

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Continuous pagination/
Pagination continue
- Includes index(es)/
Comprend un (des) index

Title on header taken from:/
Le titre de l'en-tête provient:

- Title page of issue/
Page de titre de la livraison
- Caption of issue/
Titre de départ de la livraison
- Masthead/
Générique (périodiques) de la livraison

Additional comments:/
Commentaires supplémentaires:

Pagination is as follows: [1]-112, xcī-cxīi p.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

Box 62

New Series.

Whole No. LXXIII.

THE

Canadian Journal

56/K/4/4

OF

SCIENCE, LITERATURE, AND HISTORY:

Vol. XIII.



NUMBER I.

NATIONAL LIBRARY
 CANADA
 REGISTRE DES NATIONALS

CONDUCTED BY

THE EDITING COMMITTEE OF THE CANADIAN INSTITUTE.

MAY, 1871.

TORONTO:

PRINTED FOR THE CANADIAN INSTITUTE.

BY COPP, CLARK & CO., KING STREET EAST.

CANADIAN INSTITUTE.

EDITING COMMITTEE.

GENERAL EDITOR REV. HENRY SCADDING, D.D.

E. J. CHAPMAN, LL.D., Ph. D.
Prof. of Geology and Mineralogy, Univ. Coll., Toronto.

REV. WM. HINCKS, F.L.S.
Professor of Natural History, Univ. Coll., Toronto.

DANIEL WILSON, LL.D.
Professor of History and English Literature, Univ. Coll., Toronto.

G. T. KINGSTON, M.A.
Director of the Magnetic Observatory, Toronto.

HENRY CROFT, D.C.L.
Prof. of Chemistry & Experimental Philosophy, Univ. Coll., Toronto.

J. B. CHERRIMAN, M.A.
Prof. of Nat. Philosophy, Univ. Coll., Toronto.

The CANADIAN JOURNAL is printed exclusively for gratuitous distribution among the Members of the Canadian Institute, and such Institutions and Societies as the Council may determine; but Members may purchase extra copies at 50c. per number, and Provincial Literary and Scientific Societies may obtain the Journal at the same rate, by an annual payment in advance

Communications for the Journal to be addressed to the General Editor, REV. DR. SCADDING, 10 Trinity Square, Toronto. Communications on general business of the Institute to be addressed to W. MORTIMER CLARK, Esq., Corresponding Secretary, or to Mr. JAMES JOHNSON, Assistant Secretary, Canadian Institute, Toronto.

Mr. EDWARD ALLEN, 12 Tavistock Row, Covent Garden, London, W., has been appointed the English Agent for the Institute. All European communications are requested to be forwarded through him.

THE CANADIAN JOURNAL.

NEW SERIES.

No. LXXIII.—MAY, 1871.

ON MUSEUMS

AND

OTHER CLASSIFIED COLLECTIONS, TEMPORARY OR PERMANENT.
AS INSTRUMENTS OF EDUCATION IN NATURAL SCIENCE.

BY HENRY SCADDING, D. D.

Read before the Canadian Institute, January 13th, 1871, as the President's Address for the Session 1870-71.

So many persons had the advantage of examining for themselves the Great Exhibition at Paris in 1867, and such full accounts and profuse illustrations of its contents and surroundings were everywhere to be seen, that it seemed for a long while very much like an impertinence whenever any one proceeded to offer, in any formal way, additional observations on the subject.

It was, I remember some vague feeling of this kind that induced me to refrain from committing to paper and reading to the Institute, during its session of 1867-8, an abstract of a variety of memoranda made in the Exhibition, and some of the thoughts which could not but be stirred within one by a spectacle so marvellous as that Exhibition undoubtedly was: it seemed foolish to imagine that there was any point in relation to a scene so palpable and accessible to every one, that had not already been well and sufficiently remarked upon.

A considerable interval, however, has now elapsed; and the events of the intervening time have, in the general mind, thrust back the occurrences of 1867 into comparative oblivion. Moreover, some of the most recent of those events have created the probability that such another very perfect international gathering will not again be witnessed for some years to come.

It may consequently be an act less out of place, and of less presumptuous seeming at the present instant, than in some way it appeared to be in 1867, for any one who imagines he has anything to say on the subject, to indulge for a few moments audibly in his recollections of, or deductions from, a display which was so unique, and the witnessing of which could not but form an era in his experience.

I have therefore ventured on this occasion—no other easy subject readily suggesting itself—to offer to the Institute, after all, some of the casual and, as I fear even now it will be deemed, rather unimportant, annotations and ideas, which I did not think it worth while to occupy their time with in 1867–8.

One desire which I found myself haunted with, on returning home fresh from a brief—too brief—inspection of the marvellously diversified, but beautifully classified contents of the Paris Exhibition, was to impress upon all with whom I held any communication, and especially on young Canadians about to travel, the practical, self-educating *use* to which they might put their visits to Great Britain and the continent of Europe, where access is so easy to grand and extraordinary assemblages of objects, industrial, scientific and artistic, either temporary, like the successive international expositions, or permanent but constantly augmenting, like the national museums to be found in capital cities and university towns.

For the most part, I fear, such collections are approached by the tourist, from Canada as from elsewhere, in a light and trivial spirit—are gazed at simply as displays of so many singular, or beautiful, or very useful objects.

But the doctrine which I longed to impress, and which I of course at the same time knew to be neither novel nor abstruse, was, that in the mind of every one about to enjoy the advantage of access to a great classified collection of objects anywhere, there should be a pre-arranged *scheme of examination*; a certain intention; a definite aim and object: there should be, if practicable, some especial subject of study, or a particular point in some especial subject of real interest to the observer, on which additions to his store of knowledge were sincerely desired. Then, at once, the great museum or other large classified assemblage of objects—although access to it could be had only for a few days, or even for a few hours—ceases to be a mere show or plaything, and is transformed into a gallery of illustration—a delightful and precious instrument of self-education; a means of mental expansion, intellectual

enrichment, and positive increase of personal competency, in whatever sphere of duty the observer may be acting.

And the subject which, amongst a host of others, I thought might conveniently have a large amount of light thrown on it by such extensive collections as those to be met with at the present day in Great Britain and on the continent of Europe, was Natural Science, in some one or other, or all, of its divisions, of Mechanical Philosophy, Chemistry and Physiology.

Natural Science is a subject which is now more or less attended to in all our schools, I believe; but of course only its most elementary principles are expounded there; and the appliances for illustration are, of necessity, circumscribed and meagre.

A few days, or even hours, judiciously spent in some such collection as that which was to be seen in the Universal Exhibition at Paris, by a youth familiarized with and interested in the elementary principles of Natural Science, might be productive to him of results of life-long importance. Not only, in a general way, would his mental view be likely to be widened, but his profession or career might be happily decided by an extra impulse there given to a taste, tendency or talent; and a hint, or idea, caught from things and processes then for the first time seen, might lead in practice afterwards to fame and riches, and to the increase of a country's resources.

With the hope that even a rapid *sketch* of that collection may, here and there, contribute slightly to like positive results, I now proceed with my proposed annotations, purposing to add afterwards a brief notice of the Museum at Oxford, and of one or two other kindred establishments.

The Champ de Mars in Paris, the plot of ground on which the Exhibition of 1867 took place, is an area of 103½ acres. The whole of this space was required for the purpose, and fifty acres more in the island of Billancourt, a few miles down the Seine. In Billancourt the agricultural objects were to be seen, and experiments in scientific agriculture were performed. Here competitive experiments with ploughs and other instruments worked by steam were carried on, exhibiting the comparative effects of animal and machine labour, and showing the possibility of the application of mechanical force to cultivation even on a small scale. Here were machines for drill-sowing and reaping in operation. Grass was cut, turned over and raked, and made up into heaps, by machinery. Here was a miniature dairy-farm, on which

economical processes for the preparation of food for cattle were going on; and the manufacture of butter, cheese, oil, cider and *piquette*, a kind of sour wine made from unripe grapes, and much drunk by the peasantry of France. Modes of preparing different manures were shewn. The basket-maker, the cooper, the wooden-shoe maker, the farrier, the blacksmith, were all plying their respective trades, aided by the most ingenious mechanical contrivances.

Incessant communication was maintained with the island of Billancourt by rail and steamboat.

Of the 103½ acres contained in the Champ de Mars, the Exhibition building itself, or Palace proper, covered 31½ acres (153,194 square yards). The space outside the Palace was styled the Park. An innumerable multitude of buildings were here to be seen in every variety of form—kiosks, pavilions, chalets, churches, chapels, bell-towers, school-houses, barracks, temples, palaces, huts; Tartar wigwams, theatres, stables, windmills, bath-houses, conservatories; with several real light-houses, one of them 220 feet in height, displaying at night the electrical light. The edifices just spoken of were scattered about most promiscuously, as it might seem; but each had its relation to one or other of the exhibiting nations, and each gave shelter to and conveniently displayed some special product or products of that nation, natural or artificial. Although at the first glance the paths leading to these buildings seemed labyrinthine enough, by the aid of a plan no great difficulty was found in threading one's way to any desired point.

Very conspicuous in the western portion of the Park, on the avenue leading towards the Military School, was one object which quickly fixed the eye, and which even in 1867 was regarded as ominous. This was a bronze equestrian statue of King William of Prussia, raised aloft on a high pedestal, of colossal dimensions, and crowned with laurel. Towering up to a height of twenty-five feet, it seemed to dominate the western portion of the Park. It was in jest likened at the time to the fatal Horse which found its way into the heart of Troy. It was little imagined that the comparison was destined to be so nearly exact as it has proved. Another ominous Prussian object, in another place, filling every beholder with awe, was the so-called Krupp gun, a cast-steel breech-loading cannon, weighing with its carriage 141,062 lbs. To enable this monster to reach Paris, the railway bridges in some places were strengthened. A multitude of other kindred implements of destruction accompanied it. Sorrow and shame, and indignation, could

not but be stirred by the reflection that such, after all, were the *ultima rations* of European diplomacy. Rossini's hymn, too, composed for the occasion of the distribution of the awards at this Exhibition, and there rendered with orchestral accompaniments and appliances of the grandest description, wound up, ominously, as was observed at the time, with the tolling of bells and the booming of cannon.

But to proceed. The Palace itself, the Exhibition proper, was a structure of iron, having the appearance of being an ellipse in outline, but in reality it was a square, with semicircles attached to the north and south sides. Its circumference measured just a mile. The whole was only of one storey. Fatigue in visiting its parts was thus diminished. To examine cursorily the contents of the Palace, it was necessary to perform the circuit of it at least eight times. It was divided into zones or bands, concentric, so to speak; and these zones or bands were cut into sections by passages radiating from the middle area of the building. Each of these radiating passages had a distinguishing name. Associations unthought of in 1867 would now attach to some of the titles on the French side of the Palace, as, for example, Rue d'Alsace, Rue de Lorraine. The central area of the building was a beautiful ornamental garden-plot, with flowers, fountains, and an abundance of statuary in marble. Its dimensions were 460 by 180 feet. In the middle of the garden was a pavilion or temple, in which centred, of course, the apices of all the areas occupied by the several nations, bounded respectively by the radiating passages and segments of the elliptical circumference. The use to which this temple was put will be presently mentioned.

To one passing through the zones or bands, the objects exhibited appeared arranged according to the place of production of each; but to one passing up or down the radiating passages, the same objects appeared arranged according to the nature of each. This was an ingenious and very interesting contrivance.

Nine-tenths of the east half of the building was occupied by France, the remaining tenth by Belgium and the Netherlands.

