. John. "We use, in medicine, among other plants the root of the sweet flag (said the Indian). Long ago a great sickness fell upon the Abenakis, and many of their women and children died. One night there appeared to one of the braves a strange figure, as of a man all covered with joints and bars, I am, said he, Ke-Whis-Wask, muskrat root, (the Indian name for the sweet flag), and can heal you all; dig me up, steep me in water and drink me, and I will cure you. After saying this he disappeared, and the next morning, the brave doing as he was told, all of the sick on drinking it, recovered." Leaving the island where we were shown the Indian potatoe, as the Melicite poled his canoe towards Savage Island, the water became quicker, there, said he, pointing to the west side of the St. John River, is Augh-Pa-Hack, and here once stood our church and village, the English destroyed them long ago. Pointing towards Savage Island he continued, "There was in former times on this island a race course, which extended all around it; here after ball playing the young Indians tried their speed, I have seen when a boy, marks of this race course in the sod. In old times the young Indians were carefully trained, they were kept by themselves and everything was done to make them strong and supple. The Indian boys were every day practised in the use of the bow, by some old man whose duty it was, so that at fifteen years of age they became good hunters, the old teacher having taught them how to make traps and catch game of various kinds. The young Abenaki was not allowed to choose his own wife, the parents did this; when they saw a young squaw who was considered a suitable match for their son, they sent bracelets and a piece of wampum to the girl. Her relatives then met and consulted over the matter, and if the match was approved of the presents were kept, if not, they were returned." (The old Abenaki who gave me this information, said to the writer), "My old woman and I never spoke to each other before we were married, my father and step-mother made the bargain. I think young people are getting too saucy now, for they must do a great deal of talking before they can get married."

"Indian corn," said my Abenaki friend. "was once grown to a great extent on Savage Island; when the grain was ripe the corn on the cob was hung up to dry in the wigwams, and when dry enough was removed from the cob and placed in baskets, which were set away for winter use; when used it was sometimes boiled whole, and at others cracked by hand between two stones, after it had been cracked it was put in a pot and boiled with sturgeon or salmon roes until it was very soft, this food was eaten out of wooden bowls with wooden spoons. After the corn was cracked it was called Nsabon. Before making this boiled food, the hulls had been removed by boiling the corn in lye, after which it was washed in pure water. The boiled food was called Qunosk-ke-te-ga-ne Nsabon, in English, boiled corn pudding. Augh-Pa-Hac was a famous place for salmon and sturgeon in old times, they were caught in July, the roes were saved and hung up in the sun to dry, they were afterwards smoked. When dry enough they were rubbed by hand so that the eggs separated, the product was then put in birch bark boxes and hung up in the wigwam." Cadillac, the founder of Detroit, mentions that when ascending the St. John, he found the Abenakis of Medoctet, or Meductic, cultivating pumpkins, corn and beans. Medoctet was a famous Indian encampment, it was situated on the west side of the St. John on a rich flat, a short distance above the mouth of Eel River, and it was this river that the Abenakis ascended when they made their raids on Massachusetts. There was another Abenaki village on the Saint John River, just below Edmundston, the northern terminus of the eastern division of the Canadian Pacific Railway. The Recollets had a mission at Augh-Pa-Hac in 1620, and in 1696, Father Simon, the missionary at that place, sent down forty of his Neophytes to aid De Villebon in his defence of Fort Naxoat, situated at the mouth of the River Nashwaak, and nearly opposite Fredericton, at the time when that fort was attacked by the New Englanders, who were always ready to harry and annoy either French or Indians. This disposition was no doubt the cause of the Abenaki emigration to the province of Quebec. The first that we hear of them in that province was in the year 1637, when some of them came to Quebec to buy beaver skins. Evincing an intention of ascending the St. Lawrence still further, they were forbidden by a Montagnais chief, but notwithstanding this they went as far as Three Rivers, in order to trade with the Algonquins. The Montagnais chief complained against them to the governor M. De Montmagny, representing to him that these Indians had come to Canada in order to buy beaver skins to carry to the English. The wigwams of the Abenakis were visited, and the articles which they had received in exchange for their wampum were confiscated, and they were enjoined immediately to return to their country. In 1640 an Englishman accompanied by twenty Abenakis arrived in Canada; the Governor on being informed of this, forbade him from visiting Quebec. As the rivers by which he had ascended to the St. Lawrence were too low to return, he was taken to Tadousac, and put on board of a vessel which was about sailing for Europe. Some time after the Abenakis were returned to their own country. At this time they were looked upon as strangers, and the favour of residing in Canada was granted only to a few who remained at Sillery, in order to attend religious services there. Charlevoix, in his History of New France, says that the French could not have maintained themselves in Canada without the assistance of the Abenakis, that in Acadia they formed their principal bulwark, and constituted an impassable barrier between New England and the French Colony, and that they were at length placed in Canada on the Rivers St. Francis and Becancourt, in order to create a barrier against the Iroquois, and to avert their irruptions. The chief immigration of Abenakis to the St. Lawrence took place not far from 1680; no doubt the causes were various. In the first place they and the French were co-religionists, and the latter were very glad to have their assistance as warriors. We hear of them in 1695 capturing a party of Iroquois on an island in Lake Champlain. After the victory they named this island Atepsec, the island of the head, because the Iroquois when surprised by them, had been gorging themselves on a bull's head, which they had roasted. Though firm friends of the French, the Abenakis could speak plainly to them when they deemed it necessary. Thus we find that in 1717 when an embassy was sent by some of them in Acadia to wait on the Marquis De Vaudreuil in order to ascertain whether he would help them against the English in case of a rupture, "What assistance will you give us, father," they asked; "my children," said Vaudreuil, "I will send you secretly some hatchets, and some powder and lead." "Is this the way then," the Indians retorted, "that a father aids his children, and was it thus that we assisted you? A father," they added, "when he sees his son engaged with an enemy stronger than he is, comes forward, extricates him, and tells the enemy that it is with him that he has to do." "Well, replied De Vaudreuil," "I will engage the other Indian tribes to furnish you with aid;" at these words the Abenakis retorted with an ironical laugh, and said, "know that we who inhabit this vast Continent will whensoever we please, so long as we exist, unite to expel all foreigners from it, be they who they may." This declamation surprised the Governor, who to pacify them said, that rather than abandon them to the English, he would march at their head.

THE TRADITIONS OF THE ABENAKIS.

The Indians of the St. Joh nRiver have a vast number of traditions; some of these agree exactly with those which I have heard from the Chippeways on the head of Lake Superior, and a comparison between those common to the two tribes would form a most interesting study. Among uneducated people oral traditions form their history and literature, and hence it is that one hardly meets with an old Abenaki who has not a vast number of stories of various kinds relative to his people, as to those mysterious and shadowy beings which his ancestors taught him were to be found in the forests or around the lakes; a favorite situation for the dwelling place of these spirits was the top of some lofty mountain, the more inaccessible the better it suited the purpose. The Indian who in former years wandered solitary through the vast forests among which the St. John winds in its course to the sea, was forced to commune with his own mind; if the deep voiced thunder bellowed or the lightnings flashed, the more easily impressed among them heard in this the voice of the Great Spirit. He may have said on his return from his hunt that the Great Spirit had spoken to him, adding to what he had heard the creations of his own heated imagination; the story being retold by the listener was added to by him, and thus by a series of increments these traditions have been built up to a perfect story, just as the larger crystal is built up on and around its primitive molecule. In a short and imperfect sketch such as the present one is, I give only a few of these traditions, and they are given in a very disconnected manner, but as nearly as I can in the language of the narrators as taken down from their own lips. The most prominent character in all the traditions of the Abenakis of the St. John is Glooscap. They tell me that the traditions respecting Glooscap they received from the Micmacs, and that the language which the Turtle, Glooscap's uncle, spoke was Mic-mac. Glooscap was a twin, his brother burst his way out of his mother's side, after they had grown up his brother became jealous of Glooscap and determined to kill him. In conversation with him one day, Glooscap's brother casually asked him what would kill him? Glooscap, knowing his brother's evil thoughts, did not tell him the truth, but said to him that a blow from the down which forms the head of the bullrush would do it; and "what would kill you?" said he to his brother. "A bird's down," was the reply. As soon as the younger brother could get a bullrush he picked off some of the down and threw a handful at Glooscap's head, it knocked him over and he remained stunned for a long time. When he came to himself and knowing that his brother was very dangerous and wanted to do all the evil he could, he determined to get rid of him, which he did by striking him with some bird's feathers. One of the most intelligent of the Melicites in conversation with me said "there must be something in Glooscap, for have I not seen his pack where he left it, which is now turned to stone? This is on the seashore below St. John. I have seen too the entrails of the moose which he killed near Machias; these are all twisted and are of white rock; then there is his head on the banks of the St. John." One evening I asked this man to tell me all about the famous Glooscap, and committed his words to writing, they were as follows:— "Glooscap is a spirit, he does not grow old, he lives at the south end of the world, the wild geese were his watchers, and the loon and wolf his dogs, there were seven Indians who once went to see him in order to get their wishes granted; they found him living with his grandmother, whose youth he had renewed four times. When these seven men came to where Glooscap was, and it had taken them seven years to reach him, one of them said to him, I want long life; telling him to come out of the wigwam, Glooscap took him to a spot near by, saying, stand there, you will get your wish, and then turned him into a cedar tree, all limbs and fit for no use, so that no one would ever cut him down. Glooscap is constantly making arrow heads preparing for a general war, he always looks young; where he is there is a medicine man who is blind, he lies on one side for seven years, he is then turned over and where he lay, herbs, good for medicine, were found growing. The benefits of these were explained by him. Glooscap asked this medicine man what he would do in case of a general war, he said that when all were dead he would open his eyes. When Glooscap's visitors were ready to leave, he pointed to the remainder of them a way of return which led them home in four days. Glooscap was very good, anything which was big and dangerous he reduced in size. One day he met the squirrel then an animal of great size, and asked him what he would do if he met a man; there was a stump close by, at this the squirrel rushed and tore it down with his teeth and claws, then Glooscap put his hand on the squirrel's back three times, and reduced him to his present size. In former years Glooscap had a camp as large as a big city, in this were all kinds of animals, even to the toad, and such power had he over them that he made them believe that they were human beings. The eagle (kulloo) was there, whose wife was the caribou, he had a son and daughter by the caribou, this daughter married the Turtle, who was Glooscap's uncle. Soon after this, Glooscap told his uncle to make a feast; "how can I do it?" said the Turtle. "You ought to be old enough to know yourself" said Glooscap, telling him at the same time to go down to a long point which ran out into the sea and wait until a whale came along, this he was to catch and carry to his father-in-law's house; soon one came swimming by, this he caught and towed ashore, putting it on his back he carried it to the place named, but thinking that he could carry it further, had only advanced a little when he found the weight of the whale pressing so heavily upon him that he could not move. The other animals in terror came to Glooscap and told him what had happened, he said to them not to mind but to cut up the whale. this they did. Then the Turtle came out stretching his legs and saying that he was tired and sleepy, the great load which he had carried made the Turtle very proud. so that he began to hold councils on his own account with the other animals; at one of these he proposed that Glooscap should be killed and he become their ruler. All the animals even to the toad took part in these councils. Glooscap in order to defeat the tricks of the Turtle turned himself into an old squaw and made his way to the council house. At the door he found another squaw in the shape of a porcupine, she was sitting on one side while a toad sat on the other. Glooscap said to the porcupine what does all this mean? it is none of your business was the reply, so Glooscap took the porcupine's nose off between his fingers, and turning in a rage to the toad and making the same inquiry and receiving the same reply treated it in the same manner. As soon as Glooscap was gone the porcupine said to the toad, where is your nose? at this the toad looking at the porcupine said, where is yours? they were then satisfied that it was Glooscap who had been talking with them. After the council was over the Turtle said in a friendly manner to Glooscap, we will sleep together to night. After they had gone to bed and when the Turtle thought that Glooscap was asleep he attempted to stab him, but only wounded himself. At this Glooscap jumped up saying, let me have a cut at him. and wounded the Turtle badly; after this the animals all got fighting with one another. the Turtle quarreling with them all. One of them at last said to Glooscap, the Turtle will kill us all; then help yourselves by giving him a kick in the breast whenever he becomes troublesome. They did so and he appeared as one stunned. After this Glooscap called all the animals to him and transformed them to men and women. The wolf ran off and the loon flew away, both sorry enough to leave their master. When the Turtle came to his senses, seeing no one, he said I will return to my natural life, and retreating to the water he has remained there ever since."

The Melicites have many legends regarding Glooscap. There is a place about half a mile below what is known on the St. John River as Boar's Head; here they point out what appears to them to be the form of a man's head: this they say is Glooscap's image in the rocks, and they note this as the place where he first came to the St. John on his way down to kill the great beaver who had built a dam at the falls close to the city of St. John, where the suspension bridge now crosses the river. They say that after breaking down this dam, Glooscap drove the great beaver which had constructed it, far up the river. The Tobique Indians point out some ledges which are known as the Tobique rocks, as being part of the stones which Glooscap pelted this beaver with; they also say that he subsequently took refuge in Temiscouata Lake, and that the high hill on its shores opposite the mouth of the Cabano is the house which he built after having been driven up the river from the mouth of the St. John. The Abenakis call the rocks between which the river passes into the harbor of St. John, Gtchi-quaabeet-a-wi-cup-a-hegan, which means, great beaver's dam. Within the memory of the writer, the Abenakis when passing Glooscap's Head, before mentioned, on their way out to sea, would throw figs of tobacco from their canoes into the river as votive offerings to Glooscap, in order that he might vouchsafe to them a pleasant voyage and grant them a safe return. Denny, who held extensive rights in Acadia about the middle of the 17th century, mentions a remarkable tree which was floating around below the falls at the mouth of the Saint John, and which had been there for a very long time; this he says, "the Abenakis called the Manitou, that is to say the devil, the homage which they formerly rendered to it was one or two beaver or other skins, which they fastened to it with an arrow head, made of moose bones, which they sharpened by means of stones. Afterward, when they were passing through this place and their Manitou did not make his appearance, they held it as an evil omen, saying that he was angry with them. Since the French have been in these parts and have furnished them with iron arrow heads they use no others, and the poor Manitou has his head so covered with them that one can hardly stick a pin in it. I have seen it, and M. De La Tour's men who were with him, and afterwards with me, have assured me that they once fastened ropes to this tree, and that with a ten oared boat rowing with all of their strength and with the current, they could not drag it out of the hole."

There are many other traditions among these people, respecting "Lox," "Micumwes," "Kulloo," and many other creatures of their imaginations, which may form the subject of a future article.

CELTIC PROSODY.

BY NEIL MACNISH, B.D., LL.D.

(*Read April 16th, 1892.*)

Though Celtic grammarians, such as O'Donovan in his excellent Irish Grammar, have devoted a section or chapter to the versification of the language with which they are dealing, it is very much to be regretted that, so far as I know, no separate or convenient or exhaustive book or treatise on Celtic Prosody has hitherto appeared. The Celts are *serius docti* in more respects than one. As so much praiseworthy attention has been directed in recent years to Celtic Literature, and as several Celtic Chairs have been founded, it is to be hoped that some Celtic professor, who can command sufficient leisure, will prepare, for the benefit of all lovers of Celtic lore, a Celtic Classical Dictionary, wherein will be lucidly arranged and detailed all that can be gathered from the ancient poetry of Scotland and Ireland and Man, and from the annals of Wales and Cornwall and Armorica, respecting those heroes whose names occur in the more ancient Celtic poems as well as respecting the places and customs of which frequent mention is made in those poems. It is to be fondly hoped that among our Celtic scholars there will soon appear a Lempriere, or a William Smith, who will prepare a Classical Dictionary of Celtic Biography, Mythology and Geography; and also that a Hermann, or a Bentley, or a Ramsay, will speedily appear who will prepare, for the benefit of Celtic scholars and all lovers of Celtic poetry, a full and lucid treatise on Celtic prosody. To the construction of Celtic poetry Zeuss has devoted a *Caput Alterum*, in which he exhibits his well-known learning and thorough acquaintance with even the oldest and most obscure fragments of Celtic poetry. He writes strongly in praise of Celtic prosody, for he thus terminates his examination of it: "By the oldest as well as the most recent examples that have been adduced, it appears that the form of Celtic poetry is more adorned than the poetic form of any nation, and that the ornamentation is greater in the older poems themselves than in the more recent. In consequence of that greater adornment it has doubtless come to pass, that even from those times at which the Roman Empire was rushing to destruction, the Celtic form, at first in its entirety, and subsequently in part, was taken over not only into the Latin poems but also into the poems of other languages and remained in them." Matthew Arnold whose fame as a literary critic is great, has these warm words in praise of Celtic poetry: "The Celt's quick feeling for what is noble and distinguished gives his poetry style, his indomitable personality gave it pride and passion, his sensibility and nervous exultation gave it a better gift still, the gift of rendering with wonderful felicity the magical influence of nature. Rhyme itself, all the weighty evidence tends to show, comes into our poetry from the Celts." The Rev. Thomas Price, whose bardic name was Carnhuanawc, says of Aneurin one of the poets of his own country—Wales, "that English poetry was greatly indebted to him." Mr. Price further asserts not only that the admirers of poetry are under obligation to the ancient British bards, but that much of the refinement of civilized life is more intimately connected with the traditions and history preserved by them than may at first be apparent."*

It is certainly very gratifying to have the commendations of scholars of the erudition and critical ability of Zeuss, Arnold and Price, in favour of the value which attaches to Celtic versification in itself and in the peculiar characteristics of it, apart altogether from the claims which it has on the attentive study of the Celtic scholar. It is a mere truism to state that unlike Greek and Latin poetry where scansion depends upon the quantity of the syllable or syllables that form a word, scansion is regulated in the Celtic language by accent and not by quantity, by the stress of the voice and not by the length or shortness of the syllable or word. Such feet as the Iambic, and Trochee and Dactyl are common to Greek and Latin and to the Celtic languages. There must be some correspondence between those feet and the natural manner in which the human heart expresses its thoughts and feelings. Grote contends that "great as the power of thought afterwards became among the Greeks, their power of expression was still greater. In the former, other nations have built upon their foundations and surpassed them, in the latter, they still remain unrivalled." Horace expressed the truth very distinctly, when in reference to the influence which Greek poetry and Greek versification had on the poetry of his own nation, he wrote:

Graecia capta ferum victorem cepit et artes
  Intulit agresti Latio.

In his *Treatise on Poetry*, Aristotle says that the Iambic metre was so named, because it was the measure in which people used to satirize each other. The Iambic is of all metres, he contends, the most colloquial as appears from the fact that our common conversation frequently falls into Iambic verse. Müller in his Literature of Greece thus writes (vol. 1., p. 181): "The Iambic by proceeding from the short to the long syllable acquires a tone of strength and appears peculiarly adapted to impetuous diction and bold invectives, while the Trochee which falls from the long to the short has a feeble character. Its light tripping movement appears peculiarly suited to dancing songs, and hence besides the name of *Trochaeus*, the runner, it also obtained the name of *Choreius*, the dancer."

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* Price's Literary Remains, Vol. 1, p. 107.

Zeuss correctly observes, that from the Greek and Latin nations whose poems are contained in a metre either by a settled calculation or by an order of long or short syllables, other nations belonging to the Indo-European family such as the Germans and Celts differ, inasmuch as all their poetry is founded on the agreement of sounds as well in the first as in the last syllable of words. Some races belonging to the Indo-European family, employ alliteration, and have two and three words in the same verse—words that begin with the same consonant or vowel. Other races have followed the agreement of sounds not only in the beginning but also in the middle and end of words. These peculiarities obtain in the case of the ancient Celtic poems. Davies in his *Examination of the Claims of Ossian* (p. 199) avers, that if we may judge of their verse by the oldest specimens which can be produced by their descendants in Ireland, Scotland, Wales and Cornwall, the Celts carried their art no farther than to adjust the number and cadence of syllables in each line, to add the embellishment of strong and impressive alliteration and to connect their verses with final rhymes which were sometimes continued without variation for several lines together. Davies goes on to say, that to assist the memory nothing could have been more conducive than the strong allitterations and long continued rhymes which we find in the Old Welsh Bards. The very sound of one word suggested the succeeding, and one line gave the echo of another. It must have been for the same purpose of assisting the memory, that these Bards frequently began several periods with the same phrase, and several successive lines with the same letter. Upon the whole it appears that the mechanical correspondence of articulate sounds, however differently understood, is the great principle of Celtic verse in general, and that the obvious correspondence of sounds naturally similar was attended to, before the Bards thought of that which is more complex and artificial." In his Introduction to his *Beauties of Gaelic Poetry*, Mackenzie correctly contends "that though much of Gaelic poetry might be scanned, a great deal of it cannot be properly subjected to the classical test by the most ingenious, and yet a Celtic ear will tell that it is good. The rules for scanning by which Latin verses are governed, are alien to the Gaelic, which certainly does not owe the art of poetry to the Romans. The concord does not always depend on the coincidence of final words, but rests on some radical vowel in corresponding words ; and these not terminal alone, but recurring in several places throughout the verse." Stephen, in his Literature of the Kymry (p. 480) properly observes "that the works of the Cambrian Bards should not be judged by the critical principles which now prevail. Those Bards, according to an old authority, preferred, beyond all rhetorical ornaments, the use of alliteration and that kind more especially which repeats the first letters or syllables of words. They made so much of this ornament in every finished discourse that they thought nothing elegantly spoken without it." Alliteration, therefore, is one of the peculiarities of Celtic poetry. The writer of an article on *Alliteration*, in the Encyclopædia Britannica, remarks "that as Milton defines rhyme to be the jingling sound of like endings, so alliteration is the jingle of like beginnings." Churchill describes himself as one who often, but without success, had prayed

"For apt alliteration's artful aid."

Coleridge furnishes a good example of alliteration when he says,

"The fair breeze blew, the white foam flew,
The furrows followed free,
We were the first that ever burst
Into that silent sea."

The Welsh poet Llywarch ab Llywelyn furnishes many beautiful examples of alliteration, *e.g.:*

Teyrnllu, teyrnet teyrnllaw teyrnllin
Teyrnllyw teyrnas ternyse torment.

The incitement to valour which Ullin gives to Gaul in the fourth Book of Fingal, affords a good illustration of the manner in which Ossian practised alliteration, *e.g.*:

Lamh threun 's gach cas cridh 'ard nach geiil,
Mar thorunn biodh do lamh, a laoich,
Do dhearg—shuil mar chaoir a' d' cheann,
Mar charragh cruaidh do chridh a' d' thaobh.

In Duncan Ban Mac Intyre's Beinn Dorain, alliteration appears to fine advantage, *e.g.:*

Gu stobanach, stacanach,
Slocanach, laganach,
Cnocanach, crapanach,
Caiteanach, romach,
Pasganach, badanach
Bachlagach, boidheach.

In his Oran Ghlinn-Urchaidh this excellent specimen of alliteration occurs:

Cinnidh arbhar craobhach ann
Cho caoin gheal ris a' ghruth,
Gu reachdmhor biadhmhor, brioghmhor,
Trom, torrach, liontach, tiugh.

In the first verse of that extract *cinnidh* and *craobhach* begin with the same letter, *c*; *arbhar* and *ann* begin with the same vowel, *a*. In the second verse the initial *c* of *cinnidh* and *craobhach* in the first verse occurs in *cho* and *caoin*; *gheal* and *ghruth* begin with the same letter or letters *gh*. In the third verse the two last words begin with *b*, and the three last words end in the same syllable *mhor*. In the last verse *trom*, *torrach*, *tiugh* begin with the same letter. *Ach* forms the termination of *torrach* and *liontach*. In a section which he has entitled *Consonantia Latina*, Zeuss shows how the peculiarities of Celtic poetry found their way into Latin poetry, and influenced it to an extent of which many Celts have no adequate knowledge. St. Ambrose, Bishop of Milan, composed hymns in Iambics into which he introduced the concord or correspondence (consonantia) which obtains in the ancient Celtic poetry. A variety of vowels that agree among themselves is allowable. The demands of correspondence are satisfied by such terminations as *us*, *is*, *es*, *as*, and *im*, *am*, *em*.

Lucan in the opening of his Pharsalia has alliteration, and concord, *e.g.*:

Bella per Emathios plus quam civilia campos
Iusque datum sceleri canimus populumque potentem.

In the first verse which has been cited, the last two words begin with *c*, and the third, fourth and last words have correspondence, while the same thing obtains in the case of *Bella* and *civilia*. In the second verse, the first two letters in *populum* and *potentem* are identical. There is a correspondence between the *que* of *Iusque*, the *i* of *sceleri*, and the *que* of *populumque*, and between the *um* of *datum* and *em* in *potentem*. St. Ambrose composed his hymns in Iambic Tetrameters. While he is faithful to the classical requirements of his metre, he introduces the correspondence which he found in Celtic poetry, *e.g.*:

Somno refectis artubus spreto cubili surgimus
Nobis pater canentibus adesse te deposcimus.

Not only is alliteration present in these verses, the two last syllables of both verses terminate in the same manner, and there is a correspondence between the last syllable of the first Hemistich in each verse, *i. e.*, between *us* in *artubus* and *us* in *canentibus*. Many scholars who are conversant with the writings of St. Augustine and with the very important contribution which he made to Patristic Theology, are in all likelihood not aware that he virtually effected a revolution in Latin poetry. Of his *Psalmus Abecedarius*, Zeuss affirms that, as if it were to open a new country and to announce a new age, it presents a novel form of poetry, inasmuch as in it metre and every calculation of tune are neglected and attention is paid to nothing save the settled number of syllables along with correspondence. Such are the circumstances which constitute the form of Celtic poetry, *e.g.:*

Bonos in vasa miserunt, reliquos malos in mare.

Here there is a manifest departure from the laws of Latin scansion, while the peculiarites of Celtic poetry are easily discernible. *Miserunt malos mare* begin with the same consonant, *bonos reliquos malos*, end in *os*. The last syllable of the *Psalmus Abecedarius* invariably ends in *e*. Secundinus, a relative of St. Patrick, adopted the model which was furnished by the Psalm of Augustine, and composed very many Latin verses in the same manner, *e.g.:*

Benchuir, bona, regula, recta atque divina,
Stricta, sancta, sedula, summa, justa ac mira.

In the first verse that has been cited, the first two words begin with the same letter; the third and fourth words also begin with the same letter, and the second, third, fourth and sixth words terminate in *a*. The first four words of the second verse begin with *s*. Those words, along with *justa* and *mira*, end in *a*. The last two syllables of the first Hemistich in each verse terminate in *ula* (regula sedula); there is a correspondence between the last syllable of each verse, and *atque* in the first verse and *ac* in the second verse begin with *a*.

Davies thus writes (p. 215), "The structure of ancient British and Irish being one and the same, I cannot persuade myself that the Bards of either country deserted their own established mode to imitate that of the other. On the contrary I infer that they had equally retained the same mode from some remote age in which their ancestors had been better connected." As the result of his laborious investigation of the oldest specimens of Celtic poetry that are extant, Zeuss avers that the universal construction of poetic discourse was the same among the two divisions which he makes of the Celtic race.

Apud Hibernos vetustos et Cambros.

The first Irish Grammar that was printed was that of the Rev. Francis O'Molloy. It was written in Latin and was published in 1677. Lhuyd transferred into his Archæologia Britannica a large portion of O'Molloy's Grammar, and especially that part of it which deals with Irish prosody. There is thus accessible to the Celtic student a somewhat full and certainly a very interesting account of the laws that govern the formation of Irish poetry in its older forms. O'Donovan has appended to his valuable Irish Grammar a chapter on versification, in which he apparently has expressed in more intelligible language the rules and explanations that are contained in O'Molloy's Grammar.

To understand the regulations by which Irish verse is affected, it is necessary to know the classification that the Irish poets were led to make of the consonants in their alphabet.

1. S was called the queen of consonants.
2. Three soft consonants: p, c, t.
3. Three hard: b, g, d.
4. Three rough: f, ch, th.
5. Five strong: ll, m, nn, ng, rr.
6. Seven light: bh, dh, gh, mh, l, n, r.

There are three kinds of verse in Irish, *Dan Direach, Oglachas* and *Bruilingeacht.* That the Irish poets must have possessed a large measure of ingenuity and intelligence in the composition of their poems may be inferred from the remarks of O'Molloy, who contends that the Dan Direach is the most difficult of all the metres that are found under the sun (quae sub sole reperiuntur.)

O'Donovan thus expresses the seven requisites of the *Dan Direach.*

1. A certain number of syllables in each line.
2. Four lines in each quatrain.
3. Concord.
4. Correspondence.
5. Termination.
6. Union.
7. Head.

Quartan is the term which O'Molloy uses to express one verse *i. e.* one verse of the four verses that go to form a Quatrain, or Rann Iomlan as it is called by the Irish.

The first couplet of the Rann Iomlan is called *Scoladh* or the leading.

The second is called Comhad or the closing. Concord or alliteration

(Uaim) requires two words (of which neither can be a preposition nor a particle), in each line to begin with a vowel or with the same consonant.

A proper concord or *Fior Uaim* obtains where the last two words of a line begin with a vowel in the same consonant, *e. g.:*

Triall tar Bearbha na sreabh sean.

An improper concord obtains when the words in question are *not* the last two in the line or verse.

Correspondence (Comharda) is of two kinds, perfect and imperfect.

Perfect correspondence is an agreement of two words in number of syllables, quantity of vowels and consonants of the same class.

An imperfect correspondence obtains when two words agree in the number of syllables, in vowels and in quantity, without any regard to an agreement of consonants.

Termination or *Rinn* requires that the last word in the second and fourth lines of a quatrain should exceed that of the first and third by one syllable. If, therefore, the first line end in a word of one syllable, the second must end in a word of two and if the third line should end in a word of two syllables, the fourth must be of three syllables. The first is called Rinn or the Minor Termination, the second Airdrinn or the Major Termination.

Union, or *Uaithne*, is the same as correspondence with the exception that the same vowels are not required in each place, and that in polysyllables it is only necessary that they agree in class.

A *Chief*, or *Head*, or *Ceann*, is a monosyllable which concludes the second and fourth lines of a quatrain in that sort of verse called a seadna.

An *Amus* is much the same with an imperfect correspondence, from which it differs only in that it requires an equality in the number of syllables.

O'Molloy states that the initial word of the first quartan of a semimetre is called an Urlann, which may indifferently correspond with its subsequent or not. He further states that the chiefest sorts of Dan Dìreach are five: *Deibhidhe, Seadna, Rannaigheacht mhor, Rannaigheacht bheag and Casbhairn.* To each sort whereof, the number of quartans, number of syllables, concord and correspondence, are indispensably requisite. In the *Deibhidhe* the major and minor termination are also necessary, as is likewise Union in Rannaigheacht *mhor* and Casbhairn, and *Chief* or *Ceann* in the Rannaigheacht bheag and Seadna.

Oglachas or the servile metre is made in imitation of all kinds of Dan Direach which have been mentioned. An *Oglachas* is only a verse in imitation of those metres, and is confined neither to correpondence, concord, union nor to true termination. *Droighneach* consists either of nine syllables in a quartan, or more, as far as thirteen, each quartan ending in a word of three syllables, and every final word must make a union with another word in the beginning or middle of the next line or couplet. There must also be a correspondence between the final words.

Bruilingeacht is composed very much after the same manner as the *Oglachas*. It requires correspondence (at least improper correspondence) and also a kind of *concord*, *union* and *head*.

The imperfect sketch which has now been given almost in the words of O'Molloy and O'Donovan, of the principal Irish metres, and the laws that govern them, may suffice to show, that the ancient Irish poets were careful students of the genius of their language; and that they were led unconsciously it may be, to adopt that method of versification and to frame those rules of prosody, that suited the natural tendency of their own thoughts and the possibilities of the language, by means of which their thoughts and feelings found expression in verse. Nor can it be otherwise than a pleasant and a profitable occupation to the Celtic student, to examine and witness for himself how the Irish poets carried out the laws of Irish versification, and how they exhibited great ability and ingenuity in moulding their verse, according to the requirements of the various metres. The commendation is altogether too faint which Davies bestows upon the laws of Irish prosody. Puerile as some of those laws may appear, they were evidently the invention of a people who applied themselves closely to the study of letters. Nothing can be clearer than that the system of Irish versification is entirely different from the system of the Greek and Latin poets, and that a faithful adherence to the laws of their own versification demanded from the Irish poets no less ability and pains and musical culture than Sophocles and Euripides and Virgil and Horace displayed in the composition of their poems.

Shaw, whose Gaelic Grammar was published in 1778 thus writes, (p. 132) "The measure of Ossian's poetry is irregular and various. Generally he has couplets of eight, though they do not rhyme, and seven and sometimes nine syllables. These feet are most commonly trochee and dactyl. The trochee occupies the first, the dactyl the second, and third, and a long syllable ends the line."

Davies was led to believe that Ossian and his poems belong to the Irish Gaels, and in accordance with his theory observed, (p. 196) "that the measures of Ossian's poems are essentially the same as those which are found in the works of the Irish Bards; that these measures arise from principles which are developed in the grammars of the Irish as deduced from the practice of their national poets; that the application of these principles demands such a variety of punctilious grammatical observation as to render it evident that they were the invention of a people who studied the grammar of their own language; whereas the Highlanders, the only people who use the same language with the Irish, never reduced their native dialect to any grammatical rules before the year *1778*. It follows that the measures employed in Ossian's poems are undoubtedly the invention of the Irish." The conclusion at which Davies thus arrives, in spite of his critical acuteness and learning, is untenable. Apart from the fact, that we are in possession of evidence as well internal as external to prove that Ossian and his poems belong to the Scottish Gaels, his poems do not fulfil the regulations of Irish metre to which reference has already been made. It was indeed to be expected that there would be, and that there is, very much in common between the versification of the Irish and Scottish Gaels, because the same language was spoken by them. The Gaelic poems of the Ossianic era are not written in quatrains, and cannot be made to assume that division without doing violence to the narrative and interrupting its natural consecutiveness. Smith's Sean Dana, the Gaelic originals of the poems which were translated by MacPherson, and MacCallum's collection of the poems of Ossian, may fairly be regarded as strictly Ossianic in their age and character and versification. The rigid laws of ancient Irish poetry cannot apply to those collections, though alliteration and correspondence and other features of Irish poetry are frequently to be found in them.

The authority of Price is of great value in connection with the nationality of Ossian. He thus writes, (vol. I., p. 168): "The Scottish Ossian is a totally distinct creation from the Irish Ossian, though the Celtic original is the common parent of both. When MacPherson published his poems of Ossian, the Irish immediately cried out these poems are our property, they are Irish, and we are in possession of the original manuscripts and will convince the world of the fact by publishing them. They did accordingly publish portions of their Ossian together with English translations; but their Ossian was no more like the Ossian of MacPherson, than the Nibelungen is like the Iliad or Paradise Lost like the Shah Nameh. It is true the names were identical, and many of the incidents, but the spirit was totally and irreconcilably distinct. The Irish Ossian excited no feelings but such as the world had long been familiar with, but the same work as interpreted by MacPherson called forth sentiments which till then had never been felt."

In Campbell's Leabhar na Feinne, there are many Gaelic poems which are arranged in Quatrains or in stanzas containing four lines or verses. Such poems, however, are manifestly of later date than the poems of Ossian. I am disposed to find an additional argument in favour of the Scottish nationality of Ossian and his poems, in the different complexion of his versification and in the absence from his poems of those rigid regulations which seem to lie at the very foundation of Irish poetry.

The opening verses of *Iom-Cheist Ghuill* in Smith's *Sean Dana*, for example, contain several of the peculiarities of Celtic poetry.

'S am bheileam fein am aonar,
Am measg nan ceuda colg;
Gun lann liomhaidh leam
'S a chath dhorcha.

Here we have very fair examples of concord and correspondence. A similar remark has to be made concerning the first verses of *Diarmad* in the same collection:

Cia tiamhaidh thu nochd, a Ghleann Caothan!
Gun ghuth gaothar thu 's gun cheol:
Tha suinn na seilg' an suain gun eiridh,
'S na filidh aoibhinn gun aon diubh beo.

Iarmbearla is a term which old Irish grammarians were wont to employ, to show that the *article*, *possessive pronoun*, *adverb*, *preposition* or *conjunction* coming between any two words, neither forms nor hinders a concord. Even when the most careful compliance with that regulation is given, it will appear that in the verses which have been cited, an improper concord obtains between *ghuth* and *gaothar*, between *suinn*, *seilg* and *suain*, and as some grammarians would contend, between *Ghleann* and *Caothan*. A striking peculiarity appears in those verses; for the last word of the first verse corresponds with the middle word of the second verse, *i. e.*, *Caothan* corresponds with *gaothar*, and *eiridh* the last word of the third verse corresponds with *aoibhinn*, the middle word of the last verse.

In *Caomh-mhala*, one of the poems of Ossian which MacPherson translated into English, these verses occur, exhibiting, as they do, some of the peculiar characteristics of Celtic poetry:

Taom, a Charuinn taom do shruth;
An aoibhneas an diugh siubhal sios;
Theich coigrich a b' airde guth.
Cha-n fhaicear an steud-each 'san t-sliabh,
Tha sgaoileadh an sgiath an tir thall.

Here a proper concord obtains between *siubhal* and *sios*, and between *tir* and *thall.* An improper concord prevails between *taom* and *taom; fhaicear* and *each*, *steud* and *sliabh*, *sgaoileadh* and *sgiath.* There is likewise a correspondence between *shruth*, *diugh* and *guth*, and between *sliabh* and *sgiath.*

The Iambus is the foot that enters most frequently into the poems of Ossian. It has to be frankly admitted that in scanning the poems of the Bard of Selma, a rigid adherence to the laws by which the poems of Greece and Rome are scanned, is simply impossible. Sometimes, by omitting the first syllable of a verse, as German scholars are wont to do in scanning the choruses of the Greek tragedians; or by omitting the the first two syllables as is the wont at times of the same scholars, it is possible to find purely Iambic feet in the other syllables of an Ossianic verse. With the aid, therefore, of an *anacrusis* or a *base*, the poetry of Ossian can be scanned as Iambics in very many instances. Trochees obtrude themselves occasionally in the middle of a verse, and even Dactyls make their appearance in the middle of a verse; so that to describe the verse as purely Iambic or Trochaic is out of the question. Though the poems of Ossian, having peculiarities of their own so far as prosody and scansion are concerned, refuse to obey the laws by which Greek and Latin poetry is scanned, the rhythm is of such a character that the cultivated Celtic ear can readily detect whether a verse or poem is Ossianic in its structure or not.

Miann a' Bhaird Aosda, a poem of exquisite beauty, which, though the author and the date of its composition are unknown, must belong to a remote age, presents one of the best examples in the whole range of Gaelic poetry, of Iambic feet. The metre is Iambic Dimeter Acatalectic, *e.g.*:

O caraibh mi ri taobh nan allt,
A shiubhlas mall le ceumaibh ciuin,
Fo sgail a' bharraich leag mo cheann,
'S bi thus' a ghrian, ro-chairdeil rium.

Bishop Carswell's translation into Gaelic of John Knox's Liturgy was published in 1567, and was the first Gaelic book that was ever printed. In a brief Gaelic hymn or poem which he composed to the Gaelic book that he was sending forth among his Scottish and Irish fellow-Gaels, he shows an accurate familiarity with the peculiar features of Celtic verse.

Gluas romhad, a leabhrain bhig
Go hua ndiublme rig ad reim.

There is here a correspondence between *bhig* and *rig* and an improper concord between *rig* and *reim.*

Gach seancha, gan seanchas, saobh.
Gach fear dano nar aomh breg,
Cumand eadar agus iad,
A leabhrain bhig biadh go heg.

Those verses furnish other examples of alliteration and correspondence in Carswell's hymn.

Lhuyd's *Archæologia Britannica*, was published in 1707. There are appended to the preface several Gaelic poems in praise of Lhuyd himself and of his great work on Celtic philology. These verses composed, as they were, by the Priest of Kildalton have several of the beauties and peculiarities of Celtic prosody.

"Tuigseach saoibhir do theagasg,
Soilleir tarbhach seimh do ghloir,
Lionmhur brioghmhur do shean fhocail,
Sgiamhach, taitnambhach, ciallach mor."