The west half was occupied, largely, by England and her Colonies; by the States of North and South America; by Spain and her colonies; by Russia, Austria, North and South Germany; and, in slips, narrow as compared with the spaces occupied by the other nations, by Switzerland, Portugal, Greece, Denmark, Sweden, Norway, Italy, Rome,

the Danubian Principalities, Turkey, Egypt, China, Japan, Siam, Persia, Tunis and Morocco.

The place of Canada in the great industrial, scientific and artistic Cosmos was discoverable, but not immediately obvious. Australia, I remember, asserted itself much more decidedly, and showed greater individuality. And herein a fact is symbolized. Australia, as a great region of the Greater Britain, is much more accurately realized, I think, in the common mind of the mother-country, and of Europe perhaps, than is Canada. Canada lies in the shadow cast by the great pyramid thrown up, or being thrown up, on its southern side, and is but dimly seen. It is still, to a great extent, thought of, not as a vast region filled or filling with millions of English-speaking workers, emigrants from the British Islands, but as a French colony in the military occupation of Britain. Even at the Exhibition in Paris, prominent objects to be seen in the Canadian slip, as well as the names of several of the Canadian commissioners, served to perpetuate the impression in regard to Canada to which I have alluded.

But again to proceed: The temple or pavilion in the midst of the central garden contained specimens of the coins, weights and measures used in the countries enumerated, those of each country respectively being placed in the apex of the section occupied in the elliptical area by that country.

The first circuit of the Palace by the passage next to the central garden was made through what was entitled the Gallery of the History of Labour. This was a classified museum of the archæology of each country. A means of judging of the progress made in the successive centuries by each country, in industry and art, was thus afforded. To this collection the choicest and most curious objects were sent from the public repositories in each country; and it is supposed there had never before been presented at one view such an assemblage of the relics of past ages.

It will give an idea of this remarkable gallery if I set down the subdivisions in the French portion of it, an analogous classification being adopted, so far as was practicable in the space occupied by the other nations. French archæological objects were arranged under the heads of—Gaul before the use of metals; Independent Gaul; Gaul under the Romans; The Franks to the Coronation of Charlemagne (A.D. 800); The Carlovingians, from the beginning of the 9th to the end of the 11th century; The Middle Ages, from the beginning of the 12th century to

Louis XI. inclusive ; The Renaissance from Charles VIII. to Henry IV. (1610) ; The Reigns of Louis XIII. and XIV. (1610 to 1715) ; The Reign of Louis XV. ; The Reign of Louis XVI. and the Revolution (1774 to 1800). In the parts of this gallery devoted to the early portion of the mediæval period, splendid manuscripts and illuminations constituted a striking feature. The identity of style observable in the illuminations of certain very ancient Persian or Arabian manuscripts here shown, and those which decorate the productions of the Greek and Latin monasteries, was very curious to notice.

In the Swiss portion of this gallery were to be seen innumerable relics of the famous primitive lake-villages, built on piles, which have recently been discovered, and which Arthur Helps has endeavored so pleasantly in his *Realmah* to rehabilitate and people with a wise and understanding set of inhabitants. These remains were referred to ages of stone, bronze and iron. Pictures reproducing these ancient Swiss villages were also displayed.

The next circuit of the building to be made was through the Gallery of Fine Arts. Each circuit, of course, became larger as one advanced outward. This gallery was filled with paintings, drawings, sculptures in groups, single figures, busts and medallions ; drawings and models in architecture, engravings and lithographs. Vela's *Napoleon Mourant* was ever surrounded by a throng, watching the figure as though it were a flesh-and-blood reality. The *Columbus revealing America* of the same artist, a colossal group, was especially interesting to persons from the Canadian side of the Atlantic. *An Episode of the Deluge*, by Luccardi, obtained the highest prize in sculpture, with the Cross of the Legion of Honour added to it—a fine group, representing a father and mother and infant child, the waters just reaching them.—Whilst engaged in making memoranda on the spot of several special coins in a fine ancient collection in the Italian section, I noticed close at hand the quiet *hist!* of the police, indicating that one was being watched. The special coins pencilled down on this occasion, as not having been seen before, were, I find, a Livia as Justitia, a Livia as Pietas, a Manlia Scantilla, a Lucilla, a Paula, an Orbiana, and a Galeria Valeria ; with a Pupianus, a Balbinus, and a Romulus Augustulus.

Again we passed round through the building. Now it was through a gallery bearing over its entrances the inscription—The Materials of the Liberal Arts. These were found to be paper for printing purposes and all purposes ; letter-press and printed books ; book-binder's work ;

drawing materials; applications of drawing and modelling to the useful arts; photographs; musical instruments of all kinds; medical apparatus and surgical instruments of all kinds; things defined to be "instruments of precision, and material for teaching the sciences," that is, astronomical and land-surveying instruments, theodolites, &c., thermometers, barometers, hygrometers, maps geological and otherwise, and plans in relief. Especially noticeable among "printed books" were magnificent large-paper copies of Louis Napoleon's *Life of Cæsar*, a production likely to be classed hereafter among the curiosities of literature, its author and his position at the time of its composition being considered.

One always knew when he had completed the circuit of the building by finding himself again in the grand vestibule, a wide and noble passage leading straight from the principal entrance of the Palace to the central garden; a passage usually thronged with a mixed multitude, and itself supplied with objects of interest, as, for example, a succession of magnificent specimens of prize plate, won in England by French horses. At several points along the middle of this passage were circles of seats or divans. A vacant spot on one of these was often anxiously watched for in vain by the wearied investigator.

Proceeding again still outwards, we entered the next gallery. This was styled the Gallery of Furniture; in French briefly *Mobilier*. This term included an immense variety of things: furniture literally, of the most elaborate description; inlaid woodwork, picture frames, paintings on wood, tapestries, carpets, crystal, ornamental glass, window glass transparent and opaque, pottery, cutlery, silver and gold ware, works of art in bronze, silver and iron, watches, chronometers, clocks, heating and lighting apparatus, objects in morocco, brushes, products from woody fibre, &c. Among articles of furniture exhibited was "the cradle of the Prince Imperial." On coming suddenly upon this object, I remember thinking its display here a slight overtax on the public curiosity. A resplendent dinner set in silver gilt, the property of the Emperor, duly arranged on a long dining-table, was also exhibited.

The gallery into which we next passed had the inscription "Vêtement" over it—"Clothing." Here, in addition to articles of dress of all kinds and in every grade of magnificence, we find cotton, hemp and flax fabrics in infinite variety, silk tissues, combed and carded wool, lace, muslin, embroideries, artificial flowers, caps, hats of straw and all other customary material, head-dresses and shoes, precious stones,

enamels, engraved jewellery. Here also were portable fire-arms, travelling apparatus and toys. Life-size and life-like figures, carefully dressed in the costumes of different countries, and of various provinces of different countries, literally "from China to Peru," were set up in divers places within this gallery. The large groups of real precious stones of every name, and of jewel-sets in every variety of form, contributed, not only by numerous manufacturers, but by imperial, royal and other personages in different parts of Europe, were quite fairylandish in character. Here, for one thing, was to be seen the Sancy diamond, once the property of our James II., and sold by him to Louis XIV. for £25,000. In another place I remember a cluster of unwrought emeralds, shown as found in a Russian mine—a number of long, thick, six-sided crystals, of a pure green colour, bristling out irregularly from the sides of a great block of the whitish matrix in which they had been formed.

Another gallery was now to be examined. This was entitled the Gallery of Raw Materials; in French "*Matières Premières.*"

This, though the least showy, was possibly the most instructive of all the galleries to the student. Here the observant traveller, with a design of increasing his practical acquaintance with the products and applications of Natural Science, would have reaped a rich harvest. Here, if the visitor had the time, he could be deliberate, and be but slightly disturbed; for generally speaking the crowd was not great in this zone of the Palace. Here were collections and specimens of rocks, minerals and ores, ornamental stones, marble, serpentine, onyx, hard rocks, refractory substances, earths and clay, sulphur, rock salt, salt from salt springs, bitumen and petroleum, specimens of fuel in its natural state and carbonized, compressed coal, metals in a crude state pig-iron, iron, steel, cast steel, copper, lead, silver, zinc, alloys, products from the washing and refining precious metals, gold beating, electro-metallurgy, objects gilt, silvered or coated with copper or steel by galvanic process, products of the working of metals, rough castings, bells, wrought iron, iron for special purposes, sheet iron and tin plates, iron plates for casing ships, copper, lead and zinc sheets, manufactured metal, blacksmith's work, wheels, tires, unwelded pipes, chains, wire-drawing, needles, pins, wire work, and wire gauze, perforated sheet iron, hardware, ironmongery, edge tools, copper and tin ware, other metal manufactures. Such a detail as this of objects, spread over only a very small portion of the Gallery of *Matières Premières*, gives an idea

of the enormous multitude of matters and things displayed; in the midst of which nevertheless reigned the most perfect order, making examination and study quite possible. Without again being as specific, it will suffice to say, that after these products of mining and metallurgy just named, came products of the cultivation of forests and of the trades appertaining thereto. Then, the products of shooting, fishing, and of the gathering of fruits obtained without cultivation. Then, agricultural products (not used as food), easily preserved; which included among other textile materials, such as raw cotton and hemp, the cocoons of silk worms. Then came chemical and pharmaceutical products. Then specimens of the chemical processes for bleaching, dying, pointing and dressing. Then leather and skins, including gut work. The whole of the Russian department was redolent of Russia leather.

We reached now the sixth gallery, which was nearly a mile round and of extra dimensions. This was the Gallery of Machines, of apparatus and processes employed in the common arts.

All along its middle space was a slightly raised platform, on which appeared a forest of cast-iron with a plentiful undergrowth of the same material; mechanisms great and small applied to every human purpose, most of them busily in action. Here were railway apparatus, telegraph apparatus, civil engineering apparatus, architectural apparatus, navigation and life-boat apparatus.

I subjoin an extract from my memoranda:—

“I next undertake the outermost gallery, that of Machines. This is nearly a mile round: it ought to be journeyed through twice for even a cursory view of it, as there is a highway on each side of the central roped-off space in which for the most part the machines are placed, while there is a vast display also of objects round the whole of the sides of each of the passages opposite to the central enclosed space. This part of the building is about twice the height of the interior zones, to give room for machine-structures of considerable altitude when set up. The restless sound of innumerable machines at work is immediately to be heard; their movements also strike the eye; the smell of oil and oily steam salutes the nostrils, but only faintly; the furnaces, the *générateurs de vapeur*, are placed at intervals outside. Entering as before on the French side I notice a gigantic trophy of iron and steel bars ready to be converted into anything. I pass cannon, fire-engines, looms for all fabrics at work, steam-engines of an endless variety of construction, circular saws, brick-making machines, gigantic organs here and there pealing out grand music occasionally amidst the confused machine-babel—steam-pumps bringing in actual rivers of water, distilling apparatus, sugar-making apparatus, models of ships-of-war with their machinery of propulsion. In Prussia,

cannons—one monster weighing fifty tons; revolving cannon; ambulances; a triumphal arch of imitation marble. In England, locomotive engines; donkey engines; printing presses; electric printing presses; wood-cutting machines; carding machines for wool, cotton and flax; lanterns for lighthouses; coaches; hat-making, sugar-plum-making and sewing machines. Near one of the entrances to this gallery I noticed a gilded pyramid representing the gold produced from the mines of Victoria, in Australia, in fifteen years, viz., 1851-66; its base, 10 feet square; its height, 63 feet; its solid content, 2,081 cubic feet; value represented, one hundred and fifty millions sterling. In the Australian compartment was a model of a £10,000 nugget."