Regarding Cambrian or Welsh poetry, Zeuss asserts that the old poems of the Welsh are almost of the same structure as the old Irish poems. There is this difference, however, that the final consonant which is almost a monosyllable and is always full, is continued through several verses according to the pleasure of the Cambrian poet, and that even in separate parts of poems greater freedom obtains in the continuation of verses. The contraposition or antithesis of Hemistichs does not exist as is the case with Irish poetry. In his literature of the Cymry, (p. 475-476), Stephen writes "that the bards by fixing an artificial standard of versified perfection, concentrated attention upon the words and neglected the spirit of their poems. The merits of their poems are rather historical than poetical. Bardism was on the whole unfavourable to extraordinary merit and true poetic excellence. The regulations of the bards have acted as dead weights upon imagination, and the metaphors and images of many of the Kymric poets display either a want of taste or of originality." He further writes (p. 486), "I have another quarrel with the bards, for not only do they display affectation in the 'beginnings' of their lines but they also display it in their 'endings,' the effect of both practices being the depreciation of the poetry and filling up of the lines with unmeaning words." Price, than whom there is no better authority on all matters affecting Welsh poetry states (vol. 1, p. 209) "that the Welsh Bards rejoice in the Lyric, and when by chance they deviate but for a moment into the narrative, or Ballad, the style seems uncongenial with their spirit and they instantly quit it and return to their favorite strain." (p. 313) After 300 years of Roman Dominion upon the departure of that people, Welsh poetry had not the slightest resemblance to that of Rome. The essentials of Roman metrical composition consist in quantity, those of the Welsh are Rhyme and Alliteration. The Latin classic prosody does not recognize the two last named requisites, nor does the Welsh know anything of classic quantity, neither is there any resemblance in the structure of the poems of the two races, further than what is the result of mere coincidence in all metrical compositions."

Alliteration, proper and improper concord, is of continual occurrence in Welsh poetry.

In Aneurin's famous poem Gododin, there is a variety of metres. "It is strictly a Lyric composition, a succession of comparatively unconnected strophes."

Ardyledawc cann cyman o fri
Twrf tan a tharan a rhyuerthi
Gwrhyt arderchawc marchawc mysgi,
Rudd fedel rhyfel a eidduni.

In these verses *cann* and *cyman* form an improper concord; *twrf, tan, tharan* also form an improper concord; *marchawc mysgi*, form a proper concord; *Rudd* and *rhyfel* form another improper concord. Alliteration is thus largely present in those verses, each of which ends in the same vowel, *i*.

A Triad, which is said to have been composed by Arthur, is faithful to the peculiarities of Celtic verse,

Sed ynt fy nhri chadfarchawg
Mael hir a Llyr Lluyddawg
A cholofon Cymru caradawg.

Two examples of proper concord occur here. Alliteration obtains between three of the last words in the last verse. The verses terminate in the same syllable; seven syllables frequently form one verse, a number which, whatever the explanation of its prevalence in Celtic poetry may be, is of common occurrence. Stephens mentions no less than twenty-four metres which were in use prior to the times of Meilir, one of the Welsh bards. He states that "the miserable affection of writing verses in all the metres has now been abandoned, and the poet is very properly allowed to use such of the metres as suits his taste."

Zeuss maintains, that if the older Cornish and Armorican poems were extant, they would doubtless exhibit a structure similar to that of the ancient Cambrian poems. Alliteration is wanting in the more modern Cornish and Armorican poems. The ancient Cornish drama containing as it does the most important portion of Cornish literature that is extant, was published along with an English translation on the opposite page, by Edward Norris in 1859. The Beginning of the World, the Passion of our Lord Jesus Christ, and the Resurrection of our Lord Jesus Christ: Such are the names of the poems that constitute the Cornish Drama. The general division of it is into stanzas of six verses. Seven syllables commonly form one verse. There is an agreement in sound between the last syllable of the first and second verses, of the fourth and fifth verses, of the third and sixth verses, *e.g.*,

Mester genough yn gylwyr
Hagh arluth heuna yv guyr
Ytho mar kruge golhy,
Agos treys h' aga seghe
Golheus pup treys y gyle
Ahanough Kepar ha my.

In the introduction to his edition of Kelly's Manx Grammar, the late Mr. Gill inserted a Manx poem on which he bestowed great praise. The poem is written in Iambics and deserves the praise which the famous Manx scholar bestowed upon it.

As Cre ta gloyr, ach aaliad ennym vie,
Ennym! ta myr y ghall ta sheidey shaghey,
Shoh moylleyn pobble, my she moylley shen.

The famous Manx Song, Na Kirree fo Sniaghtey, or "The sheep under the snow," is written in Anapaests, *e.g.*

Lurg geurey dy niaghtey as arragh dy roi.
Va ny shenn chirree marroo's n' eagin veggey bio,
Oh! irree shiu guillyn as gowshin dyn clieu
Ta ny Kirree fo-sniaghtey shen va nyn draid reeve.

Vannin veg veen has all the raciness of Celtic verse.

O vannin veg veen
Tayns mean y cheayn
Aynjee ta lane eeasteyryn,
Tra ta 'n oarn cuirt,
As ny praasyn soit,
Goll roue dy cherragh ny baatyn.

The translation of Paradise Lost into Manx by Christian is in Iambics, *e.g.*, Pargis Caillit.

Yn Chiarn Ice skeayl magh reeriaght vooar da hene,
Liauyr fegooish Kione, as fegooish cagliagh lhean:
Niau jir mayd r'ee; cheer dy vaynrys vooar
Lane jeh dagh mie, jeh berchys, ooashley's gloyr.

Specimens of Pindaric impetuousness and originality of metre are to be found among the Celtic bards. Mary MacLeod or Mairi Nighean Alasdair ruaidh, furnishes many examples of such rapidity of thought and versification, *e. g.*,

Tigh mor macnasach meaghrach,
Nam macaibh 's nam maighdean,
Far 'm bu tartarach gleadhraich nan corn.

Duncan Ban MacIntyre is one of the most remarkable poets in the whole range of Celtic poetry. He could neither read nor write, and yet some of his poems are acknowledged to be the best of their kind in Celtic literature. "I shall be surprised," writes Professor Blackie, "to learn that there exists in any language, ancient or modern, a more original poem of the genus which we call venatorial than the Ben Dorain of Duncan Ban. What Landseer, in a sister art, has done for animals in general, that MacIntyre in this singular work has done for the deer and the roe." Blackie has translated Ben Dorain into forcible English verse. Principal Shairp has conferred a similar honour on Ben Dorain. Mackenzie in his introduction to *The Beauties of Gaelic Poetry*, (p. 51) thus writes, "In that admirable poem called Beinn Dorain, Duncan Ban MacIntyre has adapted the verse to the piobaireachd notes. Commencing with the *urlar* the ground-work or air, the second part is the *Siubhal* or quickening, arranged in a different measure, to which succeeds the *Crun-luath* swifter running music to which a suitable measure is likewise adapted. It is a curious effort, and his model seems to have been an older piece which accompanied *Moladh Mhairi* the praise of Mary, otherwise the MacLachlan's salute." Trochaics of a rapid character, Iambics of longer and shorter metres, alliteration, correspondence, etc., are to be found in Ben Dorain. *Moladh Moraig* is the name of a poem which Alexander MacDonald composed after the same model. I have in my possession a poem after the model of Ben Dorain, by the Rev. Dr. Blair, of Nova Scotia. The talented author designates his poem *Ruagadh nan sionnach*, or Hunting the foxes, and indicates a masterly command of the Gaelic language as well as a rare aptitude for framing tuneful cadences.

In his *Coire cheathaich*, Duncan Ban reproduces some of the peculiarities of Celtic verse, *e. g.*:

'Se Coire cheathaich nan aighean siubhlach
An Coire runach a's urar fonn,
Gu lurach, miad-fheurach, min-gheal sughar,
Gach lusan fluar bu chubhraidh leam.

In addition to concord, and to the recurrence of the same sounds, there is in those verses what Zeuss designates *Consonantia Contraposita*, or a correspondence between the last words of the Hemistichs. In his poem in praise of the Caledonian Society of Toronto, Evan MacColl furnishes beautiful examples of the same correspondence. The stanza which he has adopted is the same as that of *Coire-cheathaich*. He had added, however, one metre or two feet to each verse. The poem is throughout very able, and reflects great honour on the author. The correspondence between the Hemistichs in such verses as these is very beautiful, *e.g.*:

Cha-n col domh toil-inntinn is mo na bhi' cluinntinn,
Piob mhor nan dos cnaimh-gheal is fonnmhoire fuaim;
Nuair theid i gu comhradh air faiche no'n seomar,
B'e'n Ceol thar gach Ceol leam a torman' nam chluais.

Though the Greek tragedians made frequent use of Anapaestic metre, no metre of that kind was employed by the Latin poets of the Augustan age.

Venient annis saecula seris
Quibus Oceanus vincula rerum
Laxet, et ingens pateat tellus
Tethysque novos delegat orbes
Nec sit terris ultima Thule.

These verses which occur in the Medea of Seneca and which have been regarded as prophetic of the discovery of America, furnish one of the best examples that can be adduced of the adaptation to Latin verse of the Anapaestic Dimeter Acatalectic. *Lochiel's Warning* by Campbell, and *The Destruction of Sennacherib* by Byron are excellent specimens of the application of the same metre to English verse. Having the same form of scansion by accent, as English verse and the Gaelic adaptations of Anapaestic verse have, it was beforehand to be expected that Gaelic Anapaests would not be and ought not to be inferior to English Anapaests in musical rhythm and faithfulness. The English and Gaelic version of his *Ealaidh Ghaoil* by the celebrated Gaelic scholar, Ewen MacLachlan, must command the admiration of every student of poetry: so faultless is the accuracy and so harmonious in both languages are the numbers of the talented author. Mrs. Mary MacKellar is a poetess whose ability in the composing of Gaelic Anapaests is very remarkable, indeed, and whose mellifluous metres would do credit to a Greek tragedian. Several of Mrs. MacKellar's poems are written in Anapaests. She appears to fine advantage in praise of a meeting which was held in Edinburgh and of which the late Lord Colonsay—himself a Gael of the Gaels—was chairman, for the purpose of taking steps to establish a Chair of Celtic Literature in the University of that city. I shall give two stanzas merely of the poem in question.

O lionaibh dhomh corn 'us gu'n ol mi le fonn
Deoch-slainte nan uaislean sliochd uaibhreach nan sonn,
'S air tus cuiream failt air an t sar 'bh'air an ceann,
Am morair bho Cholonsa nan gorm ghleann 's nam beann.

A chanain mo mhathar, a chanain mo ghaoil,
Bidh tu fas ann an sgiamh gus'm bi crioch air an t-saogh'l,
'S ged bha thu gu tinn, gheabhar cinnteach dhuit leigh,
'S bidh tu luinneagach binn feadh gach linn' thig nar deigh."

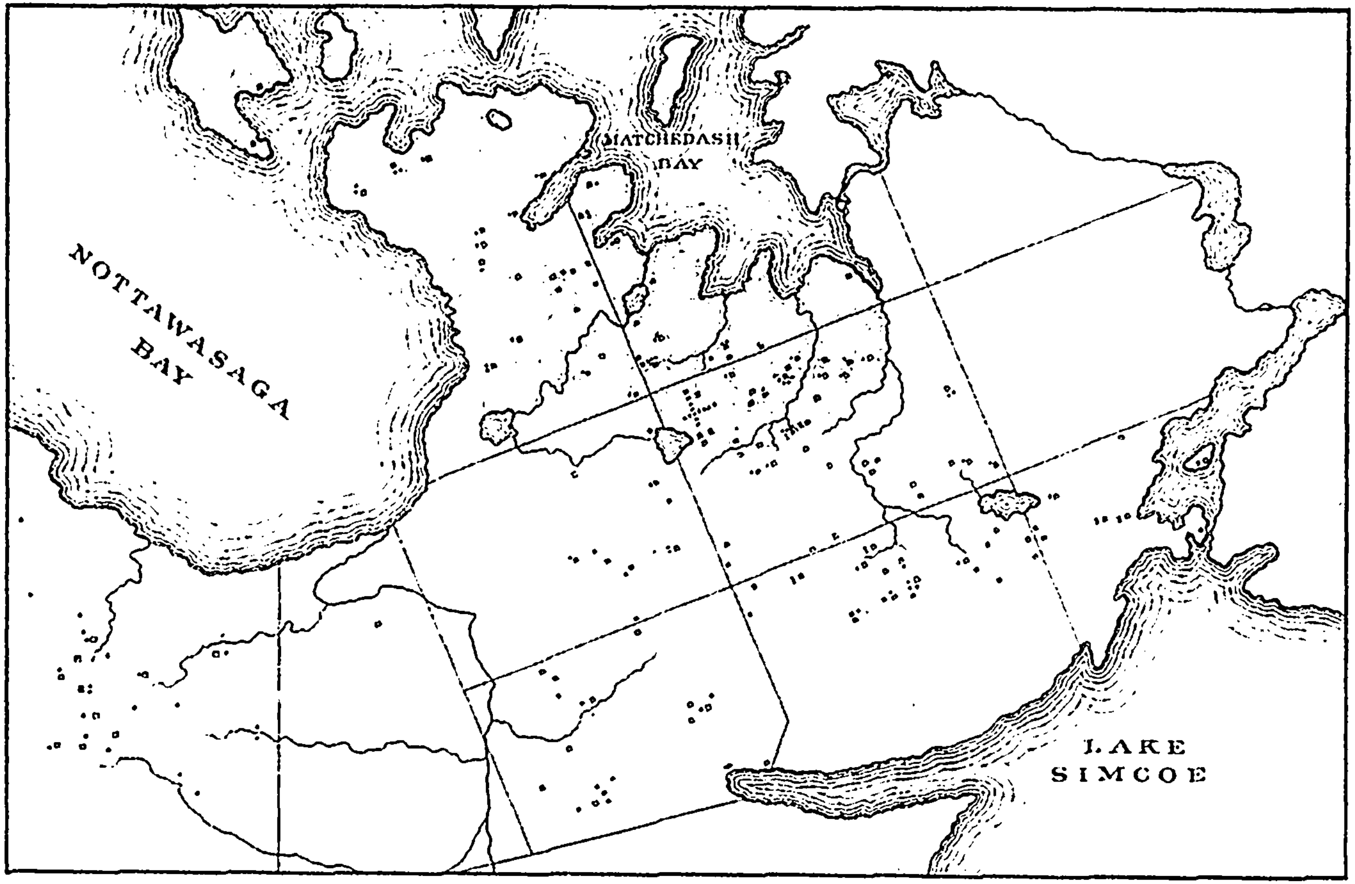
Mrs. MacKellar is equally at home in various forms of Gaelic verse, as her touching elegy in connection with the death of Prince Leopold clearly shows.

O buailidh mi 'n teud orbhuidh,
Fann bhuailidh mi 'n teud
'S mi' sileadh nan deur,
O'n chuala mi' n sgeul bronach.

Campbell of Ledag has composed Gaelic Trochaics and Iambics that are worthy of great praise. Neil MacLeod with an elegance of diction that would do honour to Tennyson with his pure Anglo-Saxon, has shown that he is a master of Gaelic verse, and that his native language can be fashioned by him into very musical combinations. The Irish poems that appear in the Gaelic Journal of Dublin, and in the Gaodhal of Brooklyn; the Gaelic poems that appear either in a permanent form or that have an ephemeral existence in newspapers and magazines, indicate that Celtic versification is keeping pace with the greater refinement and concinnity of modern poetry; and that the Celtic languages, if justice is done to them, have intrinsic strength and powers of adaptation which can gain for them, and ought to gain for them, as long and as glorious a future as is in store for even the most popular forms of German and English verse.

The domain of Celtic prosody is wide and fertile; and, although several tillers of the soil have ploughed many a deep and fruitful furrow in it, very much yet remains to be done. There is need of a Eugene O'Curry, who, intensely in love with the language and the poetry of his Celtic forefathers and brethren, will apply rare powers of mind and diligence to the thorough elucidation, for the benefit of his fellow Celts and of the literary world at large, of Celtic prosody, acting until his task has been happily completed, on the advice of one of the acknowledged masters of Latin verse;

"Nocturna versate manu, versate diurna."


MATCHEDASH BAY
NOTTAWASAGA BAY
LAKE SIMCOE

MAP SHOWING THE POSITION OF THE HURONS WHEN THE IROQUOIS ATTACKS BEGAN.

NATIONAL CHARACTERISTICS AND MIGRATIONS OF THE HURONS AS INDICATED BY THEIR REMAINS IN NORTH SIMCOE.

BY A. F. HUNTER, M.A.

(Read 25th September, 1891).

The tract of land lying between Lake Simcoe and Georgian Bay is commonly known as the abode of the Huron Indians during the first half of the seventeenth century. But, to describe their location more definitely, it was on the high ground of the interior of this tract that they chiefly dwelt, as appears from their remains found at the present day; in the low parts of the wide valley of the Nottawasaga River, between them and the Tobacco Nation, very few traces of aboriginal occupation are found. It will be proper to lay special emphasis on the fact that the Hurons occupied high ground, because in this respect they contrast in a striking manner with the later Algonquins, who subsequently occupied the same district but preferred to haunt the waterways during the greater part of the year, and were naturally an aquatic people. Corresponding with this difference between the Hurons and Algonquins in the choice of locality, there was a similar contrast between their places of burial—so marked indeed that it is still impossible to confuse them. The Hurons selected places for burial purposes near their villages, almost always in dry and sandy soil, and remote from water. Of all their ossuaries brought to light in this century, only a few have been found where the soil is clay. But the Algonquins buried their dead near the river banks and lake shores, in places which they could easily reach in canoes.

The almost complete annihilation of the Hurons at their own villages in 1649, has been the most notable event in connection with the history of their race. It is possible to see at the present day the very spots where the massacres took place; these are indicated by large numbers of iron tomahawks strewing the ground, besides other marks of strife which are still visible. In Indian warfare, tomahawks were often hurled at the enemy—a practice that has been noted by Catlin [*Life Among the Indians*, chap. 2.] and other writers. Hence we now find patches of ground where they are found in abundance. On the accompanying map of North Simcoe there is defined the district in which these patches occur, and which may therefore be regarded as the scene of the attacks by the Iroquois. The southerly limit of this afflicted territory is sharply defined. Two small lakes, joined by a stream which passes through a large swamp several miles in length as well as breadth, formed a natural protection to the Hurons on their exposed southwestern frontier; and thus, on the south eastern boundary only, were they exposed to the Iroquois invasions. Such was the position they occupied just before the final attacks were made upon them. The small district thus bounded contained all the villages in which the Jesuits labored, and included even Teanaustaye (St. Joseph) which Dr. Parkman, following Dr. Taché's notes, places much farther to the south. There is a fringe of villages lying outside the southern and eastern boundaries of this district where but few tomahawks or signs of conflict are to be seen amongst the remains. Other features of the small district in question, besides the patches of tomahawks, are: the abundance of small ossuaries, indicating hasty burial; artificial holes in the ground, sometimes in rows and occasionally in crossrows; *caches* and isolated graves in great numbers. All these features are usually associated together, and indicate the village sites where massacres took place.

Compared with that portion of New York state once occupied by the Iroquois, the Huron territory contains fewer earthwork enclosures; Squier [*Antiquities of the State of New York*] records no less than 15 of these earthwork enclosures in* Jefferson Co., N. Y., alone. Compared also with the counties west of Lake Ontario and along the north shore of Lake Erie,—the district once occupied by the Neuters,—there is a similar contrast; Mr. Boyle, in his Annual Archaeological Reports of the Canadian Institute, has described several in that section of the country. In North Simcoe, however, whatever earthworks there are to be found are few and unimportant; only in a few cases does earth or *debris* appear to have been thrown up to any extent, except the ashpiles at the villages, and the pits made during the conflicts mentioned in the last paragraph.

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* Since the above was written, a valuable article by Rev. W. M. Beauchamp, of Baldwinsville, N.Y., on the "Indian Occupation of New York," appeared in *Science* (Feb. 5, 1892). Mr. Beauchamp gave therein the numbers of earthworks, stockades, mounds and ossuaries of each county in New York State, recorded up to date, the earthworks in Jefferson Co. being placed at 33, and the ossuaries at 6.

A paper on "Early Indian Forts in New York" was read by the same writer at the Rochester meeting of the American Association in August, 1892. The paper is summarized in the Proceedings of that body as follows: "The form and construction of earthworks varied, and these generally preceded stockades, which were of four kinds: single, double, triple, and quadruple. The ditch was less defensive than incidental, and in stockades post-holes were not always used. Many examples of both modes of defence still remain, and Squier's estimate of their number was a fair one. According to the catalogue of the Bureau of Ethnology (Washington) defensive works belong mainly to the northern U.S., especially near the great lakes."

There is a deficiency in regard to ossuaries in the Iroquois and Neuter territories in comparison with the Huron district. Squier, in his examination of the Iroquois country of Central New York in the volume already referred to, records but two in Jefferson County, and in Erie County but four or five. In three townships of North Simcoe—Tiny, Tay and Medonte—the three which include the afflicted district described above, more than sixty to our knowledge have been found. The location of sites upon high peninsular points of land, especially along the brows of lake terraces, sand ridges, or bluffs, seems to have been extensively followed by all three nations.

Since the year 1820, when Simcoe County first began to receive European settlers, discoveries of Huron ossuaries have been constantly taking place. In order to preserve a record of Huron occupation, we have catalogued 140 of these ossuaries; and from the scanty facilities enjoyed in the accomplishment of this task, it is clear that many more still remain unrecorded in our list. In these 140 ossuaries there was buried a population that from a careful estimate may be set down approximately as 25,000. The ossuary of average size, in the district, contains about 200 skeletons. From these figures it will be seen that the Jesuits' estimates of the Huron population were by no means exaggerated.

The proportion of ossuaries to village sites is much greater in the Huron district than seems to be the case in other parts of the province. It is not an unnatural inference from this fact, that those who occupied the other parts to the south and east, perished in North Simcoe and were buried there. In other words, it became the cemetery of Central Ontario at that period. It is not difficult to understand the cause of this, viz., the persecution of the Hurons by the Iroquois and the consequent retreat of the former toward the north.

Two or three additional facts may also be stated in support of the view just given. The most southerly towns of the Huron district were the largest, indicating a migration from the south. Champlain's map shows that in 1615 the Hurons extended southward to Lake Ontario as well as into the counties east of Lake Simcoe, and were not confined to North Simcoe alone as they became at a later date. This has been confirmed by the finding in South Simcoe, and in York, Ontario, Victoria, Peterborough, Durham and other counties, of many village sites and ossuaries of Huron origin. In a valuable paper by Mr. George E. Laidlaw, published in Mr. Boyle's Fourth Annual Report (1890), he suggests that the aboriginal remains in Victoria County were the work of Hurons. Further evidence of their migration is yielded by the frequency of French relics in North Simcoe and their scarcity in the southern and eastern counties, indicating that the former was chiefly occupied by the Hurons after the year 1615 when the French first came amongst them. This has already been shown at some length in a paper by the writer entitled "French Relics from Village Sites of the Hurons," which was read before the Institute and published in the Third Archaeological Report (1889).

It is often stated that a "Feast of the Dead" was held in each of the five tribes of the Nation once in ten or twelve years. But from the large number of ossuaries which contain French relics, and which accordingly must have been interred between the years 1615 and 1649, it is evident that the ceremony took place much oftener.

There can scarcely be a possibility that an agricultural nation, such as the Hurons were, could have had its beginnings in this province, where the prevalence of forests would prevent any development in an agricultural direction, but where, on the contrary, the conditions would produce hunters and fisher-men like the Algonquins. It may be reasonably inferred that they originally came from a region where there were few trees to interfere with agricultural operations, such as the western plains; at any rate a northern or eastern origin of this people in the Laurentian rock region appears unlikely. Much investigation, however, is still required before these questions can be settled and the origin of the Huron race determined.

RUTHERFORD'S NARRATIVE—AN EPISODE IN THE PONTIAC WAR, 1763—AN UNPUBLISHED MANUSCRIPT BY LIEUT. RUTHERFORD OF THE "BLACK WATCH."

PRESENTED TO THE INSTITUTE BY THOMAS HODGINS, ESQ., M.A.

(*Read 5th March, 1892*)

Major Gladwin of the 80th Regiment, commanding officer of Detroit, being anxious to know whether the lakes and rivers between that place and Michellemakainac were navigable for vessels of a greater burthen than the small batteaux then made use of, ordered Captain Charles Robson of the 77th Regiment, who had the command of the king's ship upon Lake Erie, with a party of six soldiers and two sailors, with a large batteaux with the necessary implements, to sound the lakes. Sir Robert Davies, who had passed that winter at Detroit, having a curiosity to see further into the country, (which in fact was the motive which had induced him to come so far as Detroit,) accompanied Captain Robson, and both of these gentlemen inviting me to join them, I joyfully accepted the invitation, as it had then all the appearance of a pleasure jaunt. We promised ourselves excellent sport in shooting water fowl, with which that country abounds, not in the smallest degree dreading any interference from the savages around us, who but a little before in full council renewed their profession of friendship for the English, and received from them presents to a considerable amount. We accordingly set out on May 2nd, 1763. Captain Robson, myself, and the party were in the batteaux. Sir Robert Davies and a Pawnee or Indian slave were in a little wooden canoe, being better than a batteaux for going in shallow water after the game, and so easily navigated that he and his boy were sufficient to cross the lakes and go up the creeks among the Indian villages. We passed several native villages, but there appeared to be very few Indians in them. We supposed that they were out on a hunting party, but afterwards found they were on an expedition of a very different nature; being, in fact, collected at the place where we were afterwards attacked by them.

May 6th.—In the morning we arrived at Pinuree, where were some Canadians building a saw mill, for whom we brought (at the desire of a

French gentleman) a few barrels of flour, for which they returned us thanks, and told us with all the rhetoric they were masters of, that all the Indians around were in league to take up the hatchet against the English; that they knew we were coming that way, and were waiting six miles up the river to seize and destroy us; and that if we proceeded any further we should certainly be cut to pieces. They begged us with tears in their eyes for God's sake to return, and by reason of the winds and the strong current of the river we might gain the fort before they could perceive we had discovered their intentions. This was friendly advice given by people who showed in their countenances that they had our safety at heart; and had we followed their counsel many would have saved their lives on this occasion, and others avoided a long and dangerous captivity. Captain Robson partly doubted the truth of what the Canadians had told us, partly through mistaken confidence that they would not dare to attack us until cover of the night; and it being then noon, thought that he might go on six miles further and sound about the mouth of the river Huron; which done his work would be finished, and then return to the fort. He therefore ordered the rowers to ply their oars, and without seeming to suspect any danger, proceeded until we came within six miles of the above river, where there was a small Indian village, the very place the Canadians told us we would be attacked by the savages. Then it was, though alas! too late, that Captain Robson discovered the truth of the information we had got, for the whole bank of the river was covered with Indians, to the amount of three or four hundred men. Sir Robert Davies was at this time considerably before in his canoe, on shore, and smoked a pipe of friendship (as they called it) with some of their chiefs till we came up. He advised us to row on and pass him, and not to seem to suspect that they had a design upon us. Here I must observe that the river turned narrow, and was so rapid that we were obliged to keep the boat close to the shore, and even then the Indians could walk faster than we could row. To have attempted to return would have been inevitable destruction to us all. Besides that they had all their canoes ready to pursue us. This we were sensible of, so we kept rowing on and humoured them as much as possible. They crowded round us men, women, and children, giving us the friendly appellation of brothers, told us they were glad to see us, and begged that we should come on shore and we would have whatever was good; the squaws or Indian women showing us maple sugar, fish, etc., to induce us to land. We did not, however, choose to accept of their invitation or presents. They asked for some bread and tobacco, which we gave them. This was only to take up our attention, for all the while they were filing off by degrees, till at last there was not an Indian to be seen. The squaws were collected so-closely on the bank of the river, endeavouring to divert our attention by ridiculous stories, that it was impossible to see what was going on behind, or what the men were about. The warriors, however, were then busy posting themselves behind a rising ground a little before, so that when we came opposite that place—the squaws as it had been preconcerted ran as fast as they could out of the way—the warriors commenced firing upon us at the distance of sixty yards. Captain Robson was immediately wounded on the left side, which showing me, he called to the men to sheer up, but alas! he had just spoken the words when another shot through his body killed him. I then took the helm and endeavoured to bring round the boat, but two of the soldiers being now killed, the remaining five could not navigate the boat, and as they had neither their arms ready nor loaded, they thought only of screening themselves as best they could from the enemy's fire; but it was all in vain, for the Indians, seeing Captain Robson our chief killed, and the confusion that prevailed, rushed upon us and easily boarded us, raising at the same time and in accordance to their custom on such occasions, the most dreadful cries and yellings, which they called the "Death Gralloo." They had changed their appearance from what it was when they called us brothers, having at that time their blanket and ornaments on, but now they were painted black and red, making a very frightful appearance. Every one of us was now seized by his future master, for by their custom whoever lays hold of a captive by the hair of his head, to him he belongs, and none may take him from him. I was laid hold of by one whose hideous aspect was enough to banish every hope of receiving quarter, but indeed before this I had given up any hope of being saved, and became in a manner resigned for the worst. They immediately scalped Captain Robson and the other two soldiers who were shot. My master (for such I was now to acknowledge him) dragged me out of the boat by the hair of the head into the water, which took me up to the neck, endangering my drowning; however, he brought me safe on shore, and with a rope adorned with trinkets (which they always carry about with them to bind their prisoners of war) bound me and delivered me over in charge of his squaw, returning himself to plunder the boat. All this time, Sir Robert Davies, as I was afterwards informed by his Indian boy, seeing the savages attack us, endeavoured to escape in his light canoe to the opposite side of the river, while the Indians called to him repeatedly to come on shore and deliver himself up, promising not to hurt a hair of his head. He paid no regard to their words, which so exasperated them that two of them levelled their pieces at him and brought him instantly down. His body fell over into the water, and having picked it up, they cut off the head and buried the trunk; the head they afterwards interred, after having scalped it. My master returned with his share of the booty from the boat, which he laid upon my back, and marching through the village came to the hut where he lived. We had not been long there when a great many Indians came in, and got drunk upon spirit which they had plundered, and as I knew in their cups they often killed one another, I again considered myself in as much danger as ever. One of them dressed in Captain Robson's clothes came in very drunk, and seeing me lie in the corner with my hands tied, set up a shout, calling me an English dog, and made a stroke at me with his tomahawk, which must have killed me, had not another Indian more sober, and whom I afterwards found to be the best of them, seized his arm and prevented him, and then turned him out of the hut. My master's wife seeing the danger to which I was exposed, and knowing that he or some other Indian might return, made me lie down behind her, and covered me over with skins and furs; soon after the same Indian did return and demanded me of my master, saying that "No English dog should be left alive," upon which he was turned out a second time and well kicked. Not long after this a party of them came and determined to have me, and my master was obliged in order to save me, to tell them that I was carried to another hut, which satisfied them. The whole night they kept drinking what liquor we had brought with us, and making a most hideous yelling, dancing and singing, while they were feeding on poor Captain Robson's body. This shocking piece of barbarity was practised only by some of the Indian tribes to the northward. The Six Nations, who used their prisoners when alive much worse than those whose captives we were, yet never eat human flesh. They of course do not devour it for want of food, but as a religious ceremony, or rather from a superstitious idea that it makes them prosperous in war. They teach their children to be fond of it even from infancy. The next day my master's son brought some pieces of the body into the hut, and roasted them upon a stick, and endeavoured at the same time to prevail on me to eat it, after assuring me that Englishman's blood was very good to eat. My master desired of me to taste it, telling me that I was never going back to the English, so that I ought to conform to the manner of the Indians. I told him that I would obey him in every thing he ordered me, and even that if he insisted upon it; but that it was very disagreeable for me, and that was the only command I would feel any hesitation in performing, and begged that he would not absolutely insist upon it. Thus by assuming readiness to acquiesce, I avoided eating the remains of my friend,-and I believe by showing a desire to please him I rather gained upon his affections. My hands were still bound behind my back, this day being the second of my captivity. Never having seen or heard any thing of the poor soldiers, I concluded that they had shared the unhappy fate of their captain, which added the more to my uneasiness, fearing that I would not be more favourably dealt with. However, towards the evening of that day, I saw Sir Robert's Indian boy, who told me of some of the soldiers being alive. This boy having lived long with the English, in speaking their language made me think that he would desire to get free from the Indians who used him much worse than the English. I therefore thought I might confide in him, so laid myself open to him and told him of a scheme I had formed of our escape together, which was, that we should both get out of our respective beds at night when all were asleep, meet at a certain place agreed upon and then untie each other, and as he understood travelling in the woods, he would pilot us to Fort Detroit, which was not above eighty English miles distant, each of us bringing with him as much fish as would be necessary to subsist on during the journey. He agreed to this proposal, went off with an intention as I supposed of meeting me at the place appointed; however, towards the end of the evening, I was surprised to see my master come into the hut, looking very angrily at me, having a wooden post and an axe in his hand. Without saying a word he put one end of the post into the ground, and told me in an angry tone something I did not understand, with signs to me to lie down on my back; then taking my leg a little below the ankle, put it into the notch against which he tied another piece of string, so close that I could not move to turn myself on my side, but lay on my back with my hands bound, while my master, drawing the ends of the rope under his body lay down next me with his squaw on a bearskin. I passed the night like a criminal just before execution, with this difference, I had nothing to reproach myself, no offence committed against my God or the laws of my country; this treatment gave me good cause to suspect treachery on the part of the Indian boy, who I found afterwards had, in order to get his pardon, which he did, discovered my intentions of escape. Next morning my master loosed my leg, and by means of an Indian who spoke English, informed me that he had discovered my intention of escaping, and that had I done so or even attempted it, death would have been the inevitable consequence, showing me the situation of Fort Detroit, surrounded with four Indian nations, viz.: Chippewahs, (the nation I was with) Otterwahs, Ponteuatheimies, Wiandots, who so blockaded the place that nobody could come in or go out, and that in a few days there would not be an Englishman left in it alive; whereupon I found it absolutely necessary for my safety to affect to relish their savage manners, and put on an air of perfect contentment, which I had often heard was the way to gain the affections of the Indians, whereas showing discontented conduct irritates them and creates worse treatment, and even draws down death itself on the captive who is so unfortunate as not to be able to accommodate himself to his situation. I therefore assured him I should no more think of leaving him, which so pleased him that he took me out to walk and pointed out to me the spot where Sir Robert Davies was buried and what remained of Captain Robson's body, showing me likewise how impossible it was for us to have escaped in our boats. He then led me to where the bodies of the poor soldiers lay who fell in the attack, and were become food for the dogs, which were devouring them; he then loosened my hand, and with the string bound up a heavy bundle of sticks which he placed upon my back, telling me that I was always to do that or whatever his wife desired me. When delivered of my burden he again tied up my hands, and fastened the rope to the rafters of the hut, but he did not put my feet in the stocks as the night before. Yet it was equally impossible for me to effect an escape, and indeed by this time I had given up all hopes of it, unless a more favourable opportunity occurred. Next morning my master went off in his canoe to join the rest of the warriors encamped at Detroit, leaving me to the care of his father, who seemed fond of me, and wished that I should become a savage as soon as possible. Soon after my master's departure he fairly stripped me of my clothes, and told me I should wear them no more, but dress like an Indian; he accordingly gave me a blanket, then shaved my head leaving only a small tuft of hair on the crown, and two small locks which he plated, with several silver brooches interwoven, making them hang over my face, which was painted a variety of colours; he likewise presented me with a tobacco pouch and pipes, telling me I should smoke, which I did, and afterwards became very fond of it. The hunting season being now passed, the Indians lived on fish, without bread, butter or salt. This did not agree with me. I became so very weak as to be rendered incapable of walking for seven or eight days, during which time my master's father informed me that I should not be eaten if I died. Ten days after this my master returned with the rest of his family, and after much talk of the success of their arms against the English, how many prisoners they had taken, etc., he looked at me, turning me round, apparently surprised at seeing me attired "en sauvage." He asked for my hair, which, the old man giving him, he carefully put by. Still my hands continued tied, and whenever I had occasion to go out, an Indian boy laid hold of the end of the rope, which he fastened to the rafters of the hut when I returned again. It was not long after this before my hands were at last unbound, my master often impressing upon me the impossibility of making my escape. I told him I had no design and feigned a satisfaction in their mode of life and a particular fondness for my new uniform, by which means I secured his good will. He thought he was sure of me from my being so young, and that I would on that account sooner take to the novelty of their ways of life and more easily forget my country and my friends; certain it is that with this behaviour I fared better in many respects than those prisoners who appeared always sullen and subdued, some of whom indeed suffered death on that account. I now frequently saw two of the soldiers who were taken with myself, and the meetings at intervals were very satisfactory. It gives inexpressible pleasure to meet a countryman of one's own even in a civilized foreign land. Judge then how much more so when in a state of captivity with a nation of savages of a colour so different from our own. Happy was I to meet with those poor fellows whom but a short time before I would not have suffered to speak to me without the usual marks of respect from an inferior to a superior. Now there was no distinction, we being glad to find those people of the same colour with one another. We used often to compare notes of different treatment we met with from our masters. One of them told me he was obliged to eat of Captain Robson's body. We would form fifty different schemes for making our escape, but reject them all afterwards as perfectly impracticable. About the middle of May we were in great distress from want of provisions, owing to the indolence of the savages, who never stir out of their huts to fish or hunt until necessity drives them, which was our case at this time. During four days the wind continued so high that no fish could be caught, as they durst not venture upon the lakes in their little bark canoes. These are generally navigated by two men, or by a man and a boy, the former standing in the bow or fore part, where there is a pole fixed having a light fixed at the end of it which attracts the fish—it being on the darkest side they are most successful. The man in the bow marks the fish approaching, and directs the boy to steer the canoe so that he may best strike the fish with his harpoon. In this way I have seen as much as two men could carry of cat-fish, perch, and pike taken in two hours' time, independent of the satisfaction of procuring so necessary a part of their daily sustenance. It is a great amusement and really a pleasant scene to witness fifty of the lights moving on the smooth lake in every direction, while the silence is only disturbed by the varied cries of wild beasts from surrounding forests. I have observed before that the stormy weather had reduced us to the last extremity of want, having recourse to picking up acorns in the woods, and boiling them in ashes or water, changing them frequently to take off the bitter taste; and this was our food until the fifth day, when the winds abating we obtained plenty of fish. The Indians themselves are so accustomed to be reduced to this shift that they think nothing of it, and are always sure to make up their loss by future stuffing and sloth. While they have victuals of any sort in their huts they do nothing but smoke, eat or sleep. It is on these occasions that the beaux and belles make their mutual conquests and dress in their best attire. They amuse themselves at times with a diversion something similar to the game of shinty which is in use among our boys, in which females play against the males, and often come off victors. My master used to deck me out in the richest manner, putting on me all the ornaments of the family, and taking me out to the plain, where he made me strut about to exhibit myself in the presence of the whole village, calling out to the people to look at the little white man. All this time I was made a show of without being allowed to join in the game. Towards the end of May we began to make preparations for our voyage to join the rest of the warriors encamped within a few miles of Detroit, for which purpose my master deemed it necessary to build a canoe, and which he and I accomplished in two days. It was of a sufficient size to carry all the family for many thousand miles. The evening before our departure I was surprised to see the master seize one of the dogs, of which animals he had several in the hut, and they were constantly poking their noses into our victuals, an operation easily performed as the floor was our only table, and neither chairs nor tables stood in the hut. This dog was killed, which I was not sorry for, and given over to the squaw, who scraped him as we do a hog in hot water. My master then invited all his neighbours, sending me round with a number of painted sticks, which were left with each one invited. Upon entering the hut where the feast is held, every one produces his stick and lays it upon the platter for the purpose. Each of the guests gets a double portion, eating one and carrying home the other in a dish which they bring with them to receive it. I sat in a corner of the hut, a silent spectator of my master's feast, being looked upon as a slave and unworthy to partake of so fine a repast. After killing or rather drowning another dog for the purpose of appeasing the evil spirit, as they gave me to understand, we set out next morning in our canoe, making short day voyages, always landing before sunset, putting up at that time our cabin and cooking our fish, which culinary office fell to my lot, as well as that of cutting firewood. The cabin or hut is soon made, it consists of about twenty trees put up in the shape of a sugar loaf, and covered all over with a sort of matting, excepting the hole at the top to let the smoke out. Every one carries his or her bed clothes upon his back, which are either the skins of a wild beast or a coarse blanket. All lie down promiscuously, men, women and children with their feet to the fire, which is in the centre. The second day of our voyage we came to an island where was an Indian burial ground. Here we halted round a particular grave, which my master afterwards told me was the grave of his son. He made us all plant a few grains of corn, which we did, and re-embarking, proceeded on our voyage, which we ended in four days, arriving at a Frenchman's house in the neighbourhood of Detroit. This man being my master's ——, we took up our residence close to his house, rather than join the rest of the warriors, who were encamped five miles nearer the fort. We immediately set about building a large bark house, more convenient than those they carry about with them. The fireplace belonging to it was situated out of doors, where I was condemned to broil two hours every day, boiling their kettle, with a little fish or Indian corn. This new house occupied about four days in finishing, several parts of the work falling to my share, such as carrying home the wood and bark; here I must observe that I suffered inexpressible pain from not having any clothes on—not so much as a shirt to protect me from the scorching rays of the sun which burnt my back and shoulders so much that I was one mass of blisters, the palms of my hands being in the same state from the continued working of the oar. The next piece of fatigue I was put to was assisting my mistress in planting a large field of corn or maize or other vegetables. This being finished, my master carried me to the grand encampment about five miles from Detroit. Here I had the pleasure of seeing Captain Campbell and Lieutenant MacDougall of the 60th Regiment, who came out of the fort at the commencement of the blockade, with proposals of peace to the Indians. To this however, they would not listen; but on the contrary, detained those two officers prisoners at a Frenchman's house. Upon my observing to Captain Campbell that I thought we might escape, being so near as within sight of the fort, he advised me by no means to think of it, as he was well assured that if any one escaped, the Indians were determined to sacrifice those that remained. I frequently made visits to those gentlemen who were prisoners with the Ottawahs. Every day there were captures and scalps brought into the camp. The scalp is not, as commonly believed, the whole skin of the head, but only the uppermost part of the crown, and must have in it that swirl in the hair which every one has there, before it can be approved of as a just trophy of the warrior's achievements. They at this time brought in Ensign Pauli (60th Regiment) who commanded a small fort on Lake Erie. The Indians entered this fort as friends, and while some of them were smoking a pipe as a token of their pretended friendship, the rest were butchering their small garrison till not one was left alive. This gentleman made a very good Indian, being of a dark complexion. He was much liked by his master, who soon adopted him into his family, by which he was exempted from all drudgery. So great an assembly of Indians being gathered together in a French settlement, reduced the inhabitants to great distress; they had their cattle, sheep and poultry killed, and when these failed we were almost being starved, having frequently nothing but a handful of corn for a day's sustenance, and that we parched in the ashes and ate it with a spoonful of bear's grease. I frequently used to beg for a morsel of bread at the French people's houses, from whose doors I was often turned away. In this distressed situation, my master prudently resolved to quit the camp, and moved accordingly back to the place where I was first taken prisoner. Here we had fish as formerly, and sometimes a little venison. On our return to the village, we halted at the burying place before mentioned, and while my mistress and I were busy erecting our hut, my master went out and killed a bear, which was eaten up heartily. After finishing our repast, I was ordered to put the kettle on the fire again, which circumstance surprised me a little, as we were in the habit of going to sleep immediately after eating. I was induced to ask the meaning, but was given to understand by looks and gestures that the mystery would be revealed on the following morning. My master then cut some of the choicest bits of the bear and put them in the kettle, which being hung over a slow fire, we went to rest. Next morning by day break we were called up, and in a formal and solemn manner walked up to the grave, where a small fire was kindled, round which we seated ourselves, and then my master arose and made a long speech, during which he often pointed to me and the grave alternately, while at every pause we all joined in a sort of chorus or amen, by way of acquiescence or approval of what he said. When he ended his oration, he divided the broth and meat among us, and after saying a few words over the grave, he put a piece of the fat of the bear into the fire, directing each of us to do the same. This I was informed was to appease the spirit of his son, who might be offended at my being adopted in his place. Such was his design, as he then told me, that I was as much his son, telling me at the same time to look upon the boys as my brothers; that my name should no longer be "Sagarast" or Englishman, but "Addick," which signifies a white elk; but notwithstanding this I was generally called by my master's name, which was "Perwash." My master, or rather my father now, took me out frequently with him hunting, an amusement of which I was very fond. Though this was not the season for killing deer, we were under the necessity of killing some for the family to subsist on when we returned to the camp near Detroit. As soon therefore, as we had cured a few carcases of venison, (which we did by smoking them without salt) we again set out to join the rest of the warriors. In crossing Lake St. Clair it happened to blow very hard, so that our little frigate was in danger of going to the bottom with Perwash and all his family. To appease the evil spirit he chewed some handfuls of tobacco and threw it into the lake, at the same time pronouncing a long harangue. We contrived eventually to get safe to land, but whether owing to the tobacco I shall not pretend to say. The rain having drenched our clothes and blankets, we hung them upon trees till they dried. I may mention that the Indians likewise make use of the tobacco plant in thunder storms, by throwing a quantity of it into the fire, and while it is burning a squaw drums with a piece of iron on the bottom of a kettle, which they pretend prevents any mischief being done to the family by lightning. By the time our corn was grown up about a foot high, it became necessary to have it hoed and weeded, which was a severe task to my mother and me for six days. I flattered myself that my being adopted into the family would have exempted me from this kind of drudgery, but Perwash, having a particular regard for his wife, chose that I should still assist her on many occasions, and she being fond of her ease laid the most of it on my shoulders. She frequently made me pound or bruise corn in a large mortar, till there was scarcely any skin on my hands, and when I showed them to her she only laughed, and told me I would soon be better used to it, and that in time my hands would soon become hard like hers, which in truth were none of the softest. The men think it beneath them to do anything more than fish and hunt for the support of their families, and in this they take no more trouble than is absolutely necessary, for they frequently leave the game where killed, and send their squaws to bring it home, directing them where they would find it by breaking off branches and marking the trees for miles where they have hunted and left their game ; this when their squaws have found, she brings home the choicest pieces and dresses them for her lord and master who generally sleeps till called to eat. When his repast is finished he regales himself with his pipe of tobacco, mixed with the leaves of the "Shumah shrub" ; in the meantime the rest of the family are busy roasting fish or broiling steaks, each one for himself. The steaks are done upon the end of a stick, as we toast bread, and in my opinion that is the most delicious way of eating roast meat. Sometimes my "mother" roasted a large piece for the family, who never wait till it is thoroughly done, but as the outside becomes a little brown, everyone with his knife falls upon it and slices away as fast as it is roasted, by which means the pleasure of eating (their chief gratification) is prolonged. When soup is made, or rather when they boil their meat or fish, they hang up the kettle out of the reach of the dog, and every one drinks out of it when inclined. They use no salt and the absence of this at first made me think every thing tasteless ; but hunger and habit prevailed over prejudice, and I soon came to eat as heartily as Perwash himself. About the 8th of June, Lieutenant MacDougall, with a Dutch trader escaped into the fort, which caused them to look more strictly after us who were left, particularly Captain Campbell, who was shut up in a garret in a Frenchman's house. I frequently visited him, accompanied by Perwash. One morning he told me he felt ill and was prepossessed with the idea he would die very soon. I endeavoured to persuade him from indulging in such forebodings, which only tended to make him more melancholy; but to my grief and sorrow, the first thing I heard next morning was that he was killed by the savages. That morning Captain Hopkins of the Rangers had made a sortie from the fort, attacked a party of Indians and killed one of the chiefs of the nation to which I belong. The chief's friends were resolved to take the life of an Englishman of the rank of Captain. This they found convenient to accomplish by murdering poor Campbell who belonged to the Ottaway nation. The nation in their turn were enraged with the Chippewahs for slaying a prisoner who was their property, and of whom they were very fond. They therefore determined to have satisfaction for the outrage, and which they thought could not be more effectually obtained than by sacrificing a prisoner belonging to the Chippewahs of the rank equal to that of Captain Campbell. Accordingly to compensate this loss they pitched upon Ensign Pauli, but he being informed of the danger by a handsome squaw who fell in love with him, assisted by her he made his escape from the house of the Frenchman, whence with much difficulty he escaped to the fort, after being several times fired at by the sentries who took him to be a real Indian. The Ottawahs being disappointed in their design upon Pauli, determined next to take my life, being as they thought next rank to an officer and superior to any of the private prisoners among them. Perwash having heard that they were in search of me took me to a Frenchman's barn, where he covered me up with straw. In this situation I remained for the space of three hours, expecting every moment to feel the tomahawk in my skull, till a party of Indians with Perwash at their head came and conducted me away. Notwithstanding their reiterated assurance that I was not to suffer death, I could not help being alarmed and doubtful of my safety. They marched me in custody for four miles till we reached the grand encampment, which was in the midst of the French settlements. On the road lay a dead body mangled and scalped, which the dogs were eating. I was made to stop a considerable time while my guards viewed it with seeming satisfaction, telling me at the same time in exulting tones that there lay our grand chief Captain Campbell. I could not have indeed recognized in that mangled corpse the remains of my good friend whom they had murdered. It was a shocking spectacle—the head scalped, the nose, arms, ears and legs with other parts of the body cut off, yet however disagreeable to me, I was forced to behold it. They led me to a great hall in a Frenchman's house, in the courtyard of which were about two hundred Indians of different nations. There was placed in the middle of the hall a small table and four chairs. A fifth chair was reserved for myself, though at that time I would gladly have dispensed with the honour. They then produced some English letters, and Pondiac the leading man of the four nations, told me by a French interpreter, that as I could speak French and read English, that they had pitched upon me to explain the meaning of these letters, which he ordered me to perform without concealing any part of them, threatening me with death if I did not translate the whole verbatim just as they were. Here one of the prisoners, a native of Virginia, who fond of an indolent life, had married and determined to stay among them, told me he could read English also, and would overlook the papers to detect any attempts at concealment, or misconstruction of the sense, adding that the consequences would be my being scalped on the spot. I accordingly set to work and read the letters in French, to a Frenchman who explained them to the chief. They were merely old letters which Captain Campbell had in his pocket when killed, and a few to him from his friends at Detroit during his imprisonment, which had been committed to the charge of a Frenchman, who instead of delivering them kept them. There were several French gentlemen in the room, who were as eager to read them as the Indians. What both French and English wanted to know in particular, was whether peace had been declared with France or not. It had been publicly declared at Detroit by Major Gladwin long before that time; but the Canadians could never bring themselves to believe that the "Grand Monarque" could ever cede their country to Great Britain, and still flattered themselves that if they could excite the Indians to maintain the war against us for a little while, that a reinforcement would arrive from France and they would drive the English out of the country. They had therefore always assured the Indians that Major Gladwin had declared there was peace only to prevent them from attacking him. The epistle contained, however, nothing that I thought could favour their wishes or designs, nevertheless they thought fit to construe them differently, or at least to doubt the truth and sincerity of Major Gladwin's proclamation of peace. When I had done with the interpretation, they all thanked me and appeared satisfied with my proceedings, permitting me to return home with Perwash who said he was happy in having got me off so well.

The most memorable circumstance which happened during my captivity was my being sold to Mr. Quilleim, with whom I was well acquainted before I was taken, and had since frequently visited with Perwash in order to procure a little bread and salt. In these visits I proposed to Mr. Quilleim to purchase me from my master, whom I knew to be covetous and fond of riches, according to the Indian estimation of wealth, and which consists of being possessed with a profusion of trinkets, much wampum, beads, silver bracelets and gorgets. This gentleman, on account of Mr. Sterling with whom he was intimate, and whose daughter he afterwards married, was much my friend; he made several offers to Perwash for my purchase, first bringing him a horse and a cow, thinking that would prevail upon him, as he had often expressed a liking to the comforts that white people enjoyed, but he had a greater liking for me than to part with me at that price. He however, agreed to let me go for certain merchandise to the value of £40, upon condition that I was always to live with Mr. Quilleim, and not be allowed to go back to the English. This we both promised, although of course we only intended to keep it so long as it would not be attended with risk to the benefactor, for rather than he should be a sufferer I resolved to live with him, though at the hazard of being again seized by the savages. My "mother" and "brother" took an affectionate leave of me, and I went home laden with the things they had given me, and overjoyed with the change in my situation. I immediately cast away my greasy painted shirt which I had worn for two months without ever having had it washed. I scrubbed myself for two hours with soap and warm water to get the grease and paint off, then dressing myself in the costume of the Canadians, with a clean French shirt and long ruffles, and a mantle exactly like a bed gown, with a pair of new leggings, I began to feel pretty comfortable. The Frenchman with whom I was, being brother to the former commandant, and a great favourite with the Indians, (the latter had been rather civil to him in not killing all the stock, such as the cattle, poultry, etc.,) I got a good supper from him, genteelly served up, while a comfortable bed was provided for me in which I slept better than I had done for a long while before. I awoke next morning happy in the thought of being out of the hands of the savages, and once more returned to freedom, (as I imagined) never doubting that now I should have an opportunity of returning to my friends in the fort, or at least be quartered with so good a family till the war was over. With these pleasing reflections I consoled myself under the circumstances, but how fleeting are the hopes and joys of this life, and how uncertain are we weak mortals of what it may please the Almighty to make us suffer in this state of trial and probation! I was happy at this moment beyond expression, and in the next I was doomed to be miserable. Before sunset, as I was enjoying the company of the amicable Mademoiselle Quilleim, lamenting together the pitiable situation of many poor captives that were still in the hands of the Indians, and were contriving methods for their deliverance, a party of armed Indians entered the house, all of them Ottawahs, and unknown to me, without saying a word to any one they seized me in a rude manner and hurried me down stairs. Then, indeed, my situation wore a very gloomy aspect. I was torn away from that excellent family without having time to say farewell, while on their part they were as much amazed and confounded as myself, nor durst they make any efforts on my behalf or any attempt to save me. The ladies of the family burst into tears, crossing themselves several times, and I believe fervently prayed for my deliverance. All that Mr. Quilleim could say or do was to encourage me to keep up my spirits and place my trust in "Le bon Dieu." As we pass along the Frenchman's houses the inhabitants all expressed a compassion for me, saying what a sad thing it was to behold so young a lad come to so cruel and untimely an end; while others advised me to keep up my spirits as there still might be hope. As for myself I own I was much shocked at first, but by degrees became more resigned, and began seriously to think my time was come at last, and that the many dangers and escapes that I had had were so many warnings to me to prepare for that change which we must all sooner or later undergo. They carried me to Pondiac's hut, the chief of the Ottawah tribe, and after being left there in a state of suspense for some hours, a Frenchman was procured to act as interpreter, who informed me on the part of the chief that the reason why I was taken from Monsieur Quilleim, was because several Dutch traders had got Frenchmen to buy or rather ransom prisoners like me, and that if he suffered that trade to be carried on, they would soon have no captives left. He therefore was resolved either to retain us all or have our scalps, in pursuance of which resolve he had ordered all those that had been so bought to be brought back again, and that he had intended to keep me himself. This speech relieved me in some degree from the disagreeable apprehension I was under, and gave me cause to consider that my last hour was not so near as I had expected, but I could not but wish that I was still with Perwash. However, I remained this night with Pondiac, but early next morning the Chippewahs, the nation to whom I formerly belonged, despatched a party to take me from the Ottawahs. Their chief, Pondiac, had however, taken a great fancy to me, owing I believe, to my youth, (I being then only seventeen years of age), as they seldom grow fond of elderly people, from a notion that they will never be reconciled to their Indian manners, and he therefore positively refused to give me up, the consequences of which refusal had well nigh been a war between the two nations. This was prevented by King Owasser, the chief of the Chippewah nation, having prevailed upon Pondiac to give me up. The latter, had after a good deal of altercation come to this step, in order to avoid engaging in a war with a nation superior to his own, which, besides the possibility of destroying his own, would have infallibly ruined the common cause for which they had assembled. I was immediately carried off by King Owasser to his hut. He was very kind to me, and gave me plenty of food to eat, telling me at the same time that he had plenty of girls to do the work, and that I should never be desired to do anything, but should live as he and his sons did. This treatment gave me great satisfaction, and indeed the behaviour of the whole family vied with each other in showing me most countenance and favour, and when any disturbance or alarm took place in the camp, such as the young fellows out of savage wantonness, or in a drunken frolic killing any of the captives they could find, I was always concealed on these occasions until the danger was over. The old king became so very fond of me, that he offered to make me his son-in-law, when I should be disposed to marry and fancy any of his daughters, who were reckoned the handsomest in the camp, and had more wampum than any others. He was satisfied with my telling him that I felt myself highly honoured by the proposal, and although at that time not inclined to take a wife, I did not know how soon I might change my mind, and I should certainly be happy to take one of his family for a partner. Little did I suspect that the ease and tranquillity I then enjoyed should be of but transitory existence. I had not sojourned in my new situation for ten days, when Perwash, my former father, expressed a desire to have his son back again, saying that he and his wife had heartily regretted having sold me to the Frenchman, and were willing to return the merchandise exchanged for me, provided I was again restored to him, adding that it grieved their hearts to see me in the possession of another. Owasser, however great his desire to keep me in his family, knew that though he was chief of the nation, he had no power to keep another's property, nor did he choose to expose himself or his family to the revenge of Perwash, who would take the first opportunity of resenting the injury done to him. He was therefore obliged to give me up to my master, who with his whole house received me again with most expressive marks of joy and satisfaction, while that of Owasser seemed to regret my separation, the princesses themselves showing they were not indifferent. The number of prisoners now increased every day. Towards the end of July they had upwards of fifty, besides a number of scalps that were brought daily into the camp. They were every day killing some of their captives, even some of those that had been with them as long as I had. When I was in the hall of a Frenchman's house which was crowded with Indians, some of the young warriors brought in eight captives naked, into the hall, at sight of which I was surprised and terror struck. I enquired of an Indian of the same nation as myself, who frequently had expressed a regard for me, whether or not I was to fall a sacrifice with these they were about to murder. At this question he was amazed at seeing me here, and without making any reply, hurried me through the crowd, and putting me into another room in the house charged me to lie close, make no noise, for otherwise I should be discovered and put to death, and locking the door he left me to ruminate on what had passed. I found in the same place two Dutch merchants in a similar position as myself, having been secreted by their different proprietors, who were desirous of saving them from the fury of their country men. During our confinement we heard the Indians making long harangues over their victims, telling them it was to make their nation prosper in the war against the English that they were to be killed. The poor captives were begging the Frenchmen who were looking on to intercede for them; one little boy in particular, (a drummer of the Rangers) about eleven or twelve years old, was crying bitterly, imploring their mercy, but alas! he knew not how vain it was to ask it of butchers whose hearts were steeled against every feeling of humanity. I ventured to creep to the side of the window where I saw them lead eight of the poor captives to the river side whom they massacred on the spot. Some of them they tomahawked, others they shot with their guns, while some were put to death by making the little boys shoot them with bows and arrows, in order to accustom them to cruelty and perfect them in the use of weapons. Thus they prolonged the pain of these unhappy men, and when one would fall the multitude would set up the most dreadful yells and shouts that can be imagined. When the objects of their barbarity were all dead they proceeded to scalp them, and some of the savages took the skin off their arms to make tobacco pouches of them, as they did with Captains Robson and Campbell. The first joints of the fingers were left dangling by way of tassels. They then threw the bodies into the river that they might flow down to the fort, that their countrymen might see specimens of what they should all undergo in a short time When this tragical scene was ended, the Indian who had hidden me came and set me at liberty, first leading me publicly through the crowd to convince me that there was no danger, and then conducted me to Perwash, who seemed very glad to see me safe, he having heard that the warriors were on the hunt after me for my destruction. The following cause was given for this last act of atrocity: an old squaw, the wife of a chief, dreamt that she saw ten Englishmen slain and scalped; this she recounted to the young warriors, who wished for nothing better than a pretext to make a frolic. She conjured them at the same time to make her dream good, otherwise she prophesied, they would not prosper in war. This, with a good deal more enthusiastic stuff in her speech, at length excited their passions to such a pitch, that they flew about the camp like maniacs to collect their prisoners, in order to butcher them as above stated, and verify the dream of this imp of hell. However, they were in some measure disappointed, for those that had any concern for their captives, concealed them. The little drummer mentioned above was a favourite of an old squaw, who wanted much to save him, but notwithstanding her tears and most earnest entreaties, the young warriors tore him away from her, declaring upon such an occasion they would respect neither age nor sex. Almost every day exhibited fresh atrocities towards some of their prisoners, so that I lived in continual dread, expecting every day to be my last; I therefore resolved to attempt my escape at all hazards. There lived near to where we had our cabin a Frenchman named Boileau. This man had been civil to me on several occasions, and I thought might be willing to facilitate my escape by his assistance, I thereby succeeded in gaining him to my interest. As the French were permitted to enter the fort, I gave him a letter to my friend Mr. Sterling, who likewise promised him a recompense if he succeeded in my deliverance. Major Gladwin also, and several other officers assured him of their countenance. Upon his return, I found him quite ready to engage in my interest. I therefore redoubled my entreaties and promises in case of success. The next object to be considered was a plan for my departure in the most secret and unsuspicious manner. He formed many schemes, but rejected them all upon a more cool consideration of the matter. Our respective eagerness, (he to enjoy the promised reward and I to enjoy my liberty), made it difficult to determine upon the most practicable means of effecting it. However, we at last came to the following contrivance. On the evening appointed, the Frenchman was to embark in his canoe, and give out publicly he was going to fish as usual; instead of doing which he was to go about two miles down the river nearer to the Fort Detroit, and at a certain point of low land covered with bushes, he was then to put in with his canoe in the dusk of the evening, when the Indians would not perceive him and so conceal himself. I, on my part, was to make the best of my way to him in the night. This scheme we were to put into execution the evening after it was formed. This, however, was prevented for that and several succeeding nights, the Indians being alarmed by a report that the Chippewahs were to be attacked by our forces, which actually happened a few days after. Captain Dalzell, who had brought a reinforcement to Fort Detroit, issued from thence on the night of the 15th of August with a strong body of men under his command, with an intention of surprising the enemy's camp, but they had been warned by the French of his designs, for they lay in ambush and attacked his party with great spirit, nay, they did on this occasion what savages were never known to do before, they threw themselves into houses, annoying the British troops very much from them and from behind fences. The action continued doubtful for some time; at last one troop were obliged to retire, which they did in good order to the Fort, leaving upon the field Captain Dalzell and about sixty private soldiers. Perwash knew nothing of the attack till the firing of the artillery and small arms aroused him from sleep, when he rose up in a great hurry, put on a powder horn and pouch, and tied my hands lest I should make an escape and kill the women and family. Then taking his gun he ran off as fast as he could to join the rest of the warriors and his party, who were about two miles off where he lived. In about a couple of hours afterwards he returned to us, overjoyed with the success of his party, giving a most pompous description of the fight, and giving out that a vast number of the English were killed, and allowed only six Indians to have fallen. He also told me that our great chief was killed, meaning Captain Dalzell. I was then unbound and sent to another hut for a large wooden mortar to put corn in to be pounded. The Indians to whom I was sent had also been at the engagement, and boasted of their feats prodigiously. They told me they had taken out the heart of our great chief, and would soon feed on it, showing me poor Dalzell's heart roasting at the fire, pieces of the fat of which the young men took and rubbed it, in my presence, on the mouth of a poor soldier in the 60th Regiment, whom they had taken prisoner. This and other barbarous usage practised upon the prisoners shocked me so much, that I went directly to Mr. Boileau under pretence of bringing some bread to our hut, and agreed to meet him that night at the place of rendezvous, repeating my promises of reward which I engaged still further to increase. When evening arrived I lay down as usual on my bear skin to repose, putting off all my raiments, wampum, silver bracelets, collar, etc., and about the middle of the night when I guessed all the family to be sound asleep, I crawled out of the hut on all fours. When outside I stood at the door for five minutes to hear if any one was stirring, but as everything was still I thought now was my time to set off, which I did as fast as my feet could carry me to the woods. I had no other clothing but my shirt, not daring even to put on a pair of mocassins to save my feet, for had the family happened to wake they would have instantly come to the door, and if they had found me dressed they would not have been at a loss to divine my intentions. I never in my life witnessed such a night of rain, thunder and lightning. It was so extremely dark and the woods so thick and full of briars and thorns, that I was greatly retarded in my progress. I could scarcely make more than a mile an hour. I therefore resolved upon a new method, and quitting the woods for the river which was hard by, I waded with the water up to my chin, so that the Indians on the road could not see me. This plan would have succeeded had I had more time, but there were yet four miles to go before I could reach the rendezvous, and was in danger of being surprised in daylight. I therefore determined to take again to the woods, but was within an ace of being prevented, for just as I was going back to the bank I saw two Indians with guns, in close conference. They passed by on the road within twenty yards of me. Fortunately there was an old tree which had fallen into the river, behind which I immediately squatted, but could not completely conceal myself, so that they must have discovered me had they looked that way. If they had, I should never have got out of that place alive. This I knew and was in great apprehension, as several soldiers who had attempted to escape were caught and tomahawked on the spot. But these Indians, fortunately for me, were in close conversation, and being on a return from a feast were somewhat intoxicated. I saw them enter a little French house about one hundred yards distant. Then I immediately darted into the thicket making as little noise as possible, and to prevent the whiteness of my skin discovering me to the savages, I rubbed myself over with black moss and mire. Then pursuing my course in fear and hope, starting at every rustling of the trees, and mistaking the trunks for Indians, I at last arrived at the place appointed, and where I thought the Frenchman ought to have been waiting with his canoe, but he was not there. I ventured to call in a low voice, but nobody answered. I then began to exclaim against the perfidy of the Frenchman, who, in my desperate situation had, I thought, deceived me. Being much fatigued and exhausted I sat me down to rest, scarcely knowing what I did. My thoughts were occupied by the Frenchman's conduct, who, I endeavoured to persuade myself, would not be such a coward as to abandon me to my fate, when he knew I had to undergo the most perilous part of the enterprise. I considered too, that it was his profit also to carry the affair to a conclusion. At last, recollecting myself a little, and looking around me I discovered that my anxiety and fears had made me overlook that I was about a quarter of a mile farther up the river than the place appointed. This discovery gave me fresh vigour and spirit. I soon reached the right place, and to my inexpressible joy found the Frenchman asleep in his canoe. Having awoke him, we embarked and pushed out to the middle of the river, where we would have the advantage of the current to carry us down. We passed through the enemy's camp, making as little noise as possible with our paddles. We could plainly hear them talking, and observed a party dancing and singing round a fire. About an hour before day break we arrived before Detroit, and got on board a ship lying opposite. Then it was that I was agitated in a manner that I never before experienced. It would be vain to give an idea of my feelings on this occasion. I went in the morning to the Fort, where my friends were overjoyed to see me again. To be sure I cut an odd figure among civilized society, the whole town turned out to see me. My appearance certainly was calculated to excite their pity as well as laughter. I had, as before remarked, nothing but a greasy painted shirt on, my face painted red, black and green, my hair cut all away, and my skin blacked all over with the moss I had put on. My legs were so lacerated with the briars and thorns and so affected with poisoned vines, that they were swollen as big as any in His Majesty's service. Besides this, to those who inspected me narrowly, my arms presented the appearance or impressions, one of a turkey's foot, the other of a flower in pink or purple dyes. I had thus been tattooed by the savages as a mark set upon me as belonging to their tribe, and such is the indelible effect upon the part punctured, that the impression will remain as fresh through life as on the first day of the operation. Monsieur Boileau, as soon as he had put me on board the ship went back again, fearing that if he did not return home he would be suspected of having aided me in my escape, and this was the last sight I had of him. Mr. Sterling, by my orders, gave me goods to the amount of £23, which with the £39 given by Monsieur Quilleim when he bought me, amounted to £62 10 shillings, Pennsylvanian currency. After I had been about ten days at the Fort, and had recovered from all my fatigues, it so happened that a vessel had to sail for the Niagara to bring a supply of provisions for the garrison. My friend Mr. Sterling, had obtained leave of Major Gladwin to have a considerable quantity of goods brought from that place to Detroit in his vessel, and having no proper person to whom he could safely confide their conveyance he therefore applied to me. I was sensible that the bringing up of these goods would be of great advantage to the company, it being likewise at a time when several articles were wanted here, and being anxious to do what office was in my power, for the benefit of a company with which my uncle was connected, I agreed to run the hazard of the undertaking, and accordingly embarked on board the ship. We had some shots fired at us from the Huron Indians going down the river, which we returned. In four days we reached Fort Schelope, near the Falls, and marched under a strong guard to Niagara, without experiencing any annoyance from the enemy. It was late before the sloop could be laden and ready to sail again. Some artillery and provisions with about eighteen officers and men of the 17th and 46th Regiments, constituted the chief part of what we had on board. We had only set sail one day, when the vessel sprang a leak, and was half filled with water before it was observed. The pumps were all set agoing, but were of little use, so that after having thrown all the heavy artillery and some other things overboard, we found that the only way to save ourselves was to crowd sail to the land and run the vessel ashore; but it was the opinion of all that she would go to the bottom before this could be effected. While dread and consternation were depicted on the countenance of every one, I was surprised to find myself the least moved on the occasion, which must have been owing to my having been so much exposed and inured to danger some time previous. At a time when all were agitated in a less or greater degree, some stripping to swim, others cursing, swearing and upbraiding their companions for not working enough at the pumps, others praying, besides some who were drinking, I looked calmly on the scene, after I had become conscious I could be of no more use. When we were at the worst, and expecting every one to go down, one boat which was our last hope broke adrift; then indeed our situation was a dismal one. The cries and shrieks of a naval officer's lady with three children affected me much more than my own condition. It was really a piteous sight; the mother held two of her children in her arms, while the other little innocent was making a fruitless attempt to stop the water with her hands which was running into the cabin, and already flooded it to the depth of several inches. "She did this," she said, "to prevent the water from drowning her mamma." At last, to the inexpressible joy of all on board, the vessel struck upon a sand bank within fifty yards of the shore. The difficulty now was how to be conveyed to land, which it was desirable should be done with immediate haste, as we every moment dreaded being dashed to pieces by the violence of the surf of the lake. In this situation we should have been much at a loss, had not Captain Montresor of the Engineers, bravely undertaken to swim to shore, to endeavour to bring off the boat which had stranded there. The distance was considerable and the waves running high, and there was much danger of Indians being there on the watch; he, nevertheless, accomplished the bold adventure, and brought off the boat, by which means we all got safely on shore. Expecting the Indians would certainly come upon us, we fortified our position in the best way we could, with barrels of provisions, etc. The necessity of the measure was soon apparent, for we were soon attacked by a large body of them who had watched our movements, waiting doubtless till an opportunity offered of our being more off our guard, which, in fact we were at that moment. Several of us were walking along the beach, when we were of a sudden alarmed by the cries of the savages, which made every one take to his heels as fast as possible to gain the breastwork. I had very nearly fallen again into their hands on this occasion, as I chanced to stray from my companions. There was one poor soldier of the 60th Regiment who happened to be nearest the enemy. They rushed upon him out of the woods, and the first who came up to him he instantly knocked down. The second savage struck him with his tomahawk which felled him to the ground; but neither that nor the scalping deprived him instantly of life, for as soon as the Indians left him, (dead as they thought) he got up, staggering to the foot of the hill where we had barricaded ourselves. The Indians still continued to pour their fire upon us, not a man durst venture forth to bring the poor soldier up the hill, who by this time had become insensible. He paid no attention to our calls, but wandered a little further on to where the Indians had gone. We afterwards found him a corpse under an old tree. For my own part I had much to do to regain the top of the hill, being hard pressed by several of the Indians, and in my flight scrambling through the bushes, I left both my shoes in their hands, a loss I did not much regret. As soon as we arrived at our breastwork they began to fire very heavily upon us, which we immediately returned. Our work being very open and inadequate, we had several men killed. The Indians left us near dawn. We were detained in this place, which we called "Lover's Leap," for twenty-four days, as we could not get a reinforcement of batteaux to carry us off to Niagara. It was here that I first entered upon duty as private soldier. After we had quitted this position, we marched over the carrying place at the Falls just three days after the Indians had defeated our troops in a *rencontre*. We saw about eighty dead bodies, unburied, scalped and sadly mangled. When at Niagara, I determined not to attempt fortune longer in the woods, and resolved to go to New York, where after residing some time with my uncle, I proceeded to join the 42nd Regiment, in which corps I had obtained an Ensigncy, at the time when they were preparing for an expedition against the Shawanese and Delaware Indians to the westward, under General Bouquet.

NOTE.

By Thomas Rutherford, of Farrington, Roxburghshire, Scotland.

The subject of the preceding was my father. He was born at Scarborough, in Yorkshire, 1746. His father having died at Barbadoes while he was yet an infant, he was sent to Scotland to the care of his grandfather, Sir John Rutherford, who had settled there, having amassed a considerable fortune by commerce, besides being proprietor of a large tract of land which still bears his name, "Rutherford County."

Soon after my father arrived in America he was sent by his uncle to Fort Detroit, in charge of military stores and supplies for the garrison, and having executed his commission, was about to return to New York, when he was prevailed upon to accompany an exploring party to the lakes, which set out on the 2nd of May, 1763. The account of that disastrous expedition was written by my father at Fort Detroit, immediately after his escape from the Indians, and addressed to his cousin, (Sir John Nisbet, of Dean) then at New York, who deeming the incidents of his captivity and escape sufficiently interesting to commemorate, had particularly desired to have a narrative of them in writing. After serving thirty years in the 42nd Regiment, (called the Black Watch) during which time he was engaged in both American wars, he quitted the army and retired to a small property, Mossburnford, in Roxburghshire. At a subsequent period he was appointed Major of the Dumfries Militia, under the command of the Earl of Dalkeith. He died at Jedburgh, on the 12th of January, 1830, in the eighty-fourth year of his age.

EARLY TRADERS AND TRADE-ROUTES IN ONTARIO AND THE WEST. 1760-1783.

BY CAPT. ERNEST CRUIKSHANK.

(*Read, 27th February, 1892*).

The reason why I have included the "West" within the scope of this paper is that from the conquest of Canada until about the year 1816 the whole region now forming the States of Iowa, Wisconsin, and Minnesota and for a considerable portion of that time, much of the present States of Ohio, Michigan, Indiana and Illinois still remained within the "sphere of British influence," long after it had actually ceased to be British territory. During the period named, practically the entire trade of this vast territory was conducted by English, Scotch, and Canadian merchants having Montreal as their base of supplies. From 1763 to 1783, all these northwestern territories, together with Ontario, were administered as a part of the "government" or province of Quebec.

These traders acted an important part during the American Revolution and the War of 1812 and it was largely due to their active loyalty and influence among the Indians that the western provinces were then preserved from becoming a part of the United States. British garrisons continued to occupy Detroit and Mackinac until 1796 and for twenty years afterwards the isolated settlers at Milwaukee, Green Bay, and Prairie du Chien still professed themselves British subjects and proudly kept the Union Jack flying over their trading stations. As late as 1818, I find a trader described in a legal instrument as "Amable Grignon of the parish of Green Bay, Upper Canada."

The Indian tribes of this region continued to be more or less under the control and superintendence of the Indian department of Upper Canada until about fifty years ago. Many of them made annual journeys from the banks of the Mississippi to Sandwich, Ont., to receive their presents. When the celebrated Black Hawk finally surrendered, he was found to have carefully treasured a British flag, and a medal of George the Third given to his tribe half a century before.

The conquest of Canada at once transferred the trade of the province and the vast interior country to the North and West from the hands of the French to those of English traders. Successive governors of Canada had actively exerted themselves to confine the English colonists to a comparatively narrow strip of land along the Atlantic seaboard while they jealously retained the commerce of the great country behind, almost exclusively in their own hands. In this policy, they had been so far successful that in 1756 they held a chain of forts extending from Montreal to the foot of the Rockies. The posts of Presqu' Isle, Le Boeuf, Venango, Du Quesne, commanded the navigation of the Ohio. They had stations on the Chicago, St. Joseph's, Wisconsin, Wabash, and Illinois Rivers which quite monopolized the trade of the surrounding country. Thriving settlements of long-standing at Kaskaskia, St. Louis, New Orleans, and elsewhere on the Mississippi gave them full control of that mighty river. They had establishments at Prairie du Chien and Lake Pepin in Wisconsin. Pascoya on the upper Saskatchewan was 900 leagues beyond Mackinac and the journey usually occupied three months. Their most western post was still 100 leagues beyond Pascoya. La Verendrye, Le Gardeur de St. Pierre, De Niverville and other bold adventurers had explored the adjacent country. Determined efforts were made to wrest the trade of the Northern Indians from the Hudson's Bay Company. The northern shore of Lake Superior and the rivers falling into the Lake from that direction were thoroughly explored. An expedition fitted out at Mackinac ascended the Michipicoton or Pijicic River as far as they could go; hauling their boats overland to the head of Moose River they dropped swiftly down that stream and took the principal British factories on James Bay by surprise. They returned by the same route with their booty and when the French flag was finally lowered at Mackinac, two small cannon were found there which had been taken in this daring raid.

It is still possible to ascertain pretty closely the extent and value of their trade as it existed in 1754 just before the final struggle began. The Indian country had been mapped out into districts, and traders were strictly prohibited from passing the limits of the district for which they obtained licences. They were also forbidden to carry spirits except for their own use or to sell any to the Indians. Each trader was required to report at the post of his district before going out to trade and again on returning. The commandant of this post heard the complaints of the Indians and if they appeared well founded, promptly redressed their grievances.

As Sir Guy Carleton remarked, "They did not depend on the number of troops, but on the discretion of their officers, who learned the language of the natives, acted as magistrates, compelled the traders to deal equitably, and distributed the King's presents; by this conduct they avoided giving jealousy, and gained the affections of an ignorant, credulous, and brave people whose ruling passions are independence, gratitude, revenge, with an unconquerable love of strong drink which must prove destructive to them and the fur-trade if permitted to be sent among them; thus managing them by address where force could not avail, they reconciled them to their troops and by degrees strengthened their posts at Niagara, Detroit, and Michilimackinac."

Ninety canoes were annually permitted to go to the southern posts. These were Niagara, Toronto, Frontenac, La Presentation, Detroit, Ouias, Miamis, Michilimackinac, La Baye, St. Joseph, Illinois, and their several dependencies. Twenty-eight canoes were despatched to the northern posts which were Temiscamingue, Chagouamigon, Nipigon, Gamanistigouia, Michipicoton, Mer du Ouest, Rivière des Kikipoux, Lake Huron, and Belle Rivière.

POST.			GARRISON.			
Niagara	5	Officers.	30	men.	10	Canoes.
Toronto	1	"	7	"	5	"
Frontenac	3	"	17	"	2	"
Detroit and dependencies	4	"	28	"	17	"
Michilimackinac and dependencies	2	"	15	"	25	"
La Baye and dependencies	1	"	5	"	13	"
St. Joseph	1	"			5	"
Illinois					8	"
Temiscamingue						
Chagouamigon	1	"			4	"
Nipigon	1	"			5	"
Gaministigouia, Michipicoton	1	"			9	"
Mer du Ouest	1	"	6	"	9	"
Rivière des Kikipoux					2	"
Lake Huron					2	"
Belle Rivière					2	"

The average value of each canoe was estimated at 7000 *livres*. Toronto and Frontenac were called the King's Posts.* The trade there was conducted for the benefit of the Crown and the furs so obtained were sold by public auction in Montreal. Toronto in particular was founded with the express object of drawing trade away from the English post of Choueguen or Oswego. About two-thirds of the entire Indian trade, it will be noticed, was carried on with the tribes of the Far West. For many years the determined hostility of the Six Nations had hindered the French from the free navigation of the great lakes, but they then had several small ships of war on each of the lower lakes and an unarmed schooner upon Lake Superior. All of these vessels were frequently employed in transporting goods between the principal posts.

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*In addition to those posts Kalm's map indicates the out-stations of Gandalskiagon apparently on the present site of Whitby, and Redcharle between Niagara and the mouth of the Genesee.

Ample justice has been done to the great skill manifested by so many Frenchmen in the management of primitive people. "No other Europeans" says Merivale, "have ever displayed equal talents for conciliating savages or it must be added for approximating to their usages and modes of life." But truly remarkable as was the ascendancy acquired by Gautier, Langlade, La Corne and others, it is doubtful whether they ever possessed as great and permanent an influence among the Indians as Johnson, Butler, McKee, Elliott, or Dickson.

It is probable that few of the water-ways, *portages*, and paths used by the Indians remained unknown to the hardy and adventurous *Coureurs des Bois*. But their knowledge was jealously kept secret and much of it perished with them. Consequently after the conquest, land and water-routes formerly well known to the French, had to be re-discovered or at least re-explored by their successors. During the war too, many of the less important trading-stations had been abandoned or destroyed.

The old and favorite canoe-route from Montreal to Lake Huron by way of the Ottawa, Lake Nipissing, and French River although interrupted by no less than forty-two *portages* and *decharges* had never fallen into disuse, but four trading-houses upon the Ottawa alone had been recently abandoned and were already crumbling to ruin. One of these was 14 leagues above the Longue Sault, one three leagues higher at the mouth of Hare River, another at Isle des Allumettes, the fourth at the Rivière du Moine. A short portage connected a branch of the Ottawa with the Cataraqui and Lake Ontario.