The outermost circle of all was the Gallery of Food and Drinks: *Aliments et Boissons*. This gallery was open to the Park all round the exterior wall of the Palace. A projecting verandah-roof extended out over the whole of it. Underneath, in addition to a scientific display behind glass of all sorts of substances in any way connected with the edible and the potable, there was a series of real restaurants, one after the fashion of one nation another after the fashion of another. These establishments were usually thronged, and the scenes presented in a promenade round the whole of the exterior of the Palace were those of a well-peopled Parisian boulevard.

Of the wonderful Park in the midst of which the Palace stood, I have already briefly spoken. I may add that a meandering stream, a cascade and a lake, all artificial, gave variety to its French portion. Also two immense aquaria are specially recalled, one of salt water, the other of fresh, underneath which the visitor might go and see a variety of strange fish sporting above his head as though he were at the bottom of the sea.

A magnificent velum or tapestry awning, green in colour and sprinkled over with golden bees, had a grand classic effect, stretched over the whole of the wide avenue leading from the entrance gate by the Seine up to the principal entrance to the Palace, sustained at regular distances by lofty poles bearing long pendant gonfalons.

Though the Palace with its innumerable satellite appurtenances quickly vanished like a vapour, records of its existence and system were made. The story of its beautiful exemplification of law and order in the midst of an unparalleled multiplicity remains; and that, as I have already hinted, may serve in instances here and there to assist a thoughtful youth to methods by means of which he may, if he will, divide and conquer the domain of human knowledge, and especially that province of it which is occupied by Natural Science and its practical applications.

The career of Napoleon III., the originator of the spectacle which rendered 1867 so memorable, will doubtless hereafter be employed, after the traditional fashion, to point a moral and adorn a tale. He will be one more conspicuous instance of the instability of human greatness. He will be paralleled perhaps in sentimental strain with Cræsus. Solon had said to Cræsus, when displaying to him his magnificence as King of Ionia, "No one while he lives is happy." When in the grasp of Cyrus, Cræsus recalled with groans this saying of Solon. The oracle had said to Cræsus, "Go up against Persia, and thou shalt destroy a great empire." He went up accordingly, but with the fate that has befallen Napoleon. With reason did he, when in durance, send to ask of Apollo if he were not ashamed of having encouraged him, as the destined destroyer of the empire of Cyrus, to begin a war with Persia, of which such were the first fruits; and with equal reason did Apollo reply, "When the God told him that if he attacked the Persians, he would destroy a mighty empire, he ought, if he had been wise, to have sent again and inquired which empire was meant, that of Cyrus or his own." Again, *mutatis mutandis*, the words of Cræsus to Cyrus might be addressed by Napoleon to William of Prussia, "What I did, O King, was to thy advantage, and to my own loss. If there be blame, it rests with the God of the Greeks, who encouraged me to begin the war. No one is so foolish as to prefer to peace war, in which instead of sons burying their fathers, fathers bury their sons. But the gods willed it so." And this convenient shifting off from human shoulders of the burden of responsibility would probably be accepted with complacency by the Prussian King.

The words, however, of Napoleon III., which in connexion with the Exposition of 1867, I was purposing to quote, when this digression was induced, were these:—"The Exhibition of 1867," he said, in the really noble address which accompanied the delivery by himself of the medals to the successful exhibitors, "will, I hope, inaugurate a new era of harmony and progress. Assured that Providence blesses the efforts of all those who, like ourselves, wish to do good, I believe in the final triumph of the great principles of morale and justice, which, by satisfying all legitimate aspirations, can alone consolidate thrones, elevate the people, and ennoble humanity."

These words, heard now amid the dreadful echoes which every hour reach us from what was beautiful and comparatively prosperous France, have a strange and hollow sound. They may, in spite of appearance,

yet prove true, although the issue may be brought about otherwise, than as the speaker imagined. The most acute of men are often at fault in their foresight. When the "Emperor of the French" pronounced these noble words, he was surrounded by a group such as may possibly be never seen assembled together again. On his right hand sat the Sultan himself, Abdul-Azziz-Khan; there sat also the heir apparent of England, the heir apparent of the Netherlands, his own son, the heir apparent of France, the Prince of Saxony, Prince Teck, the Duke of Cambridge, the Duc d' Aosta. On his left were to be seen the heir apparent of Prussia, the heir apparent of Italy, Prince Hermann of Saxony, Prince Napoleon, the Duke of Leuchtenberg, Mohammed-Mourat-Effendi, Abdul-Mamid. Behind him and the Empress were arranged, besides a number of Princesses and Duchesses, the eldest son of the Sultan, the brother of the (so-called) Tycoon of Japan, Prince Lucien Murat, Prince Joachim Murat, Prince Achille Murat, Prince Napoleon Charles Bonaparte, with the great officers of imperial France and the suites of the foreign Princes.

All of this assemblage, with thousands of others present, applauded the exalted ideas of Louis Napoleon at the moment doubtless with sincerity; and all anticipated possibly as little as the speaker himself the bewildering collapse which was about so swiftly to ensue.

Nevertheless no thoughtful person familiar with the history of man in the past can doubt of the progress of man in the future. That progress will no doubt still be beset with impediments, as usual; but its rate may, in the age which is close at hand, be accelerated.

Unparalleled disasters have fallen upon Europe. *Quidquid delirant reges, plectuntur Achivi*, has proved true again, and this time on a scale more gigantic than ever. On a scale more gigantic than ever have the many been made to suffer by the few. The rivalry, the ambition, the caprice of rulers have brought lamentations, and mourning, and woe into every household of the ruled. Will not the very enormity of the desolations created hasten the day when nations, peoples and languages will effectually secure themselves against an evil so dire? Through the reaction which is sure to ensue on the termination of the existing most lamentable condition of things, is it not reasonable to hope that peace and happiness, truth and justice, will more rapidly and widely prevail among men in the immediate future, than they have done in the past?

I now ask you to transport yourselves in imagination from the City of Paris to Oxford.

The Oxford Museum (the New Museum, as it is there called) is contained in a range of buildings 236 feet in length, of the style of the 13th century, and situated in a large airy park. The Canadian is at once struck by a certain resemblance which it bears to University College, Toronto. In the interior of its central part is a fine quadrangle, a perfect square, each of the sides 76 feet in length. This quadrangle is roofed over with glass. Around this square is a series of rooms, four of them fitted up for lectures, with flights of seats descending down to a table for the lecturer. One of the lecture-rooms is for chemistry, another is for experimental philosophy, another is for mineralogy and geology, and the fourth is for medicine. The other rooms are Professors' work-rooms, store-rooms, sitting-rooms, apparatus-rooms and laboratories; in the anatomical part of the building I observed a Macerating-room; to the chemical portion of the building there are attached balance-rooms. Almost detached outside, at one corner is the principal laboratory, a reproduction of the Abbot's Kitchen at Glastonbury. This almost separate building, circular, with conical roof, helps the general resemblance to the Toronto University building, although its position is towards the right and not towards the left. The circular laboratory at the Toronto University is, by the way, not a reproduction of the Abbot's Kitchen at Glastonbury; but, less appropriately, of the Round Church at Cambridge, commonly called St. Sepulchre's, built after the pattern of the Church of the Holy Sepulchre at Jerusalem. Round the whole of the interior quadrangle of the Museum at Oxford runs a corridor or arcade sustaining a gallery or upper corridor. Double rows of slender metal columns sustain the lofty glass roof. On the left as you enter are the anatomical and physiological collections; on the right the mineralogical collections. In the middle, on each side of the central passage, are zoological collections. Along the side opposite to the entrance are palæontological collections.

Round three sides of the upper corridor are also rooms as below: the whole of the front side is taken up with a library and reading room, the latter containing the more recent books, the scientific transactions and periodicals. On the left is a very spacious general lecture room; also an anatomical lecture room, with professor's and students' sitting-rooms. On the right is another lecture room, and rooms for an astronomy professor and a geometry professor. There is also up here an entomological museum with a curator's room.

The general contents of a great college of science, so to call it, like the building just briefly described, can be conceived, and I shall not enter into many particulars. It should be said, however, that the Oxford Museum contains the collections of the celebrated Professor Buckland, and is rich in its palæontological department. The extinct forms of life that have existed on the globe are here seen, so far as their remains have been found, in a connected series; specimens in abundance of the palæozoic, mesozoic and cænozoic fossils. Here are veritable plesiosaurs (not casts), veritable ichthyosaurs, megalosaurs, pterodactyles, deinotheria, elephants primogenii. There is also a very striking collection, as it seemed to me, of beautifully prepared skeletons (all properly articulated and set up in easy natural attitudes) of beasts, birds, reptiles and fish; the interior bony framework of each creature as marvellous to behold as its outward presentment when clothed with flesh and adorned with feathers, hair or scales.

There is one feature in the interior of the museum which possesses great interest. The series of pillars which support the lower and upper arcades subserve a scientific purpose. They are, all of them, geological specimens on a large scale systematically arranged. The shafts on the west side are respectively, grey granite of Aberdeen, red granite of Peterhead, porphyritic grey granite from Cornwall, green syenite from Leicestershire, pale-reddish granite from Argyleshire, red granite of Ross in Mull. On the north side the shafts are, Devonian limestone from Torquay, mountain limestone from Cork, mountain limestone from King's County, green serpentine from Galway, mountain limestone from Limerick, mountain limestone from Cork, Devonian limestone from St. Mary Church, and so on all round the lower quadrangle; and again all round the upper gallery, the shafts of the columns follow in order of geographical age and succession; in all 125 columns.

Moreover the elaborately carved capitals of these columns, together with a series of sixty corbels built into the walls, also elaborately carved, are made to illustrate systematically the vegetable kingdom. On them are sculptured, in such order as may assist the memory, and with such attention to their natural aspect as may satisfy the botanist as well as the artist, specimens of all the genera of plants and flowers. The capital of the column of porphyritic grey granite, for example, mentioned a moment ago, is formed of leaves of the date-palm; the two adjacent corbels of leaves of the fan-palm; the three together illustrate the palmaceæ. Again, the red granite column from Ross in Mull, and its

two accompanying corbels, present specimens of the Liliaceæ, viz., the yucca, the aloe and the liliium, tulipa and fritillaria. The capital of the mountain limestone column from Linrick, and the two neighbouring corbels, exhibit wheat, barley, oats, Indian corn, sugar cane (with sparrows thereon), rice and canary grass, with buntings and canaries and quails thereon; these to illustrate the gramineæ. The Filices are represented by the capital of Devonian limestone from St. Mary Church, and the adjoining corbels, which consist of ferns, the hart's tongue, *lastræa cristata*, *scolopendrium vulgare*, *blechnum boreale*, and the mallow. The capital of a column of black serpentine from the Lizard in Cornwall, and two corbels, are devoted to the Dioscoraceæ, being sculptured over with small-leaved bryony, black bryony, and elephant's foot.

Another feature in the architecture of the Museum is very interesting, and possibly peculiar to itself: the elaborate and very ornamental ironwork in the spandrels that branch out from the metal pillars sustaining the glass roof, is made artistically, to represent the foliage of the following thirteen trees: *chamarops humilis*, *carica papaya*, *acer pseudo-platanus*, *tilia europæa*, *tussilago farfara*, *æsculus hippocastanum*, *cocos nucifera*, *musa paradisiaca*, *quercus robur*, *platycerium alcornice*, *musa cavendishii*, *juglans regia*, *caryota urens*.

One more feature must be noticed, which, to myself at least, afforded infinite pleasure: all round the quadrangle, against the piers of the arcade, there were arranged full-length life-size figures of the following world-famed scientific worthies, finely conceived and exquisitely sculptured in white stone: Aristotle, Hippocrates, Euclid, Galileo, Bacon, Newton, Leibnitz, Harvey, Davy, Priestley, Watt, Linnæus.