Missionary, soldier, and trader had traversed in succession the route from the Bay of Quinté by way of Balsam Lake and Lake Simcoe to the once populous country of the Hurons. The more direct route from Toronto to Lake Simcoe was also frequently used in the latter days of the French occupation.

From Burlington Bay the Indians used a *portage* into the Upper Thames and another from the forks of that river into Lake Erie at Point aux Pins. Three well defined trails led from different points on the Grand River to Lake Ontario, and there was also a *portage* less than five miles in length from that stream into the Chippawa. The carrying-place at Niagara Falls lay on the eastern bank of the river and was about nine miles long. Block-houses guarded the wharves at the landings, the lower being called Petite Marie; the upper, Little Niagara. Windlasses were used for hoisting heavy weights up the heights and also for assisting vessels to overcome the rapids at Fort Erie.

From Lake Erie the French made their way at an early date to Lake Chautauqua, thence down the Venango into the Ohio, but this route was soon abandoned for the shorter and easier one from Presqu' Isle (Erie) to French Creek. Here they made so good a road that heavy cannon were easily hauled over it in the days when they held Fort du Quesne. The forts they had built at Presqu' Isle, Venango, and Le Boeuf were taken and destroyed by the Indians during Pontiac's war. They were not rebuilt, the route became disused, and the road soon fell out of repair.

There were three other much frequented water-routes from Lake Erie to the Ohio. A *portage* of a single mile connected the headwaters of the Cuyahoga with the Muskingum; another four miles in length united the Sandusky with the Scioto. The carrying-place from the Miami of the Lakes to the Great Miami was nine miles long, and a branch of the former river interlocked with a branch of the Scioto. In the region watered by these rivers the fiercest struggle for trade had been waged and here those inevitable collisions occurred which precipitated the conquest. About three hundred English traders annually came over the mountains from Pennsylvania and Virginia. They usually ascended the Susquehanna, Juniata, or Potomac to the head of boat navigation and then made their way through the gaps of the hills to the nearest branch of the Ohio. Many of the Indians living in the vicinity were emigrants from the English colonies who had settled there with the permission of the Six Nations by whom they were treated as allies or "younger brothers." From the first they were inclined to be friendly to the English and regarded the French with suspicion. One English factory was established far up the Muskingum, another at Shannoah (Shawnee-town) near the confluence of the Scioto with the Ohio, but their principal mart and place of trade was at Pickiwillany (Piqua) on the upper waters of the Great Miami. From these posts, individual traders driving pack-horses before them made their way to the different Indian settlements. As early as 1749, De Bienville reported that every village on the Ohio and its tributaries had one or more English traders in it and that each of these had men employed in transporting their furs. Raymond, the Commandant of the French post on the Miami of the Lakes, at the same time described the feeling of the Indians as decidedly hostile to his countrymen.

The Six Nations claimed the sovereignty over the country on the south side of Lake Erie as far west as the Sandusky River. They held it solely as a hunting ground, making no attempt at a permanent settlement. They also claimed the lands on either side of the Ohio from its source to the mouth of the Wabash. The Delawares, reduced to less than 500 warriors had taken up their residence on the Muskingum, and the Shawanese, another allied tribe, numbering 300 fighting men, were seated on the Scioto. Neither of these tribes raised much grain. They maintained themselves almost entirely by hunting in which they were very expert. The Wyandots (frequently called Hurons) occupied a very fertile tract of land on the Sandusky River. The number of adult males was variously estimated at from two to six hundred. Their villages were composed of regularly framed houses neatly covered with bark. They were considered the richest and most industrious Indians on the continent. Mr. McKee told Governor Simcoe that when he first became acquainted with these people (about 1750) they would frequently change their dresses eight or ten times in the course of an evening, when holding one of their grand dances, and that each dress was so loaded with ornaments as to be valued at £40 or £50. They bred many horses, black cattle, and hogs and grew great quantities of grain not only for their own use but for the supply of the neighboring tribes that preferred to employ themselves entirely in hunting.

In 1752, Charles de Langlade at the head of a band of Chippewas destroyed the English factory at Pickiwillany and the remaining traders were soon chased from the Ohio valley. The neighboring Indians then passed for a few years under French influence, but never seem to have become actively hostile to the English. When the war was over, the trading-posts were not re-established, as the Indians could be easily supplied from Pittsburg or Detroit.

This province as far north as the borders of Lake Michigan was frequented only by roving bands of Missassaugas who seldom remained long in one place. At the date of the conquest, their principal village seems to have been near the present site of Toronto.

A remnant of the Hurons, Christianized and superintended by a French missionary, was settled opposite the village of Detroit.

The French inhabitants of Detroit already numbered about 2500. The settlement extended seven or eight miles on both sides of the river, and was in a flourishing condition. The settlers grew a considerable quantity of grain and bred many cattle but they devoted their attention chiefly to the fur-trade which was great and lucrative. Tribes of the Ottawa Confederacy numbering about 900 warriors had their villages in the immediate vicinity.

From Detroit the favorite route to the Illinois and the Mississippi was by the Miami of the Lakes and its tributary the Au Glaize, from which there was a portage of twelve miles to the Wabash. The distance to Fort Miamis on the Au Glaize was 216 miles. A few French and half-breed families occupied a deserted fort, and the Miami village opposite could turn out 250 fighting men. Thence to Ouias or Ouiatanon, hard by a populous Kickapoo village with the principal town of the Ouias (Weas) directly opposite, was 183 miles of rather difficult navigation. Vincennes, 240 miles further down the Wabash, had long been an important station. A trading-house had been established there in the same year that Penn had founded Philadelphia. The permanent population of the French village did not exceed four hundred persons, but the Indians for a great distance around constantly resorted to this place for their supplies and trade was brisk. The distance by land across the prairie to the Illinois was estimated at 240 miles.

Much shorter but less frequented was the land-route from Detroit to Fort St. Joseph on the river of the same name, situated close beside a village of 200 Ottawa warriors and another of 150 Pottawatomies. From this place there was a portage of four miles to the Kankakee, a branch of the Illinois. The distance by water to the Mississippi was 541 miles. There was a second portage from the St. Joseph to the Wabash The Chicago river was connected in a similar manner with another branch of the Illinois. All of these routes were much used by the Mackinac traders.

The French settlements on the Illinois were flourishing and populous. As early as 1750, Père Vivier had estimated their population at 1100 whites, 300 negro and 60 Indian slaves. At the date of the conquest it was believed to have increased to 2050 whites and 900 negroes, but many soon afterwards elected to follow the French flag across the Mississippi rather than submit to English rule. In 1765 the geographer Hutchins stated that Kaskaskia had a population of 500 whites and 400 or 500 negroes; Prairie du Rocher, 100 whites and 80 negroes; Cahokia, 300 whites and 80 negroes.

The station of Michilimackinac, situated on the western shore of the straits of the same name, was the distributing point for the trade of the farther west and northwest. It had been shrewdly built on the very boundary line between the territories of the Ottawa and Chippewa Indians, so that when these two nations came to trade, each could encamp on its own lands within a stone's throw of the stockade which stood so near the water's edge that the waves frequently dashed against the palisades. The Jesuit mission of St. Ignace and about thirty houses stood within. Twenty miles to westward lay the Ottawa village of L'Arbre Croche having a population of fifteen hundred Christian Indians principally engaged in agriculture. In fact the traders of the post were wholly dependent upon them for provisions both for their expeditions into the fur-country to the west and north and when returning to Montreal.

A number of French families had already taken up their permanent residence on Green Bay near the mouth of the Fox river where they cultivated small farms and gained a comfortable living by selling their surplus products to passing traders. The Fox and Wisconsin rivers afforded an easy and tolerably direct passage to the Mississippi.

The principal village of the Winnebagoes or Puants stood on an Island in the lake to which they bequeathed their name. The capital of the Sacs on the Wisconsin river was described by Carver as the largest and best-built Indian town he had ever seen in the course of his extensive experience. It consisted of about ninety houses, each of them large enough to shelter several families, built of hewn plank neatly jointed, and covered so securely as to be proof against the heaviest rains. The streets were regular and spacious. The inhabitants tilled their gardens energetically and grew such quantities of corn and vegetables that this was considered the best market to purchase provisions of any within several hundred miles. The male population of the tribes between Green Bay and the Mississippi was not believed to exceed 1200, divided in the following proportions.—Menomonees, 110; Folles-Avoines, 100; Winnebagoes or Puants, 300; Sacs, 300; Foxes, 320.

An Indian village of almost three hundred houses occupied the site of Prairie du Chien and a considerable number of French traders made it their head-quarters. The neighboring tribes and even those living on the most remote branches of the Mississippi annually assembled there about the end of May with the furs they had obtained during the winter. A general council of the chiefs was then held to determine whether they should sell their peltry to the traders who came there to purchase or take them to the French posts in Louisiana.

All of the smaller trading-stations to the north and west of Mackinac had been abandoned during the war except one occupied by J. B. Cadotte at Sault Ste. Marie.

The Ottawas and Sioux and the Indians of Wisconsin generally, remained firmly attached to the French interests and it was from these hardy and warlike tribes that they obtained their most efficient auxiliaries. Picked bands of these Indians had defeated Braddock on the

Monongahela and participated in the French triumphs at Oswego and Lake Champlain.

The number of Indians living to the north of Lake Superior and Huron was vaguely estimated at 12,000 fighting men, chiefly Saulteaux and other clans of the great Ottawa Confederacy. Those about Lake Nipissing, frequently termed the Lake Indians, were conjectured in the same loose way to amount to half that number, but very little was known about them as they had scarcely any commerce with the whites. They had no fire-arms and seemed to have no intercourse of any kind with other tribes. Rogers said that they appeared "to live as independent as if they had a whole world to themselves."

Traders from the English colonies hastened to occupy the new channels of trade suddenly opened to them by the fortunes of war. They followed hard on the heels of the victorious armies and sometimes even preceded them.

When on his way to Detroit in 1761, Sir William Johnson found that a storehouse had already been built at the upper landing on the Niagara by Rutherford, Duncan & Co, who were preparing to monopolize the carrying-place around the Falls under authority of a permit from General Amherst. They had discovered a large quantity of hand-sawn plank left by the French in the Chippawa Creek and were using it to build a small vessel for the purpose of exploring the unknown shores of the upper lakes.

Other merchants established themselves at Oswego where for a few years they carried on a greater Indian trade than at any other place on the continent.

One of the first English merchants to make his way to the Lake Superior country was Alexander Henry who published an account of his early travels in 1809. In 1760, he accompanied General Amherst's army in its advance upon Montreal, taking with him three boats loaded with merchandise. By singular ill-luck or mismanagement all his boats were swamped in attempting to run the rapids at the Cedars and he lost his entire stock. Undismayed by this disaster Henry immediately hurried back to Albany and secured a fresh supply. This was quickly sold at Fort Levi. Tempted by dazzling tales of the ease and rapidity with which fortunes were made at Mackinac, the great fur-market of the west, he resolved to go there next year. Even then he was not destined to be first in the field, for General Gage had alr dy granted a passport for that place to Henry Bostwick, and it was with difficulty that he was persuaded to issue another as the French posts west of Detroit had not yet been surrendered and the Indians were reported to be very hostile to the English. Henry's persistence finally triumphed, and early in the spring of 1761 he set out on his journey, with several large canoes heavily loaded. Following the Ottawa route he reached Mackinac several days in advance of a body of soldiers sent from Detroit to take possession of the fort. He found Mr. Bostwick already there and their lives seem to have been in some danger until the troops arrived. Detachments were immediately sent to occupy St. Joseph's, Green Bay, and Sault Ste. Marie, but as the public buildings at the latter place were accidently burnt soon afterwards, its garrison was withdrawn.

When Mackinac was taken by the Indians, Henry, Bostwick, Ezekiel Solomon, (another English merchant) and about three hundred French Canadian *Voyageurs* and others were made prisoners. A Mr. Tracy was the only English trader who was killed on that occasion. The small garrisons at St. Joseph's and Green Bay were next compelled to surrender. In this extremity, Cadotte of Sault Ste. Marie proved himself a true friend to the English. He dissuaded the Chippewas of Lake Superior from joining Pontiac and used his influence to obtain the release of the prisoners. Henry was sent by way of Lake Simcoe and Toronto to Niagara where he arrived in time to accompany Bradstreet's avenging army to Detroit, in command of a small party of friendly Indians.

In 1765, a regulation was adopted prohibiting all white men from trading to westward of Detroit without a license and Henry's perseverance was rewarded by the monopoly of the trade of Lake Superior. He seems to have had no ready money, but he promptly bought four freighted canoes at twelve month's credit for 10,000 pounds of beaver. This fur was then worth 2s. 6d. a pound. At Mackinac the value of every commodity was reckoned in pounds of beaver. Manufactured goods of every kind brought fabulous prices. A stroud blanket was valued at ten beaver skins; a trade-musket at twenty; a pound of powder or a two-pound axe at two; a knife or a pound of ball at one. For a shirt, Henry had shortly before paid ten pounds of beaver and fifteen for a pair of leggings. Even when a man went to the garrison-canteen, he took with him a marten skin (worth 1s. 6d.) to pay for his drink.

Henry took Cadotte into partnership and apparently put the trade of Sault Ste. Marie and the north shore into his hands. He next engaged twelve boatmen at one hundred pounds of beaver each for the season, and bought for their provision fifty bushels of Indian corn for ten pounds of beaver a bushel and the customary allowance of tallow at a dollar a pound. Upon arriving at Chagouamigon (or Chequamegon) Bay, where the French had formerly a trading post upon an island, he found the

Indians destitute and almost naked, and was obliged to advance them at once goods to the value of 3000 beaver-skins. The result of the winter's trade was 150 packs of beaver weighing a hundred pounds each and twenty-five packs of otter and marten.

In his second venture, he advanced to each male Indian, goods valued at one hundred pounds of beaver and to each woman, thirty pounds worth. As a proof of the remarkable honesty of these people, he relates that although he had advanced to them at this time goods to the value of two thousand beaver-skins, not more than thirty skins were unpaid in the spring, and that this loss was due to the death of an Indian whose family brought in all the furs he possessed and offered to pay for the remainder.

Upon again returning to Mackinac, he made the acquaintance of Mr. Alexander Baxter who had come from England to examine the deposits of copper ore on Lake Superior and he threw himself with his accustomed energy into this mining project. A company was soon formed, composed of the Duke of Gloucester, Hon. Charles Townshend, Sir Samuel Tutchet, Mr. Baxter, the Russian consul in London and Mr. Cruikshank in England and Sir Wm. Johnson and Mr. Alex. Baxter in America. In 1770, Mr. Baxter returned from England with the necessary authority to begin operations. Bostwick and Henry were next taken into partnership, probably to make use of their local knowledge and influence. During the winter they built a barge and a sloop of forty tons at Point aux Pins near Sault Ste. Marie, and in May, 1771, they sailed with a party of miners for Ontonagan where they built a house and opened a mine. The miners were left there during the winter and in the following spring a boat was sent to them with a supply of provisions. On the 20th of June, it returned with the entire party. The mine had suddenly caved in and they had failed to find silver ore in paying quantities. In August of that year they began working a vein of copper on the north shore and during the season of 1773 penetrated about thirty feet into the rock. The vein then rapidly diminished in size and was abandoned. This failure combined with the high price of labor and provisions and the difficulty of obtaining mining supplies thoroughly disheartened the English shareholders and they declined to proceed.*

During these years Henry had continued to trade with the Indians of Lake Superior but he soon determined to seek the new and promising field of trade in Canadian Northwest.

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*General Gage remarked that "their want of success was not so much owing to the mismanagement of their agents as to want of foresight in providing the necessities requisite for such an undertaking the want of which at that immense distance must have overturned their scheme at once."—*Letter to Captain Vattas, 26th December, 1773.*

A trader whose name I have not ascertained had sent several canoes as far as Rainy Lake in 1765. The Indians there having been without supplies for several years, detained and plundered them. He repeated his attempt the next year with the same result. With astonishing perseverance he fitted out a third expedition in 1766 and was rewarded with success. Leaving part of his goods at Rainy Lake to be traded out among the Indians there, he was permitted to proceed with the remainder beyond Lake Winnipeg. Other traders soon followed in his footsteps. In 1769, the brothers Frobisher formed a partnership with Todd and McGill of Montreal for the purpose of prosecuting this trade on a large scale. The Indians of Rainy Lake were not yet entirely conciliated and plundered their canoes, but before they were informed of this disaster, their supply of goods for the next year was at the Grand Portage and they were in a manner forced to proceed. Their second venture was successful and they reached Lake Winnipeg in 1770. The partnership was then enlarged and to borrow their own words, "having men of conduct and abilities to conduct it in the interior country, the Indians were abundantly supplied and at the same time well treated, new posts were discovered as early as the year 1774, which to the French were totally unknown, and had we not been interrupted by new adventurers the public in the course of a few years would have been well acquainted with the value and extent of that country."

Cadotte and Henry may probably be classed among these new adventurers. Their first expedition to the northwest of Lake Superior was undertaken in 1775. When crossing Lake Winnipeg they fell in with Peter Pond, Joseph and Thomas Frobisher, and Mr Paterson of Montreal, all bound for the mouth of the Saskatchewan. The united fleet numbered thirty canoes manned by one hundred and thirty men. At Fort Cumberland they separated, Pond going to Fort Dauphin, Cadotte to Fort des Prairies with four canoes, and the Frobishers and Henry to the Churchill River with ten others. Four different interests were then struggling for the trade of the Saskatchewan Valley but they soon combined to keep up prices. A trade-musket was valued at twenty beaver skins; a stroud blanket at ten; a white blanket at eight; a one pound axe at three; half a pint of powder or ten bullets at one. Their greatest profit was however made from the sale of knives, beads, flints, awls, and other small articles. Henry charged his rivals, the factors of the Hudson Bay Company, with practising many gross impositions upon the natives, such as the sale of prints for charms and sugar and spice as medicines.

Trade was remarkably brisk and lucrative. During the winter of

1775-6 from twenty to thirty Indians daily arrived at Henry's station on the Churchill loaded with the finest quality of furs, and in the following June, he purchased 12,000 beaver skins in three days.

Major Robert Rogers, the celebrated partisan, was one of the first English colonists to explore the country around the great lakes, and while in command at Mackinac he appears to have dabbled in the enticing fur-trade. As early as 1765, he published a small book entitled "A concise account of North America."

Stating his qualifications as an authority on the subject in the preface, he said: "This River (the St. Lawrence) I have traced and am pretty well acquainted with the country adjacent to it as far up as Lake Superior, and with the country from the Green Bay to the Mississippi, and from thence down to the mouth of the Mississippi at the Gulf of Mexico. I have also travelled the country adjacent to the Ohio and its principal branches and that between the Ohio and Lakes Erie and Michigan and the countries of the southern Indians."

Jonathan Carver, a New Englander, wrote an interesting narrative of his travels in the West during the year 1766-8. Furnished by Major Rogers with a letter of credit on some English and Canadian traders who were going to the Mississippi he left Mackinac on the 3rd of September, 1766, and reached La Baye on the 18th. The fort at that place as well as the one at St. Joseph's had been abandoned since Pontiac's war and was fast falling to ruin. He stayed there two days but arrived at the Winnebago town on the 25th. Eight days paddling brought him to the carrying-place, leading to the Wisconsin from whence he gained the Mississippi by easy stages. At Lake Pepin, he noticed the ruins of St. Pierre's deserted station. He ascended the Mississippi to the mouth of the St. Pierre and went up the latter river about two hundred miles. French traders from Louisiana had been among the Indians in this quarter telling them that their French father would soon awake and he was shown belts of wampum conveying this message that they had delivered. After returning to Prairie du Chien for supplies, he again went up the Mississippi to the Chippewa which he ascended as far as he could go. He then carried his canoe into a stream flowing into Lake Superior which he named Goddard's River in honor of a well-known Montreal merchant, James Stanley Goddard, who had rendered him some assistance in the course of his journey.

He next visited the Grand Portage where he learned that those who went on the northwest trade were obliged to convey their canoes and baggage overland about nine miles to a chain of small lakes, and relates that they were in the habit of resorting to Fort La Reine on a river flowing into Lake "Winnepeck" to trade with the "Assinipoils." Coasting along the north shore of Lake Superior and Huron he made his way back to Detroit.

Louis Chevalier, a French Canadian trader, who had acquired great influence among the neighboring tribes continued to reside at St. Joseph's until removed by force during Revolution. His establishment then numbered fifty men, women, and children. By turns trusted and suspected, Chevalier appears on the whole to have been faithful to his allegiance during the contest. Like many others of his calling he had taken an Indian wife and one of his half breed children, Amable Chevalier, rendered important service during the war of 1812.

A member of the noted Lorimier family had a trading-house for many years near the portage from the Miami of the Lakes which became a favorite halting-place for war-parties from Detroit in their raids upon Kentucky. Loraine, La Motte, Richardville, and many other unlicensed traders were permanent residents of Ouiatenon and Vincennes. As at Detroit, most of the inhabitants at those places subsisted by the fur-trade. The furs obtained at Ouiatenon were supposed to be worth £8000 annually. The exports from Vincennes were estimated at £5000. Among the English at least, these settlements had an evil reputation. Croghan in 1765 terms the inhabitants "an idle lazy set, a parcel of renegades from Canada, much worse than Indians." Sir Wm. Johnson five years later speaks of them as "that lawless colony of the Wabash who are daily increasing in numbers and whilst they particularly hate us as English are really enemies of all goverment." Making due allowance for national prejudice these estimates of their character seem fully justified by their contemptible conduct during the Revolution.

The trade of this region however was not undisputed. The merchants of Detroit complained that in 1765 when they were prohibited from going among the Indian villages for fear of renewing their hostility, French and Spanish traders from the Mississippi had come within sixty miles of Detroit and carried off furs for which they had already advanced goods the year before. At the same time, Mr. Fraser who had been sent to take possession of Kaskaskia, found the shops and most of the houses at that place crammed with goods from New Orleans. The merchants in general protested vigorously against any regulations that would prevent them from going among the different tribes, and urged that if these were enforced they would have the effect of diverting the trade from the St. Lawrence and turning it down the Mississippi. Besides the French and Spanish they sometimes had to compete with enterprising English traders from the southward who were neither hampered by moral nor legislative restraints. An item in the Annual Register for 1767 informs us that "Messrs. Ferguson and Atkins, two Indian traders had lately returned (to Mobile,) from a town eleven hundred miles up the great river Mississippi where they had each married the daughters of an Indian chief and thereby established a mart for beaver's fur, deerskins, &c., from which great advantages were expected."

On the other hand, Sir William Johnson in the light of long personal experience as a trader insisted earnestly on the necessity of regulating the traffic. His correspondence abounds with complaints "of the irregularity with which trade is conducted through the want of sufficient powers to regulate it." The picture he drew of the conduct and character of many of the traders is unpleasing but instructive. "When the Indians are assembled on public affairs," he wrote to the Earl of Hillsborough on the 14th Aug. 1770, "there are always traders secreted in the neighborhood, and some publicly, who not only make them intoxicated during the time intended for public business but afterwards get back the greater part of their presents in exchange for spirituous liquors, thereby defeating the intentions of the Crown and causing then to commit many murders and disorders as well among the inhabitants as themselves." In a speech addressed to him on the 4th of March, 1768, the Indian spokesman had said:– "the rum-bottles hang at every door to steal our lands and instead of the English protecting us as we thought they would do, they employed superior cunning to wrong us; they murdered our people in Pennsylvania and Virginia and all over the country, and the traders begin more and more to deceive."

Again in 1772, Johnson wrote:—"The Indians complain of the great cargoes of rum which of late in particular are sent among them to their ruin as they call it, and beg that it may not be suffered to come near their castles or hunting-grounds. . . . . The complaints made daily by the Indians of the abuses and irregularities of trade are many and grievous and doubtless will be made use of by them in case of a defection in any quarter. . . . . The common traders or factors who are generally rapacious, ignorant, and without principle, pretending to their merchants that they cannot make good returns unless they are at liberty to go where and do as they please. . . . . They are daily guilty of the most daring impositions. . . . . Most of these evils result from the rapid intrusions on Indian lands and the unrestrained irregularities in trade to which I see no period from any steps that are likely to be taken in the colonies."

These complaints referred particularly to the older provinces where the legislatures declined or neglected to impose regulations, and he congratulated Sir Guy Carleton upon the general absence of these abuses in his government. But unlicensed traders found their way into Canada and Johnson asserted that some of the French Canadian traders were disloyal and were inciting the Indians to hostilities. Canadian merchants whom Carleton consulted denied the charge indignantly, and instanced the general good conduct of their countrymen during Pontiac's war as a proof of their trustworthiness.

In response to many urgent appeals, on the 15th of April, 1768, Lord Hillsborough at length addressed a circular to the Governors of all the British Provinces in America in which he said:—"The objects which upon this occasion will principally demand the attention of the several colonies are to provide by the most effectual laws for preventing any settlement being made beyond the line which shall be agreed upon with the Indians and for the control and punishment of those atrocious frauds and abuses which have been practiced by the traders and have been one principal cause of the disaffection of the savages."

These apparently reasonable and prudent recommendations were either ignored altogether by the local legislatures or resented as an improper attempt to interfere in their local affairs, and five years later his successor, Lord Dartmouth, confessed his utter helplessness to afford a remedy. "As the colonies," he said, "do not seem disposed to concur in any general regulations for Indian trade I am at a loss to suggest any mode by which this important service can be otherwise provided for than by the interposition of the Supreme Legislature, the exertion of which would be inadvisable until truth and connection have removed the unhappy prejudices which have so long prevailed in the colonies on this subject." In the eyes of the typical American historian, a British minister is always the haughty noble, always stupid, always selfish, always insolent. The colonist to whom his policy proved obnoxious is as inevitably the pure patriot, intelligent, firm, and honest. It is not surprising then that this feeble attempt to protect the Indians should often be enumerated among the crimes of a wicked ministry and the worst of motives assigned for it.

Even in Canada the regulations of the governor were systematically evaded and disregarded. This unfortunate state of affairs culminated in the wanton and brutal murder of several Indians among whom were a woman and a child, on the north shore of Lake Erie by a trader of the worst reputation named Ramsay. The murderer was arrested and sent down to Montreal for trial, but after long confinement, had to be released for lack of evidence.*

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*For Ramsay's own version of this affair *vide* P. Campbell's travels.

The frontiers of New York and Pennsylvania swarmed with *bos-lopers* (bosch-loopers) the Dutch counter-part of the reckless *coureurs des bois.* The excitement and uncertainty prevailing in all the colonies encouraged them in their defiance of the officers of the Crown and prevented punishment of their crimes.

The Revolution followed and the occupation of Montreal for several months by the Americans in 1775-6 materially dislocated the trade of the province. The adhesion of the western Indians with a few exceptions to the Crown had the effect of cutting off all trade with the settlements south of the Lakes, and the posts of Niagara, Detroit, and Mackinac became of more consequence than ever.

Charles de Langlade and his nephew Gautier de Verville once more led the Indians of the Northwest to the relief of Montreal. They were ably seconded by De Quindre, La Motte, La Bute, and other French Canadians. Alexander McKee and Matthew Elliott, traders of long experience and marked ability, fled from Pittsburg to Detroit where they were at once employed by the Lieutenant-Governor in the Indian Department. Both of them soon acquired an extraordinary influence among the tribes in the vicinity which they retained during the remainder of their lives.

Other traders like Godefroy de Linctot, Hammelin, and McCarty joined the Revolutionary party, but their efforts among the Indians had slight success.

In May, 1777, instructions were issued by the Governor to permit no vessels or boats except those of Indians to navigate the Lakes without satisfactory passports, and prohibiting the construction of any vessel larger than a common rowboat All vessels already afloat were to be taken into the public service. To compensate the merchants as much as possible for the loss and inconvenience they must necessarily sustain from this arbitrary measure, the commanders of these vessels were instructed whenever possible to assist in transporting their goods free of charge, merely taking an acknowledgement from the owner for the service performed. In the autumn of 1779 when Niagara was threatened with an attack, passes were refused to everybody.

Yet side by side with the military operations, in spite of all restrictions and obstacles, the trade went on with undiminished energy.

A memorial from "the merchants and traders from Montreal to the great carrying-place in Lake Superior and the interior country commonly named the North or Mer de Ouest" presented to General Haldimand in May, 1780, estimated the annual returns from their operations in that part of the country for a number of years previous at £50,000 worth of furs. They stated that 300 men were employed by them who usually returned to Grand Portage from the interior between the 10th of June and the 15th of July to deliver their furs and receive supplies for the next year. They had not been permitted as in former years to purchase provisions of any kind for the use of these men at Mackinac and Detroit in the autumn of 1779 owing to the increased demands of the garrison and Indians and consequently were obliged to send everything from Montreal, a distance of 1350 miles to Grand Portage, and 1800 miles further to their most remote stations. "Sometimes," they added dismally, "it happens that winter sets in before your Memorialists can arrive at the factories where they intend to pass the winter and when that unfortunate circumstance takes place there are instances of several having starved, and even so direful have the consequences been as to occasion the casting of lots for an unhappy victim to serve as food for his more unhappy companions." This memorial was signed by John Porteous, Holmes and Grant, Simon McTavish, Charles Grant, Todd and McGill, Benjamin and Joseph Frobisher, McGill and Paterson, Forest Oakes, George McBeth, and Adam Lymburner. Most of these ranked among the foremost merchants of the province.

Besides twenty canoes designed to supply the local trade of Mackinac, licenses were issued in 1778 for sixty-one canoes destined for places beyond, exclusive of the northwest trade which was mainly conducted from Grand Portage. These were distributed in the following proportions:—two to Grand River; three to Grand River and the Mississippi; six to the Mississippi; two to the Northwest; twelve to the Illinois; twenty-one to La Baye and the Mississippi; eight to Nipigon; three to Lake Superior; four to Prairie du Chien. Included in their cargoes, were 680 fusees and 29,575 pounds of powder.

The merchants trading in this quarter soon after formed an association which they termed "the general store," having a nominal capital of 29½ canoes and 438,750 *livres* in merchandise. Nine of the partners are named as residing in Montreal, seven at Mackinac, six at the Mississippi, one at each of the following places Akikemazac, Deux Rivières, Grand River, La Baye, La Point in Lake Superior, Matchedash, Rivière au Sable, St Joseph's, and Saginaw. The principal merchants living at Mackinac were Mathew Lesley, David McCrae, John McNamara, Patrick Duggan, Henry Bostwick, and Benjamin Lyons. Mention is made of Lyons as the owner of houses at the mouth of French River and Alexis Campion is named as residing at Matchedash Bay.

This combination of interests was promoted by Major De Peyster, the commander of the garrison, with the object of driving out of the country unlicensed traders of whom there seem to have been a good many scattered among the Indian villages. One of these, a negro from St. Domingo, known by the singular name of Baptiste Point au Sable was captured at the River du Chemin, and another rendered desperate by pursuit, blew himself to pieces with a barrel of gunpowder rather than surrender.

In the summer of 1778, a strong body of Virginians took possession of Kaskaskia and followed up their success by the capture of Vincennes; in both instances being joined by many disaffected inhabitants. The principal trade of the Illinois was in consequence diverted from Mackinac to the Spanish posts beyond the Mississippi. A party from Kaskaskia plundered the traders at St. Joseph's, but was pursued and defeated. Hostile Indians and half-breeds instigated by the Spaniards and Virginians constantly menaced St. Joseph's, La Baye, and even Grand Portage.

A small detachment of regular soldiers was sent from Mackinac in 1780 to the latter place where they built a blockhouse for the protection of merchants. Militia officers were stationed at La Baye, St. Joseph's, and St. Mary's, and scouting parties despatched in various directions. Finally two expeditions, each composed of a few regular soldiers and volunteer militia and a considerable number of Indians, were sent against the Illinois and the Spanish frontiers. One of these under Charles de Langlade proceeded by way of Chicago directly to the Illinois. The other commanded by Capt. Hesse (late of the 60th) followed the Fox and Wisconsin rivers to the Mississippi. This party built a stockade at Prairie du Chien where it was joined by a large body of Sioux. They next seized the lead mines and captured some boats with stores, but were afterwards repulsed in attacks on the Spanish forts at St. Lou's and Cahokia although they brought off a number of prisoners and inflicted much damage.

Taken as a whole, the trade of Mackinac and all places beyond, including the northwest, produced annually £100,000 worth of furs or about half the entire quantity exported from the province. The cargoes of one hundred canoes, each navigated by a crew of eight men, were required to pay for them. The average value of each canoe-load of goods including the cost of transportation to its destination, but not the payment of wages, was estimated at £700. A considerable variety of goods was needed for successful traffic. Guns, powder, ball, knives, hatchets, rum, and tobacco were in greatest request but a list of articles usually taken includes saddles, spurs, bridles, saddle-cloths, and housings, morris-bells, razors, combs, looking-glasses, plumes, beads, ribbons, lace of several kinds, hats, laced and plain coats, shirts, shoes, and bed-gowns; six sorts of blankets, handkerchiefs, calimancoes, osnaburgs, cottons, calicoes, muslins, linens, swanskin and embossed serge fabrics; white, black, blue, brown, green and scarlet cloth of several grades; thimbles, needles, thread, pewter-basins, iron pots, brass, copper, and tin kettles, snuff and tobacco boxes, bar iron and steel, silver crosses, finger-rings, gorgets, arm-bands, wrist-bands, buckles, ear-rings, hangers, brooches, moons, earwheels and ear-bobs, beaver-traps, fish-hooks, spears, hoes, and fire-steels. All of these things were brought from Montreal in canoes by way of the Ottawa as this was found to be both a quicker and cheaper mode of transportation than in sailing vessels on the lakes.

As the beaver gradually disappeared from its favorite haunts in the Michigan peninsula both the trade and population perceptibly declined. Many of the inhabitants had emigrated to the Wabash and Illinois where they hoped to be beyond the grasp of the meddlesome English law. The trade then was carried on in a less reputable manner than at Mackinac owing chiefly to the size of the settlement and lawless character of many of the inhabitants.

Lieut.-Governor Hamilton reported shortly after his removal in 1776 that "regulations for the trade with the Indians are either not generally known or not enforced. For example great abuses exist in the weights and measures used by the traders and for want of an office to stamp the silver-works which make a considerable article in the trade with the savages, they get their trinkets so debased with copper as to lay open a large field for complaint.

"The number of traders not being limited allows of many engaging in it who have no principle of honesty and who impose on these poor people in a thousand ways to the detriment of honesty and to the disgrace of the name of *trader* among the savages which usually means with them an artful cheat. The distrust and disgust conceived for these traders occasion many disputes which frequently ended in murder. This trade being lucrative engages several who have little or no capital of their own to procure credit sometimes to a considerable amount, their ignorance, dishonesty, (or both) occasion frequent failures; the adventurers then decamp to some other post where they recommence the same traffic improving in art and villainy, and finally become desperate in their circumstances and dangerous from their connections and interest with the savages."

Bad as these men may seem, their *engagés* were infinitely worse. "They are" says Hamilton, "the most worthless vagabonds imaginable.

They are fugitives (in general) from Lower Canada or the colonies who fly from their debtors or the law, and being proficient in all sorts of vice and debauchery corrupt the morals of the savages and communicate to the wretches disorders they might have continued untainted by, were it not for the intercourse with these *engagés*. Having contracted new debts, they fly to the more remote posts where they recommence the same rade."

The population of the settlement did not exceed 2100 of whom 127 were slaves. The French Canadians he described as easy-going and illiterate, few of them being able to read and still fewer to write their town names. "They build on the borders of the Straight, and occupy about thirteen miles in length on the north and eight on the south side. The houses are all of log or frame work, shingled. The most have their orchards adjoining; the appearance of the settlement is very smiling."

The new settlers on the other hand were active and enterprising. They had introduced sheep and black cattle and their farms were managed to the best advantage. All the large vessels on the lakes were owned by them and he anticipated that in a few years the Canadians would be compelled to part with their lands and become reduced to the condition of dependents. It is stated, apparently on good authority, that there were then only thirty Scotchmen, fifteen Irishmen, and two Englishmen in Detroit, exclusive of the garrison, but the greater part of the trade of the place was already in their hands.

The population was considerably increased during the war by the arrival of fugitives and prisoners from the frontier who were encouraged to settle on lands in the vicinity. Indian parties accompanied by white officers were constantly sent out to harass the borders of Virginia and Kentucky and traders followed in their trail with packhorses as far as the villages near the Ohio. The portage from the Miami of the Lakes to the Wabash had been made passable for carts and the exclusive right of carrying goods was granted to Mr. Maisonville of Detroit.

At Niagara there was not a single inhabited house outside the walls of the fort. Glimpses of the state of trade and the life of a trader at that post during the Revolution are found in the correspondence of Francis Goring.

Writing on the 23rd of Sept. 1779, he says:—"I have lived at this place three years last August, and have had two masters in that time and am now getting a third, still in the same house. The first was Mr Pollard, he made a great fortune and left off. The second, Mr Robison, who was formerly a captain on these lakes, is now tired of business and assigns in favour of George Forsyth who has treated me with the greatest kindness and is ready to serve me in anything I should ask. I have had several offers by my two old employers to leave Niagara and live with them in Canada, but I believe I shall continue here which I prefer to Canada, the popular place where everything is carried on with the greatest gaiety, and this is a place which you may say is almost out of the world, in the woods, and frequented by nothing but Indians except the people of the garrison. . . . . At this place is carried on a great business which consumes every year £30,000 sterling worth of merchandise of all sorts which is mostly retailed to the Indians. We employ four clerks of which I am the senior. For the first two years my salary was but small, but I have now (and I flatter myself that there is not a clerk in these parts that has so much) about fifty guineas per annum, being found food and washing. By carrying on a correspondence with my friend Mr. Cruikshank who supplies me with silver work such as the Indians wear, which I dispose of to the merchants in the upper country, and the profit arising therefrom is sufficient to find me in clothes."

In 1767, Sir William Johnson reported the presence of unlicensed traders at Toronto, but it seems to have been abandoned altogether as the trading-station soon afterwards. Even the trail leading to Lake Simcoe was little used, and the Trent valley route became almost forgotten. Benjamin Frobisher said in 1785:—"I have seen several persons who have gone from hence (Montreal) to Lake Huron by the carrying place of Toronto, but have only met with one who set out from the Bay of Kentie and that so far back as the year 1761 and the knowledge he seems to have of the country he travelled through I consider very imperfect."

The commerce of Oswego had steadily declined since the conquest. Instead of forty or fifty traders as in 1750, but one named Parlow remained in the summer of 1779. His property was pillaged and his buildings burnt by a party of Americans and Indians sent for that purpose from Fort Stanwix and he then took shelter in the small fort recently built on Carleton Island. Other traders followed him there and for a few years a fair trade was carried on with the neighboring Indians.

The continuance of the war occasioned everywhere an enormous rise in prices and a great scarcity of imported goods.

The scarcity of coin and in fact of any medium of exchange probably accrued to the benefit of the traders. Gold, silver, and even copper coins of most Euopean countries passed current. In addition to the ordinary French and English pieces, Spanish moidores, pistareens, pistoles, and dollars, the Johannes of Portugal and Caroline of Germany were in common circulation.

LAKE CURRENTS.

By L. J. Clark.

(Read, 23rd April, 1892.)

At a meeting of the Canadian Institute, held April 4th, 1891, the following resolution was passed, on motion of the writer seconded by Mr. A. Macdougall:

"That before any further steps be taken to promote the construction of a 'Trunk Sewer,' it is necessary that more definite, and precise information be obtained regarding the currents of the lake between the mouth of the Humber, and the south side of the Island and Victoria Park."

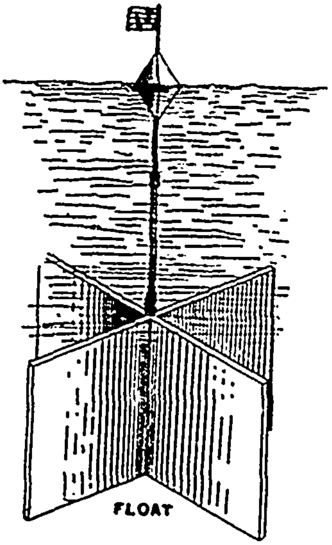
"That the City Council be requested to take a series of Float Observations for a period of at least three months, extending through the summer and a portion of the fall—say from July till October—with temperature observations of the water at various depths, and readings of the velocity and direction of the wind, taken on the lake at the same time the floats are put in; these floats to be placed in deep water, commencing at thirty, feet in depth, and extending to sixty feet, or even deeper."