Altogether, the Museum at Oxford was a very fascinating place. With its library, reading room, lecture rooms, appointed lecturers, varied apparatus, and studied ornamentation, it seemed more like an institution in Plato's Atlantis, or More's Utopia, than a thing of the present day. It was a beautiful realization of a true *Μουσείον*—of a home of the Muses; of those of the Nine, at all events, who preside over the departments of Natural Science and Medicine.

Since 1850, much encouragement has been offered at Oxford to the study of Natural Science. After the lapse of seventeen years, I expected, in 1867, to find the number of those who were applying themselves with enthusiasm to the subject to be large; but I was surprised to find it to be still comparatively small. The *vis inertæ* of

the old system, which practically excluded Natural Science, is very great; and although rewards are now offered in the University, as also of late too in most of the old endowed schools, for proficiency in the subject, the majority of those who preside over ancient educational institutions do not heartily recommend the subject to the attention of the youth under their charge. In 1861, out of 295 who took their B.A. degree, 45 had been students in the Natural Science school; of whom 13 only were classed, and 32 passed. In 1862, 335 were graduated; 41 of these were Natural Science students, 12 of whom were classed, and 29 passed. In 1863, 317 obtained B.A. degrees, 8 were classed in Natural Science, and 14 passed. In 1864, 281 graduated; of whom 10 were classed and 9 passed in Natural Science. In 1865, out of 276 B.A.'s, 12 were Natural Science students, of whom 10 were classed and 2 passed. In 1866 the numbers were: in *Literis Humanioribus*, 258; in *Scientiâ Naturali*, 8; of whom 7 were classed and 1 passed. In 1867, 295 graduated; 14 in Natural Science, of whom 9 were classed and 5 passed. Thus we see the number of those who have sought distinction in this department of study has been fluctuating and never large, considering the intrinsic interest and practical value of the subject, the opportunities and facilities offered, and the rewards to be obtained. Several of the Colleges have scholarships for the best candidates in Natural Science. Miss Burdett Coutts has, in recent times, founded so-called Geological scholarships, for which the examinations include Physiology, Chemistry and Experimental Physics. Every year a Travelling scholarship, worth £200, for three years, is obtainable, on what is called Dr. Radcliffe's Foundation, by the best candidate among those who have taken a first class in Natural Science, and who purpose entering the medical profession.

As to the qualifications of successful candidates in the school of Natural Science at Oxford, from passmen a general acquaintance with the principles of two of the three subjects of the course, viz., Mechanical Philosophy, Chemistry and Physiology, is required; and familiarity with a special subject in Mechanical Philosophy, as Hydrostatics, Pneumatics, Light, Heat, &c. From classmen a certain knowledge of all the three branches is required, to which must be added a more extensive acquaintance with one or other of the three, including a special subject in that branch for more minute examination. A classman, for example, may take up Physiology as his principal subject, and Osteology as the special subject included under that head. Of Mechanical Philosophy

and Chemistry, he would only be expected to have a good general knowledge. Under Mechanical Philosophy, it may be proper to add, are included Mechanics, Hydrostatics, Pneumatics, Acoustics, Light, Heat, Electricity and Magnetism. In Chemistry great stress is laid in the final examination on Analysis. A knowledge of some part of Organic Chemistry is required, as, *e. g.* the Alcohol series. When Mineralogy is offered as a subject, some special branch, such as the optical properties of crystals, must be studied. Classmen in Physiology are required to exhibit skill in dissection. Special instruction on this subject is given by a professor or lecturer in the University, styled Lee's Reader in Anatomy. The present occupant of this important lectureship is Mr. Barclay Thompson, a brilliant alumnus and graduate of the University of Toronto. Special subjects that are taken up for examination under the head of Physiology are, as has been already said, Osteology or Odontology; one of the functions, as circulation; the functions of any group of animals, (as, *e. g.* fish or molluscs; the nerves; Ethnology also, Botany, Geology and Palæontology.

Another famous museum at Oxford is the Ashmolean, built in 1679. The portion of its contents really useful for scientific illustration has been removed to the new museum just now described. The remaining objects constitute simply a collection of mixed curiosities. In the basement of the Ashmolean are deposited the celebrated Arundel Marbles. The inscription over what was originally the principal entrance of the building is "Museum Ashmoleanum: Schola Naturalis Historiæ: Officina Chymica." The term "Naturalis Historia," as used by Elias Ashmole, included of course, what we now understand by Natural Science, just as the renowned Natural History, so-called, of Pliny is in fact a cyclopædia of the Natural Science of Pliny's age.

In the University of Cambridge since 1848 there have been, as at Oxford, instituted special examinations for honours in Natural Science. The system of study pursued previously at Cambridge involved the necessity of attention to many branches of Physics. The examination for honours in the Natural Science Tripos at Cambridge requires an acquaintance with the following subjects:—Human or Comparative Anatomy, Physiology, Chemistry, Mineralogy (excluding the Mathematical part of Crystallography), Botany and Geology. In a calendar that happens to be at hand I observe valuable papers set at the Natural Science Tripos Examinations by the Professors of Chemistry, Mineralogy, Botany, Anatomy and Geology, and the Regius Professor of Medi-

cine, viz., Profs. Cumming, Milner, Henslow, Clark, Bond, Sedgwick and Paget. I give one question from each of these papers. In the paper on Chemistry it is asked "If nitric acid is decomposed by voltaic electricity, in what direction are its elements separated?" In the paper on Mineralogy it is required to "Enumerate the systems of crystallization in which double refraction has been observed? Describe the situation of the optic axis or axes with respect to the figure of the crystal in the pyramidal, rhombohedral, prismatic and oblique systems?" In the paper on Botany the examinee is required to "Describe the diseases in wheat termed ear-cockle and ergot." In the paper on Comparative Anatomy it is asked "Have any of the ringed worms true joints?" In the paper on Physiology it is asked "What appears to be a principal office of the pancreatic fluid according to Bernard? By the selection of what species of mammal for his experiments was he enabled clearly to distinguish between the action of the bile and that of the pancreatic fluid during life?" In the paper on Geology it is asked "What evidence have we for a 'glacial period?' Assuming its existence as a fact in the history of the earth, how do we fix its geological date?" In the "general paper" we have the queries:—"How do we discover the mean density of the earth?" "What are the indications of its primeval fluidity?" "What are the present indications of an increasing internal temperature?" "State some of the modern theoretical investigations bearing upon the question of the actual internal fluidity of the earth, and the results derived from them."

The Fitz-William Museum at Cambridge is not peculiarly adapted to the necessities of the *Natural Science student*. It is a magnificent collection of sculptures, paintings and books. Institutions that help to the attainment of honours in the Natural Science Tripos at Cambridge are the Anatomical Museum, the Geological Museum, the Mineralogical Museum and the Botanical Garden.

It would be superfluous to attempt a sketch of the British Museum in London. In a collection so extensive and so scientifically arranged the devotee of any speciality in Natural Philosophy will of course find what will delight and instruct him. I will only add for the benefit of any who are interested in meteors and aerolites that here they may see and closely examine many hundred of these petty but eccentric and not unformidable members of our system. After contemplating thoughtfully the aspect, size and weight of several of these stray vagrants from the outer space, all of which must be well-authenticated

or they would not be deposited here, no one can fail to regard with increased curiosity the so-called shooting stars to be seen every night in the heavens, but especially the November and August showers; and no one can fail to feel in an intensified degree thankful that disaster to cities and men from the impact of such masses on the Earth is so rare.

In the north gallery of the Museum are between two and three hundred specimens of meteorites, classed as aerolites, siderolites and aerosiderites. The first are meteorites, containing from the most part various silicates, interspersed with isolated particles of nickeliferous native iron and meteoric pyrites. The second are meteorites, consisting of nickeliferous native iron in a more or less continuous or sponge-like state, cavities in which are charged with silicates. The third are masses of native iron, generally nickeliferous, and containing phosphides of nickel and iron, carbon and other substances. One found in Yorkshire weighs 45lbs. 8oz.; one found in Tennessee weighs 60lbs.; one found in Oldenburg, in Germany, weighs 77lbs.; one found at Parnallee, in India, weighs 134lbs.; one found at Toluca, in Mexico, weighs 173lbs. 9oz.; one found at Tucuman, in the Argentine Republic, South America, weighs 1,400lbs.; finally, one found at Cranbourne, Australia, weighs 8,200lbs.—The so-called Blacas collection, purchased by the British Government in 1866, for the sum of £43,000, consisting of antique gems, cameos, coins, Roman plate, bronzes, painted vases, frescoes, and defensive armour, may also here be examined. It has its name from the Royalist French Dukes of Blacas. The number of engraved gems, cameos and intaglios which it contains is about 800. It has also some fine specimens of ancient phalærae or horse-ornaments—large silver plaques, with crescents appended.

Other scientific collections in London are the Museum of Economic Geology; the Royal Society Museum; the Museum of the Royal College of Surgeons; the Soane Museum; the India House Museum; the Linnæan Society Museum; the Horticultural Society Gardens; the South Kensington Museum; the Botanic Garden at Kew, where there is a grand palace of glass, 360 by 90, filled with palms. Here also is to be seen the gigantic lily, named the Victoria Regia. The wonderful Crystal Palace at Sydenham, with its surrounding domain can be put to scientific use in many ways by those who pay their visit with that intention. Some life-size models of the animals of the palæontological class, seen in the open air in their proper habitat, in the act of crawling up the green bank of a breezy lake give a vivid im-

pression of the shape and magnitude of those now extinct forms of life. The Palace at Sydenham is a perpetuation of the Universal Exhibition Building of 1871, only greatly extended and enlarged.

The felt utility of the great temporary assemblages of objects at international and universal exhibitions, as instruments of education, has been a stimulus to the improvement of museums, and has led to the establishment on a large scale of permanent exhibitions scientifically arranged.

Adjoining the Horticultural Gardens at Kensington there have just been erected magnificent permanent exhibition buildings, 550 feet in length; and close by them is to be seen the beautiful Rotunda or Colosseum, entitled the Royal Albert Hall of Arts and Sciences. It is elliptical in form, its axes being 219 and 185 feet. A beautiful external feature of the building is a band or frieze six feet six inches in length carried round its whole circuit, 794 feet, towards the top, crowded with groups emblematic of the arts and sciences and industries, executed partially in colours in terra-cotta. The subjects are agriculture, astronomy, geology, workers in wood, and stone, and iron, music, poetry, construction, sculpture, and applied mechanics.

This vast elliptical building, with a spherical roof of glass, has not yet been opened: it has been built by the commissioners of the Exhibition of 1851, out of a portion of the proceeds of that exhibition. It will assuredly be one of the most striking architectural objects in London, and will be one more of the scientific institutions containing collections, which the studious visitor from Canada will earnestly desire to examine.

Altogether it will be seen that at the present time there are very many appliances by means of which science in all its branches, especially natural science, can be thoroughly illustrated and made intelligible and interesting to every inquiring mind. If the communities of English-speaking countries do not steadily advance in their acquaintance with the facts and laws exhibited in Natural Science, it will be very surprising. Still no doubt patience will be required. Where the so-called masses have been for centuries neglected, as, for example, in Southern Britain, where, astounding to narrate, a comprehensive scheme for elementary popular education did not exist until last year, several decades must pass before the laws, the beneficent laws of Nature are known and consciously obeyed among the classes at the base of the social fabric. It will be a happy state of things when throughout a community

from its apex to its lowermost stratum each successive generation, by availing itself of the facilities conveniently placed within its reach, at an early moment possesses itself of the acquisitions of its predecessors, thus securing leisure to itself for new enquiries, having in view the extension of the domain of practical science.

The world stands amazed at the rapid progress made in civilization and material improvement by the colonies planted in Australia, New Zealand, British Columbia, Canada and the continent of America generally. That rapid progress is due to the fact that the colonists, settling in those regions, started from the point which the old communities from whence they issued had attained in science and civilization. They carried with them the results and experiences which had accumulated in the course of past human history. Had it been required of our colonists that they, like their remote fathers, should pass literally through a flint era, a bone era, a bronze era, an iron era, the continents of America and Australia, the islands of New Zealand, Van Dieman's Land, and a score more places that might be named, scattered over the surface of the globe, would not be presenting at this day the scenes which they now do present—scenes which, for evidences of human culture, industry, taste and art, begin to rival those which, a few years since, were supposed to be the special characteristics only of lands whose annals reach back centuries in the past.

Now, each successive generation of men should enjoy a privilege analogous to that which the colonists of Great Britain have enjoyed. Each generation should start on its career, consciously equipped with the practical science which has accrued up to the moment of its setting out.

And in a similar manner, should not each individual youth in a modern community start in his career with a like outfit? Ought not Education to mean this—the indoctrination of each successive crop of youth with at least the elementary principles of all contemporary ascertained human knowledge, with a view to practical purpose in subsequent life? Would not Education, if it signified this, and was this, be the means of saving a great number of human beings from a great deal of blind, aimless action, and from a great number of blunders and mistakes, and so be the means also of economising a great deal of the world's precious time? Should not each generation of our youth be as a colony swarming off from an old, well-constituted and wise state, carrying with it, in germ at least, the knowledge and experience of the

parent community, and starting from the point to which that had managed to attain? Especially in respect to the subjects to which in this address particular reference has been made—the subjects commonly embraced under the term Natural Science—should not an adequate indoctrination of the young be secured?

It is one of the chief distinctions of the era in which we live, that Nature has been, to an extraordinary extent, interpreted—not interpreted fully: work in that direction remains to be done in the generations that will succeed us—but interpreted in very many respects; and so interpreted as to make clear certain consequent duties on the part of man, as well as certain practical advantages to be enjoyed by man in virtue of an acquaintance with that interpretation.

It is discovered, and is universally confessed, that throughout Nature laws reign. These laws does not every sane man confess to be laws of God? It becomes then even a matter of religious obligation to inculcate a knowledge of those laws so far as is practicable and suitable in the education of the young, independently of expediency; independently of the efficiency, personal happiness and economy which accrue when a man's line of action is habitually in the line of those laws; and of the failure, personal misery and waste which are inevitable when his line of action is habitually athwart the line of those laws.

To come back again then to the particular thesis with which this address has been occupied in the main, the place and function of museums and other classified collections in a system of education, popular or abstruse, are clearly seen. The admirable order which objects, simple and complex, raw and wrought up, are therein made to take, even to the eye, impresses in a powerful manner the reign of law in Nature; and they enable the student of Nature, professional or amateur, to make, with immense convenience and great rapidity, personal examinations advantageous to his own enlightenment and advancement in knowledge and skill, which would otherwise be all but impossible for him to make.

I have offered the advice that our youth, who at school or college have received instruction in the first principles of Natural Science, should make a specific use of the great Collections which in so many quarters they will discover in their tour in Great Britain and on the continent of Europe. I have advised that a scheme or plan should be beforehand decided on, to be closely followed during the days or hours which they are able to devote to such collections.

Visits to Boston, Philadelphia and Washington might in like manner be utilized.

The Geological Museum at Montreal should be deliberately and minutely examined. Laval, at Quebec, also contains scientific treasures.

Our own University Museum at Toronto is of course familiar ground already to our young lovers of Natural Science. It will be found a good antepast to the feasts that await them on their visits to larger establishments. It presents some good studies in ornithology and entomology. I wish our own small Museum, connected with the Canadian Institute, were richer in objects, but it is not wholly to be despised. The formation of a "Provincial Museum" was one of the objects to be promoted by the establishment of the Canadian Institute. The first section of our constitution reads as follows:—"The Canadian Institute has been established by Royal Charter, for the purpose of promoting the Physical Sciences, for encouraging and advancing the Industrial Arts and Manufactures, &c., effecting the formation of a Provincial Museum, and for the purpose of facilitating the acquirement and the dissemination of knowledge connected with the surveying, engineering and architectural professions."

When an institution like the University of Toronto establishes a Scientific Museum on a good scale by the side of an humble collection like that which the Canadian Institute, with only limited resources, has been enabled to make, the latter necessarily becomes somewhat insignificant. Nevertheless there is a field which our Museum might occupy. It might be made a repository of Canadian archaeological and historical objects. The collections in the Normal School buildings, Toronto, exist expressly for educational purposes, and repay a studious examination. Barnett's Museum, at the Falls of Niagara, is by no means a common-place repository of objects. Some very fine genuine Egyptian mummies may be seen there. Our annual Provincial Exhibitions might also be utilized by a student visiting them with definite intention and purpose.

Now, I desire it to be observed, that in all that I have thus far said, I have not supposed for a moment, that Natural Science is to be the sole subject-matter of instruction or study in a system of Education. I have only been insisting that in a system of Education adapted to modern men, Natural Science must have its due place.

I think morals and religion are legitimate developments of man's being, and are subject to Divine law. I believe therefore that these

ought to be included amongst the matters with which Education, somewhere or other in its programme, concerns itself. I think History and the wise and beautiful Thoughts of men in all ages should be subjects of study in a system of Education. Have we not a hint of this in the fact that the written Records which we accept as Holy Writ, as a Divine Revelation, consist of History,—of Thoughts exalted, nay, inspired?

I do not dream that Language is to be abandoned in a system of education. That too is now seen to be a human development subject to natural law, *i.e.*, Divine law. It must continue therefore to be a study as it has been in times past, but now a more intelligent study than formerly, as being a positive science, far-reaching, wide-spreading. It will even possibly still hold its own as one of the chief instruments in the training of the very young, for is there not by a Divine arrangement a special aptitude in every infant mind for language? What is more marvellous than the mastery which a little child acquires over its native tongue or any tongue which it hears familiarly spoken?

The laws of mind too, being really laws, Divine laws, brought out into view by a comparison of human experiences, must continue to be taken up, in their elements, in every complete course of education.

But what we inculcate is this, that in addition to all these subjects, at the present time it is expedient, it is reasonable, it is devout, to assign a high place in schools to the knowledge which will help a youth from the very beginning of his career to a true view of the Earth on which he lives, of its constituent parts, of its relations as a member of the Universe. It is expedient, it is reasonable, it is devout, to assign a high place in education to the knowledge which from the beginning of his career will help a youth to soundness and suppleness of body and mind; which, throughout life, will render him, consciously, an interested and skilled worker in his place in the great Whole; and as such, a happy man, going on his way rejoicing, singing and making melody in his heart.

ON THE DIURNAL AND ANNUAL
VARIATIONS OF TEMPERATURE
AT HALIFAX, NOVA SCOTIA.

BY G. T. KINGSTON, M.A.,
Director of the Magnetic Observatory, Toronto.

FROM BI-HOURLY OBSERVATIONS BY F. ALLISON, M.A., DURING THE THREE YEARS 1867-69.

For developing the climatology of this country, two or more chief stations in each province are needed, differing from ordinary stations, partly in the extent of their instrumental appliances, and partly in the frequency of the observations.

One of the leading objects of these chief stations has been carried out by Mr. Allison, of Halifax, by making the observations from which the results given in this paper are derived. The nature and purpose of these results will be understood from the following considerations.

The majority of observers, being engaged in their various callings, cannot usually observe often enough in the day, nor persevere for a sufficient number of years for the collection of materials adequate for the calculation of the normal values of the elements proper to their several stations.

Their observations can however to a great extent be made comparable with those carried on more frequently, and extended through a long term of years, by applying corrections deduced from the observations made at a few well equipped chief stations and continued through a long series of years, during a portion of which the observations have been taken at *equal* intervals not exceeding three hours.

The corrections are of two kinds. First, the corrections by which compensation is made for the insufficient *frequency* of the observations at ordinary stations; and, secondly, those which compensate their

insufficient *continuance*. It is with the former class of corrections that this article is concerned.

Mr. Allison has forwarded to Toronto for reduction a series of thermometric readings, made by him or under his direction at every even hour (with a very few exceptions) during the three years 1867-69.

In a few instances, when readings at 2 a.m. and 4 a.m. were not taken, the observations of the whole day were set aside. As these, *including Sundays*, were only 22, the unbroken days in the three years amounted to 1,074, and the readings employed in the calculation 12,888; giving, for each month, 80 or 90 readings for each of the twelve bi-hourly means.

The primary object of the computation being to learn for each month the quantity by which the temperature at each hour differs from the mean temperature of the month for all hours collectively, interpolating formulæ for each month have been constructed, by aid of which the most probable temperature could be computed for any instant in the twenty-four hours.

The following is the general type of the formulæ, where T_n represents the required temperature at any time (n) reckoned from midnight, the unit of time being one hour, t , t_1 , t_2 , &c., certain constant temperatures, and c_1 , c_2 , &c., certain constant angles derived from the twelve bi-hourly mean temperatures for the particular month under consideration.

$$T_n = t_0 + t_1 \sin(n \times 15^\circ + c_1) + t_2 \sin(2n \times 15^\circ + c_2) + t_3 \sin(3n \times 15^\circ + c_3) \\ + t_4 \sin(4n \times 15^\circ + c_4) + t_5 \sin(5n \times 15^\circ + c_5) + t_6 \sin(6n \times 15^\circ + c_6)$$

The values of the constants t_0 , t_1 , &c., c_1 , c_2 , &c., are given for each month in the following table.

TABLE I.

	JAN.	FEB.	MAR.	APRIL	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
t_0	19.83	23.18	27.13	37.20	48.15	58.52	64.35	64.13	58.19	46.01	36.02	25.21
t_1	3.38	4.55	6.11	6.86	7.81	8.42	8.64	8.18	6.87	5.58	2.77	2.64
t_2	1.32	1.37	1.72	1.35	1.13	0.66	0.99	1.35	1.81	1.78	1.25	1.08
t_3	0.32	0.25	0.12	0.36	0.60	0.78	0.78	0.74	0.42	0.07	0.20	0.36
t_4	0.15	0.16	0.23	0.02	0.17	0.39	0.21	0.21	0.28	0.22	0.04	0.08
t_5	0.15	0.13	0.11	0.14	0.21	0.07	0.10	0.13	0.14	0.30	0.17	0.07
t_6	0.02	0.02	0.08	0.02	0.03	0.06	0.06	0.01	0.10	0.03	0.02	0.06

TABLE I.—(Continued.)

c_1	22 ^o 03	22 ^o 59	23 ^o 03	23 ^o 34	24 ^o 33	24 ^o 14	23 ^o 41	24 ^o 39	24 ^o 46	23 ^o 32	23 ^o 16	24 ^o 42
c_2	60 32	52 43	72 43	67 48	83 23	77 40	69 55	68 21	64 26	71 58	72 17	59 51
c_3	204	191	24	84	54	54	60	54	76	333	261	224
c_4	101	210	182	153	123	99	127	183	225	243	104	97
c_5	32	23	76	164	275	286	276	129	0	17	33	16
c_6	270	270	90	270	270	270	270	90	90	90	270	270

Taking each monthly formula separately, and giving to n successively the values 0, 1, 2, 3, &c., we obtain for that month the mean normal temperatures for each of the twenty-four hours, as far as the normals can be procured from the observations of only three years.