"That the co-operation of the Provincial Board of Health, and the Board of Trade be enlisted; and that a copy of this resolution be sent to each of the boards and to the City Council; and that a delegation consisting of Professor Carpmael, Dr. Canniff, Mr. A. Harvey and the Mover and Seconder be appointed to bring the matter before the above named corporate bodies."

In pursuance of the above resolution the matter was brought to the attention of the Boards of Health and Trade respectively, and unanimously endorsed by them. Also a committee was nominated by each body to co-operate with the committee from this Institute to bring the matter before the City Council. Mayor E. F. Clarke arranged for a meeting with the City Engineer. W. T. Jennings, at which the subject was duly discussed, with the result that the engineering department undertook, with the assistance of the departments under Professor Carpmael and Dr. Bryce, to carry out the investigations referred to, the former to supply data from the Observatory in regard to the direction and velocity of the wind, while the latter was to make a thorough analysis, both chemical and bacteriological, of samples of water taken from the various points.

The investigations were carried out under the directions of Mr. C. Rust, Assistant Engineer, and N. Kerr, of the Engineer's department, Dr. Mackenzie, of the Provincial Board of Health, and the writer on behalf of the Institute. On the first trip, besides the above named gentlemen, Professor Carpmael, Arthur Harvey, President of the Institute, Mr. Hamilton, Manager of the Waterworks, and Mr. R. W. Elliot, of the Board of Trade, accompanied the expedition; and on many of the subsequent trips, scientific gentlemen and interested citizens showed the importance which they attached to the investigations by joining in, and giving the benefit of their suggestions to, the work.

The apparatus used for ascertaining the direction and velocity of the currents was a float or drag made of two cross brackets of wood covered with linen, a rope of from twenty to sixty feet attached, to suit the required depth, and a tin float surmounted by a flag, and numbered. The floats were made of different sizes, the arm pieces of the brackets varying from two and a half feet to five feet in length, and the canvas from 27 to 54 inches in breadth. These drags required to be nicely adjusted by hanging weights to them to keep them in position, and it sometimes occurred that we would lose a float, flag and all, by weighting it a little too heavily.



Stations were placed nine in number along the city front from the mouth of the Humber to Victoria Park in water ranging from thirty to sixty feet in depth, as follows, No. 1, in Humber Bay, off West Toronto Water Works; No. 2, half way between No. 1 and the mouth of the new intake; No. 3, at the intake; No. 4, outside the Island in a line with Church Street; No. 5, south of the Eastern Gap; No. 6, off Ashbridge's Bay in a line with Leslie Street; No. 7, off the Woodbine; No. 8, half a mile off Victoria Park wharf, and No. 9, one mile south of No. 8, in 70 feet of water.

A couple of sextants, a good marine glass, a sounding line, a supply of glass-stoppered bottles with apparatus for taking deep water samples, and a couple of self-registering thermometers, together with one for taking deep sea temperatures completed our outfit. The deep sea thermometer referred to, was supplied by Professor Carpmael from the Observatory, and was of a pattern specially designed for taking observations on the ship Challenger on its voyages of deep sea investigations; it was made by the celebrated firm of Zambra and Negretti.

Our *modus operandi* was to start from Church Street wharf, about 9 a.m., on board the Ada Alice and visit our stations, take samples of water, record the temperatures, and put out generally two floats at each station; then come in between 12 m. and 1 p.m., and start out again at 2 p.m., and pick up our floats, taking observations by means of the sextants of their location when taken up. These positions were afterwards plotted on a map, showing by means of lines and arrows the direction and distance the floats had moved. The direction and velocity of the wind was afterwards obtained from the observatory for the corresponding days and the whole tabulated as follows:—

DATE.	Depth of Float.	Mean Velocity, and Direction of Wind.			Direction Taken of Float.	Distance Travelled in Miles.	Time in Hour and Min.	Distance Per Hour in Miles.	LOCATION.
		9 a.m.	1 p.m.	4 p.m.					
	feet						H. M.		
July 2	20	2 E.	6 E.	6 E.	S.W.	0.20	4.15	.047	Leslie Street.
" 6	16	7 W.	10 S.W.	10 S.W.	NNE	0.50	6.25	.08	Eastern Gap.
" 8	30	12 N.	14 N.	6 N.	ENE	.94	5.40	.17	Leslie Street.
" 9	25	6 S.W.	6 S.W.	7 S.W.	S.W.	2.06	5 30	.37	" "
" 10	25	4 W.	4 S.E.	7 S.W.	S.W.	2.38	7.30	.31	" "
Aug. 17	30	4 E.	3 E.	8 E.	S.W.	1.55	6.10	.025	" "
" 18	30	Calm	8 S.	10 N.	S.W.	3.03	4.10	.72	2 m's S. of Vict. P'k.
" 19	30	5 E.	7 E.	10 E.	S.W.	1.00	5.35	.18	W. of Island.
Sept. 1	20	1 W.	14 S.E.	11 S.	E.	0.50	4.05	.12	Eastern Gap.
" 7	20	4 W.	9 S.	13 N.W.	S.E.	.77	4.30	.17	Woodbine.

The observations were continued altogether about 35 days, viz.: 8 days in July, 5 in August, 9 in September and 11 in October. Some days the lake was so rough it was impossible to continue our operations; on the 3rd of July, having got as far as the Eastern Gap we were compelled to turn back owing to the quantity of water shipped by the Ada Alice. It was unfortunate that we had not a boat that was capable of standing a rougher sea, as that is the very time when the required information would be most valuable. The highest velocity of the wind we were able to operate in was 25 miles per hour.

While the currents seem to be under the influence of the winds to some extent, there is considerable lack of uniformity, particularly at different stations; for instance, the currents in the Humber Bay did not conform to the same general principle as at other stations; also, the currents at the Eastern Gap seemed to be different from those to the east and west of it. But one thing seems to be pretty clearly proved, that the general direction of the currents is paralled to the coast line from Victoria Park to the western extremity of the Island, that is N.E. and S.W. nearly. Thus North East, East, and South East winds pretty generally produce currents flowing South West, while South, South West, and West winds give North Easterly currents, and North and North West winds give rise to variable currents; thus on seven occasions when the wind was from the North and North West the resulting currents were two North East, three South West, and two South East. Also a South West wind would produce a North East current south of the Island, and a North West one west of the Island. The phenomenon of the current being in a contrary direction to the wind was more marked in Humber Bay than to the south of the Island; although on one occasion, on the 17th of July, we put out, near Victoria Park, first a 30 feet float, second a surface float without flag or drag, a mere tin can with an iron rod, four feet in length, attached, and third an empty tin can; the wind was fresh from the East; the first and second floats went dead against the wind, while the empty can was driven along before the wind on the tops of the waves. Close in shore we sometimes observed the current in an opposite direction to that farther out.

Instances of counter under-currents were obtained from Mr. J. Raynor and Mr. J. G. Rosesseau, fishermen at Niagara. They informed us that when they had their nets out in deep water during the prevalence of strong easterly winds, they would find in drawing in the nets that any floating submerged leaves or weeds would be caught on the opposite side of the net, showing that the under-current was from the West. This would indicate that the waters, being driven to the West, pile up at Burlington Beach and the head of the water thus raised forces a portion of the water back as an under-current. This would be more noticeable in Humber Bay if it were more closed in by Mimico point. Instead of giving the reverse undercurrent close in by the shore, it would probably be found out in a couple of hundred feet or so of water.

We made a trip to the mouth of the Niagara river to ascertain if possible how far the current of the river could be traced across the lake. We put out a number of floats inside the bar and in the mouth of the river, but unfortunately we gave the floats too much line and most of them grounded on the bar; one or two that got over safely took an easterly direction. There is a distinct color line dividing the water inside the bar from that outside, and the difference in temperature is very marked. In the river, both at the surface and at the bottom the temperature was as high as 69 or 70, while outside, at the depth of 400 feet, we found the water at its maximum density or 39·5 Fh. This accounts for the coolness of our water supply in Toronto; although it primarily comes through the Niagara river and is heated up to the point already indicated, before it reaches us it has to come over that cold sub-stratum of water, at least for thirty miles; so that at the intake in the month of July, we found the temperature as low as 43; in October it was observed to be the same, and only slightly higher in August and September.

As the practical outcome of these investigations is to ascertain with what degree of safety sewage may be deposited in the lake, it becomes necessary to consider another factor that enters into the question, viz., the effect of diffusion upon sewage. The share of the work, in these investigations, carried out under the superintendence of Dr. Mackenzie, on behalf of the Provincial Board of Health, will afford material aid in solving this problem; the substance of which will be found in the following quotation from Mr. Rust's report. "To ascertain, if possible, from actual tests, how rapidly diffusion and oxidation take place, Mr. Mackenzie, on the 16th October, took samples of water, in a direct line from the mouth of the intake to the outlet of Garrison Creek sewer, which discharges 400,000 cubic feet, per day. I attach a copy of the results, by which you will see that the sample taken within a little over half a mile of the mouth of the sewer came within the limits of first-class water; the wind on the occasion was from the North, which would tend to carry the sewage direct to the intake. This shows very favorable results, and tends to prove that there will be no possible danger of contaminating the water supply if the sewage be discharged into the lake at a distance of six miles east of the intake. When the population of the city exceeds 500,000, and it is found that there is the slightest danger to the water supply, precipitation works could be erected and the sewage treated by chemical means." The copy of the schedule referred to shows that a sample of water taken near the mouth of the sewer showed a degree of organic impurity by Muter's scale of 2·44 per million, while first class water should not show above ·25. It also showed as high as 40,000 bacteria per cubic centimetre; yet we find that within half a mile, this water is raised to a standard of first class purity. We can then judge of the immunity from danger there would be if the sewage outlet were removed to a distance of six miles.

I make one further quotation from Mr. Rust's report. "I feel satisfied from the results of the experiments that the currents are caused by the winds. They change direction as the wind changes, although sometimes after a sudden shifting of the wind, the upper and lower currents have sometimes different directions. By the attached tables you will see that during this fall there has been a great number of days in which the wind blew from an easterly direction, and to this is to be accounted the large percentage of floats which drifted in the direction of the intake pipe. From the Observatory reports we find that the prevailing winds are from a westerly direction. The Hon. W. McAlpine and Messrs Hering and Gray, in their reports on the Trunk Sewer, considered that the sewage could safely be discharged into the lake east of the intake pipe."

With the above views I entirely agree and am of the opinion that the mouth of the intake pipe is in about the best possible position, as it is the nearest point to the shore where a depth of seventy feet of water can be reached; and double that depth is found within a few hundred yards to the South. The force of this will be seen when you refer back to that part of my paper where I drew your attention to the fact that the prevailing direction of the currents was about parallel with the coast line. Now as the mouth of the intake is less than half a mile from the shore of the island, it stands to reason that if we take our outlet pipe a *mile* from the shore line we get our sewage a half a mile outside of the range of the inlet pipe. Herein, I believe, is perfect safety.

And when we consider the immense advantage it will be to us to get clean rid of the whole foul mass of sewage without creating plague spots in our fair city, in the shape of sewage farms or what is worse, precipitating works without regard to the enormous cost of such works we are constrained to say, "'Tis a consummation devoutly to be wished."

There is yet required to be made a careful and thorough investigation into the extent to which diffusion takes place in large bodies of water and its effects on sewage. The Council, on recommendation of last year's Trunk Sewer Committee, are partly pledged to undertake that work this year.

In conclusion I beg to say, that as the Institute was instrumental in having these valuable preliminary investigations made by the Council, I hope the members of the Institute, individually, as well as collectively, will continue to use their influence to help on the great work of a perfect system of sewage disposal, for which Toronto is languishing.

THE PRIVATE CORRESPONDENCE OF LIEUT.-COL. COFFIN, DURING THE REBELLION OF 1837.

BY H. R. FAIRCLOUGH, M.A.

(Read 12th March, 1892.)

It has been my great privilege to read a packet of letters written by the late Lieut.-Col. Coffin. Though I never knew or even saw the writer, still so vividly does the man's noble personality appear between the lines he penned, that I feel drawn towards him as to a friend, the touch of whose vanished hand, and the sound of whose voice, now still, the pages perused have in no slight measure supplied. The individuality of the writer I have been able to picture to myself still more fully, through the many conversations I have had with several of his intimate friends and relatives, particularly one, the lady to whom a number of the letters before me are addressed. It is because Col. Coffin was so well known and highly esteemed in Canadian public life, and because his letters deal with public events at an extremely critical period of our national history, that I have taken the liberty of bringing this interesting correspondence before the notice of the Institute.

Col. Coffin* came of a fine old stock. Burke, in his "Colonial Gentry," speaking of the Coffin family says that "Sir Richard Coffin, Knight, accompanied William the Conqueror from Normandy to England in the year 1066, and the manor of Alwington, Co. Devon, was assigned to him."

Though, on the face of it, this statement is absurd, still it indicates the antiquity and nobility of the family. The ancestral home of the Coffin's is Devonshire—a county which, as readers of Kingsley's "Westward Ho!" are well aware, has given England so many of her sailors and soldiers.

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*William Foster Coffin was born at Bath, Somerset, England, in 1808. In 1813 came with his father to Canada, but returned to England, 1815. Entered Eton College, 1817. Won an Eton Postmastership at Merton College, Oxford. Returned to Canada, 1830. In 1835 was called to the Quebec bar. In 1838 was appointed Assistant Civil Secretary, and actively assisted Sir John Colborne in allaying civil strife. In 1839 was appointed Stipendiary Magistrate at Ste. Marie, a disaffected district, and in 1840 Commissioner for Police in Lower Canada. In 1842 became Joint Sheriff for District of Montreal, but resigned this position in 1851. In 1856 was made Manager of Ordnance and Admiralty lands, a position which he held until his death in 1878. Was offered but declined the Lieut.-Governorship of Manitoba. Acted on numerous government commissions. Raised and commanded the Montreal Field Battery, 1855, and was promoted to the rank of Lieut.-Colonel. Was a member of the Royal Institution and a Governor of McGill College. His published literary work includes a "History of the War of 1812 (Montreal 1864) and "Thoughts on Defence from a Canadian Point of View" (Montreal 1870) He married a daughter of Deputy Commissary-General Clarke, a near relative of Lord Lyndhurst.

In the middle of the last century, some members of this family were settled in Boston, Mass. On the breaking out of the Revolutionary War they refused to desert the old flag, and John Coffin, Col. Coffin's grandfather, with nine children went to Quebec, where he distinguished himself during the siege of 1775. On the 31st Dec. in that year he kept the guard at Près de Ville under arms, and with great coolness, at the critical moment directed Capt. Barnsfare's fire upon the invading forces. "To him," thus writes General Sir Guy Carleton, afterwards Lord Dorchester, "with the assistance of Barnsfare, I attribute the repulse of the rebels on that side of Quebec, where Mr. Montgomery attacked in person."

Col. Coffin's grandfather had six sons and four daughters. One of the former, Francis, became an admiral in the British navy: another, Nathaniel, died Adjutant-General of Militia of Upper Canada; another, the Hon. Thomas Coffin, was a member of the Legislative Councll of Lower Canada. The second son, William, was a captain in H. M. 15th Regiment of Infantry, and at the time of his death, in 1835, had Brevet Major rank. He married a Mrs. Austin, whose maiden name was Foster, and it is their son, William Foster Coffin, who wrote the letters that are the subject of this paper.[†]

Before I leave the Coffin family, it may be well to shew briefly who the relatives are to whom these letters are directed, and to whom Col. Coffin was so warmly attached.

A brother of John Coffin, who also lived in Boston, Mass., but at the time of the Revolution made England his home, had three sons, John, Isaac, and Nathaniel. Isaac became an admiral in the British navy and for his most distinguished services was created a baronet, and given the Magdalen Islands. John, afterwards Gen. John Coffin, settled in New Brunswick. He had a family of eight, three sons and five daughters. Two of the sons became admirals in the navy, the other a general in the artillery. Of the daughters, Anne, married Major, afterwards Sir Thomas, Pearson, well known for the part he took in Canada in the war of 1812, while Mary married Charles Ogden, Solicitor-General, afterwards Attorney-General, of Lower Canada. The eldest daughter, Carolina, married the Hon. Charles William Grant, afterwards Baron de Longueuil, son of the Baroness de Longueuil in her own right and Captain

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[†] Of the daughters of John Coffin, the third, Margaret, married her cousin, Lieut.-Gen. Sir Roger H. Sheaffe, Bart., who fought at Queenston Heights, and on the death of Gen. Brock took command and completed the victory.

David Alexander Grant, of Blairfindy, Scotland. The children by this marriage were Charles Irwin Grant, Baron de Longueuil, who died in 1878, and Charlotte, who is married to Mr. J. Antisell Allen, both of whom are living in the beautiful old home of Alwington, in Kingston, Ont., for some years the residence of the Governors-General of Canada.

It is to Carolina, Baroness de Longueuil, and her daughter Charlotte, that the letters in the packet are addressed.

The correspondence to which I have had access covers a period of over six years, from January 24th, 1834, to March 17th, 1840. There are twenty-six letters in all, and, being written to intimate friends and relatives, they naturally contain much that is of merely family and personal interest. But there is also a great deal that must be interesting to Canadians in general, and it is chiefly the writer's account of and frank comments on the exciting political events of the day that I desire to bring before your notice.

At the outset let me utter a word of caution. Even to-day a narrative of the incidents of 1837-38 can awake not a little intensity of feeling, and it is but natural to expect that a young man, living in the midst of those events, should feel the heat of party strife and express the sentiments of an ardent partisan. But herein lies the value of these letters. It is often difficult to understand and estimate fairly the principles and sentiments of both sides in a political struggle, and this holds more true the farther the contest is removed from our own time. To-day Canadians of all parties give their unqualified assent to the principle of responsible government, and it is not always easy, therefore, to appreciate the honesty and sincerity of those who in former days so bitterly denounced William Lyon Mackenzie. Yet the latter lived to acknowledge himself that it would have been a misfortune for Canada if all his plans had succeeded. In any case let us bear in mind that in Lower Canada the struggle of '37 was very different in character from that in Upper Canada —that it was chiefly a racial strife, and involved questions which, as recent events have shown, are even yet unsettled. Col. Coffin was an enthusiastic loyalist, and to his mind the problem to be solved in Lower Canada in the earliest years of Queen Victoria's reign was whether the work of Pitt and Wolfe was to be undone, and the tricolor was once more to float over the citadel of Quebec. His views as expressed in these letters, were undoubtedly the views of a great majority of the British population in Lower Canada at that time, and therefore deserve, to say the least, a respectful hearing. Only by studying both sides can we get the proper historical perspective.

As a fitting introduction to the narrative of hot conflict and fiery strife, which is to follow, the first letter gives a most vivid description of the burning of the Château de St. Louis, at Quebec, on January 23rd, 1834. This castle had been used as the residence of the Governors of Canada for upwards of 150 years. It was never rebuilt.

In 1835, when the troubles in Lower Canada were coming to a head, Sir Robert Peel determined to appoint a Commission of inquiry, but his term of office was too short to allow him to carry out his intentions. These, however, his successor, Lord Melbourne, fulfilled. The Lord High Commissioner appointed was the Earl of Gosford, while Sir Charles Grey and Sir George Gibbs were made assistant commissioners. Shortly afterwards Lord Aylmer, who was administering the Government in Lower Canada, was recalled, and the Earl of Gosford took his place as Governor-General. Lord Gosford arrived in the frigate Pique at Quebec, on August 23rd, 1835, and in a letter written a month later, on September 26th, the Commissioners are humorously described by Col. Coffin, who also indicates the political unrest then prevailing in Canada, and complains of ignorance at home respecting the Colonies.

"Parliament meets next month for the deliberate legal annihilation of British interests. . . . As you may imagine the proceedings of our new rulers are the subject of much anxious speculation. As yet they are secret and mysterious. The people themselves look as if burthened with some mighty secret, or as if environed with the web of some frightful conspiracy. Everything they attempt is *a tatons*. They walk like so many cats upon thin ice, slipping at every step and fearful lest the next may plunge them beneath the surface. This is the natural consequence of the terrorism which has been exercised by Roebuck and his mendacious accomplices in England, who have impressed the British public with the belief that the Canadians, goaded by the tyranny of the English population, were in a state of actual revolt. An officer of the Pique assured me that previous to their sailing it was a matter of general surprise that the commissioners had not been backed by an extra regiment or two. Nothing in fact can be compared with the gross and shameful ignorance that generally prevails respecting these Colonies. The meeting of the Assembly will alone satisfy the existing curiosity which amounts to a wish to know 'the worst at once,' and then we shall find that all this disturbance has been created and all these undignified personages have been sent from their dull homes across the wide Atlantic, for the simple purpose of proving the fallibility of some infallible panacea for Canadian grievances. On the principles they profess they cannot do good and must do harm.

"Lord Gosford is a most unaristocratic looking lord. I have seen many a farmer with more of the air of a gentleman. He is of quarto size and dimensions, with a very tropical complexion, being much of the hue of a nutmeg. They say that he is good-natured and accessible, that he delights to walk about with his hands in his breeches pockets, or to relax from such absorbing occupation by a sly game at pitch farthing with the little boys under the château wall. Sir George Gibbs—did you ever hear such a name—is an engineer officer suddenly metamorphosed into a diplomatist. His trade is that of springing mines, let him beware that the present does not explode beneath his own feet. Sir Charles Grey is the *beau-ideal* of a Leadenhall butcher. We are told that he is a very good man, but he looks like a very vulgar one. They go here by the name of the three G's—gander, goose and gosling."

It was just a month after this letter was written, when the Parliament of Lower Canada assembled. Lord Gosford, in a very conciliatory speech, assured the House that all real grievances would be attended to. "The Home Government" he said "was prepared to surrender the control of all public revenue arising from any Canadian source, on condition of a moderate provision being made for the Civil list. Plurality of offices should be abolished, and intelligent French Canadians have the paths to positions of honor and profit open to them, equally with the English-speaking races ; in future the fullest information with regard to the public accounts would be given the House ; no bills would be reserved for the royal assent where it was possible to avoid it, and all complaints should receive due consideration."

But no concessions could please Mr. Papineau and his followers. They ignored the Royal Commission and appointed Mr. Roebuck their agent in England to press their grievances before Parliament. The Legislative Council throwing out this bill, Mr. Papineau indulged in some violent language. "The time has gone by" he said "when Europe could give monarchies to America ; on the contrary, an epoch is approaching when America will give republics to Europe."

A supply bill for only six months was voted by the Assembly, but rejected by the Council, and the Governor in proroguing Parliament had to acknowledge his failure and consequent disappointment. "It is to me matter of sincere regret that the offers of peace and conciliation, of which I was the bearer to this Country have not led to the result which I had hoped for. The consequences of this rejection, and of the demands which have been made to his Majesty, I will not venture to predict."

Meanwhile Sir Francis Bond Head had assumed office as Governor of Upper Canada. He arrived in Toronto at the end of Jannary 1836, while the house was in session, and though announced in advance as "a tried Reformer," he soon showed that he had little sympathy with such Reformers as Mackenzie and Bidwell, who not content with airing their just grievances, resorted to veiled threats of secession and leagued themselves with Papineau and the Lower Canadian "Patriots," who were already preparing to resort to arms.

Finding that the new Governor would not become their tool, the Assembly cut off the supplies, but Sir Francis after refusing his assent to any money bills whatever, so that the members had no sessional allowance to draw, prorogued Parliament on the 20th April, and a month later dissolved the House and issued writs for a new election.

Public opinion was evidently opposed to the extreme measures advocated by the reform leaders, for in the ensuing contest the party, which in the last house had a large majority, was overwhelmingly defeated, and most of the leading men were beaten.

The joy with which this news was received by ardent loyalists throughout the country may be inferred from the words of Col. Coffin. Writing from Montreal, he says:—

> "Hurrah for the Hero of the Pampas ![*] His jockeyship has stood him in good stead, and most sincerely do I rejoice at his victory. I only hope that he will know how to use it in moderation and wisdom. I am not infidel enough to doubt of such a man, but rest assured the most trying part of his task is yet to come. Everything is expected from him, and one false step may provoke a radical reaction which will make the Upper Provinces a territorial appendage to the United States in the course of a year. But—deuce take the clever fellow—he soars above misgiving. The people here and at Quebec are about to sacrifice whole hecatombs in his honor in the guise of public dinners."

Mr. Coffin himself, however, kept aloof from these demonstrations "being determined neither to eat, drink, or speak politically for a long time to come."

In Lower Canada the Legislature again met on the 22nd September. Lord Gosford announced in a dignified manner that the Home Government desired to give the members another opportunity of reconsidering their action, and he trusted they would vote the supplies in the proper manner. In the address in reply the Assembly did not refer to the question of supplies, but simply demanded that the Council should be made elective. Shortly afterwards a despatch from Lord Glenelg, Colonial Secretary, informed the House that this principle could not be admitted, but notwithstanding, the Assembly resolved to transact no business until the Council had been made elective. The result was a deadlock, and Parliament was prorogued.

In accordance with the report made by the Royal Commission, resolutions were proposed in the British House of Commons on the 6th March, 1837, to the effect "that it was unadvisable to make the Legislative Council of the Province elective; but that it was expedient that measures be adopted for securing to that branch of the Legislature a greater degree of public confidence." The Executive of the Province was authorized to use the public money of the Province for necessary expenses.

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[*] That is, Sir Francis, who was known as "Galloping Head" from the "Rough Notes" he published in 1826 describing several journeys across the Pampas and the Andes.

At this the Patriot (so called) party was roused to deep indignation; meetings for remonstrance were held frequently and in various places, and Papineau and others made hot revolutionary speeches. The excitement was intense, and at its height when William IV. died, and Queen Victoria ascended the throne. On August 18th, Lord Gosford assembled Parliament once more. The Governor made a dignified speech. The Home Government, he said, wished to give them another opportunity of considering their action before the Imperial authorities passed an Act which would deprive the Provincial Legislature of that control over its own revenues which it was desirable that it should have, " a result for the attainment of which Her Majesty's Government would willingly make every sacrifice, save that of the honor and integrity of the Crown." In the address in reply, presented eight days later, the Assembly pressed their former demands with more persistence than ever, and warned the mother country that if she carried her resolutions into effect her supremacy in British America would no longer depend "upon the feelings of affection, of duty, and of mutual interest" but upon "physical and material force." Her exercise of power was compared with that of "the most despotic governments of civilized Europe." Lord Gosford regretted the obstinacy of the Assembly, and dissolved the House by proclamation.

Many were the appeals now made by Papineau and his followers for the people "to lay down their lives on the altars of their country." It was clear that blood must be shed, and both "Patriots" and "Loyalists" began to prepare for the coming struggle. On the 6th November the first conflict took place. The so-called "Sons of Liberty" were leaving the place where they had been assembled, when they were met by a small number of members of the Doric Club, and a general fight ensued. This was followed by an attack upon the house of a Mr. Idler, where the Sons of Liberty met, the wrecking of Mr. Papineau's home and the sack of the office of the *Vindicator*. The Riot Act was read, and the magistrates of Montreal and Quebec issued proclamations forbidding the assembling of bodies of men for drill, and prohibiting "all public meetings and processions which are of a nature to disturb the public peace." A new commission of the peace was issued for the district of Montreal, which removed sixty-one magistrates suspected of disloyalty.

Meanwhile the troops were being concentrated in Montreal, where Sir John Colborne, now Commander of the Forces, had fixed his head-quarters. Not only New Brunswick and Nova Scotia sent aid, but even Upper Canada, through Sir Francis Head, despatched all the regulars in the Province, the Governor having determined to rely wholly on his militia.

Earl Gosford, on the 16th November, issued warrants for the arrest, on a charge of high treason, of Messrs. André Ouimet, J. Dubuc, François Tavernier, George de Boucherville, Dr. Simard, J. Leblanc, L. J. Papineau, Dr. O'Callaghan, T. S. Brown, Rodolphe Des Rivières, and Ovide Perrault. Of these the last five managed to escape.

On the same day (16th Nov.) the Montreal Volunteer Cavalry, under command of Lieutenant Ermatinger, were despatched to St. John's to arrest two men named Davignon and Demaray. They had secured their prisoners and were returning to Montreal when about a mile from Longueuil they were met by some 200 men, armed with rifles and muskets, who opened fire on the troops, wounded the commander and five men, and finally rescued the prisoners.

In a letter dated November 17th, Montreal, Mr. Coffin speaks of this event:—

"These are queer times for quiet people. Things bear a very unpleasant appearance in this part of the world. I would not say dangerous, but certainly disagreeable. . . . Warrants have been issued for the arrest of several individuals in this City and District on charges of High Treason. In town we have been successful enough in bagging a few: to counterbalance this success, the Montreal Volunteer Cavalry, which was employed as a constabulary force, having been despatched to execute similar warrants in the vicinity of St. Johns, and having accomplished the object of their expedition, were attacked on their return by about 200 armed *habitants*, and after having had four of their number wounded were compelled to relinquish their prisoners and retreat, which they did in good style, and, considering that there were twenty-two only in number opposed to such enormous odds, in a manner which reflects much to their credit. This reverse will doubtlessly be magnified into an utter defeat of all the British troops in the Lower Provinces by the force of the "nation Canadienne." To reassure you on this head I give you the facts. The state of public feeling is very uneasy in this district; the Canadians appear cowed in town, but they have shown pluck and preparation in the country. I have since I wrote the last word seen a very bright and handsome pewter ball which has just been extracted from the leg of one of the volunteers—an awkward customer I promise you. The British are, as you may suppose, very much exasperated. Should any disturbance take place, blood will be spilt, and such an occurrence may be hourly expected. The non-appearance of the troops which had been ordered from Halifax and the West Indies has placed Government, I should imagine, in a dilemma. If things proceed much longer in the same train the Kingstonians may before long find themselves called upon to perform what they have so recently promised.

"I must condole with Mr. Grant that the first act of rebellion should have been committed on his property. At the same time you may congratulate yourselves that you are safe at Kingston, and moreover that you have something to the fore there let the worst happen."

The next letter, written three days later than the preceding, acquaints us with some more of the stirring events of this exciting month:—

"On Saturday" (*i.e.* Nov. 17th) "four companies of the Royals and two pieces of artillery were despatched to Chambly. Some of the Police accompanied them for the purpose, if possible, of identifying any of the insurgents. They met with many indications of a rebellious spirit--had a slight skirmish in the woods with some armed *habitants* and took seven prisoners. This appears for the moment to have created a panic, but I have grave doubts whether the effect will be permanent. It is evident that the peasantry has been extensively provided with arms and ammunition, and systematically instigated to resist the authorities. There can be also no doubt that with their immense numerical superiority, if they only knew their own strength and how to direct it to the best advantage, they might prove ugly customers. Until they receive some terrible lesson, I doubt very much whether they will be reduced to consult their own discretion. As yet they appear to obey their leaders implicitly. . . . Debartsch has been compelled to make his escape from St. Charles. T. S. Brown and Rodolphe Des Rivières have since taken possession of his property with many of the insurgent inhabitants of that vicinity. They are deliberately fortifying themselves in his house, throwing up fieldworks and making divers other military preparations. Their Commissariat Department has been actively employed within the last few days in killing and salting all Debartsch's cows. This is actually the case.

"The British inhabitants of the City are arming and drilling, and talking and swaggering after the most approved fashion. I really wish they would drop a little of the Bobadil. Modesty is the most graceful plume to the helm of valour. I dare say they will fight well enough, but they brag most unconscionably. The City was never more tranquil than at this moment. Papineau and a few other such vultures, against whom warrants of arrest for high treason have been issued, are off."

Two days after this last letter was written, Col. Gore was sent against the rebels posted at St. Denis. He was accompanied by 200 infantry, some volunteer cavalry, and three guns. At the same time Lt.-Col. Wetherell was ordered to proceed against St. Charles (otherwise known as Debartsch). The repulse of the troops at St. Denis on November 23rd, Wetherell's victory at St. Charles on the 25th, and the brutal murder of Lieut. Weir, who was captured by Dr. Nelson, the rebel commander at St. Denis, are events too well known to call for more than a mere reference to them.

Writing from Montreal on Dec. 1st, Mr. Coffin thus speaks of these thrilling incidents:

"Markham," (*i.e.*, a captain of the 32nd who was in command of the skirmishing party at St. Denis, and who had received four wounds), "is doing very well. Fancy his men, when landed from Sorel without shoes to their feet and altogether as war-worn as if they had retreated from Moscow, breaking from their ranks and rushing up to his lodgings to ask how he was doing, and when assured of his convalescence, cheering and dancing about like so many Bedlamites. I have been told that the scene was one of the most affecting ever witnessed. Of poor Weir it is painful to write. All that we have since heard confirms the first distressing intelligence. Nothing absolutely decisive is yet known, but of the fact of his murder there can be but little doubt. And yet I will undertake that a far louder feeling is displayed on his account at a distance than here. Here, as in the time of the cholera, and in all times of public peril, self absorbs every other nobler sentiment. Every man appears absorbed in one consideration--the worthier, how he shall fight; the more sordid, how he shall run. . . . Poor amiable kind-hearted Weir, by whose side I sat at dinner hardly ten days since! His fate demands a hecatomb and it will be sternly exacted. Eight companies marched yesterday for St. Denis from Sorel, the Light Company of the 32nd (Markham's and Weir's) among them; the men are awfully savage. I doubt if a trace of that murderous den will be left. So much for civil war. Woe be to those who have brought its horrors upon this hitherto peaceful land.

"Simultaneously with the departure of this detachment returned Col. Wetherell and his Royals with their two guns and thirty prisoners. They were received by an immense concourse of people and with the greatest enthusiasm. They brought with them the standard of revolt—a pole surmounted by a *bonnet rouge* with a gilt tassel and surrounded with a humble imitation of the Roman fasces. Ovide Perrault, of Montreal, Advocate, is the only man of note known to have fallen. At St. Charles about one hundred were slain—more may have fallen and their bodies have been burned in the houses which were destroyed.

"This District is in a lamentable state. The County of Two Mountains is quite in a state of insurrection. Hitherto these gallant patriots have done nothing but menace and expel the old country people from among them at the point of the bayonet. We have numbers flocking into town for protection who have been despoiled of their cattle and other moveables, and wantonly driven from their humble yet happy homes to beg their winter's bread in this city. Everything has been done and will be done for them that is practicable. A man at St. Johns, a loyal Canadian volunteer, was found in a field near that place yesterday with three musket balls through his body. He had been murdered by some of the St. Athanase Patriots. MM. Peltier and Chenier, have been this day accommodated with apartments at the Queen's expense on charges of High Treason. At Quebec as well as here the volunteers are very busy and I understand getting on admirably. The townships are also arming, and all the back English settlements to which munitions of war can be conveyed without interruption have been amply provided. I think before they have done the French leaders will find themselves in a hornet's nest. The 43rd is on its way to Quebec by the Post Route. We expect daily to hear of their arrival and I suppose we shall have ten thousand men out in the spring, until when it will be strange indeed if we cannot keep the province."

A letter of December 9th gives us interesting information concerning the aid which the rebels expected from the Americans, also concerning the vigorous measures adopted by the Government.

"Things here brighten up extemporaneously and people's faces glisten proportionately, to be clouded *per contra* on the following day. The worst intelligence we have is of the unnatural though not unaccountable sympathy which is getting up on the other side of the lines. This is an evil without immediate remedy among a people who may be doubly influenced to act against us—part from the most honourable feelings, but the plupart from mercenary motives. The rebel recruiters on the lines offer eight dollars per month as the wages of their treasonable iniquity and 200 acres of land when the war is over and the British banner expelled from the American soil by the "*triumphant generals of the Republic*." . . .

"But you want facts, not speculations. The first therefore is as cheering a one to us as it has proved ominous of the future fate of similar Yankee enterprises. A party of the rebels had purchased two brass three-pounders in the States and attempted by the assistance of some of their American recruits to bring them into the Province. The Militia however of Missisquoi Bay who had made application for arms to the Commander of the Forces, fortunately received them about an hour before intelligence reached them of the advance of the rebel detachment. With a zeal and promptitude altogether unexpected and which reflects the greatest honour upon them, they absolutely broke open the arm chests and ammunition kegs, rushed quite "promiscuously" to the spot where the rebels were—attacked them—killed five—wounded more—took some prisoners and captured the guns—bravo for the Yankees on our side of the lines!

"Poor Weir was buried yesterday with military honours, the whole population (British) having turned out to attend him to the place of interment. I never witnessed such a sight before. I suppose there were 3000 men under arms. Considering that they have been only three weeks under drill you would be astonished at the soldier-like appearance of some of the volunteer corps. It must have been an imposing and alarming spectacle to Jean Baptiste. I cannot write to you about poor Weir—the details of his fate are too horrible for your eye. I will, if I can find time to-morrow, give Dr. Sampson some account of it and other things. You have undoubtedly heard that the second expedition to St. Denis reached St. Hyacinthe and returned without having encountered any opposition. Poor Weir's remains were found at St. Denis. A proclamation will appear this morning offering £500 reward for the apprehension of his murderers.

"Martial law is declared. When we have time we shall give the rebels upon the Ottawa some proof of its efficacy. They are safe in a bag and can keep till wanted."

"The rebels upon the Ottawa" had not to wait very long. On the 13th Dec., Sir John Colborne marched against them with about 2000 regulars and militia, crossed the Ottawa on the ice, and directed his course towards the village of St. Eustache, where about 1000 patriots had assembled. Mr. Coffin accompanied the troops in the capacity of interpreter to Col. Maitland, and he was therefore an eye-witness of the battle of St. Eustache. His vivid description of the fight, was written to his young cousin Miss Grant. It is one of the most interesting letters in the packet, but unhappily is too long to be quoted in its entirety.

"You must know that as I was acting interpreter to Col. Maitland, I was with the leading files and had consequently the best opportunity of seeing everything, and perhaps the most brilliant sight I ever beheld was the first opening of our artillery upon the rebels as we advanced upon St. Eustache. We ascended the bank of the river; about two miles below the village we suddenly heard and saw the smoke of musketry in the woods on the opposite shore. This we knew arose from Globenski's corps of volunteers which had been detached through the bush in that direction to intercept any fugitives from St. Eustache across the ice. The rebels had anticipated them, and at a sharp bend in the river we suddenly came in sight of two columns of patriots, say about three hundred men each, crossing the river under the impression (as it ultimately proved) that the main body of the troops was advancing in that direction. Sir John was at that moment with the advance, he instantly ordered up the guns, at a moment the ranks opened out right and left and two or three pieces rattled up, unlimbered, and opened like light upon the gentlemen in *mufti* who were slowly wending their serpentine way across the ice at about the distance of a mile. You may fancy the *tableau* at the moment. The day was one of the calmest and brightest of a Canadian winter. The whole scene bore that still and peaceful character peculiar to the Canadian landscape at this season of the year. . . . In a moment all is animation and excitement. Words of command thunder along the line—the men roused from the plodding quietude of the march are loading and priming and bayonetting—a reawakened volcano—orderlies are dashing here, aides-de-camps there, and dragoons everywhere. Sir John and his immediate staff, looking like so many military cucumbers, are reconnoitering through their telescopes in front, while up come the guns, the artillery drivers lashing and swearing, and the horses doing all they ought not to do, until a couple of pieces are brought to bear, and then the thunder of their reports and the whistling rush of the balls, and the reiterated commands discourse sweet music after the school of Charles XII. . . .

"I had just returned through a street, the lower part of which in conjunction with the Church Presbytery and nunnery was one mass of living flame. Every here and there lay the body of some unhappy rebel stretched out upon the snow, with a small group of five or six idlers standing round each, while the deep glow of the conflagration brought into startling relief the livid features of the dead and the wondering countenances of the living. Here and there were groups of artillery removing their guns—soldiers searching for their billets—irregulars laden with plunder of the most incongruous description—horses that had broken loose rushing wildly here—tumbrils hurrying up from the vicinity of the flames in another direction—and then the din—the shouts—the wild laughter—the enquiries—the orders—and above all the deep diapason of the devouring fire. . . .

"The first detachment of the 43rd has reached Quebec. Pearson is not with it. The rest will be up soon. All the world is in glorious spirits and nobody seems to care a fig for the past or the future. Nothing but gaiety is in anticipation; how I should laugh at the change a Yankee invasion would effect! . . . You must not suppose that I have altogether lost sight of your late perils and present disquietude. I do not think you have any serious cause for alarm. Yet I cannot help thinking that Sir Francis has more on his hands than he bargained for. Navy Island and the Buffaloes never I *guess* came into his *calculation*. He has been taken by surprise not a little. I don't imagine he will be quite so ready to despatch *all* his troops on a future occasion. You will have the remainder of the 24th up by the same post with this letter. . . ."