The results are given in the following table, in which the numbers in the final column for the year are the arithmetic means from the corresponding twelve monthly numbers.

TABLE II.

Monthly Mean Normal Temperatures, at Halifax, for each of the twenty-four hours, from
Di-hourly Observations in the three years 1867-69.

HOOR.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR
Midn.	18.83	20.90	24.12	33.05	42.72	52.75	58.79	58.97	54.07	42.78	34.85	23.63	38.79
1 a.m.	18.24	20.32	23.11	32.15	42.11	51.92	57.78	58.04	53.53	42.51	34.65	23.47	38.15
2 "	17.40	19.74	22.09	31.36	41.44	50.89	56.64	57.13	52.82	41.86	34.14	23.28	37.40
3 "	16.70	19.28	21.55	30.85	40.73	50.06	55.88	56.63	52.27	41.16	33.59	23.06	36.81
4 "	16.49	19.09	21.39	30.70	40.49	50.15	55.96	56.61	52.04	40.83	33.34	23.05	36.68
5 "	16.63	19.12	21.35	31.06	41.33	51.51	57.01	57.09	52.21	40.97	33.38	23.27	37.08
6 "	16.72	19.23	21.64	32.12	43.26	53.69	58.77	58.32	53.00	41.49	33.48	23.45	37.94
7 "	16.75	19.58	22.83	33.94	45.71	56.08	61.02	60.57	54.79	42.52	33.70	23.52	39.25
8 "	17.20	20.54	24.98	36.24	48.21	58.46	63.78	63.61	57.21	44.36	34.45	23.88	41.08
9 "	18.47	20.26	27.65	38.58	50.66	60.93	66.72	66.70	59.85	46.94	35.90	24.91	43.30
10 "	20.39	24.30	30.24	40.59	53.02	63.30	69.23	69.17	62.30	49.56	37.60	26.38	45.50
11 "	22.07	26.09	32.30	42.77	54.95	65.14	70.90	70.78	64.21	51.42	38.91	27.74	47.27
Noon.	23.38	27.44	33.57	43.83	56.04	66.23	71.99	71.83	65.36	52.29	39.61	28.70	48.36
1 p.m.	24.16	28.44	34.10	44.91	56.21	66.65	72.51	72.54	65.92	52.62	39.86	29.17	48.95
2 "	24.38	29.03	34.15	45.19	55.98	66.66	73.30	72.88	66.22	52.77	39.73	29.04	49.11
3 "	23.96	28.90	33.75	44.57	55.55	66.49	73.17	72.65	66.06	52.35	39.13	28.28	48.74
4 "	23.01	27.90	32.68	43.31	54.87	66.08	72.33	71.63	64.78	50.88	38.11	27.19	47.73
5 "	21.88	26.35	30.97	41.73	53.46	65.04	70.81	69.54	62.27	48.62	37.03	26.17	46.18
6 "	20.98	24.83	29.15	39.84	51.14	62.95	68.53	67.37	59.48	46.69	36.29	25.38	44.39
7 "	20.37	23.74	27.67	37.76	48.49	59.98	65.68	64.63	57.44	45.65	35.02	24.81	42.68
8 "	19.95	23.09	26.52	35.93	46.38	57.08	62.89	62.19	56.22	45.10	35.64	24.45	42.29
9 "	19.60	22.60	25.61	34.80	45.10	55.07	60.96	60.57	55.37	44.37	35.30	24.27	40.30
10 "	19.34	22.07	25.03	34.24	44.26	53.99	60.00	59.87	54.72	43.51	34.99	24.10	39.68
11 "	19.13	21.48	24.68	33.32	43.47	53.38	59.45	59.52	54.36	42.95	34.56	23.85	39.20
Mean	19.83	23.18	27.18	37.20	48.15	58.52	64.35	64.13	58.19	46.01	36.02	25.21	42.33

If the difference of each hourly normal in excess or defect from the means for twenty-four hours given at the foot of each column be taken, we have the diurnal variations given in Table III.

TABLE III.

Mean Diurnal Variations of Temperature, at Halifax, for each month and for the year, from
Bi-hourly Observations in the years 1867-69.

HOOR.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR.
Midn.	-1.00	-2.28	-3.01	-3.15	-3.42	-3.77	-3.56	-3.16	-1.12	-3.23	-1.17	-1.58	-3.54
1 a.m.	-1.69	-2.86	-4.02	-5.05	-6.04	-6.60	-6.57	-6.09	-4.66	-3.50	-1.37	-1.74	-4.18
2 "	-2.43	-3.44	-5.04	-5.84	-6.71	-7.03	-7.71	-7.00	-5.37	-4.15	-1.85	-1.93	-4.93
3 "	-3.13	-3.90	-5.68	-6.35	-7.42	-8.40	-8.47	-7.50	-5.92	-4.85	-2.43	-2.15	-5.52
4 "	-3.34	-4.09	-5.74	-6.50	-7.66	-8.37	-8.39	-7.52	-6.15	-5.18	-2.68	-2.16	-5.85
5 "	-3.20	-4.06	-5.78	-6.14	-6.82	-7.01	-7.31	-7.04	-5.98	-5.04	-2.64	-1.94	-5.25
6 "	-3.11	-3.95	-5.49	-5.98	-6.89	-7.83	-7.58	-6.81	-5.13	-4.62	-2.54	-1.70	-4.39
7 "	-3.08	-3.60	-4.30	-3.26	-2.44	-2.44	-3.32	-3.56	-3.40	-3.49	-2.32	-1.09	-3.08
8 "	-2.63	-2.64	-2.15	-0.96	+0.06	-0.06	-0.57	-0.52	-0.98	-1.05	-1.57	-1.33	-1.25
9 "	-1.30	-0.92	+0.52	+1.38	+2.51	+2.41	+2.37	+2.57	+1.66	+0.93	-0.12	-0.30	+0.97
10 "	+0.47	+1.12	+3.11	+3.39	+4.87	+4.78	+4.83	+5.04	+4.11	+3.55	+1.58	+1.17	+3.17
11 "	+2.24	+2.91	+5.17	+5.57	+6.80	+6.62	+6.55	+6.65	+6.02	+5.41	+2.89	+2.53	+4.94
Noon.	+3.55	+4.20	+6.44	+6.63	+7.89	+7.71	+7.64	+7.70	+7.17	+6.28	+3.59	+3.49	+6.03
1 p.m.	+4.33	+6.20	+6.97	+7.71	+8.09	+8.13	+8.46	+8.41	+7.73	+6.01	+3.84	+3.96	+6.62
2 "	+4.55	+5.85	+7.02	+7.99	+7.81	+8.14	+8.95	+8.75	+8.03	+6.76	+3.71	+3.83	+6.78
3 "	+4.13	+5.72	+6.62	+7.37	+7.40	+7.97	+8.82	+8.52	+7.87	+6.34	+3.11	+3.07	+6.41
4 "	+3.18	+4.72	+5.55	+6.11	+6.72	+7.66	+7.98	+7.52	+6.59	+4.87	+2.09	+1.98	+5.40
5 "	+2.05	+3.17	+3.84	+4.53	+5.31	+6.52	+6.46	+5.71	+4.08	+2.64	+1.01	+0.96	+3.85
6 "	+1.15	+1.65	+2.02	+2.64	+2.99	+4.43	+4.18	+3.24	+1.29	+0.68	+0.27	+0.17	+2.06
7 "	+0.54	+0.56	+0.54	+0.56	+0.34	+1.46	+1.31	+0.50	-0.75	-0.36	-0.10	-0.40	+0.35
8 "	+0.12	-0.09	-0.60	-1.27	-1.77	-1.44	-1.46	-1.94	-1.97	-0.91	-0.38	-0.76	-1.04
9 "	-0.23	-0.58	-1.62	-2.40	-3.05	-3.45	-3.39	-3.56	-2.82	-1.64	-0.72	-0.94	-2.03
10 "	-0.49	-1.11	-2.16	-2.96	-3.89	-4.63	-4.35	-4.26	-3.47	-2.50	-1.03	-1.11	-2.65
11 "	-0.70	-1.70	-2.45	-3.88	-4.68	-5.14	-4.90	-4.61	-3.83	-3.06	-1.16	-1.36	-3.13

One of the uses of Table III. is to supply corrections to the monthly means derived from less frequent observations' at the same station in other years, so as to render them more comparable with the means derived from an hourly or bi-hourly series.

This has been done in the case of the temperatures at Halifax in 1870, when the observations were taken at equal intervals of four hours, commencing at 4 a.m. The corrections (which are very small) were applied to the monthly means for 1870, and the corrected means were then combined with the monthly means for the years 1867, 1868, and 1869, as shown in the following table.

	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.
1870, uncorrected	29.48	23.79	28.53	40.79	46.39	59.18
Corrections for Diurnal Variation	+0.02	+0.02	-0.08	+0.02	+0.03	+0.06
1870, corrected for Diurnal Variation	29.50	23.81	28.45	40.81	46.42	59.24
1867-1870	22.24	23.34	27.46	38.10	47.72	58.70

	JULY.	AGG.	SEPT.	OCT.	NOV.	DEC.	YEAR.
1870, uncorrected	64.56	64.27	56.51	48.15	38.92	30.78	44.28
Corrections for Diurnal Variation	+0.06	-0.01	-0.09	-0.03	+0.02	+0.06	+0.01
1870, corrected for Diurnal Variation	64.62	64.26	56.45	48.12	38.94	30.84	44.29
1867-1870	64.42	64.16	57.76	46.54	36.75	26.61	42.82

An interpolating formula being constructed from the twelve monthly means in the lowest line, on the assumption that they are the temperatures proper to the *middle days* of the several months; if the coefficients calculated on this erroneous assumption be multiplied respectively by the following factors, the expression given below is obtained, in which T_n denotes the daily mean temperature at any time n , reckoned from January 15, the unit of time being the twelfth part of the year.

$$\frac{\frac{\pi}{12}}{\sin \frac{\pi}{12}} ; \quad \frac{2 \frac{\pi}{12}}{\sin 2 \frac{\pi}{12}} ; \quad \&c. \quad \frac{6 \frac{\pi}{12}}{\sin 6 \frac{\pi}{12}} ;$$

$$T_n = 42.82 + 21.82 \sin (n \times 30^\circ + 256.48) + 0.77 \sin (2n \times 30^\circ + 55) \\ + 0.18 \sin (3n \times 30^\circ + 252) + 0.25 \sin (4n \times 30^\circ) \\ + 0.89 \sin (5n \times 30^\circ + 5) + 0.14 \sin (6n \times 30^\circ + 270)$$

From the preceding equation which, by giving suitable values to (n), expresses the *normal* daily mean temperature at Halifax on every day in the year, the mean temperatures of the warmest and coldest days are found, together with the days of their occurrence, and the days on which the daily mean passes through its mean annual value.

Warmest day, August 28. Mean temperature, $64^\circ.90$.

Coldest day, January 13, 14. Mean temperature, $21^\circ.95$.

In Spring, the mean of the day is below the mean of the year on April 29, and exceeds it on April 30.

In Autumn, the mean of the day passes through its annual value between October 25 and October 26.

TABLE IV.