After the battle of St. Eustache, the various districts lately so disaffected, made loud protestations of their loyalty. Having arrested some of the ring-leaders of the revolt, Sir John Colborne, deeming the country sufficiently pacified, returned to Montreal on the 19th December.

Meanwhile Lord Gosford had been pressing his resignation upon the Home Government. This was accepted about the beginning of the new year, but owing to illness his Excellency did not leave Quebec till near the end of February. Sir Francis Head followed him very shortly.

On January 14th Mr. Coffin writes:

"Our latest intelligence here from London confirms a very unexpected and, at this moment, unfortunate occurrence. Col. Sir George Arthur is appointed to succeed Sir F. B. Head as Governor of Upper Canada with the rank of Brigadier General. The

Ministry has acceeded to the request of Lord Gosford for his recall, but his successor has not yet been named. The circumstance of the latter individual not being known in London induces me to credit the rumor that Sir John Colborne is the man."

On Sunday, February 25th, he writes:

"Lord Gosford we are assured will leave Quebec on Tuesday. I am told that he is looking very ill, and to tell you the plain truth I have my doubts if he can quit on this day. His remaining here, powerless himself and disqualifying others, is an incalculable evil. The crowning absurdity of his administration has been the proclamation of a general thanksgiving. It is tantamount to the repeal of Martial Law in this district —has been already adverted to in that point of view by the Chief Justice of the Court of King's Bench in his charge to the Grand Jury of this district. Conceive the anomaly of the very soldiers who are ordered to go to church and return thanks for the profound peace and tranquillity which has been restored to this province, being at the same time under orders to be continually ready at an hour's notice to march for the purpose of repelling invasion or suppressing insurrection. But the malignity of the evil is not yet felt."

Mr. Coffin was so far correct in his surmises that Sir John Colborne was appointed to administer the Government temporarily until a successor to Lord Gosford could be named.

The references in these letters to the troubles of Upper Canada at this time are not numerous, but in the last letter I have quoted from, Mr. Coffin speaks of one of the foolish plans projected by the misguided Mackenzie after he had taken refuge on American soil. Early in February, 1838, he designed attacks on Canada at four different points, Detroit, Sandusky, Vermont and Watertown, N. Y. The notorious Van Rensalaer and Bill Johnson assembled a force of about 2000 "patriots" at French Creek on the St. Lawrence, near Watertown, intending to attack Kingston, but the brave front made by the loyal militia overawed the enemy, and they gradually dispersed. However there was much alarm in Kingston.

About the time that the invasion of Kingston was expected Mr. Coffin was sent on an important mission to Albany.

"I must now relate to you the cause of my expedition to Albany and the matters and things which befell therefrom. I had the honour of being sent by Sir John Colborne in quest of Governor Marcy. . . . I went upon a Mission as nearly allied to diplomacy as the Canadian revolt is to the French revolution. But *badinage a part* Sir John treated me in that matter with a great deal of gratifying confidence and condescension. I was put in possession of all necessary facts—my letters were open and were rather those of introduction, and I was left personally to communicate what is generally contained in despatches. On my return I assumed the responsibility of conveying certain intelligence to General Wool, with whom I had a long and interesting interview, and I am happy to add that Sir John expressed himself satisfied, and that too in the kindest terms, with the manner in which I acquitted myself."

In this letter Mr. Coffin expresses his views as to the attitude of the Americans in a very pointed and concise manner.

"The upper classes in the state, the educated and the intelligent, are decidedly averse to a collision with England. The lower classes sympathize with the rebels, less because they love patriotism than because they envy and hate the British. A war has been hitherto averted by the personal influence of a few sensible men."

Early in February the Earl of Durham was appointed governor-in-chief and "Her Majesty's High Commissioner for the adjustment of certain important affairs affecting the Provinces of Upper and Lower Canada." At the same time an act was passed in the Imperial Parliament, suspending the constitution of Lower Canada, and establishing a "Special Council" to take the place of the two Houses of Parliament. This council was to be composed of equal numbers of French and English. From one of the letters before me, I learn that among the appointments made by Sir John Colborne to the Special Council was that of Mr. Coffin's brother Austin, who was "to represent the interests and the wishes of the emigrant population of the townships."

With what intense eagerness Lord Durham's arrival was awaited may be gathered from a letter of Mr. Coffin's, dated March 30th, 1838:

"I know not what to think of the new Avatar. When in Quebec I saw a letter from the Hon. A. W. Cochrane, now in London. He augurs favourably of Lord Durham, and all the world here seems inclined to chime to the same tune. One thing is certain, he is the arbiter of the destinies of the people of these Provinces, and be it for good or be it for evil, I tremble to think how momentous a trust has been confided to the wisdom or to the caprice of an aristocratic Whig Lord, and a man who will pull down the high if he can, and keep down the low if he dares. From the sensation which Canadian affairs have created in England, and the ostentatious tuition his Lordship is now undergoing at the Colonial Office, (so many hours *per diem* the newspapers say) and his evident and most laudable desire to establish a noble reputation as pacificator of Canada, I fear that he may overdo the thing, that he may come out here with an exaggerated and Quixotic idea of the stern justice it is his duty to dispense, and in his anxiety to play the part of a Minos, confound the tried British loyalists with the *soi-disant* loyalists of Canadian extraction. . . .

"There is an *Association Canadienne* on foot here headed by a few respectable names—by a few of the heads of the old and first Canadian families who with a short-sighted anxiety to protract the existence of '*notre langue, notre religion, et nos lois,*' represent the mass of the French Canadian people—the whole district of Quebec, and Three Rivers and a vast majority of the district of Montreal, as perfectly loyal, and then ask, Are we to be disfranchised? Are we to be punished for the faults of a few?"

A letter dated Quebec, June 2nd, makes reference to the outrage perpetrated on May 29th in Upper Canada by a band of fifty rebels under Bill Johnson, who before daybreak boarded the steamboat Sir Robert Peel, while taking in wood at Well's Island, on the American side of the St. Lawrence. Though the weather was cold and stormy, the passengers and crew were forced to leave the vessel, which was pillaged and burnt.

Mr. Coffin writes:

> "What an atrocious outrage! I was inconceivably shocked to hear that Mrs. Sampson and party had been exposed to the violence of these ruffians. I fear their loss in property must have been great, independent of the terror and cruel exposure to which they were subjected. The excitement throughout the loyal portion of the people here was intense, and is still so; it is easy, therefore, to imagine what it must be with you. I trust, however, most earnestly, that no serious attempt at retaliation will be made now in cold blood."

Lord Durham landed in Quebec, amid great pomp, on the very day of the Sir Robert Peel outrage. Mr. Coffin thus describes the new Governor:

> "He barks loud and by the teeth he shows I think that (reversing the old proverb) 'his bite is waur than his bark.' This man Lord Durham is a smasher—he will make or break whatever he takes in hand—and one trait in the fellow I like, for good or for evil he wants no man to share the responsibility with him. This is a hasty opinion of a man who has been hardly ten days in the country, but it agrees with my preconceptions and is confirmed by the decision of character he has already displayed. His court, establishment, staff, etc., is of a very splendid description, and I really think, from his personal appearance and, where appropriate, from his courteous demeanor, that this display arises as much from policy as from natural taste for the magnificent. As policy it is undoubtedly good all the world over, but most especially in Lower Canada. The relicts of the patriot party, and this place is still plentifully bespatted with them, are evidently awestruck, nor is this feeling confined to them alone."

An incident that well illustrates the character of this aristocratic Whig Lord is recorded in a letter bearing the date of June 23rd, 1838, and written from Montreal.

> "We are expecting daily to receive some definitive instructions respecting the future fate of the prisoners. What that may be John George Earl of D. only knows. I have, however, great misgivings. The Governor-General is to be here himself in the beginning of July. The fact is that the good people of Montreal are not more intractable than their neighbours. Through the Press they assailed his Lordship upon his arrival, whereupon the Vice-regal Earl countermanded the preparations which were then making for his reception here, and openly declared that he had intended spending £20,000 in Montreal, by which sum Quebec would be the richer. Whereupon the good City of Montreal fell upon her marrow-bones and cried '*Peccavi*' in no time. A meeting was held incontinently, resolutions passed, and his Excellency declared to be the *ne plus ultra* of a nobleman, a Governor, an ambassador, *sapiens ne etiam et* . . . However that may be, his Lordship is to be here on his way to Upper Canada, and although he has expressed a determination to live on board of the steamboat that conveys him up, still it is hoped that he may condescend to cast the light of his golden countenance on the intelligent, independent, and disinterested population of the City of Montreal. I like this same John George for the dare-devil, don't-care-a-fig sort of way in which he carries on the war. He hired the John Bull as his private travelling carriage,—one of her boilers, however, got out of order, so that he is compelled to put up with a steam frigate. To make amends he has bespoke the River Saint Lawrence

for his journey. Any man presuming to travel on it the same day is to be excommunicated forthwith. The very fishes have been ordered to retire to their holes at his august passover."

One of the first questions which Lord Durham had to deal with was the fate of the numerous political prisoners. A formal trial by jury was thought unsatisfactory, Frenchmen being likely to acquit and Englishmen to condemn, through sheer national sympathy or antipathy. Lord Durham adopted a policy which gave general satisfaction here, but aroused great hostility at home. Having induced some of the imprisoned ring-leaders to confess complicity in rebellion, the Governor-in-council pardoned minor offenders, but banished the principal ones to Bermuda under penalty of death should they return, the same punishment being threatened Papineau and others in the event of their setting foot again in Canada. This decision was proclaimed on the 28th of June, the day fixed for the Queen's coronation.

In the British House of Lords, the actions of the Governor excited indignation among his political enemies. Lord Lyndhurst declared that no such act of despotism had ever been hazarded in any country that respected legal forms. Lord Brougham and the Duke of Wellington also denounced the Indemnity ordinance, and the Ministry yielding to the criticism allowed a vote of censure upon Lord Durham to be carried. The Earl at once sent in his resignation and returned to England without even waiting for his recall.

These events aroused astonishment and indignation among British Canadians. Mr. Coffin writes from Quebec on September 23rd:

"What think you of the last intelligence from England? Can you conceive anything more ungenerous or discreditable to British legislation than the whole course of conduct adopted towards the Earl of Durham? and that such suicidal measures should emanate from the House of Lords! The long record of political blundering which constitutes the history of British North America presents no act more shameful to the parties principally concerned, more humiliating to England herself, or more ominous to these Colonies, than the nullification of these ordinances by a pusillanimous Ministry. Lord Durham goes home at once. He expressed that determination in his reply to the address of the Deputies from the Lower Provinces whom he has dismissed. The Malabar 74 is under orders to convey him and his family to England by the 6th of next month. It is almost incredible, yet not the less true, that the Earl of Durham received letters from Her Majesty and from Lords Melbourne and Glenelg, expressive of their satisfaction of these obnoxious ordinances and of his general administration of the Government, dated the very day on which the debate took place in which they were so factiously assailed and he so disgracefully abandoned. I will not trouble you here with the state of feeling in Quebec. but refer you to an article which will appear in the *Montreal Gazette* of Tuesday next, signed "an Englishman." I need not reiterate here what will, at all events, be easier to read in print than in hieroglyphics."

Sir John Colborne again became Administrator of the Government.

From a letter of Mr. Coffin's we learn that soon after Lord Durham's arrival, Sir John Colborne decided to retire from Canada. He writes on June 23rd:

> "Sir John Colborne has determined on demanding his recall. John George fancies himself General in every sense of the word, and I can easily understand that any interference on his part would be intolerable to Sir John. To say the truth as far as Sir John is concerned, I cannot regret his decision. He requires rest, and every such man ought to retire on his laurels before they fade. Health and happiness be with him wherever he goes!"

As Administrator and Commander of the Forces Sir John Colborne had his hands full. The very evening of the day Lord Durham sailed from Quebec, rebellion broke out afresh, the first act of hostility being the seizure by about 400 men of the steamer Henry Brougham at Beauharnois, on the St. Lawrence. Dr. Robert Nelson established himself at Napierville, issued a Declaration of Independence, and proclaimed himself Provisional President of the Republic of Lower Canada. He was in command of a large number of American mercenaries, and was soon joined by many Canadians, his force aggregating some 2000 persons.

But such prompt and effective measures were taken by Sir John and the loyal militia that within one week after its outbreak this second rebellion was suppressed.

Most unhappy were the consequences of this foolish rising. Courts-martial were organized, many prisoners were sentenced to transportation, while twelve were condemned to death and afterwards executed.

But worse than this was the misery caused by the avenging zeal of extreme loyalists who burned and plundered freely in the disaffected districts. Quoting from the Montreal Herald, Garneau tells us that "On Sunday night the whole country behind Laprairie presented a frightful spectacle, being one sheet of livid flames; and it is said that not one rebel's house has been left standing. God knows what is to become of the Canadians who have not perished, their wives and their families, during the coming winter, seeing that they have nought in prospect but the horrors of hunger and cold."

In a long and very interesting letter of July 9th written from St. Denis, Mr. Coffin gives us a very different and happier picture of the Eastern Townships, as lately seen by him when making an excursion on horse-back from St. Denis to Lennoxville, and thence to Port St. Francis. He says:

> "I was anxious to judge for myself as to the actual state of the rural population of this District. I rode therefore, and having fifty occasions per diem to pull up and chat, or dismount and enter into the houses of the people as I passed along, I think

I have been enabled to form a pretty accurate opinion as to the present state of feeling throughout the parishes I visited. I passed through those of Varennes, Vercheres, St. Denis, St. Charles, La Presentation, St. Hyacinthe and St. Pie, generally considered as the most disaffected in this disaffected district, and subsequently through the French country in the District of Three Rivers from Drummondville to Port St. Francis. I found universally the same olden civility and good nature, the same quiet and pastoral appearance which characterized this contradictory peasantry previous to the revolt. This visitation has left few traces of its progress, and those few are of a nature to disappear rapidly. Houses and barns are building and repairing, agriculture proceeds in the customary routine, pot herbs flourish with the usual exuberance in every little garden, and flowers adorn and humanize every cottage window. . . ."

How to manage these amiable *habitants* is a problem upon which Mr. Coffin has an opinion to offer:

"Now the only way to control a people so easily misled is to coerce the misleaders. . . . Substitute for these dangerous chatterboxes men who, understanding the language and the habits of these people, will go and reside among them, will identify themselves with them, will talk with them by their own firesides, administer summary justice for them at their doors, who may worthily represent a Government hitherto misrepresented or unknown, and explain the objects, the rules and the advantages of institutions whose benefits they thus practically diffuse. This is my view of the thing, and, I may add, in that of Sir John Colborne, is the intention and duty of the Stipendiary Magistracy just now introduced into this province. In discharging this duty they must naturally observe all that is going on in the country parts and will report accordingly, but their first labour is a labour of peace and reconciliation."

In another part he adds,

"The majority of these people is, I believe, loyal, but there is also a large and dangerous minority who desire a change and who are encouraged in their hopes and wishes by their proximity to the Frontier. The latter will cause trouble yet, if not well looked to. Not but that I am convinced that it is in the power of the Government to make itself so beneficially felt in this as well as in the French country and to win back the reasoning and reasonable portion of these recusants from their political heresies. Feeling convinced, as I conscientiously do, that our system of government is practically the best in the world, if properly administered and brought home to the governed, I am equally sure that if it fails in its effect it will be the fault of those who dispense it."

English as he was, Mr. Coffin could not but warmly admire the French as contrasted with his own fellow-countrymen.

"You cannot help remarking in this country the striking contrast which exists in the manners of the two races. Among the French all its politeness, hospitality, good will, deference. This is a stiff-necked, unbending and apparently most unamiable generation. Here, as in their fatherland before them:

That independence Britons prize too high
Keeps man from man and breaks the social tie.

And, yet, in the main, when you know how to take them, they are good fellows enough."

At the request of Sir John Colborne, Mr. Coffin gave up his position as Assistant Civil Secretary, and accepted that of Stipendiary Magistrate in what had been one of the most disquieted districts. His reception by the people was not a kindly one, and his success in restoring good feeling was not as great as in his generous enthusiasm he had expected it would be.

Writing from Sainte Marie de Monnoir, Sept. 23rd, he gives us the following account:

> "I was on the point of being stationed at Beloeil, in the centre of your rebellious *Censitaires*, when it was unfortunately discovered that Sainte Marie was a more disagreeable and a more turbulent place, and I was sent there forthwith, as I sometimes flatter myself, into honorable banishment like Lord Bloomfield to Stockholm. This extensive and populous seigniory is unquestionably most disaffected. To you who are acquainted with the habits and character of the Canadian peasantry, one trait alone will suffice. Not one man in twenty will salute me, or offer the slightest mark of recognition or respect. Most of them look very sulky, and many will not even look at all. Now this speaks volumes. Still I do not despair. I have only just begun. The country has been without law or justice or even the appearance thereof, except in very heinous cases, for years, and even in them justice was administered at such a distance, that practically the people have known nothing of its operation or of its effect. . . . I have made the Police and the Magistracy respected, I believe feared, hereabouts, but I doubt if my authority is popular. This is, however, a matter about which I care little just now. I hope that time will produce the natural good results of justice united with firmness and kindness wherever it can be beneficially exercised."

Lord Durham had remained in this country only five months, yet in that short time he had examined very thoroughly into the causes of discontent, and his report sent in on his return to England is one of the most valuable and statesmanlike documents ever presented on Colonial affairs. "In each and every Province," he wrote, "the representatives were in hostility to the policy of the Government, and the administration of public affairs was permanently in the hands of a Ministry not in harmony with the popular branch of the Legislature."

The principal recommendations made by Lord Durham were a Federation of all the Provinces, an intercolonial railway, and an Executive Council responsible to the Assembly. Failing a complete Federation, the immediate union of Upper and Lower Canada was strongly urged.

The report was vigorously condemned by the members of the Family Compact in Upper Canada, but for the most part was received with warm approval. Mr. Coffin's views are given in a letter dated April 17th, 1839:

> "I do not suppose that you have plunged very deeply into this document of the abdicated Autocrat. My attention has, of course, been chiefly directed to his view of the affairs and present condition of the Lower Province, with which in the main I am much pleased. He has separated the real from the ostensible cause of quarrel and

> has developed fairly and very lucidly the national character of the controversy. His report on the Upper Province is generally denounced here as a distortion or misrepresentation of facts and therefore, of course, replete with false inferences; and there is a flippant superficiality in its style which contrasts strongly and very disadvantageously with the account of Lower Canada—the two productions are evidently from very different pens.
>
> "From what we can learn, they have resolved at home upon a legislative regeneration of the Canadas of which "A Union" is to be the basis. I doubt the efficacy of the proposed panacea if the maintenance of the British connection is the real and honest object of the Ministers—if there is no republican *arrière pensée*—no paving of the declivity of revolution—of which I am sure there is a great deal. And even then, however dishonest and deceitful the policy, a statesmanlike view of the same end would rather have aimed at it through a Legislative Union of the whole British North American Provinces. Admitting the impossibility or inexpediency of maintaining the connection between us and the Mother Country, and that all parties acquiesced in the necessity of a separation, I should say (private feelings apart) that the true policy of England, her interest and her duty would be to unite her American Provinces, elevate them collectively to the rank of an independent people—create an antagonistic Republic on the North American Continent, and make the United Provinces redress the preponderance of the United States. Institutions of a republican character would bribe the disaffected and discontented, while the legislative form of general government aided by such additional restrictions as Great Britain, in conferring a constitution, might very easily impose, would ensure such strength to the executive and consequent security to property as can never be expected under the jealous limitations and circumscribed power of a Federative Constitution. Such a republic established in these colonies under the immediate protection of Great Britain, receiving from her all the benefits they at present derive and returning the same — relieving her from the expense of garrisoning and governing and yet acting as an outlet for her superabundant population and increasing manufactures, would, *the necessity of such separation once satisfactorily established*, possibly prove as good a scheme as any—certainly better, immeasurably better than a simple Union of Upper and Lower Canada."

In 1839 the British Government, having determined upon the advisability of uniting the two Canadas, sent out as Governor General the Right Hon. Charles Poulett Thompson (afterwards Baron Sydenham & Toronto), a noted merchant, who was in 1834 President of the Board of Trade. Owing to his connection with the Baltic timber business, he was at first regarded with suspicion in Canada, but shortly became very popular. Says Mr. Coffin, writing from his retreat at Sainte Marie (Sept. 23rd, 1839).

> "That Poulett Thompson, the avowed enemy of the Canadian merchant, should be the man, would be incredible, if any extravagant or incomprehensible project in her Majesty's Ministers could be a just ground for incredulity. I would almost wager that if he does come out, Sir John Colborne will return to Canada. In the course of a few months confusion will be thrice confounded. Poulett Thompson will follow the herd of incapables that has preceeded him, and ministers on their marrow-bones will pray Sir John to return to save them—if he can."

And again a few weeks later:

"I shall very probably part company from H. M. Ship Government, and return to my profession in the spring. She appears to be a crazy craft, very insufficiently manned, and as for the Skipper, the manner in which 'greatness' has been 'thrust upon him' only completes the 'midsummer madness' of the whole expedition."

Mr. Coffin, however, had reason shortly to change his opinion of Lord Sydenham. The new Governor proved to be a man of great ability, and Mr. Coffin acted under him in a number of important Commissions.

But at the time of Lord Sydenham's appointment, Mr. Coffin could not but think that the Home Government was slighting Sir John Colborne, for whom he had the highest and most affectionate regard. Writing to Mrs. Grant, he says:

"Sir John is really going, and for his sake I am sincerely glad of it. Considering the intricate game he has had to play, his political career in this Province has been most felicitous. His military is beyond praise. He returns universally respected and regretted, even by the Canadian population. He has worthily won his laurels; long may he live to enjoy them. I cannot help thinking that her Majesty's Government will award him on his return home with something more substantial and permanent than expressions of thanks.

"I suspect much that the restoration of Judges Panet and Bedard and the release of Viger from prison, are among the chief reasons for relieving Sir John. I've a notion that the uncompromising veteran will not yield his point, that Ministers know it or conjecture as much, and anticipate this obstacle to their wishes by providing at once a convenient successor."

And writing three days after Lord Sydenham assumed the Government, he says:

"In Sir John we have lost an exemplary man—a laborious and practical Governor, and a soldier experienced in the peculiar warfare of harassment and alarm, more than actual incursion, to which these Provinces have been and still are exposed. The existence of a man so singularly and peculiarly qualified to preside over the Government of these Provinces at this crisis, appears almost to have been a special interposition of Providence, while the blind and senseless manner in which it has been rejected and despised, argues equally the truth of the saying, 'that Providence stultifies those it intends to destroy.'"

Here follows an account of Mr. Coffin's parting with the chief he loved so well, an account I cannot forbear from quoting, even if it reveals some slight measure of personal vanity in the writer:

"I took leave of him about a week since. He was very kind and warm in his expressions of personal kindness and remembrance. My parting with him was attended by circumstances of peculiar gratification to me. They afforded me a glorious triumph over those cubs arround me, who envious of the confidence he openly reposed in me, had caballed so successfully as to induce me to resign my first appointment. When the time for his departure arrived, he found business throng upon him which these fellows were incompetent to perform. He sent for me and kept me in town a week, busily employed night and day, with him continually in his usual friendly and confidential manner, until I had got the work done for him which these gentry could not do. I could see that it was gall and wormwood to them, the hounds! while I, the while, was unimaginably silky and buttery, and as soft and soothing in all my doings as the boiled pease in the shoes of the knowing Pilgrim to Compostella. I cannot help thinking from Sir John's manner that he expected me to ask him for something, possibly to push my interests with the new *Gub*, but I was determined to show him that a loyal Englishman could serve him disinterestedly, and I could have done ten times more than I did do from sheer love for the gallant old man—God bless him—without hope of favor or reward."

Sir John Colborne did receive, on his return home, "something more substantial and permanent than expressions of thanks."

He was almost immediately created Baron, Lord Seaton, and shortly afterwards was further honoured by being appointed Governor of the Ionian Islands. During his tenure of this office, he carried through many important legislative reforms In 1860, on his return to England, he became a Field Marshal of the Empire.

THE PHOCAS OF TERRE NEUVE.

BY REV. PHILIP TOCQUE, A.M.

(Read 2nd April, 1892.)

Naturalists describe no less than 15 species of seals. The kind most plentiful and which pass along the coast of Newfoundland with the field ice, are the *Phoca groenlandica*, which is the technical or scientific name given to the harp or half-moon seal, which frequents the coast of Terre Neuve or Newfoundland. About the last of the month of February these seals whelp, and in the northern seas deposit millions of their young on the glassy surface of the frozen deep. At this period they are covered with a coat of white fur, slightly tinged with yellow. I have seen these "white coats" lying six and eight on a piece of ice, resembling so many lambs enjoying the solar rays. They grow very rapidly, and about three weeks after their birth begin to cast their white coat. They are now captured, being killed by a stroke across the head with a bat, gaff or boat-hook. At this time they are in prime condition, the fat being in greater quantity and containing purer oil than at a later period of their growth. It appears to be necessary to their existence that they should pass a considerable time in repose on the ice; and during this state of helplessness we see the goodness of Providence in providing these amphibious creatures with a thick coat of fur, and a superabundant supply of fat as a defense from the intense cold of the ice and the northern blasts. Sometimes, however, numbers of them are found frozen in the ice. When one year old these seals are called "bedlamers." The female is without the dark spots on the back, which form the harp or half moon, and the male does not show this mark until two years old. The voice of the seal resembles that of the dog, and when a vessel is in the midst of myraids of these creatures, their barking and howling sounds like that of so many dogs, literally driving away sleep during the night. The general appearance of the seal is not unlike that of a dog, whence some have called it the sea dog, sea wolf, etc. These seals seldom bring forth more than one, and never more than two, at a litter. They are said to live to a great age. Sometimes a stray one is caught in a net, reduced to a mere skeleton, with teeth all gone, which is attributed to old age. Buffon, the great French naturalist, says: "The time that intervenes between their birth and their full growth being many years, they, of course must live very long. I am of opinion that these animals live upwards of a century, for we know that cetaceous animals in general live longer than quadrupeds; and, as the seal fills up the chasm between the one and the other, it must participate of the nature of the former, and consequently live much longer than the latter." The Newfoundland seals probably visit the Irish coat. A number of seals were killed on the west coast of Ireland in 1856, among them the old harp, and Sir William Logan gives an account of the skeleton of this kind of seal having been found embedded in the clay around Montreal 40 feet deep.

The *Phoca cristata*, or hooded seals, are so called from a piece of loose skin on the head, which can be inflated at pleasure. When menaced or attacked the hood is drawn over the face and eyes as a defense. The female is not provided with a hood. An old dog-hood is a very formidable animal. The male and female are generally found together, and if the female happens to be killed first, the male becomes furious. Sometimes 10 or a dozen men have peen engaged upwards of an hour in despatching one of them. I have known a half a dozen hand-spikes to be broken in endeavoring to kill one of these dog-hoods. They frequently attack their assailants, and snap off the handles of the gaffs as if they were cabbage stalks. When they inflate their hoods it is very difficult to kill them. Shot does not penetrate the hood, and unless the animal can be hit somewhere about the side of the head it is almost a hopeless case to attempt to kill him. They are very large, some of their pelts which I have measured being from 14 to 18 feet in length. The young hoods are called "blue backs." Their fat is not so thick nor so pure as that of the harps, but their skins are of greater value. They slso breed further to the north than the harps and are generally found in great numbers on the outer edge of the ice. They are said not to be so plentiful and to cast their young a few weeks later than the harps.

The harbour seal *Phoca vitulina* frequents the harbors of Newfoundland summer and winter. Numbers are taken during the winter in seal nets.

The square flipper, which is perhaps the great seal of Greenland *Phoca barbata*, is now seldom seen.

The walrus *Trichecus rosmarus*, sometimes called the sea horse or sea cow is now seldom met with. Formerly this species of seal was frequently captured on the ice. This animal resembles the seal in its body and limbs, though different in the form of its head, which is armed with two tusks, sometimes 24 inches long, consisting of coarse ivory; in this respect much like an elephant. The under jaw is not provided with any cutting or canine teeth, and is compressed to afford room for the tusks, projecting downwards from the upper jaw. It is a very large animal, sometimes measuring 20 feet long, and weighing from 500 to 1,000 pounds. Its skin is said to be an inch thick, and covered with short yellowish brown hairs. What is called the seal is the skin with the fat or blubber attached, the carcase being left on the ice where it is killed. The flesh of the seal is frequently eaten, the heart and kidneys are like the pig's, and taste like them. The first thing that occurs in Newfoundland to break the winter's torpor is the bustle and activity attending the outfitting of the vessels for the seal fishery. In its prosecution are combined a spirit of commercial enterprise, a daring hardihood and intrepidity almost without parallel. The interest of every individual, from the richest to the poorest, is interwoven with it—from the bustling and enterprising merchant that, with spy-glass in hand, paces his wharf, sweeping ever and anon the distant horizon for the first view of his returning ship, to the little broom girl that creeps along the street, hawking her humble commodity. The return of the seal hunters reminds one of Southey's poems, "Madoc" and "Roderick the last of the Goths."

The seal fishery of Newfoundland has assumed a degree of importance far surpassing the most sanguine expectations of those who first embarked in the enterprise, and has now become one of the greatest sources of wealth to the country. In the commencement the seal fishery was prosecuted in large boats, which sailed about the middle of April and as its importance began to be developed, schooners of from 30 to 50 tons were employed, which sailed on the 17th of March. In 1845 the number of sailing vessels employed was 350, from 60 to 150 tons manned by 12,000 men. The time spent on the voyage was from two to six weeks. The sailing vessels have now been mostly superseded by steamers from 300 to 800 tons, carrying from 150 to 280 men each. In 1891, 19 steamers were engaged in the seal fishery. One steamer brought in 8,000 young harps the first trip and 18,000 old seals the second trip. The total value of both trips estimated at $132,000. Some of the steamers have brought in from 20,000 to 40,000 seals. A number of seals are taken in seal nets in winter and spring. A few years ago 150,000 seals were taken to the shore by persons who had walked on the ice in some of the northern bays of the island. Some years ago the ice was packed and jammed so tight in some of the bays for several weeks, that the seals on it could find no opening to go down, and numbers of them crawled upon an island, when some people happened to land upon the island and discovered them; 1,500 seals were slaughtered among the bushes. Seals have been known to crawl several miles over land. The number of seals taken yearly on the coast of Newfoundland is from 400,000 to 600,000, producing, commercially, no less a sum than $1,500,000. The seals are sold by weight. The young are sold at from

$4 to $6 and the old ones at from $4 to $5 per cwt. The price, however, is regulated by the value of the oil in the British market. A young seal will weigh from 30 to 50 pounds, and an old seal from 80 to 200 pounds. It is calculated that the fat of 80 young harp seals will produce a ton of oil. The seal fishery is a constant scene of bloodshed and slaughter. Here you behold a heap of seals writhing and crimsoning the ice with their blood, rolling from side to side in dying agony. There you see another lot, while the last spark of life is not yet extinguished, being stripped of their skins and fat, their writhings and heavings making the unpractised hand shrink with horror to touch them. The seal fishery being prosecuted during the vernal equinox is rendered particularly dangerous. It is a voyage of hopes and fears, trials and disappointments, and the prosecution of it causes more anxiety, excitement and solicitude than any other business in the island. Sometimes the seals are sought after at a distance of from two to four miles from the vessel, over huge rugged masses of ice, and during this toilsome journey the men have to jump from one pan of ice to another, across horrid chasms where yawns the dark blue water ready to engulf them. Sometimes "slob," or ice ground up by the action of the waves and covered with snow, is mistaken for hard ice, and the poor sealers leaping upon it are at once buried in the ocean. Not unfrequently, when the sealers are at a distance from the vessel in search of their prey, a freezing snowdrift or a thick fog comes on, when no object around can be descried, and the distant ship is lost. The bewildered sealers gather together. They try one course, then another, but in vain, no vessel appears. The lights shown from the vessel cannot be seen, the guns fired and horns blown cannot be heard. Night comes on, and the wretched sealers perish through fatigue, cold, and hunger on the glittering surface of the frozen deep. Scarcely a fishing season passes but the widow's wail and the orphan's cry tell of the dreary, the dreadful death of the seal hunters. Sometimes vessels are crushed between two large masses of ice called "rollers," when all on board are consigned to one common destruction. The islands of ice or icebergs, are dreadful engines of destruction. Many of these iron-bound ships come in contact with them, and sometimes vessel and crew perish together.

The Newfoundland seal is different from the Behring sea seal. The Newfoundland seal is what is called the hair or bearded seal. They are sought after for the value of their fat instead of their fur. The Newfoundland sealskins are worth not more than 50 or 60 cents apiece, whereas the fur seal, when dressed, is worth $60 a piece, in first hands. All the Newfoundland seals are whelped on the ice and not on the land as the fur seal.

CIRCULAR-LETTER ADDRESSED TO ASTRONOMERS OF ALL NATIONS.

PROPOSED CHANGE IN RECKONING THE ASTRONOMICAL DAY.

TORONTO, CANADA, 21st April, 1893.

The Canadian Institute in co-operation with The Astronomical and Physical Society of Toronto, have had under consideration the subject of Astronomical Time Reckoning, and have, after much deliberation and consultation, appointed a Joint Committee to suggest the best means of ascertaining the views of astronomers throughout the world.

The Joint Committee have presented the accompanying Report, in which both Societies concur.

On behalf of the two Societies we have the honour to direct attention to the observations and recommendations of the Joint Committee, as well as to the appended extracts, expressing the views of the following gentlemen :—

1. Sir John Herschell.
2. M. Otto Struvè, Imperial Astronomer, Pulkowa.
3. Mr. W. H M. Christie, Astronomer Royal, Greenwich.
4. Prof. S. Newcomb, Nautical Almanac Office, Washington.
5. Commodore Franklin, United States Naval Obs., Washington.
6. Mr. C. Carpmael, President Astronomical Society, Toronto.
7. Mr. Arthur Harvey, President Canadian Institute, Toronto.

In order to obtain the views of as many astronomers as possible the Joint Committee recommend that answers be invited to the following question :—

Is it desirable, all interests considered, that on and after the first day of January, 1901, the Astronomical Day should everywhere begin at Mean Midnight?

It is requested that early answers to this question be sent to the following address :—

JOINT COMMITTEE ASTRONOMICAL TIME,
CANADIAN INSTITUTE,
TORONTO, CANADA.

As it is intended to send copies of further papers on this subject to those replying, it is desirable that the full name, official designation, if any (professional or non-professional) and proper address be furnished with each reply.

ALAN MACDOUGALL,
G. E. LUMSDEN,
Joint Secretaries.

REPORT OF THE JOINT COMMITTEE

Of The Canadian Institute and The Astronomical and Physical Society of Toronto.

SANDFORD FLEMING, C.E., C.M.G., LL.D., Etc., *Chairman.*

Canadian Institute.	*Astronomical Society.*
ARTHUR HARVEY, President.	CHARLES CARPMAEL, M.A., F.R.A.S., Etc., President.
GEO. KENNEDY, M.A., LL.D.	JOHN A. PATERSON, M.A.
ALAN MACDOUGALL, C.E., Secretary.	G. E. LUMSDEN, Corresponding Secretary.

TORONTO April 20th, 1863.

Your Committee on the subject of Astronomical Time Reckoning, beg leave to report as follows:—

(*a*) That the Sixth Resolution of The Washington International Conference of 1884, which was carried unanimously by the representatives of the twenty-five nations there assembled, counting among them several astronomers of world-wide fame, reads as follows:—"The Conference expresses the hope that, as soon as may be practicable, the Astronomical and Nautical Days will be arranged everywhere to begin at Mean Midnight;"

(*b*) If any action is to be taken on this Resolution, the most appropriate date for the new reckoning to take effect would be the first day of the new century;

(*c*) As the Ephemerides are usually prepared four or five years in advance, it is obvious that if it be decided to make Astronomical Time accord with Civil Time at the date named, a common understanding should not be delayed beyond the year 1895 or 1896;

(*d*) To arrive at an agreement, it is considered essential to ascertain the views of those concerned;

(*e*) The Canadian Institute and The Astronomical Society should, in the general interest, assume the duty of inviting opinions upon the subject, to be collated, tabulated and published in a special report;

(*f*) If the weight of opinion expressed by those who respond to such invitation, be in favour of a change, further steps may be taken with the view of reaching an international understanding;

(*g*) Your Committee suggest that the opinions which have already been expressed by some leading astronomers be published. To this end, extracts from the writings of Herschell, Struvè, Christie, Newcomb and Franklin, are hereto appended; also, remarks recently made by the President of the Astronomical and Physical Society of Toronto, and the President of the Canadian Institute;

(*h*) Your Committee recommend that replies be asked to the following question, and that it be widely circulated:—

QUESTION.

Is it desirable, all interests considered, that on and after the first day of January, 1901, the Astronomical Day should everywhere begin at Mean Midnight?

(*i*) Your Committee further suggest that astronomers generally throughout the world be invited to send definite replies to the question as soon as convenient. Replies to be addressed, "*Joint Committee, Astronomical Time, Canadian Institute, Toronto, Canada.*"

Respectfully submitted,

SANDFORD FLEMING,
Chairman.

APPENDIX.

EXTRACTS FROM THE OPINIONS OF ASTRONOMERS AND OTHERS REFERRED TO BY THE JOINT COMMITTEE.

I. (935) Astronomical time reckons from noon of the current day; Civil, from the preceding midnight, so that the two dates co-incide only during the earlier half of the Astronomical and the later half of the Civil Day. This is an inconvenience which might be remedied by shifting the astronomical epoch to co-incidence with the civil. (147) . . . This usage has its advantages and disadvantages, but the latter seem to preponderate; and it would be well if, in consequence, it could be broken through and the Civil reckoning substituted. Uniformity in nomenclature and modes of reckoning in all matters relating to time, space, weight, measures, etc., is of such vast and paramount importance in every relation of life as to outweigh every consideration of technical convenience or custom. The only disadvantage to astronomers of using the Civil reckoning is this—that their observations being chiefly carried on during the night, the day of their date will, in this reckoning, always have to be changed at midnight, and the former and latter portions of every night's observations will belong to two differently numbered civil days of the month. There is no denying this to be an inconvenience. Habit, however, would alleviate it; and some inconveniences must be cheerfully submitted to by all who resolve to act on general principles. All other classes of men, whose occupations extend to the night as well as day, submit to it, and find their advantage in so doing.—*Sir John Herschell's Treatise on Astronomy—Third Edition.*

II. Much earnest reflection, on the other hand, must be given to the desire expressed at the meeting, that Astronomical Time Reckoning should be brought in accord with the commencement of the day in civil life. In this matter, astronomers have not simply to abandon a custom of long standing, and consequently to make conditional changes of practice established for many years, but, at the same time, astronomical chronology is disturbed, which is easily understood, must exercise a marked effect on the comprehension of all problems bearing upon matter. Without doubt, the astronomer must make a great sacrifice for the fulfilment of this desire; but, in reality, this sacrifice is not greater than that entailed on our forefathers when they passed from the Julian to the Gregorian Notation of Time, or when they altered the commencement of the year: a sacrifice of convenience by which we yet suffer when it becomes necessary to refer to phenomena of remote dates. At this period, we must the less stand in fear of a like sacrifice, when by such means an acknowledged existing non-accord between science and ordinary life can be set aside: a non-accord which, it is true in individual cases, does not press heavily on the astronomer, but which is a constant source of inconvenience for non-professional astronomers who are desirous of making use of astronomical information. And in such respect, this sacrifice ceases so to be considered and is transformed into an act of public utility with regard to all astronomical details which stand in clear relationship with the outer world in which almost daily conflicts come to the surface between the different designations of dates. Conflicts among others which are even injurious to astronomical labours in such observatories where observations are continually adjusted to the day. . . . While the Directors of the Pulkowa Observatory make their full acknowledgment to the Astronomer Royal for this precedent, which has been established, so are they ready to follow the example, and this fact leads us the more to expect that also this course will be adopted by the Washington Naval Observatory, as in the American Marine the Date Notation from midnight has been already accepted. It is only in the matter of the period when the Date Notation, according to Universal Time, should be introduced into the publications of the observatories, that we feel inclined to recommend that there should be delay until, in this respect, the most perfect possible understanding be attained by all astronomers, in order to avoid the much more critical disturbance in astronomical chronology which would arise if the transition to the new Date Notation was not equally followed on all sides. We are desirous, accordingly, of suggesting a suitable time-point for the commencement of the year for which the Nautical Almanac would inaugurate the changes corresponding to the requirements named. The latter, as has before been said, could come to pass in the year 1890. We would, however, ourselves prefer the change to take place, in the first instance, with the change of the century. Until that date it would probably be the simultaneous proceeding of all astronomers, with general consent, to look forward to this period of transition, and it would more easily stamp itself on the memory of all who hereafter would be busied in investigations in which exact chronology plays a part.--*Paper on the Washington Conference by Otto Struve, Director of the Imperial Astronomical Observatory, Pulkowa, Russia.*

III The reasons for making the change, as affecting astronomers, are:—(1) The introduction of the Universal Day commencing at Greenwich Midnight, and reckoning from 0 to 24 hours makes it inexpedient to have another time reckoning of 0 to 24 hours starting from Greenwich Noon. There are already frequent mistakes of date arising from confusion between civil and astronomical reckoning, several practical observers using the former, which is also commonly employed in almanacs and occasionally in some astronomical periodicals. The use of *three* different systems of reckoning solar time would greatly increase the confusion. (2) The circumstances under which astronomical observations are made have completely changed in modern times since the application of powerful telescopes to meridian instruments and the development of Solar Physics. The change of date at noon in the middle of the day's work has thus, in many cases, become very inconvenient. (3) As regards meridian observations, the experience of the past year at Greenwich Observatory (where observations are carried on as continuously through the 24 hours as at any other observatory) shows that the whole of the astronomical day can be introduced very easily and with decided advantage on the whole. (4) In the case of extra-meridian observations, the observer usually finds it convenient to work in the earlier hours of the night, so that little or no inconvenience would result from a change of date at midnight. Discoverers of comets and observers of meteors, who observe in the early morning, often use civil reckoning, and mistakes of date have, on several occasions within my own knowledge, resulted from the existence of two different modes of counting time. (5) For spectroscopic and photographic observations of the sun, it is now recognized that the day should be reckoned from midnight, and the same reckoning would naturally be used by the observer when he takes spectroscopic and photographic observations at night, and also in determinations of the places of comets, stars, etc., which he may make in connection with his spectroscopic observations. It seems absurd to expect the same observer to change his system of reckoning mean solar time according to the class of observations he is making at the moment. (6) The proposal to include in the routine work of an observatory, photography of the stars, as well as of the sun, will further increase the difficulty of maintaining a distinction as regards time reckoning between the various classes of astronomical observations. (7) At many observatories, magnetical and meteorological observations are carried on concurrently with astronomical observations, and it is admitted that for the two former classes the day commencing at midnight should be used. (8) For the distribution of the time to the public, a work which is undertaken by many observatories, the civil day would be used. (9) Thus civil reckoning commencing at midnight must be used for solar, magnetical, and meteorological observations, and also for the distribution of time to the public, so that the retention of astronomical reckoning would involve the use of two different systems of mean solar clocks, differing by 12 hours, in the same observatory—a circumstance likely to lead to intolerable confusion. (10.) As regards the supposed discontinuity which would arise from the change in the Nautical Almanac, the difference of time-reckoning is precisely similar to that which would have to be taken into account in the comparison of Greenwich observations with those made at any other observatory. The astronomical calculator is in the habit under the present system of allowing for the difference in time-reckoning between different observatories, and his task would be greatly simplified if he had only to deal with universal time.—*Report to the Trustees of Greenwich Observatory, by W. H. M. Christie, M.A., LL.D., Astronomer Royal of England.*

IV. The first of these recommendations proposes a change in the method of counting astronomical time which has come down to us from antiquity, and which is now universal among astronomers. The practice of taking noon as the moment from which the hours were to be counted originated with Ptolemy. This practice is not, as some distinguished members of the Conference seem to have supposed, based solely upon the inconvenience to the astronomer of changing his day at midnight, but was adopted because it was the most natural method of measuring solar time. At any one place solar time is measured by the motion of the sun, and is expressed by the sun's hour angle. By uniform custom, hour angles are reckoned from the meridian of the place, and thus by a natural process the solar day is counted from the moment at which the sun passes over the meridian of the place or over the standard meridian. . . . A change in the system of reckoning astronomical time is not merely a change of habit, such as a new method of counting time in civil life would be, but a change in the whole literature and teaching of the subject. The existing system permeates all the volumes of ephemerides and observations which fill the library of the astronomer. All his text-books, all his teachings, his tables, his formulæ, and his habits of calculation are based on this system. To change the system will involve a change in many of the precepts and methods laid down in his text books. . . . But this would only be the beginning of the confusion. Astronomical observations and ephemerides are made and printed not only for the present time, but for future generations and for future centuries. If the system is changed as proposed the astronomers of future generations who refer to these publications must bear the change in mind in order not to misinterpret the data before them. The case will be yet worse if the change is not made by all the ephemerides and astronomers at the same time epoch. It will then be necessary for the astronomers of the twentieth century, using ephemerides and observations of the present, to know, remember, and have constantly in mind a certain date different in each case at which the change was made. For example, if, as is officially announced, the Naval Observatory introduces the new system on January 1, 1885, then there will be for several years a lack of correspondence between the system of that establishment and the system of the American Ephemeris, which is prepared four years in advance. . . . I see no advantage in the change to compensate for this confusion. If astronomical ephemerides were in common use by those who are neither navigators nor astronomers the case would be different. But, as a matter of fact, no one uses these publications except those who are familiar with the method of reckoning time, and the change from astronomical to civil time is so simple as to cause no trouble whatever. The change will affect the navigator as well as the astronomer. Whether the navigator should commence his day at noon or midnight, it is certain that he must determine his latitude from the sun at noon. The present system of counting the day from noon enables him to do this in a simple manner, since he changes his own noon into the astronomical period by the simple addition or subtraction of his longitude. To introduce any change whatever into the habits of calculation of uneducated men is a slow and difficult process, and is the more difficult when a complex system is to be substituted for a simple one. I am decidedly of the opinion that any attempt to change the form of printing astronomical ephemerides for the use of our navigators would meet with objections so strong that they could not be practically overcome. . . . I respectfully submit that in view of these considerations no change should be made in the change of reckoning time employed in the publications of this office until, by some international arrangement, a common date shall be fixed by all nations for the change.—*Argument against changing the Astronomical Day, by Prof. S. Newcomb, LL.D., Etc., Superintendent of the Nautical Almanac Office, Washington, Dec. 6, 1884.*

V. Referring to the letter of Professor Newcomb, concerning the resolution of the late International Meridian Conference on the subject of the change of the astronomical date, so as to make the midnight of Greenwich 0 hours, instead of noon as at present, I have the honor to submit the following considerations. . . . The order referred to was not issued without a knowledge on my part of the views of such a distinguished astronomer as Professor Adams, of England, as well as of those of other members of the Conference. A reference to the proceedings of the Conference shows that its recommendation on this point was unanimous. It has been publicly announced in *Nature* that the Astronomer Royal of England proposes to make the change on the same date as that directed by me; this has been confirmed by a telegram received from him by me. So far as the counting of astronomical time from antiquity is concerned, it is the argument of conservatism which desires no change in an existing order of affairs; yet, assenting to this argument, we might refer to a still remoter antiquity—to the time, not of Ptolemy, but of Hipparchus, the "Founder of Astronomy," who reckoned the twenty-four hours from midnight to midnight, just as the Conference has proposed. While it is unquestionably true that some confusion may occur, yet the liability to it will be almost entirely with the astronomer, who, through his superior education and training, could easily avoid it by careful attention to the ephemerides he was using. During the years of change, before the ephemerides are constructed in accordance with the new method, it will only be necessary to place at the head of each page of recorded observations the note that the time is reckoned from midnight, to call attention to the fact, and thus obviate the danger of error. It is an undeniable fact that the educated navigator finds the conversion of time a simple matter, yet experience has demonstrated that to the mariner who is not possessed of a mathematical education there is a decided liability to the confusion which is so greatly deprecated by all who are interested in this subject. I believe that to all navigators, at least to all English-speaking ones, the new method will prove itself decidedly advantageous. As is well-known, for many years navigators kept sea time, by which the day was considered to begin at noon, preceding the civil day by twelve and the astronomical day by twenty-four hours. The change to civil time now kept on board ship was effected readily and without friction, so that the recommendation of the Conference regarding the commencement of the nautical day has already been largely anticipated. The navigator is concerned not with his longitude but with his Greenwich time, having obtained which he can take from the Nautical Almanac the data he seeks, whether given for noon or midnight, and when the ephemerides shall have been made to conform to the new system there will be one time in common use by all the world. It seems to me eminently proper that the nation which called the Conference should be among the first to adopt its recommendations, and while it might possibly be better to wait until an entire agreement has been entered into by the astronomers of all nations, yet the fact that the first and most conservative observatory in the world has acceded to this proposal of the Conference would seem to be a sufficient reason why we should not wait for further developments. In deference, however, to the views so well advanced by Professor Newcomb, and in view of the fact that the President has recently transmitted the proceedings of the Conference to Congress, as well also of the desirability of securing uniformity among the astronomers of our own country at least, I have suspended the execution of the order for the present.—*Remarks by Commodore S. R. Franklin, Superintendent United States Naval Observatory, Washington, Dec. 11th, 1884.*

VI. The subject of reform in time-reckoning was brought before the Canadian Institute many years ago by Mr. Sandford Fleming. The reforms suggested were much needed, and were so ably advocated by Mr. Fleming that already several of them have been adopted not only on this continent, but in various countries all over the world. One important suggestion, however, although recommended by the Washington Conference, has not yet been acted upon, viz., the making of the astronomical and nautical day to accord with the civil day. It has been suggested that a body like this Society may render valuable assistance in this matter by collecting the opinions of astronomers on the subject. The Canadian Institute having been the first society to bring the whole subject prominently and successfully before the world, it would be well for us to ask their co-operation with us in this matter. As an illustration of some of the inconveniences which result from the present want of accord between the astronomical and nautical day and the civil day, I may refer to a case within my own experience. In 1873 a sudden and very violent storm caused great destruction along the south-eastern coast of Nova Scotia. I had occasion to investigate that storm, and, for the purpose, obtained the logs of vessels which were caught in it. I was assisted in this by the late Sir Henry Lefroy, then Governor of the Bermudas, who procured the logs, or copies of the logs, of the ships which put into the islands for repairs. The satisfactory examination of these logs was attended by great difficulty owing to a want of uniformity among the sea captains in making entries. For instance, many of the captains wrote up their logs at noon for the twenty-four hours. Some of them were accustomed to enter up the events occurring between, say, noon of the 20th of the month and noon of the 21st, under the date of the 20th; that is, the astronomical and nautical day during which they happened, while others entered the same events under date of the 21st, or that upon which the entries were made, so that, in the absence of specific information, it was impossible to tell to which set of twenty-four hours any given event should be referred. Had the captains been in the habit of changing their dates at midnight, no such inconvenience would probably have resulted. For my part I am decidedly in favour of bringing Astronomical Time into harmony with civil reckoning at the change of the century. After considering all that can be said against any alteration in the present dual system, I am satisfied that any inconvenience which would result to individuals from the change would be limited in duration and would not be felt by a large number of persons. If it be determined once for all to abandon the double notation of dates at the beginning of the new century, ample time would be allowed for any necessary preparation for the change, and when the period of transition arrived any inconvenience which might temporarily be felt could not be compared with the advantages which would follow in all future years from uniformity of reckoning.—*Remarks to the Astronomical and Physical Society of Toronto, by Charles Carpmael, Esq., Superintendent of the Meteorological Service of Canada, February 11th, 1893.*

VII. The Canadian Institute, which took the initiative in bringing before the Scientific world, in 1879, the principle of Universal Time Reckoning, heartily co-operates with its sister society in the endeavor to bring the Astronomical day within the sphere of uniformity it has continuously advocated. The Council of the Institute approves of the terms of the Circular Letter prepared by the Joint Committee under the Chairmanship of Mr. Sandford Fleming, long identified with this subject, and an honourary member of both societies. It is not easy for me to conceive any reason for beginning the day at noon, other than the convenience of having all the hours of darkness brought within one astronomical day. Stellar observations for the purpose of practical astronomy no longer requiring darkness, this reason no longer exists, and I trust we are now warranted in expecting the abolition of a double notation of date as the result of our efforts.—*Arthur Harvey, Esq., President of the Canadian Institute, Toronto, April, 1893.*

GENERAL BIBLIOGRAPHY OF ORIGINAL CONTRIBUTIONS TO THE PUBLICATIONS OF THE CANADIAN INSTITUTE.

The following list of the original contributions to the Canadian Institute publications has been prepared by David R. Keys, librarian of the Institute, assisted by Doctors Bell, Coleman, and Needler, and Messrs. Dewar, Harvey, Pursey and Spry. The share taken by these gentlemen is indicated under the section Bibliography.

The Publications of the Canadian Institute have appeared in four series, as follows :—

1. The FIRST SERIES began August, 1852; concluded December, 1855; contains 41 numbers in 3 vols. 4to. It has for title, "The Canadian Journal; a Repertory of Industry, Science, and Art; and a Record of the Proceedings of the Canadian Institute."

2. The SECOND SERIES began January, 1856; concluded January, 1878; contains 92 numbers in 15 vols. 8vo. It has for title, "The Canadian Journal of Science, Literature, and History."

3. The THIRD SERIES commenced in 1879, concluded April, 1890; contains 20 numbers in 7 vols. Its title is "Proceedings of the Canadian Institute."

4. The FOURTH SERIES commenced October, 1890. Its title is "Transactions of the Canadian Institute."

In the list, the large Roman numerals refer to the Series, the small Roman numerals to the Volume, and the Arabic number to the Page. Papers marked *tit.* have not been printed in the Institute's publications.

ARCHÆOLOGY (See also Classical Philology, Ethnology, History and Linguistics.)

		SERIES.	VOL.	PAGE.
WILSON (PROF. DAN.)	—Some Coincidences between the Primitive Antiquities of the Old and the New World	I.	ii.	213
	Hints for the Formation of a Canadian Collection of Crania.	I.	iii.	345-47
	Remarks on the Intrusion of the Germanic Races on the Area of the Older Celtic Races of Europe.	I.	ii.	246
	Observations suggested by Specimens of a Class of Conchological Relics of the Red Indian Tribes of Canada West	I.	iii.	155-59
	Displacement and Extinction among the Primeval Races of Man	II.	i.	4
	The Ancient Miners of Lake Superior	II.	i.	225-37
	Discovery of Indian Remains, County Norfolk, Can. West.	II.	i.	511-19
	The Quigrich	II.	iv.	429-41
	Illustrations of the Significance of certain Ancient British Skull Forms. *(Ill.)*	II.	viii.	127-57
	Notice of a remarkable Memorial Horn, the Pledge of a Treaty with the Creek Nation in 1765	III.	i.	255-60
	The Bohemian Skull. *(Tit.)*	III.	iii.	43
	Some Stone Implements from Lake St. John, Quebec. *(Tit.)*	III.	v.	124

ART.

	SERIES.	VOL.	PAGE.
FORSTER, (J. W. L.)—Art in Canada To-day	IV.	ii.	113-15
HOWLAND (HENRY S., Jr.)—The Art of Etching	III.	ii.	242-44
INGLIS (REV. DAVID).—On the Relation of Quantity to the Æsthetic Sentiment	II.	iii.	409-14
LAUDER (W. W.)—History of Musical Instruments. *(Tit.)*	III.	ii.	144
SCADDING (DR. H.)—Canada in Sculpture	III.	v.	132-33
SHERWOOD (W. A., Esq.)—Colour in Nature	III.	vii.	19-20
WILSON (PROF. D.)—Paul Kane, The Canadian Artist	II.	xiii.	66-72
Ancient Celtic Art. *(Tit.)*	III.	iv.	191

ASTRONOMY.—Including Climatology and Meteorology.

	SERIES.	VOL.	PAGE.
ASHE (LIEUT. E. D.)—On the employment of the electric telegraph in determining the longitude of some of the principal places in Canada	II.	iv.	453-65
CARPMAEL (C.)—On the reduction of the barometer to sea level	III.	i.	1-14
CHAPMAN (E. J.)—Note on the cause of tides	II.	xiv.	279-80
CHERRIMAN (PROF. J. B.)—Atmospheric Phenomena of light	I.	i.	6, 26
On the variations of temperature in Toronto	I.	ii.	14-18
General Meteorological Register for Toronto, 1853	I.	ii.	185-6
Mean Meteorological Results at Toronto during the year 1854	I.	iii.	161-63
CLARK (J. M., M.A., LL.B.)—The Luminiferous Ether	IV.	ii.	93-97
CRAIGIE (W., M.D.)—Meteorological Observations at Hamilton	I.	ii.	187-8
Mean Meteorological Results at Hamilton for 1854	I.	iii.	172
DADE (REV. C.)—Remarks on the Law of Storms, as set forth in a tract published by Richard Budgen, in the year 1730	II.	v.	294-99
Lunar Influences	II.	xiii.	335-40 422-5
Biographical notice of. (By H. S.)	II.	xiii.	352-54
ELVINS (ANDREW).—The Outburst of Sun Spots in 1887	III.	vi.	24-25
FLEMING (SANDFORD, C. E., C. M. G., LL.D.)—Time-Reckoning. *(Ill.)*	III.	i.	97-137
Longitude and Time Reckoning. *(Ill.)*	III.	i.	138-49
Universal or Cosmic Time	III.	iii.	60-77
And in supplementary pamphlet of 101 pp.			
Scientific Time Reckoning. *(Map)*	IV.	i.	227-38
Reforms in Time Reckoning. *(Ill.)*	IV.	ii.	128-42
HAHN (DR. OTTO).—Organisms in Meteorites. *(Tit.)*	III.	vii.	30
HENNING (THOS.)—Meteors and Falling Stars	I.	ii.	188-91 209-12
Remarks on the Planetoids Between Mars and Jupiter	I.	iii.	206-209
HIND (H. Y.)—Planet of Aug. 22nd, 1852	I.	i.	24, 287
HODGINS (J. G.)—Memo. on the steps taken by the Education Department to Establish a System of Meteorological Stations Throughout Upper Canada	I.	iii.	410-11
KINGSTON (G. T.)—On the Employment of the Electric Telegraph for Predicting Storms	II.	ii.	177-9
On Deducing the Mean Temperature of a Month	II.	iii.	5-7
Mean Meteorological Results at Toronto for the year 1861	II.	vii.	97-103
On the Annual and Diurnal Distribution of the Different Winds at Toronto	II.	ix.	10-25

	SERIES.	VOL.	PAGE.
KINGSTON (G. T.)—On Magnetic Disturbances at Toronto during the year 1856-62, inclusive	II.	viii.	157-67
Mean Meteorological Results at Toronto for the year 1862.	II.	viii.	238-45
On the Abnormal Variations of some of the Meteorological Elements at Toronto and their Relations to the direction of the Wind	II.	ix.	109-29
Mean Meteorological Results at Toronto for the year 1863.	II.	ix.	171-77
On the relative duration of the Different Winds during Rain or Snow....in the years 1853 to 1859	II.	ix.	240-48
Mean Meteorological Results at Toronto for the year 1864.	II.	x.	108-13
Monthly Absolute Values of the Magnetic Elements at Toronto, *from 1856 to 1864, inclusive*	II.	x.	114-18
Monthly Absolute Values of the Magnetic Elements at Toronto, from 1865 to 1868, inclusive, with the annual means from 1841 to 1868	II.	xii.	263-64
On the *Annual Distribution of Temperature* at Toronto in the years 1858-68	II.	xii.	474-7
On the Change of Barometric Pressure and Pressure of Vapour that accompany different winds, at Toronto, *from observations in the seven years, 1860-66, inclusive.*	II.	xii.	303-7
On the Diurnal and Annual Variations of Temperature at Halifax, N.S.	II.	xiii.	26-32
LACHLAN (MAJOR R.)—On the establishment of a System of Simultaneous Meteorological *Observations etc., throughout* the British American Provinces	I.	ii. iii.	241-46 405
On the periodical rise and fall of the Lakes	I.	ii.	293-305
Account of a sudden fall in the waters of the Niagara River, March, 1848	I.	iii.	204
MACDOUGALL (ALAN, M. INST., C. E.)—The Water Temperatures of Lake Ontario. *(Tit.)*	III.	vi.	27
MACGREGOR (C. J.)—On the Climatology of Stratford, Ontario	II.	xii.	470-73
MURRAY (ALEX.)—Meteorological Observations on Lake Nipissing, October and November, 1854	I.	iii.	146
LEFROY (CAPT. J. H., R.A., F.R.S.)—Remarks on Thermometric Registers	I.	i.	29-31 75-77
LIVINGSTONE (J. A.)—Notes on Astronomy. *(Tit.)*	III.	v.	145
The purposes of Comets	III.	vii.	9
LOUDON (W. J.)—The Decimal System Applied to Time. *(Ill.)*	III.	iii.	118-19
MOWATT (J. G.)—A few Canadian Climates	III.	ii.	195-215
NEWTON (J. T.)—Meteorological Observations, Fort Brady, Michigan, February, 1855	I.	iii.	245
NOBLE (LIEUT.) and CAMPBELL, (MR. W. D. C.)—Monthly Meteorological Register for Quebec	I.	iii.	120
PHILLIPS (J.)—The Centrifugal Forces of the Planets	III.	iii.	122-25
" " " *(Tit.)*	III.	v.	145
ROTTENBURG (COL. BARON DE).—The supposed Self-Luminosity of the Planet Neptune	II.	i.	424-29
Report of the Committee on Prof. Kingston's Plan for Predicting Storms	II.	ii.	179-80
Solar Spots observed at Toronto in January, February and March, 1858	II.	iii.	293-97

	SERIES.	VOL.	PAGE.
SWALLWOOD (PROF. CHARLES)—Contributions to Meteorology, from observations taken at St. Martin, Isle Jesus, Canada East	II.	iv.	262-66
The Observatory at St. Martin, Isle Jesus, Canada East. *(Ill.)*	II.	iii.	281-92
SWALLWOOD (PROF. CHARLES)—Mean Results of Monthly Meteorological Registers at St. Martin, Isle Jesus, Canada East	I.	iii.	214
Remarkable Low Temperature at St. Martin, Isle Jesus, December, 1854	I.	iii.	171
Temperature of the Cold Days of February, 1855	I;	iii.	196
STUPART (R. F.)—Barometric Pressures. *(Tit.)*	III.	v.	111
THOMSON (A. C.)—Notice of Mock Suns, as seen near the Muskoka River, in November, 1861	II.	vii.	462
TOMKINS (W. GRÆME).—Comparative Tabular Meteorological Observations in Canada, England and Russia	II.	iv.	389-95
WILLIAMSON PROF. JAS.)—On the Longitude of Kingston	I.	iii.	82
Donati's Comet	II.	iii.	486-88

BIBLIOGRAPHY.

ANON.—Canadian Ornithological Bibliography	IV.	i.	60-64
Catalogue of Books Exhibited at the Caxton Celebration (of 1877) in Toronto	II.	xv.	601-14
BELL (A. J.)—List of Contributions to classical Philology in Transactions of the Canadian Institute	IV.	iii.	323-4
CHAMBERLAIN (A. F.)—Bibliography of Canadian Archæology	III.	vii.	40-41
COLEMAN (A. P.)—List of Contributions to Geology in Transactions of the Canadian Institute	IV.	iii.	327-30
DEWAR (ROBERT).—List of Contributions to Chemistry and Mineralogy in Transactions of the Canadian Institute	IV.	iii.	324-5
HARVEY (ARTHUR).—Contributions to Geology and Mineralogy in the Transactions of the Canadian Institute	IV.	ii.	342-3
KEYS (DAVID R.)—Classified List of Original Contributions to the Transactions of the Canadian Institute from 1850-1893	IV.	iii.	317-36
NEEDLER (G. H.)—List of Contributions to Astronomy and Meteorology in the Transactions of the Canadian Institute	IV.	iii.	318-20
PURSEY (G. C.)—List of Contributions to Astronomy in the Transactions of the Canadian Institute	IV.	iii.	318-20
SPRY (WILLIAM)—List of Contributions to Engineering in the Transactions of the Canadian Institute	IV.	iii.	324-26

BIOLOGY (See also Archæology, Chemistry and Medicine).

ACHESON (GEO.)—Biological Study of Tapwater in the School of Practical Science, Toronto	III.	i.	413-26
ADAMSON (REV. W. A., D.C.L.)—Decrease, Restoration and Preservation of Salmon in Canada	II.	ii.	1-7
ALLAN (HON. G. W.)—On the land birds wintering in the neighborhood of Toronto	I.	i.	169-72
Some of our Migratory Birds	III.	iii.	87-100
ARMSTRONG (CHARLES).—Physianthus Albens	III.	vii.	230-31
BAILEY (BRUCE).—Coleoptera collected in Kicking Horse Pass	III.	v.	213-15

	SERIES.	VOL.	PAGE.
BARRETT (DR. MICHAEL).—On the Composition, Structure and Development of Bone	II.	x.	194-204
BETHUNE (REV. C. J. S.)—Nocturnal lepidoptera found in Canada	II.	viii.	1-16
		x.	247-60
BOVELL (DR. JAS.)—*The Anatomy of the Leech*	*II.*	*i.*	27-33
Note on the Preservation of some Infusoria with a view to the display of their Cilia	II.	viii.	341-2
On the Structure of certain parts of the Bear and Lobster	I.	iii.	203-4
BRODIE (WM.)—Food Plants of Platysamia Cecropia	III.	iv.	211-13
BUCHAN (J. M.)—Notes on the Flora of Hamilton	II.	xiii.	281-304
Flora Hamiltonensis	III.	ii.	145-56
CHAPMAN (PROF. E. J.)—Habits of a Small Snake in Captivity	II.	xiii.	551-56
COTTLE (DR. THOS.)—Notes on the Canadian Saturniæ	I.	ii.	212-13
The Evening Grosbeak, Coccothraustes vespertina	I.	iii.	287
The Mastodon giganteus	I.	iii.	405-6
Capture of Two Birds of unusual occurrence in Upper Canada (Picus meridionalis, Ortygometra jamaiciensis)	II.	iv.	388-89
On the Two Species of Astacus found in Upper Canada	II.	viii.	216-19
COUPER (WM.) -Coleoptera Collected in Canada	I.	iii.	210-13
	II.	i.	33-39
CRAIGIE (DR. and MR. W.)—List of Indigenous Plants found in the Neighborhood of Hamilton, with the dates of their being found in flower and examined	I.	ii.	222-23
FREELAND (PATRICK).—*New Traversing Stage for the Microscope*	*II.*	*ii.*	*277-80*
On the Movements of the Diatomaceæ	II.	vi.	324-27
GARDEN (J. F.)—Teredo navalis	III.	vi.	17-18
GARNIER (DR. R.)—New Species of Menobranchus	III.	v.	218-19
GEDDES (CAPT. GAMBLE).—The Affection of Insects for their Young.	III.	iii.	42
An Entomological Trip in the Rockies	III.	ii.	232-42
GIBSON (JOHN) and MACOUN (JOHN).—*Botany of the Eastern Coast of Lake Huron*	II.	xiv.	467-78 635-57
Flora of the Valley of the St. Lawrence and the Great Lakes	II.	xv.	51-66, 161-76, 349-64, 429-35, 546-56
HARVEY (ARTHUR).—The Cruel Plant (*Physianthus Albens*). (*Ill.*)	III.	vii.	226-29
HINCKS (PROF. W.)—Observations on a specimen of Sula Bassana	II.	vii.	329-36
Materials for a Fauna Canadensis	II.	vii.	446-61 484-502
The Struthionidae. (*Ill.*)	II.	viii.	462-6
Considerations Respecting Anomalous Vegetable Structures.	II.	iii.	311-18
Remarks on the Classification of Mammalia	II.	v.	512-16
Canadian Falconidæ	II.	iv.	443-49
Questions in Relation to the Theory of the Structure of Plants. (*Ill.*)	II.	v.	332-40
Specimen of a Flora of Canada	II.	vi	165-68 276-84
On an Improved classification of Fruits	II.	vi.	495-7
Fissirostral Suborder of Insessorial Birds	II.	ix.	230-40
Remarks on the Principles of Classification in the Animal Kingdom in reference to a paper by Prin. Dawson	II.	x.	19-30
On Chorisis	II.	x.	371-85
Some Thoughts on Classification in Relation to Organised Beings	II.	xi.	31-45

	Series.	Vol.	Page.
HINCKS (PROF. W.)—Grallatores: Waders or Stilted Birds.	II.	x.	147-62
Molluscous Animals	II.	xi.	310-27
II., xi., 392-8,		xii.	26-35
Illustrations of the Genus Carex	II.	xi.	398-9
Improvement in the Arrangement of Ferns	II.	xii.	358-69
Biographical Sketch of	II.	xiii.	253-4
HINDE (G. J.)—Note on Distribution of Xanthium Spinosum	II.	xv.	642-3
HODDER (EDW., M.D.)—On the Poisonous Plants which are Indigenous to or which have been Naturalized in the Neighborhood of Toronto	I.	i.	204-7 218-9
HODGINS (J. G.)—Proteas on the Lakes	II.	i.	19-23
LAWSON (GEORGE, Ph.D., LL.D.)—The Canadian Species of Picea or Spruce Firs	III.	vi. 31,	160-80
MACALLUM (A. B., M.A., PH.D.)—Studies on the Blood of Amphibia. *(Ill.)*	IV.	ii.	221-60
Morphology and Physiology of the Cell. *(Ill.)*	IV.	i.	247-78
The Nasal Region in Eutaenia. *(Ill.)*	III.	i.	390-404
Alimentary Canal, Liver, Pancreas and Air Bladder of Amiurus Catus. *(Ill.)*	III.	ii.	387-417
Theories of Heredity. *(Tit.)*	III.	v.	124
Some Pathological Growths in Lower Animals. *(Tit.)*	III.	v.	146
Origin of Haemoglobin. *(Tit.)*	III.	v.	192
The Alimentary Canal in Ganoid Fishes	III.	iii.	271-74
The Nerve Endings in the Cutaneous Epithelium of the Tadpole	III.	iii.	276-7
McCHARLES (A.)—The Extinct Cuttlefish in the North-West. *(Tit.)*	III.	iii.	270
MACKENZIE (J. J., B.A.)—Preliminary List of Algae	III.	vii.	270-74
MACKENZIE (T.)—Blood Vascular System, etc., of Amiurus Catus. *(Ill.)*	III.	ii.	417-43
McILWRAITH (THOS.)—Notices of Birds observed near Hamilton, C.W.	II.	vi.	6-18 129-38
McMURRICH, (J. P.)—Notes on some Canadian Infusoria. *(Ill.)*	III.	i.	300-9
The Myology of Amiurus Catus. *(Ill.)*	III.	ii.	311-51
MACOUN (JOHN).—Notes on the Physical Phenomena of Manitoba	III.	i.	151-59
MORRIS (BEVERLEY R.)—Description of Intestinal Worm from Duodenum of the Canadian Whitefish. *(Ill.)*	II.	iv.	442-43
On the Powers of certain Water Birds to Remain Partially Submerged in Deep Water	II.	vii.	509-15
NEILSON (HUGH).—Recent Advances in Telegraphy and Telephony	III.	vi.	20
NICHOLSON (PROF. H. A.)—Contributions to a Fauna Canadensis. *(Ill.)*	II.	xiii.	490-500
OILLE (LUCIUS).—On Parasites	II.	iv.	4-40
PHIPPS (R. W.)—Forestry and the Necessity for its Practice in Ontario	III.	iii.	109-12
PIPER (HARRY).—Notes on Zoology.	III.	vi.	39
RICHARDSON (C. G.)—Maize and its Derivatives. *(Tit.)*	III.	vi.	17
ROBB (CHAS.)—Canadian Timber Trees	II.	vi.	28-40
ROBINSON (J.)—On Preserving Timber from Decay	II.	ii.	8-11
SAUNDERS (W.)—On the Occurrence of Vanessa Cœnia in Canada West	II.	vi.	498-500
Synopsis of Canadian Arctiadæ	II.	viii.	349-77
Plants Collected in London, Canada West	II.	viii.	210-38
SETON (E. E. T.)—The Prairie Chicken	III.	i.	405-12

	Series.	Vol.	Page.
SETON (E. E. T.)—The Ruminants of the Northwest	III.	iii.	113-17
Outlines of Ornithology	III.	iii.	280
SHAW (W. R., M.D.)—Peach Yellows	IV.	ii.	209-20
SHUTT (FRANK T.)—Notes on the Anatomy of the Woodlouse	III.	iii.	293-4
SPOTTON (H. B.)—List of Plants Collected near Barrie	II.	xv.	46-50
STRATFORD (DR. S. P.)—Notes on the Natural History of New Zealand	II.	ii.	357-64
THOMPSON (ERNEST E.)—Ornithological Reports	III.	vii.	181-205
On the Use of Faunal Lists	III.	vii.	275-80
Note on Mr. Tyrrell's Catalogue of the Mammalia of Canada.	III.	vii.	178-80
Reply to Mr. Tyrrell's Note	III.	vii.	285-80
TUCKER (DR. DAVID).—On certain Modern Views concerning the Higher Mammalia	II.	ix.	154-70
TURNER (J. B.)—The Horse and its Rider	I.	i.	154, 180, 198
TYRRELL (J. B., M.A., F.G S)—Reply to Mr. Thompson's Note	III.	vii.	281-84
Two species of Parasitic Mites (*Sarcoptes minor* and *Psorergates simplex*). *(Ill.)*	III.	i.	332-43
Mammalia of Canada	III.	vi.	40, 60-91
WILLIAMS (J. B.)—Destruction of Wild Animals	III.	iv.	142-46
Canadian Woodpeckers. *(Tit.)*	III.	v.	193
WILLIAMSON (A. E.)—A Proposed Classification of the Genus helix	II.	viii.	343-8
Note on Land and Fresh Water Shells, collected near Toronto	II.	vi.	327-9
WRIGHT (PROF. R. R.)—Haeckel's "Anthropogenie."	II.	xv.	231-48
The systematic position of the Spongiadae	II.	xv.	417-28
Contributions to American Helminthology. *(Ill.)*	III.	i.	54-75
Notes on American Parasitic Copepoda. *(Ill.)*	III.	i.	243-54
Demodex Phylloides (Csokor) in the skin of Canadian Swine. *(Ill.)*	III.	i.	275-81
On the skin and Cutaneous Sense Organs of Amiurus. *(Ill.)*	III.	ii.	251-69
On the Nervous System and Sense Organs of Amiurus. *(Ill.)*	III.	ii.	352-86
The Osteology of Amiurus Catus. *(Ill.)*	III.	ii.	270-310

CLASSICAL PHILOLOGY.

CAMPBELL (PROF. J., M.A.)—Birthplace of Ancient Religions and Civilizations	II.	xiii.	152-78
Primitive History of the Ionians	II.	xiv.	395-431, 529-79
Etruria Capta, Part I	III.	iii.	144-266
FERGUSON (REV. PROF.)—The Etruscan Question	III.	v.	84-105
HUTTON (PROF. M.)—Classical Notes	III.	iv.	17-26
LOUDON (PROF. JAS., M.A.)—On Latin Pronunciation	II.	xii.	460-64
McCAUL (REV. J., LL.D.)—Notes on Latin Inscriptions found in Britain. *(Ill.)* II. iii 7-15, 220-230; II. iv. 173-80, 349-59; II. v. 283-94. 483-96; II. vi. 230-47, 395-413; II. vii. 28-42; II. ix. 217-25; II. x. 95-108; II. x. 303-32; II. xii. 108-34.			
Tesseræ Consulares	II.	viii.	427-30
Inscribed Sling Bullets	II.	ix.	92-102
Christian Epitaphs of the First Six Centuries. *(Ill.)*	II	xi.	271-300, 351-60; xii. 1-26.
Identified Stations on the Southern Roman Barrier in Britain	II.	xiii.	136-51
Ancient Carved Stone found at Chesterholm, Northumberland. *(Ill.)*	II.	xiv.	1-8

	SERIES.	VOL.	PAGE.
McCAUL (REV. J., LL.D.)—Inscriptiones Britanniæ Latinæ (Review)	II.	xiv.	145-57
Lapidarium Septentrionale (Review)	II.	xiv.	543-58
Sylva Critica Canadensium	III.	i.	76-88
McNISH (REV. N.)—The Hades of Homer and the Hades of Virgil	II.	xv.	646-58
Umbria Capta	III.	v.	219-40
PARRY (REV. E. ST. JOHN, M.A.)—Some Points connected with the Early History of Rome	I.	ii.	218-22
PEARMAN (W. D., M.A.)—Classical Notes .... II. xiii. 426-27;	II.	xiv.	51-54
Critical Notes: Chiefly on the De Legibus of Cicero	II.	xiv.	503-12
Some Observations on the Philebus of Plato	III.	i.	160-70
Sylva Critica Canadensium	III.	i.	88-94
SCADDING (REV. H., D.D.)—Memoranda of Vesuvius and its Neighborhood	I.	ii.	237-41 261-64
Phonetic Anomalies observed in some Modern Forms of Ancient Proper Names	II.	viii.	329-41
Descriptive Catalogue of Coins, Ancient and Modern, in the Collection of the Canadian Institute	II.	ix.	105-8 226-30
On Errata Recepta. II. ix. 137-53, 317-26; II, x. 31-40; II. x. 223-32, 386-406; II. xi. 45-71.			
On Metonyms	II.	xii.	35-56
Merton College and Canada	II.	xiii.	453-89
YOUNG (REV. G. P.)—Notes on Passages in the Platonic Dialogues	II.	vii.	477-83

CHEMISTRY. (See also Biology, Mineralogy and Geology).

	SERIES.	VOL.	PAGE.
BRONDGEEST (J. T.)—Preservation of Food	I.	ii.	107-10
BRYCE (P. H., M.A., M.D.)—Natural History of Ground Waters	IV.	i.	149-69
CROFT (PROF. HENRY, D.C.L.)—Gas Patents	I.	i.	28, 77
Some New Salts of Cadmium and the Iodides of Barium and Strontium	II.	i.	13-19
Hydrate of Hydrosulphuric Acid	II.	i.	126-27
Report on Copper Instruments found near Brockville	II.	i.	334-36
Notes on the Oxalate of Manganese	II.	ii.	30-32
The Action of Air on Alkalic Arsenites	II.	iii.	126-28
Notes on the Oxalate of Iron	II.	vi.	18-20
Thallium	II.	ix.	405-11
Iodide of Barium and the Oxidation of Alkaline Arsenites	II.	x.	333-34
Anomalous Production of Ozone	II.	xiii.	239-40
CHAPMAN (PROF. E. J., LL.D.)—On the Assaying of Coals by the Blowpipe. *(Ill.)*	II.	iii.	208-19
Atomic Constitution and Crystalline form as Classification Characters in Mineralogy	II.	ii.	435-39
DEWAR (R.)—Arsenic and Sulphur	IV.	i.	141-8
DOBSON (CHAS. M.)—The Electro-Mercurial Amalgamation of the Precious Metals from Argentiferous and Auriferous Ores	III.	vi.	22-3
ELLIS and BABINGTON (DRS.)—Methyl Alcohol	III.	vii.	26
ELLIS (DR. W. H.)—Nitroglycerine	II.	xiv.	356-60
A California Borax Deposit	II.	xv.	328-9
Tannin in Cloves	III.	iv.	214-15
Chemistry of the Natural Waters of Ontario. *(Tit.)*	III.	v.	125
HALL (T. P.)—Photography and the Chemical Action of Light	III.	ii.	220-21
HUNT (T. STERRY., LL.D., D.Sc.)—The Theory of Types in Chemistry	II.	vi.	120-29

	Series.	Vol.	Page.
McGILL (A.)—Reichert's Distillation Process for the Identification of Butter Fat	III.	v.	39-44
Tartaric Acid in Admixtures. *(Tit.)*	III.	v.	212
RICHARDSON (C. GORDON.)—Dextrine Maltose in Beer Worts	III.	v.	132-35
ROBINSON (JOSEPH)—Preserving Timber from Decay	II.	ii.	8-11

ENGINEERING.