COMBINATION.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	
Arithmetic Means from 7, 2, 9.....	+0.41	+0.56	+0.49	+0.78	+0.77	+0.75	
7, 2, 9, 9	+0.25	+0.27	-0.03	-0.02	-0.18	-0.30	
6, 2, 10	+0.32	+0.26	-0.19	-0.02	-0.32	-0.41	
COMBINATION.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR.
Arithmetic Means from 7, 2, 9.....	+0.75	+0.54	+0.60	+0.54	+0.22	+0.40	+0.56
7, 2, 9, 9	-0.29	-0.48	-0.25	-0.00	-0.01	+0.06	-0.09
6, 2, 10.....	-0.33	-0.43	-0.19	-0.09	+0.05	+0.32	-0.09

In Table IV are shown the errors in the approximate monthly means when the daily mean is considered as the simple arithmetic means of the temperatures observed at 7 a.m., 2 p.m. and 9 p.m., and of those observed at 6 a.m., 2 p.m. and 10 p.m.; and also when the daily mean is taken as equal to the *fourth* part of the sum of the temperatures at 7 a.m., 2 p.m., and *twice* the temperature at 9 p.m.

It is seen that the arithmetic mean of observations at 7 a.m., 2 p.m. and 9 p.m., gives a result too high by $0.^\circ 56$ on the average of all months, and nearly eight-tenths too high from April to July.

The arithmetic mean of observations at 6 a.m., 2 p.m. and 10 p.m., is in no case more than half a degree in error; it is too high from November to February, and too low during the rest of the year, the average error irrespective of sign being a quarter of a degree, and the error in the annual mean less than one-tenth in defect.

When the observation at 9 p.m. is reckoned *twice*, the greatest error which occurs in any month is slightly greater, but the average error of the twelve monthly means, the signs of the errors being disregarded, is $0.^\circ 18$, and the error in the annual mean the same as in the preceding case.

These results accord in their general character with the experience of other places at which the observations have been sufficiently frequent for determining the diurnal variations.

As regards suitability for yielding daily means, 7, 2, 9, 9, and 6, 2, 10, may be regarded as of nearly equal merit; and as 7, 2, 9, are in many respects more convenient to observers than the other combination, and less liable therefore to interruptions, these hours are recommended to those observers in Canada who read their instruments three times each day.*

The numbers in Table III, as the title states, are the *monthly means* of the diurnal variations, and are only adapted therefore for the reduction of *monthly* means at single hours to monthly means for all hours, and for the converse reduction. Comparison of like hours in contiguous months will show a considerable difference in the analogous variations. To correct *daily* means, therefore, it is necessary to possess tables in which diurnal variations are given at much shorter intervals. As three years is scarcely sufficient for the elimination of accidental irregularities, the computation of the diurnal variations for every fifth day

* 7 a.m., 2 p.m. and 9 p.m., have been adopted for many years by the Smithsonian Institution.

has been postponed till at least two more years have been added to the series. For a like reason, the discussion of questions relating to the comparative variability of different months, and of daily means at different parts of the year, has not been undertaken. The collection of suitable materials for Halifax is however in progress, as Mr. Allison has been observing at equal intervals of three hours since the beginning of 1871.

It was stated at the commencement of this article, that besides the corrections for diurnal variations, or those needed to compensate for the insufficient frequency of the observations, corrections are also required in order that observations taken during a few years may be rendered comparable with those continued during a long series of years.

In procuring data for the second class of corrections some other observers have made considerable progress; but in order to give full effect to their past work, it is requisite that they should undertake for a few years at least equidistant-observations at intervals not exceeding three hours. Among these, Mr. Murdoch, C. E., of St. John's, New Brunswick, who has been actively engaged in Meteorology for more than ten years, is about, it is believed, to commence a system of three-hour intervals. Should he persevere in this undertaking for four or five years, his series will be inferior to that of no station now in correspondence with Toronto.

It is much to be desired also that a three-hour system could be established under Dr. Smallwood, at Montreal, and Capt. Ashe, at Quebec, in order that their observations in past years may be more effectively utilized.

In connection with the subject of diurnal variations it is satisfactory to mention that, through the kindness of the Rev. Dr. Fyfe, President of the Canadian Literary Institute, the Baptist College at Woodstock, Ontario, Mr. Montgomery, the mathematical tutor, with other officers of the establishment, have been engaged for some months in taking observations of the temperature, day and night, at equal intervals of three hours. Mr. Montgomery is fully alive to the importance of accuracy; and as his arrangements are very excellent, it is anticipated that valuable aid will be supplied by his labours towards the reduction of observations in other parts of West Ontario.

THE PHARAOH OF THE EXODUS IDENTIFIED IN THE MYTH OF ADONIS.

BY THE REV. J. CAMPBELL, M.A.

Read before the Canadian Institute, March 11th, 1871.

The title of this paper plainly proclaims its writer a student of that old and much abused school of mythology, which Euhemerus is supposed to have founded more than two thousand years ago. I am convinced, with this ancient, that the gods and heroes, about whose descents and deeds mythology is concerned, were neither the creatures of fancy nor personifications of moral qualities and natural phenomena, but real men and women, who once played their parts upon the world's stage, and who, for the good or evil in them, were deified by their subject contemporaries or by their descendants. I am not disposed altogether to discard the *ethical* and *physical* solutions, of which Prof. Max Müller speaks in the second series of his Lectures on the Science of Language,¹ nor his own *philological* solution of the question, "Whence came myths?" It seems abundantly evident that many old classical tales were put into the shape in which they have come down to us by men who desired to point a moral; that some were made vehicles to convey astronomical and other physical truths; and that corruptions or changes of language facilitated the growth of not a few, as Bochart attempted to show in the case of *équivoques* between the Greek and Phœnician languages.² But I hold, and believe that, as I prosecute my studies in this department of literature, I shall be compelled still more firmly to hold, that the *historical solution*, however much it may have been abused by great men, such as Vossius,³ Bochart, Huet,⁴ Baniers⁵ and Bryant,⁶ is the only one that solves the *ultima ratio* of Mythology, and leaves no residuum of miraculous inventive power on the part of the ancients to be accounted for otherwise. While I rejoice in the testi-

¹ Lectures on the Science of Language, Second Series, lecture ix.

² Bochart, *Phaleg*. L. i, c. 1.; *Canaan*, L. i, c. 28.; 1692.

³ Vossius, G. J. *de origine ac progressu idololatriæ*, 1641.

⁴ Huet, P. Dan. *Demonstratio Evangelica*, 1680.

⁵ Banier, Ant. *La mythologie et les fables expliquées par l'histoire*, 1728.

⁶ Bryant, James, *New System, or an Analysis of Ancient Mythology*, 1773.

mony given by the Apologist Fathers of the Christian Church⁷ in favour of a doctrine that received support from such enlightened heathens as Hecataeus of Abdera,⁸ Diodorus Siculus⁹ and Cicero;¹⁰ in the adhesion to it of many of the greatest divines of France, Catholic and Reformed;¹¹ and in the countenance afforded by the Christian philosopher, Sir Isaac Newton,¹² together with some of the brightest lights in the Church of England:¹³ I am very far from supposing, with certain of them, that the stories of antiquity are mere corruptions of parts of the Sacred Narrative. Still less would I be disposed to accept Mr. Gladstone's remarkable theory, that Mythology is a poetical exhibition of the truths of Divine Revelation.¹⁴

My position is simply this. The Old Testament contains a record of events which, from their connection with civilized nations, deserve to be called historical, as distinguished from others that happened to individuals and obscure tribes; such I conceive to have been the destruction of the cities of the Plain and the exodus of the Israelites from Egypt. The truthful nature of the record, in regard to later historical events, is attested by existing monuments and by profane historians, in whose general veracity the scientific world is pretty well agreed. We have reason, therefore, to believe that the earlier events recorded have an equal basis of truth; and that, if profane records existed of what occurred at the same time and in the same neighbourhood, confirmation would not be lacking in their case. In regard to time, we cannot complain of the Greek historians: some of these go far enough back into the past to satisfy the zeal for antiquity of the late Baron Bunsen. Neither do we find any difficulty in regard to place: Syria, Phœnicia, Arabia, Egypt, Ethiopia and Libya are well described, and the history of many of these countries given at length. But, restricting ourselves to the limits which both of these elements (time and place) impose upon our research, we find nothing that is generally received as historical: all is mythology! Shall we at once conclude that search is hopeless, in view of what certain superstitious Greeks and fanciful

⁷ Tertullian, Clement of Alexandria, Origen, Minucius Felix, Lactantius, Arnobius, Eusebius, Augustine, all favoured the system of Euhemerus, and argued upon it as a basis against Paganism.

⁸ Ap. Eusebii, *Præp. Evangel.* L. iii, et ap. Clem. Alex. *Stromata*, v.

⁹ *Bibliotheca Historica*, L. i, c. 7, L. iii, c. 29; *Frag. ap. Euseb. Præp. Ev.* L. ii.

¹⁰ *De Natura Deorum*, Lib. iii.

¹¹ As Bossuet, Banier, Huet, Thomassin, Tournemine, Bochart, Le Clerc.

¹² *The Chronology of Ancient Kingdoms Amended.*

¹³ Usher, *Stillingfleet*, Cumberland, Shuckford, &c.

¹⁴ *Homer and the Homeric Age. Juventus Mundi.*

Germans have said concerning myths; or shall we, emboldened by the example of many great men and true scholars in the past, and undeterred by their partial failure, give the myth another opportunity of proving itself to be history in disguise? My practical answer to this question has been an enquiry into the mythology, not only of ancient Greece and Rome, but of India, Persia, Arabia, Egypt, and even of the Germanic and Celtic races; the end of which, I trust, may be the formation of a System of Comparative Mythology, that will furnish us with the history of a period too long regarded as pre-historic.

Among the many myths that have occupied my attention of late, and for which I profess to have found solutions, I have chosen for the subject of my first paper that of ADONIS; the principal reason for this choice being that the story itself, and the historical narrative with which it is compared, are within the reach of every intelligent reader. In the case of identity which it will be my aim to prove, I might make my proof much stronger by means of connections furnished in Hindoo mythology and Persian mythical history; but, as these connections are only confirmatory, and not essential to the argument, I prefer to restrict myself mainly to what is said on Egyptian monuments and by Greek writers, bearing upon the two characters that are to be reduced to unity.

The scene of the story of Adonis is laid either in Cyprus, or near Byblus in Phœnicia, and it formed the subject of an annual ceremony observed in almost every Grecian city of any importance. The story of the Exodus, on the other hand, belongs almost entirely to Egypt, only connecting in a very secondary way with Arabia Petraea and Palestine. That the story of Adonis came from the East there can be no doubt. The very name Adonis, as the Hebrew *Adonai* (Lord), sufficiently indicates its Syrian or Phœnician origin. Since we have thus a clear case of the transportation of a well-known story and an all but universal rite from an oriental and *so-called* Semitic region into the midst of a *so-called* thoroughly Indo-European population, why may we not, after examining more closely into rite and story, find them exotic even in Asiatic Phœnicia, and discover their original habitat among the *so-called*¹⁵ Hamites of the world's cradle, African Egypt. There is no

¹⁵ I use the word *so-called* in the above triple connection because I can find no evidence that the Phœnicians were originally in any appreciable degree a Semitic people, the rulers of Egypt a Hamitic stock at all, or the Greeks (a very mixed race) free from admixture of both these elements with their Aryan base. To ignore Syria, Palestine and Egypt, in connection with the spread of the Aryans and their civilization, is to shut the eyes wilfully to evidence monumental,

reason why the story should not be traced beyond Phœnicia and to Egypt, if proof can be given of the connection by migration or commercial and literary intercourse of Egypt, Phœnicia and Greece. This I shall endeavour to give, first of all. My three propositions will thus be the following :

1. That Egypt, Phœnicia and Greece were most intimately connected in various ways from very ancient times.

2. That Acencheres Mesphres Thothmosis was the Pharaoh of the Exodus, and that in his reign this intimate connection existed.