	Series.	Vol.	Page.
ANON.—Toronto Harbour	I.	iii.	68
Description of Mill-Dam and Bridge	I.	i.	10
A MEMBER OF THE INSTITUTE.—Railway Termini and Pleasure Grounds, Toronto	I.	i.	233
BACHE (A. D.)—Notes on Measurement of Base Line on Epping Plains, Maine. For Coast Survey	II.	iii.	74
BRUNEL (ALFRED, C. E.)—Engineering Contributions to the "Journal"	II.	i.	199
Economy of Fuel for Steam Machinery	II.	i.	336-44
Victoria Bridge, Paper on Report of R. Stephenson	II.	i.	467
C. (F. W.)—Preservation of Timber	II.	i.	559
CHAPMAN (PROF. E. J.)—A Table for calculating the Weight and Yield per Running Fathom of Mineral Veins	II.	xii.	478-79
CLARK (LEVI J.)—The Sewage Problem in Toronto	III.	vii.	36-38
City Sanitation and Sewage Disposal	III.	vii.	232-44
A Consideration of Sewerage Schemes	IV.	ii.	143-53
CLARKE (T. C., C.E.)—Action of Ice on Bridge at Rice Lake	I.	iii.	249
CUMBERLAND (FRED., C.E.)—Notes of a Visit to the G. T. R. Works West of Toronto	I.	iii.	225
DUMBLE (J. H., C.E.)—On the Contraction and Expansion of Ice	II.	v.	418-23
Ice Phenomena on Rice Lake. *(Ill.)*	II.	iii.	414-22
FLEMING (SANDFORD, C.E., P.L.S.)—Patent Centre Line Railway	I.	i.	93
New Compound Rail. *(Ill.)*	II.	iii.	473-80
Toronto Harbour, Its Formation and Preservation	I.	ii.	105-7 223-30
Report on Preservation and Improvement of Toronto Harbor	I.	iii.	15
GILBERT (JAS.)—The Arizona Copper Mine.	II.	ii.	321-24
HARVEY (ARTHUR).—Remarks on the Sewage Problem in Toronto	IV.	i.	5
HOUGHTON (JACOB, C.E.)—Water Works in the United States	I.	iii.	259
HECTOR (THOS.)—Scale for the Computation of the Area of Irregular Figures	II.	iii.	309-10
KEEFER (T. C., C.E.)—Notes on Anchor Ice	II.	vii.	173-80
Report on Railway Bridge over the St. Lawrence at Montreal	I.	ii.	76
LACHLAN (MAJOR R.)—On the Formation of Canal between Lakes St. Clair and Erie	I.	iii.	303
LAMB (DANIEL).—Handgrenades and Coal Torpedoes	III.	vii.	9
LEVEY (CH.)—Gold Mining in the Saskatchewan. *(Ill.)*	III.	iii.	267-9
Heat and Heating Buildings	III.	vii.	7
LOUDON (JAS.)—Notes on Ventilation	II.	xv.	645
MACDOUGALL (ALAN).—Aerial Navigation	III.	iv.	57
Present Efficiency in Disposal of Sewage	IV.	i.	37
MERRIT (W. H.)—Report on the Mining Industries of Canada	III.	v.	240-54
Iron and Steel Production in Ontario	IV.	ii.	299-314
MICKLE (GEORGE, B.A.)—Notes on Nickel	IV.	ii.	77-92

	SERIES.	VOL.	PAGE.
RICHARDSON (HUGH, Harbormaster).—Report on Preservation and Improvement of Toronto Harbor	I.	iii.	34
STEPHENSON (ROBT.)—Report on Victoria Bridge	I.	ii.	290
TRURAN (WM.)—On the Durability of Railway Iron	I.	iii.	237
TULLY (KIVAS, C.E.)—Report on Preservation and Improvement of Toronto Harbor	I.	iii.	29

ETHNOLOGY (See also History and Archæology).

	SERIES.	VOL.	PAGE.
ASSIKINACK (F.)—(A Warrior of the Ottawas) Legends and Traditions of the Odahwahs	II.	iii.	115-25 297-309
BELL (C. N.)—The Mound Builders in Canada	III.	iv.	131-37
BLEASDELL (WILLIAM).—The Indian Tribes of Canada	I.	iii.	209-10
BOYLE (DAVID).—Savagery in Civilization	III.	iii.	129-31
BROWNE (JAS.)—The Aborigines of Australia	II.	i.	251-71
Superstitions and Traditions of the Aborigines of Australia.	II.	i.	505-11
CHAMBERLAIN (A. F.)—The Mississaguas of Scugog	III.	vii.	2-3
Deluge Myths of the Canadian Indians	III.	vii.	11-13
Prehistoric Ethnology	III.	v.	144
CUMMING (W. H.)—On Marriage and Infanticide in China	II.	xi.	178-84
DARTNELL (G. H.)—Duration and Expectation of Life in Canada	I.	ii.	191
HARVEY (ARTHUR).—Celtic, Roman and Greek Types in France	IV.	ii.	176-208
HIND (H. Y.)Superstitions and Customs of the Assiniboine and Saskatchewan Indians	II.	iv.	253-62
KANE (PAUL).—Notes of Travels among the Walla Walla Indians	II.	i.	417-24
The Chinook Indians	II.	ii.	11-30
LEE (RICH.)—The Native Tribes of Polynesia	II.	xii.	443-59
McLEAN (REV. JOHN).—Mortuary Customs of the Blackfeet Indians	III.	v.	20-24
MATTHEWS (DR. PERCY W. P.)—Early Development of Aboriginal Women	III.	iv.	181-86
MORRIS (J. H.)—Travels in China	II.	ii.	161-76
PAYNE (F. F.)—The Eskimo of Hudson's Strait	III.	vi.	26, 213-30
OJIJATEKHA.—Pagan Belief in Religion. *(Tit.)*	III.	vii.	43
REYNOLDS (THOS.)—Discovery of Copper and other Indian Relics near Brockville	II.	i.	329-36
STUPART (R. F.)—Eskimo of Stupart Bay. *(Ill.)*	III.	iv.	95-114
TUCKER (DAVID).—On Secluded Tribes of Uncivilized Men	II.	ix.	326-43
WALLBRIDGE (T. C.)—On some Ancient Mounds of the Bay of Quinte.	II.	v.	409-17
WILSON (SIR. DANIEL).—Narcotic Usages and Superstitions of the Old and New World. *(Ill.)*	II.	ii.	233-64 324-44
Supposed Prevalence of One Cranial Type throughout the American Aborigines.	II.	ii.	406-35
Primæval Dexterity	III.	iii.	125-43
Some Ethnographic Phases of Conchology	II.	iii.	377-409
Notice of a Skull brought from the Crimea	II.	v.	321-31
Modifications affecting the Ethnic Significance of Peculiar Cranial Forms	II.	vi.	414-25
Ethnical Forms and Undesigned Artificial Distortions of the Human Cranium. *(Ill.)*	II.	vii.	399-446
Physical Characteristics of the Ancient and Modern Celt	II.	ix.	369-405
Race Head Forms and their Expression by Measurements.	II.	xii.	269-303
The Huron Race and its Head Form. *(Ill.)*	II.	xiii.	113-34
Righthandedness	II.	xiii.	193-231

	SERIES.	VOL.	PAGE.
WILSON (SIR DANIEL).—Hybridity and Absorption of the Red Indian Race	II.	xiv.	432-66
Interglacial American Man	II.	xv.	557-73
Brain Weight and Size in Relation to Relative Capacity of Races	II.	xv.	177-230
An Ancient Haunt of the Cervus Megaceros or Great Irish Deer	III.	i.	207-24

GEOGRAPHY (See also Archæology, Classical Philology, Geology and History.)

	SERIES.	VOL.	PAGE.
BROCK (HENRY).—The Upper Niagara River	III.	ii.	222-28
FLEMING (SANDFORD, C.E.)—On the Valley of the Nottawasaga. (*Ill.*)	I.	i.	223-26
GILBERT (G. K.)—Old Shore Lines in the Ontario Basin	III.	vi.	2-5
GOODBY (DR.) and BOVELL (JAS., M.D.)—Passing Visits to Rice Lake, Humber River, Grenadier's Pond and the Island. (*Natural History Specimens*)	I.	iii.	201
GORGENYI (ARTHUR).—Corea. (*Tit.*)	III.	v.	105
KANE (PAUL).—Incidents of Travel on the North West Coast, Vancouver's Island, Oregon, etc.	I.	iii.	273
PAYNE (F. F.)—Mammals and Birds of Prince of Wales Sound	III.	v.	111-23
SCADDING (REV. H., D.D.)—Memoranda of Vesuvius and its Neighbourhood	I.	ii.	237, 261
STRATFORD (G. S. T.)—Description of Louisburg, Cape Breton. (*Ill.*)	I.	i.	126-28
STUPART (CAPT.)—The Flying Proas of the Ladrone Islands. (*Ill.*)	III.	vii.	43, 204-5
WILSON (SIR. DAN.)—The Southern Shores of Lake Superior	II.	i.	344-56

GEOLOGY (Including Mineralogy).

	SERIES.	VOL.	PAGE.
BARNETT (J. D.)—Mechanical Value and Treatment of Hard and Soft Coal	III.	iv.	82-92
BELL (ROBT.)—On the occurrence of Petroleum in the N.-W. Territories.	III.	i.	225-30
Geology of the Route of the Intercolonial Railway	II.	xv.	381-87
On the mode of occurrence of Apatite in Canada	III.	iii.	294-302
Marble Island, Hudson Bay. (*Ill.*)	III.	iv.	192-204
BILLINGS (ELKANAH.)—Some New Generæ and Species of Cystidea from the Trenton Limestone	I.	ii.	215-8, 251-3, 268-74
On the Fossil Corals of the Devonian rocks of Canada West. (*Ill.*)	II.	iv.	97-140, v. 249-82; vi. 138-48, 253-74, 329-63
Note on a New Genus of Palæozoic Brachiopoda	II.	vi.	148
BRYCE (P. H.)—Natural History of Ground Waters	IV.	i.	149-69
CHAPMAN (EDWARD J.)—A Review of the Trilobites. (*Ill.*)	II.	i.	271-86
New Trilobites from Canadian Rocks. (*Ill.*)	II.	iii.	230-38
New species of Asaphus	II.	iv.	1-4
Asaphus Megistos, etc. (*Ill.*)	II.	iv.	140-2
New species of Agelacrinites	II.	v.	358-65
Atomic Constitution and Crystalline form as Classification Characters in Mineralogy	II.	ii.	435-9
An outline of the Geology of Ontario	II.	xiv.	580-88
On the Leading Geological Areas of Canada	II.	xv.	13-22, 92-121
A popular exposition of the Minerals and Geology of Canada. (*Ill.*)	II.	v.	1-19, 168-82, 517-31; vi. 149-65, 425-55, 500-18; vii. 108-21; viii. 17-33, 111-27, 185-216, 437-62; ix. 1-10.

	SERIES.	VOL.	PAGE.
CHAPMAN (EDWARD J.)—Notes on the Drift Deposits of Western Canada, and on the ancient extension of the Lake Area of that region	II.	vi.	221-9 497-8
On the Geology of Belleville and vicinity. *(Ill.)*	II.	v.	41-48
On the occurrence of Copper Ore in the Island of Grand Manan. *(Ill.)*	II.	xiii.	234-9
On Wolfram from Chief-Island, Lake Couchiching	II.	i.	308
On the Klaprothite or Lazulite of North Carolina	II.	vi.	363-8 455-6
On the Position of Lievrite in the Mineral Series	II.	vii.	42-7
On the occurrence of Allanite or Orthite in Canadian Rocks	II.	ix.	103-5
On some minerals from Lake Superior	II.	x.	406-11
On the analysis of some Canadian Minerals	II.	xii. xiii.	265-8 507-9
On some Blow-pipe reactions	II.	xv.	249-58
On the Analysis of some Iron Ores and Ankerites from Londonderry, N. S	II.	xv.	414-16
On the Probable Nature of Protichnites	II.	xv.	486-90
Note on the Function of Salt in Sea-water	II.	xv.	329-31
Note on a Belt of Auriferous Country in the township of Marmora	II.	xiii.	330-34
On the occurrence of the Genus Cryptoceras in Silurian Rocks	I.	ii.	264-8
Note on Stelliform Crystals. *(Ill.)*	II.	vi.	1-6
Note on the object of the Salt Condition of the Sea	I.	iii.	186-7 227-9
Note on the Presence of Phosphorus in Iron Wire	II.	ix.	170-1
On the Silver Locations of Thunder Bay. *(Ill.)*	II.	xii.	218-26
Contributions to Blow Pipe Analysis. *(Ill.)*	II.	x.	339-55
CLARK (LEVI J.)—Formation of Toronto Island. *(Ill.)*	IV.	i.	239-46
Lake Currents. *(Ill.)*	IV.	ii.	154-7
CROFT (HENRY).—Gas Patents	I.	i.	28,77
Mineral Springs of Canada	I.	i.	151-4
The Action of Air on Alkalic Arsenites	II.	iii.	126-8
DALE (T. NELSON).—On New England Upper Silurian	III.	iv.	69
On Metamorphism in the Rhode Island Coal Basin	III.	iii.	18-21
Geology of Mt. Greylock	III.	v.	145
DE CEW (JOHN).—Age of the Oriskany Sandstone	II.	vii.	190-93
DEWAR (ROBERT).—Gold and Silver in Iron Pyrites	IV.	ii.	121-7
Arsenic and Sulphur as Metallurgical Agents in the Treatment of Canadian Auriferous and Argentiferous Ores	IV.	i.	141-8
ELLIS (WILLIAM HENRY).—On a fragment of Silicified Wood from the Rocky Mountains	II.	xiv.	348-53
A California Borax Deposit	II.	xv.	328-9
FLEMING (SANDFORD).—Toronto Harbor, Formation and Preservation charts	I	ii.	105-7 223-30
The Canadian Geological Survey and its Director, Sir. Wm. E. Logan	II.	i.	238-44
Oil Wells Enniskillen. *(Ill.)*	II.	viii.	246-2
GILBERT (G. K.)—Old Shore Lines in the Ontario Basin	III.	vi.	2-4
Davenport Gravel Drift. *(Ill.)*	II.	vi.	247-53

	Series.	Vol.	Page.
GILBERT (JAMES).—The Arizona Copper Mine	II.	ii.	321-24
HARVEY (ARTHUR).—The Geology of N. W. Lake Superior. *(Ill.)*	III.	vii.	218-25
Pelotechthen Balanoides—Concretion or Fossil?	IV.	i.	213-15
Bone Caves	IV.	i.	116-20
Contributions to Geology in Canadian Institute's Transactions	IV.	ii.	342-3
HIND (HENRY YOULE).—Notes on the Geology of Toronto	I.	i.	147-51
HINDE (GEO. JENNINGS.)—The Glacial and Interglacial Strata of Scarboro Heights and other localities near Toronto	II.	xv.	388-413
Occurrence of Calciferous Boulders near Toronto	II.	xv.	644
HUNT (THOS. STERRY).—On the Formation of Magnesian Limestones.	II.	iv.	184-6
On the Theory of Igneous Rocks and Volcanoes	II.	iii.	201-8
On the Origin and Metamorphosis of some Sedimentary Rocks	II.	ii.	355-7
IVES (JAS. T. B.)—Iron and other Ores of Ontario	III.	v.	185-92
Geology in the Public Schools	III.	v.	125-8
KENNEDY (WILLIAM).—The Central Basin of Tennessee, a study of Erosion. *(Ill.)*	III.	vii.	64-108
LACHLAN (MAJOR R.)—On the periodical rise and fall of the Lakes..	I.	ii.	293-305
LAWSON (ANDREW C.)—Gneissic Foliation and Schistose Cleavage in Dykes, and their bearing on the problem of the origin of Archæan Rocks. *(Ill.)*	III.	iv.	115-28
Diabase Dykes of Rainy Lake	III.	v.	173-85
LENNOX (THOMAS H.)—On the Fossil Sharks of the Devonian	III.	iii.	120-21
LOGAN (SIR WM. E.)—On the Physical Structure of the Western District of Upper Canada. (Maps)	I.	iii.	1-2
On the Probable Subdivision of the Laurentian Rocks of Canada	II.	iii.	1-5
Relative dates of intrusive rocks cutting the Laurentian System in Canada	II.	iii.	107-10
On the Division of the Azoic Rocks of Canada into Huronian and Laurentian	II.	ii.	439-42
McRAE (JOHN C).—Geological formations at Port Colborne. *(Ill.)*	III.	vi.	46, 338-41
MERRITT (WM. HAMILTON).—The magnetic Iron Ores of Victoria County, with notes on Charcoal Smelting	III.	i.	261-7
Mining Industries of Canada. *(Tit.)*	III.	vi.	21
MICKLE (G.)—Notes on Nickel	IV.	ii.	77-92
MILLETT (JOHN R. A.)—On the Mineral wealth of Nova Scotia	I.	i.	241-2
NICHOLSON (H. ALLEYNE).—Contemporaneity of Strata and the doctrine of Geological continuity	II.	xiii.	269-81
On the Imperfection of the Geological Record. *(Ill.)*	II.	xiii.	379-91
Favosites in the Devonian Rocks of Western Ontario	II.	xiv.	38-50
Palaeontology of Ontario	II.	xiv.	125-36
Fossils of the Clinton, Niagara, and Guelph formations of Ontario	II.	xiv.	137-44
PANTON (T. HOYES).—Places of Geological Interest near Medicine Hat	III.	v.	150-59
The Caves and Potholes at Rockwood, Ont	III.	vi.	244-53
RAE (JOHN).—Formation of Icebergs and Transportation of Boulders by Ice	II.	iv.	180-83
ROBB (CHAS.)—Observations on the Physical Geology of the Western Districts of Ontario	II.	v.	497-512
On the Petroleum Springs of Western Canada	II.	vii.	313

	Series.	Vol.	Page.
SMITH (J. F., Jr.)—Fossils of the Hudson River Group, Toronto......	II.	iv.	450-52
New species of Triarthrus	II.	vi.	275
SCHUTT (F. T.)—Canadian Apatite...............................	III.	v.	30-38
THOMSON (J. L.)—On the cause of Glacier Motion......	II.	xii.	412-14
WOOD (HERBERT R.)—The Kaministiquia Silver-bearing Belt...	III.	vii.	245-59
Contributions to Blowpipe Analysis. (*Til*)	III.	v.	56

HISTORY (See also Archæology, Classical Philology, Ethnology and Geography.)

	Series.	Vol.	Page.
ANON.—Lands and Population in the United States and Upper Canada..	I.	ii.	286-90
BAIN (JAS., Jr.)—The Present Condition of the Old French Fort at Ste. Marie	III.	iii.	278
BLACK (ALEXANDER D.)—Genesis of the Heaven and the Earth. (*Til.*)	III.	vii.	27
BOYLE (DAVID).—Archæological Remains	IV.	i.	67-71
The Discoverer of the Great Falls of Labrador..	IV.	ii.	332-41
BROWNING (T. B.)—The Chamberlain Treaty—1888. (*Til.*)........	III.	vi.	42
The French Shore Question..........................	III.	vii.	33-35
England's Oldest Colony (Newfoundland)	III.	ii.	50-52
The Alaska Boundary........................	III.	v.	132
The Indians of Canada. (*Til.*).....................	III.	vii.	59
The Fishery Question. (*Til.*)..................	III.	iv.	175
CAMPBELL (REV. J.)—The Pharoah of the Exodus Identified in the Myth of Adonis	II.	xiii.	33-62
The Birthplace of Ancient Religions and Civilization......	II.	xiii.	152-78
CANNIFF (WILLIAM).—Survey of Niagara Township.....	IV.	i.	96-101
CARNOCHAN (JANET).- Fort George's Lonely Sycamore. (*Poem.*)..	IV.	i.	124-27
Two Frontier Churches...	IV.	i.	109-24
CRUIKSHANK (CAPT. ERNEST)—Administration of Lt.-Gov. Simcoe.	IV.	ii.	284-98
HAMILTON (J. C.)—The Mound Builders of America	III.	vii.	41-43
The Maroons of Jamaica and Nova Scotia	III.	vii.	260-69
Slavery in Canada.................................	IV.	i.	102-8
HARVEY (ARTHUR).—Bone-Caves	IV.	ii.	116-20
HIND (H. Y.)—A Glance at the Political and Commercial Importance of Central British America...	II.	viii.	409-27
HOPKINS (J. C.)—The Progress of Canada. (*Til.*)	III.	vii.	10
HOUSTON (WILLIAM.)—First Legislative Work of Upper Canada..	IV.	i.	77-85
KANE (PAUL).—Notes of a Sojourn Among the Half-breeds, Hudson Bay Co's Territory, Red River	II.	i.	128-38
KINGSFORD (R. E.)—The Campaign of 1815. (*Map*)	III.	iv.	149-74
LABOUREAU (REV. FATHER).—Reminiscences of the Huron Missions (*Til.*)........................	III.	v.	149
LANGTON (J.)—Early Discoveries of the French in North America. (*Map*)	II.	ii.	393-406
LEFROY (CAPT. J. H.)—On the Probable number of the Native Indian Population of British America	I.	i.	193-98
MACDONELL (HON. ALEX.)—Diary of Governor Simcoe's Journey..	IV.	i.	128-39
MACDOUGALL (ALAN.)—The Bœothick Indians	IV.	ii.	98-102
McKELLAR (SHERIFF).—A Bragh or Stone Flour Mill. (*Til.*)	III.	v.	193
McLEAN (REV. JNO.)—The Blackfoot Confederacy........	III.	vii.	17-18
MORICE (REV. A. G., O.M.I.)—The Western Dénés. (*Ill.*)	III.	vii.59, 109-74	
O'SULLIVAN (D. A.)—Experiments in Governing Canada............	III.	vi. 6, 254-60	
PERRY (A. B.)—The Indians of the North West.......	III.	vii.	175-7
READ (D. B.)—Newark in 1792	IV.	i.	72-6
The Hurons	IV.	i.	86-95

	Series.	Vol.	Page.
SCADDING (REV. HENRY).—Lahontan	II.	xiii.	304-29
Yonge and Dundas Sts. *(Ill.)*	II.	xv.	615-41
Canadian Local History (The 1st Gazetteer of U. Canada).	II.	xiv.	55-72; 208-17, 305-8, 367-87, 513-41, 658-74.
Toronto of Old	II.	xii.	149-74, 227-62, 333-54, 431-8, 514-32; xiii. 82-112, 179-91, 256-68, 355-78, 433-52, 562-80.
SPENCER (J. W.)—The Iroquois Beach. *(Tit.)*	III.	vi.	31
STUPART (CAPT., R.N.)—Whence did the Scandinavians Obtain their Knowledge of the Compass?	III.	vi.	44-45
TYRRELL (J. B.)—David Thompson, The Pioneer Geographer of the North-West	III.	vi. 31,	135-60
WILSON (SIR DANIEL).—Science in Rupert's Land	II.	vii.	356-47
Historical Footprints in America	II.	ix.	289-316
Higher Education for Women	II.	xii.	308-20
The Genius of Scott	II.	xiii.	341-47
Alexander Gordon the Antiquary	II.	xiv. xv.	9-37, 122-44

JURISPRUDENCE AND LAW (See also History and Psychology.)

	Series.	Vol.	Page.
O'SULLIVAN (D. A.)—Jurisprudence of Insanity	III.	v.	44-55
PROUDFOOT (HON. W.)—Some Effects of Christianity on Legislation.	IV.	ii.	159-75
RAE (G. M.)—Should the Privilege of Making Wills be Restricted	III.	vi.	43
WILSON (SIR DANIEL).—The Law of Copyright	II.	xii.	415-29

LINGUISTICS (See also Archæology, Classical Philology, Ethnology and History.)

	Series.	Vol.	Page.
ASSIKINACK (F.)—(A Warrior of the Odahwahs) The Odahwah Indian Language	II.	iii. v.	481-85 182-86
BROWNING (T. B.)—Elocutionary Drill Chart. *(Ill.)*	III.	vi.	181-211
BURNFIELD (REV. GEO.)—Ancient Egyptian Language	III.	iii.	281-92
CAMPBELL REV. PROF.)—Siberian Inscriptions. *(Ill.)*	IV.	ii.	261-83
The Horites	II.	xiii.	510-45
The Shepherd Kings of Egypt	II.	xiv.	158-207 219-78
The Eastern Origin of the Celts	II.	xv.	73-91 277-327
The Affiliation of the Algonquin Languages	III.	i.	15-53
Asiatic Tribes in North America	III.	i.	171-206
The Khitan Languages; the Aztec and its Relations	III.	ii.	158-80
Some Laws of Phonetic Change in the Khitan Language	III.	i.	282-99
CHAMBERLAIN (A. F.)—Relationship of the American Languages	III.	v.	57-76
The Eskimo Race and Language	III.	vi.	8-10 261-337
The Catawba Language	III.	vi.	25-6
The Mississagua Language. *(Tit.)*	III.	vi.	46
Grammatical Gender	III.	vii.	216-17
Language of the Mississaguas of Lake Scugog	III.	vii.	213-15
CUMMING (W. H.)—On the Amoy Colloquial Dialect	II.	xi.	81-95
DUNLOP (J. CUNNINGHAM).—The Quichua Language	III.	v.	130-32
FERGUSON (REV. PROF.)—The Etruscan Question	III.	v.	84-105
GEIKIE (REV. A. C.)—Canadian English	II.	ii.	344-55
HALE (HORATIO).—Development of Language	III.	vi. 43,	92-134

	SERIES.	VOL.	PAGE.
HOUSTON (WM.)—Old English Spelling and Pronunciation	III.	ii.	219
The Science of English	III.	vii.	5
Phonetic Spelling	III.	iv.	188
KELLOGG (REV. DR. S. H.)—Modern Hindi as related to the Sanskrit and Prakrit	III.	vii.	4
MACLEAN (REV. JOHN).—Indian Languages and Literature in Manitoba, North-West Territories and British Columbia	III.	v.	215-18
McNISH (REV. DR. N.)—Language and Literature of Brittany	III.	v.	76-84
Umbria Capta	III.	v.	219-40
The Gaelic Topography of Wales and the Isle of Man	III.	ii.	181-93
A Topographical Argument in Favour of the Early Settlement of the British Isles by Celts	III.	i.	310-31
The Sean Dana	III.	vii.	31
The Gaelic Topography of Damnonia	III.	iii.	43-57
Surnames and Place-Names of the Isle of Man	IV.	ii.	103-12
MORICE (REV. A. G., O.M.I.)—The Déné Languages	IV.	i.	170-212
ORONHYATEKHA.—The Mohawk Language	II.	x.	182-94
		xv.	1-12
ROUSE (M. L.)—On the Number, Nature and Musical Character of Vowel Sounds	III.	iii.	58-9
Analogy Between Consonants and Musical Instruments	III.	iv.	92-4
SCADDING (REV. DR.)—A Note on the Etymon of Ontario	II.	vii.	502-8
Phonetic Anomalies Observed in some Modern Forms of Ancient Proper Names	II.	viii.	329-41
SPENCE (DAVID).—Peculiarities and External Relations of the Gaelic Language	III.	vi.45,238-43	
Ossianic Poetry	IV.	i.	216-26
SQUAIR (JNO.)—A Contribution to the Study of the Franco-Canadian Dialect	III.	vi.	161-8
TOUT (CHAS. HILL).—The Study of Language	III.	v.	165-73
VANDERSMISSEN (W. H.)—On the Nature of Roots and Words	II.	xv.	509-30
WILSON (SIR DANIEL).—Vocal Language of Laura Bridgeman	II.	xi.	113-23 184-6

LITERATURE (See also Archæology, Art and Ethnology.)

MACNISH (REV. N.)—The Poems of Ossian	II.	xiii.	392-402
MEREDITH (E.A.)—Some New Emendations in Shakespeare	III.	i.	381-89
SCADDING (REV. DR.)—On Errata Recepta. II. ix. 137-53, 317-26; x. 31-40, 223-32, 386-406; xi. 45-71.			
On Metonyms, or translated and quasi-translated Proper names	II.	xii.	35-56
Canada in the Bodleian	II.	xii.	370-412
Merton College and Canada	II.	xiii.	453-89
Leaves they have Touched. II. xiv. 73-124, 315-47, 479-502, 597-634; xv. 145-60, 531-45.			
Early Gazetteer and Map Literature of Western Canada	II.	xv.	23-45
Canadian Noms-de-Plume Identified	II.	xv.	259-76, 332-48, 436-58
SMITH (GOLDWIN).—The Lamps of Fiction (an address)	II.	xiii.	347-51
WILSON (PROF. DANIEL).—Some Associations of the Canadian and English Maple	I.	iii.	380
Early Notices of the Beaver	II.	iv.	359-87
American Literary Forgeries	II.	xii.	134-48
Ricardus Corinensis	II.	xii.	177-206

MATHEMATICS AND PHYSICS.

	SERIES.	VOL.	PAGE.
BAKER (ALFRED).—Experiments in Connexion with the Doctrine of Probability	III.	v.	194-97
CHERRIMAN (J. BRADFORD.)—On the Atmospheric Phenomena of Light	I.	i.	6-8, 25-8
Notes on Poinsot's Memoir on Rotation	II.	viii.	283-6
On Linear Asymptotes in Algebraic Curves	II.	viii.	290-91
On a Reduction of Curves of the Second Order	II.	viii.	291-94
Notes on Trilinears	II.	x.	334-9,
II., ix., 249-53; xi., 388-92.			
Note on Guldin's Properties	II.	viii.	33-35
On the Reduction of the General Equation of the Second Degree in Plane Co-ordinate Geometry	II.	i.	286-95
Note on the Composition of Parallel Rotations	II.	ii.	92-6
CLARK (J. M.)—Some Thoughts on Thermotics	III.	ii.	36-49
FESSENDEN (C.)—A New Planimeter	III.	v.	27-9
GALBRAITH (JNO.)—On the Conservation of Energy and the Nature of Force	II.	xv.	491-508
KENDALL (REV. E. K.)—Note on Euclid Bk. I., prop. v	II.	iii.	318-20
Remarks on the Negative Index of a Function	II.	viii.	273-77
KINGSTON (G. T.)—Co-efficients of Magnets	II.	viii.	280-83
LANGTON (JOHN).—On a Small Capillary Wave not hitherto Described.	II.	ii.	96-102
LIVINGSTONE (J. A.)—New Discoveries in Gravitation and its Correlations	III.	iii.	275
LOUDON (PROF. JAS.)—Notes on Mechanics	II.	xiv.	354-55
Notes on Statics	II.	xiii.	231-33 546-50
On the Stability of Floating Bodies	II.	xiii.	135
On Trilinear Co-ordinates	II.	xiii.	62-5
Notes on Relative Motion	III.	i.	231-5
Euler's Equations of Motion	III.	i.	95-6
Geometrical Methods, chiefly in the Theory of Thick lenses.	III.	iii.	18-21
The Spherical Aberration of Mirrors	III.	iii.	87
LOUDON (W. J.)—The Radiometer. (*Til.*)	III.	ii.	221
MACFARLANE (ALEX.)—Notation for Physical Units	III.	iii.	81-86
MARTIN (J. W.)—Geometric Problems relating to Curves	II.	v.	331-2
Remarks on some General Properties of Curves	II.	viii.	278-9
NOBLE (CAPT. A.)—Value of the Factor in Hygrometric Formulae	II.	i.	24-6
ROSEBRUGH (DR. A. M.)—Duplex Telephony. (*Ill.*)	III.	v.	106-11
Telegraphing to and from Railway Trains	III.	iv.	177-80
ROSEBRUGH (T. R.)—New Trigonometrical Scale	III.	vii.	32
SCADDING (REV. DR.)—Phototypography	II.	xv.	574-600
YOUNG (REV. PROF. G. P.)—A New Proof of the Parallelogram of Forces	II.	i.	257-9
On Sir David Brewster's Supposed Law of Visible Direction	II.	ii.	268-76
A New Proof of the Existence of the Roots of Equations.	II.	ix.	26-7
Relation of the Law of Gravitation to the Principle of the Conservation of Energy	II.	xiv.	589-96
Principles of the Solution of Equations of the Higher Degrees, with Applications	III.	ii.	79-126
Resolution of Solvable Equations of the Fifth Degree	III.	ii.	127-41

	SERIES.	VOL.	PAGE.
YOUNG (REV. PROF. G. P.)—Solutions of Equations of the Fifth Degree	III.	iii.	7
An Examination of Legendre's Proof of the Properties of Parallel Lines	II.	i.	519-22
Resolution of Algebraical Equations	II.	v.	20-41 127-67
YOUNG (REV. PRO. G. P.)—Relation between the Area of a Triangle and the sum of the Angles	II.	v.	341-58
Formulae for the Cosines and Sines of Multiple Arcs	II.	viii.	286-9
The Real Correspondence of Imaginary Points. (*Tit.*)	III.	ii.	157

MEDICINE.

AGNEW (J. N.)—State of Medical Science in Ontario	II.	xii.	207-217
ARMSTRONG (CH.)—A Case of Mesmerism	III.	vii.	12-13
BRYCE (DR. P. H.)—Diphtheria and Scarletina in their Various Aspects. (Report for 1886 of Ontario Provincial Board of Health.) (*Tit.*)	III.	v.	149
Hypnotism and its Phenomena	III.	ii.	61-77
Some Factors in the Malaria Problem	III.	ii.	216-18
CANNIFF (DR. W.)—The Value of Sanitation. (*Tit.*)	III.	vii.	36
DADE (REV. C.)—Notes on the Cholera Seasons of 1832-34	II.	vii.	17-28
ELLIS (DR. W. H.)—Milk Analysis and Milk Standards	III.	vii.	25-26
GARNIER (DR. J. H.)—Snake Poisons	III.	v.	255-61
HALL (DR. C. B.)—On the Vagaries of Medicine	II.	xi.	225-33
NESBITT (DR. W. B.)—Volumetric System in Materia Medica	III.	v.	163-65
ROSEBRUGH (DR. A. M.)—Photographing the Living *Fundus Oculi.* (*Tit.*)	III.	v.	192
A New Ophthalmoscope	II.	ix.	81-92
The Optical Defects of the Eye and their Treatment by the Scientific Use of Spectacles.. (*Ill.*)	II.	xi.	1-31
Electro-Therapeutic Apparatus	III.	vi.	14-16
RYERSON (DR. G. S.)—The Influence of Tobacco and Alcohol on Vision	III.	vi.	18-19
Colour Blindness	III.	vii.	20-21
TEMPEST (W., M.B.)—The Abortive Treatment of Cholera	II.	xi.	163-78
WRIGHT (PROF. R. R.)—Germ Theory of Disease (Synopsis of a Lecture)	III.	i.	344-50
Recent French Investigations in Hypnotism	III.	vi.	10-13

POLITICAL ECONOMY (Including Sociology and Statistics).

ANON.—Statistics of Upper Canada	I.	ii.	285-6
BROWNING (T. B.)—Individualism from a Social and Historic Point of View	III.	vi.	21-2
CHERRIMAN (J. B.)—On the Provincial Currency	I.	i.	177-80
DOUGLAS (W. A.)—Wages	III.	iii.	39-40
Rent, a criticism	III.	iv.	58-9
Wealth and its Measurement	III.	vii.	7-8
Antagonism of Social Forces	III.	v.	136-41
The Study of Economics	III.	vi.	27-8
FLEMING (SANDFORD, C.M.G., LL.D.)—Electoral Representation	IV.	ii.	315-31
An appeal to the Canadian Institute on the rectification of Parliament. (Published as separate pamphlet of 177 pp. 1892)			

	SERIES.	VOL.	PAGE.
GEIKIE (REV. A. C.)—Notes on the Population of New England	II.	i.	245-51
HENNING (THOMAS.)—Applicability of our Educational System to the Social Condition of Large Cities	II.	iii.	422-37
HINCKS (REV. PROF. W.)—On the True Claims to Attention of the Science of Political Economy	II.	vi.	20-28
An Inquiry into the Natural Laws which Regulate the Interchange of Commodities	II.	vii.	180-90
Notes on Economic Science	II.	xi.	96-113
HOUSTON (WM.)—Scientific Aspect of the Henry George Movement	III.	vi.	33-38
The Village Community in Modern Politics	III.	iv.	61-66
Relation between Political Science and Practical Politics	III.	vi.	40-42
Scientific and Pedagogic Claims of Sociology	III.	v.	25-6
KELSO (J. J.)—*Necessity of a Society for the Prevention of cruelty to* Animals in Toronto	III.	v.	142-3
MEREDITH (DR. E. A.)—Compulsory Education in Crime	III.	ii.	230-31
Influence of Recent Gold Discoveries on Prices	II.	i.	430-46
LEVEY (CHAS.)—Capital	III.	vi.	29-30
LIVINGSTONE.—Convertible Securities. (*Tit.*)	III.	iv.	147
ROSEBRUGH (DR. A. M.)—Prison Reform	III.	vii.	22, 206-12
LANGTON (JOHN).—The Census of 1861	II.	x.	1-19
MACDOUGALL (ALAN).—Canadian Cattle Trade and Abattoirs	III.	ii.	53-61
MASON (J. HERBERT).—Transfer of Land	III.	ii.	34
O'SULLIVAN (D. A.)—Our Federal Union	III.	ii.	29-33
Systematic Charity	III.	iii.	101-8

PSYCHOLOGY.

	SERIES.	VOL.	PAGE.
CREELMAN (W. F. W.)—Relations between Physiology and Psychology	III.	v.	14-20
HINCKS (REV. PROF. WM.)—The Sensationalist Philosophy	II.	iv.	396-406
An attempt at a New Theory of Human Emotions	II.	vii.	103-8
Thoughts on Belief and Evidence	II.	x.	232-46
INGLIS (REV. D.)—On the Relation of Quantity to the Æsthetic Sentiment	II.	iii.	409-14
JOHNSON (A. S.)—The Law of Habit	III.	iv.	26-56
MURRAY (REV. J. C.)—Sir Wm. Hamilton's Philosophy	II.	xi.	207-24
300-319, 367-388; xii. 57-85.			
WILSON (PROF. DANIEL.)—Left-handedness. (*Ill.*)	II.	xv.	465-85
YOUNG (REV. PROF. G. P.)—An Examination of Prof. Ferrier's Theory of Knowing and Being	II.	i.	105
Notes on Passages in the Platonic Dialogues	*II.*	*vii.*	*477-83*
Prof. Boole's Mathematical Theory of the Laws of Thought.	II.	x.	161-82

MISCELLANEOUS.

	SERIES.	VOL.	PAGE.
FITZGERALD (GERALD).—Miracles. (*Tit.*)	III.	vi.	39
HENRY (PROF.)—The Lecture Room, Smithsonian Institute. (*Ill.*)	I.	ii.	130
	II.	iii.	110-15
NOTMAN (JOHN).—The Manufacture of Paper	III.	v.	197-203
SCADDING (REV. DR.)—On Accidental Discoveries	I.	i.	207
On Museums as Instruments of Education	II.	xiii.	1-25
SULLIVAN (DION C.)—Fortuitous Events. (*Tit.*)	III.	v.	193

APPENDIX (Addresses of the Presidents of the Canadian Institute.)

	SERIES.	VOL.	PAGE.
LEFROY (CAPT., *Afterwards General Sir J. Henry*).—On the affairs of the Institute	I.	i.	121-3

	SERIES.	VOL.	PAGE.
ROBINSON (SIR. J. BEVERLEY).—The Condition, Object and Prospects of the Canadian Institute	I.	ii.	142-6
Considerations respecting the condition and prospects of the Canadian Institute	I.	iii.	153-5
ALLAN (GEO. WM., M.L.C.)—The present condition and future prospects of the Institute, with a review of its past history.	II.	i.	97-104
DRAPER (HON. C. J., C.B.)—Observations on the scientific progress of the day	II.	ii.	81-92
Observations on the work of the Institute and of the Toronto Observatory	II.	iii.	97-107
ALLAN (HON G. W.)—The progress of discovery in the regions of science	II.	iv.	85-96
WILSON (DANIEL, LL.D.)—On the enlargement of the sphere of knowledge	II.	v.	109-127
A review of the recent progress of knowledge	II.	vi.	101-20
HAGARTY (HON. J. H., D.C.L.)—On the relation between Science and Theology	II.	vii.	1-16
McCAUL (REV. JOHN, LL.D.)—Review of the progress of human knowledge during the year 1862	II.	viii.	97-111
MOWAT (HON. OLIVER, V. C.)—Observations on science suggested by contemporary events	II.	x.	81-95
HINCKS (REV. WM., F.L.S.)—Thoughts on the nature, utility, proper aims and modes of operation of scientific societies	II.	xii.	97-107
LOUDON (JAS. M.A.)—On the advancement of science	II.	xv.	365-80
BUCHAN (J. M., M.A.)—Remarks on the relation between progress in physical science and progress in other departments of thought and action	III.	i.	361-80
On complexion, climate and race	III.	ii.	22-38
ELLIS (PROF. W. H., M.A., M.B.)—On the development, aims and functions of learned societies	III.	ii.	22-38
VANDERSMISSEN (W. H., M.A.)—Claims of science and work of the Institute	III.	v.	2-12
HARVEY (ARTHUR, ESQ.)—A critical review of the enterprise of Christopher Columbus. *(Tit.)*	IV.	iii.	5

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