3. That the circumstances connected with the death of the Pharaoh of the Exodus, his names and parentage, clearly point him out as the Adonis of Phœnicia and Greece.

I.—EGYPT, PHŒNICIA AND GREECE WERE MOST INTIMATELY CONNECTED IN VARIOUS WAYS FROM VERY ANCIENT TIMES.

Greece and Egypt.—In taking up the direct connections between Egypt and Greece, the difficulty, with any attentive reader of the Greek historians, is one of selection,—so numerous are the links with which they bind the two countries together. Herodotus plainly states that the gods of Greece, originally Egyptian, were introduced by the Pelasgi,¹⁶ and Diodorus says much the same regarding their origin.¹⁷ These statements have been confirmed by the researches of Creuzer,¹⁸ Guigniaut,¹⁹ and many other students of mythology in recent times. Herodotus, Theopompas, Apollodorus, Diodorus Siculus, Pausanias, with a crowd of other writers, including many poets and the dramatists, agree in drawing a large number of the heroes and great families of mythical Greek history from Egypt. Thus Ogyges founds Egyptian Thebes, and gives his name to the whole country;²⁰ Peloponnesus is called the Apian land after Pelops, who is the Egyptian Apis;²¹ and Actis, head of the Rhodian line, founds Heliopolis.²² Not only is

traditional, geographical and philological, that has been accumulating for ages. Nothing can be more certain than that the whole sea-coast of the Mediterranean, north, south and east, was held, in Phœnicia, Palestine, Egypt and Libya, equally as in Asia Minor, Greece and Italy, by the family of nations now called Indo-European.

¹⁶ Herodot. L. ii, c. 52.

¹⁷ Diod. Sic. L. i, c. 7, &c.

¹⁸ Creuzer, *Symbolik und Mythologie der alten Völker*, 1819.

¹⁹ Guigniaut, *Religions de l'Antiquité*, 1825.

²⁰ Guigniaut, vol. iii, p. 88; Banier, vol. iii, p. 33.

²¹ Pausanias, L. ii; Augustine, *Civ. Dei*. L. xviii, c. 5.

²² Diod. Sic. L. v, c. 35.

Cecrops brought from Sais,²³ but Erechtheus,²⁴ Petes, and even Menestheus, his son, who led the Athenians in the Trojan war, are made Egyptians; ²⁵ while Sais, with its tutelary divinity, Neith, is made the abode of the original Athene.²⁶ The Argive line, commencing with Io, who gives birth in Egypt to Epaphus, a purely Egyptian name,²⁷ and including Danaus and Aegyptus, Lynceus, and even Perseus, all natives of Chemmis,²⁸ is thoroughly Egyptian. The people of Laconia and Megaris connect with this ancient land in Lelex.²⁹ Orpheus and Homer, who make such frequent allusions to Egypt, are said to have learned wisdom on the banks of the Nile,³⁰ whence came the Orphic mysteries.³¹ Many arts and sciences cultivated among the Greeks have the same origin assigned them.³² From Egypt Herodotus derives the Grecian amour; ³³ and the scenes of many well-known fabulous narratives, such as that of Prometheus, are placed in that country.³⁴

Greece and Phœnicia.—With Phœnicia we may include the whole sea-coast of Palestine, inhabited by a homogeneous people. At Paltus, we are told, Memnon lies buried.³⁵ From Sidon, Cadmus carried Phœnician letters to Greece,³⁶ and there Paris stopped with Helen on their way to Troy from Lacedæmon.³⁷ In Accho, Hercules was bitten by a serpent.³⁸ To Dora Mazocchi assigns the origin of the Dorian race.³⁹ The great battle of Perseus with the sea monster, almost all geographers are agreed in placing near Joppa.⁴⁰ Even Ascalon was founded by a brother of Tantalus, the father of Pelops,⁴¹ although the Lydian narrative ascribes its foundation to a general of Alcimus of Lydia,⁴¹ and the

²³ Theopompus ap. Euseb. Prep. Ev. l. x, c. 10; Proclus ap. Tim. Plat., Diod. Sic. i, 16; Cedrenus, J. Tzetzes, Suidas, &c.

²⁴ Diod. Sic. l. i, S. i, c. 16.

²⁵ Lycophron, v. 3, Schol.; Guignaut ii, 719, &c.

²⁷ Herod. ii, 153, iii, 27: "Aps is the god whom the Greeks call Epaphus." Epaphus must connect with Apophis, the type of evil in Egypt, and the name of the Shepherd King, who reigned nearly 100 years.

²⁸ Herod. ii, 91, vi, 53; Diod. Sic. i, 16, &c.

²⁹ Pausanias, i, p. 95.

³⁰ Diod. Sic. l. i, S. ii, c. 36; Herod. ii, 51.

³² Zonaras, quoted by Bryant in his Analysis, &c., vol. i, p. 22.

³³ Herod. iv, 180.

³⁴ Diod. Sic. l. i, S. i, c. 9.

³⁵ Simonides ap. Strab. l. xv, c. 3, ¶ 3.

³⁶ Euseb. Chronic. ap. Jsserii Annal. Vet. Test.; Banier, iii, 71, &c.

³⁷ Homer's Iliad, vi, 290; Vid. Herodot. ii, 116.

³⁸ Stephanus Byzant. Ptolemaus.

³⁹ Anthon's Classical Dictionary Art. Paestum.

⁴⁰ Strabo, l. i, c. 2, ¶ 36; Pomp. Mela, l. i, c. 11; Pliny, ix, 5; Solinus, xxxiv, 1.

⁴¹ Steph. Byz. Ascalon.

⁴¹ Xanthus ap. Steph. Byz. Ascalon.

Arabian to a man of Ludim of Amalek.⁴² The Bœotian connection with Phœnicia in Cadmus is maintained by the story that Ogyges fled from Phœnicia to Acte, afterwards called Attica.⁴³ Two Germans—Movers, in his "Phœnicians,"⁴⁴ and Hitzig, in his "Philistines"⁴⁵—have done much to show how intimate were the relations subsisting between these two branches of the Phœnician stock on the one hand, and the Greeks on the other. Mr. Gladstone, in his recent work, "Juventus Mundi," dwells largely on the debt which Greece owed to Phœnicia, and on the strong Phœnician domination exerted in Greece from Crete as a centre.⁴⁶ Hitzig almost goes so far as to say that Crete colonized Greece with Phœnicians, and Philistia with Pelasgians.⁴⁷ My own belief is that the tide of emigration was all in one direction, from south-east to the north and westward, and that Philistia and Phœnicia were stages in the progress of one of the streams that flowed from Egypt to civilize the world. This is the view of Freret and Raoul Rochette, who regard the Hysesos or Phœnician pastors of Egypt as the authors of Greek and Roman civilization.⁴⁸

Egypt and Phœnicia.—In considering the connections of Egypt and Phœnicia with each other, we pass from what historians have been pleased to regard as the untrustworthy accounts of ancient authors, to surer ground in existing monuments. Lenormant and Chevalier, in their valuable Manual of Oriental History,⁴⁹ state, from monumental evidence, that the Egyptian empire, at the beginning of the eighteenth dynasty, extended to Phœnicia, and that "the Sidonians, in common with all the neighbouring populations, were subject to the Egyptians, and remained so during the whole period of the eighteenth, nineteenth and twentieth dynasties, from the first half of the seventeenth till the end of the thirteenth century B.C. * * * The hieroglyphic inscriptions frequently speak of the tributes, the arts and the riches of Phœnicia. * * * The Pharaohs of this period have left great steles, commemorative of their supremacy, on the rocks of Nahr-el-Kelb, near Beyrut, and at Adlun, near Tyre. * * * A valuable papyrus, now in the British

⁴² Ritter's Comparative Geography of Palestine, iii, 263.

⁴³ Thallus ap. Theophil. ad Autolye.

⁴⁴ Movers, die Phœnizier.

⁴⁵ Hitzig, Urgeschichte und Mythologie der Philistæer.

⁴⁶ Gladstone, Juventus Mundi, p. 121, &c.

⁴⁷ Hitzig, die Philistæer, B. i, cc. 2, 3, 4.

⁴⁸ Freret, Recueil de l'Académie des Inscriptions, vol. 47; Raoul Rochette, Histoire de l'établissement des Colonies grecques i, c. 4, p. 60.

⁴⁹ A Manual of the Ancient History of the East to the commencement of the Median Wars, translated from the French of F. Lenormant and E. Chevalier: London, 1869-70.

Museum, contains the account of an imaginary journey made into Syria by an Egyptian functionary, at the end of the reign of Rameses II., after the conclusion of the final peace with the Hittites."⁵⁰ These and similar facts, the records of which abound upon the walls of Egypt's temples and palaces, abundantly establish the existence of relations of the most intimate kind between the two countries.

In view of the intercourse which thus appears to have been maintained from a very early period between the three peoples—Egyptians, Phœnicians and Greeks—there can be no antecedent improbability in the supposition or assumption that the knowledge of one of the greatest national calamities the world has ever seen, happening to one of them, should be possessed and retained by the others. If, as is not unlikely, the story were imported by emigrants from the land in which the event it described took place, it would be told and handed down in such a way as would naturally give wrong ideas of persons and places. Thus, an Alsatian removing to the German side of the Rhine might entertain his children with stories of "the Emperor" and "his people," by which he would mean Napoleon and the French, and which they would be in danger of interpreting William and the Germans. The Phœnician, midway between the Egyptian and the Greek, presents a somewhat analogous case. We need not then be surprised to find Pharaoh disguised in Phœnician or even in Greek wrappings. These circumstances of time and place have been found to vary so greatly even in regard to modern stories with a well-ascertained historical basis, that the identity of ancient characters and events should no more be measured by them than the personal identity of a man by the cut of his clothes. Considerations such as these, however, come more within the province of my third proposition.

II.—ACENCHERES MESPHERS THOTHMOSIS WAS THE PHARAOH OF THE EXODUS; AND IN HIS REIGN THIS INTIMATE CONNECTION EXISTED.

The Bible is the only ancient record that gives us anything like a straightforward account of the Exodus of Israel from Egypt. We have other partial and disguised narratives from profane writers, in the works of Josephus,⁵¹ and Eusebius.⁵² Diodorus Siculus reports a tradition of the Ichthyophagi, to the effect that, on one

⁵⁰ Lenormant and Chevalier's Manual, vol. ii, p. 160.

⁵¹ As those of Manetho, Chaerephon and Lysimachus.

⁵² As those of Manetho, Artapanus and Polemo.

occasion, the tide of the Red Sea went out so far as to leave dry the part usually covered with green water, but soon returned to its bed.⁵³ Trogus Pompeius also, the abbreviator of Justin, gives an account of the departure of Moses from Egypt with much stolen property, after which the Egyptians sought to go, but were driven back by a tempest.⁵⁴ Tacitus tells the story at greater length, and with greater inaccuracies.⁵⁵ It is only in the extracts from Manetho and other Egyptians, contained in Josephus and Eusebius, that we find names given to the Pharaoh of the Exodus, from which anything can be deduced by comparison with the Egyptian inscriptions. The book of Exodus is silent in regard to the name of the monarch, although it clearly points him out as the son of the first oppressor of Israel, and apparently the second of a line new to Lower, but not necessarily to Upper Egypt.⁵⁶ It also informs us of the names of his treasure cities, which, like the Alexandrias, Ptolemais and Cæsareas of later times, doubtless commemorated himself or some member of his family. These were Pithom and Raamses,⁵⁷ the Pi of the former being the Coptic article, and the Thom the name of a God;⁵⁸ the latter being identical with the dynastic name Rameses. The name of the god Thom or Thum occurs in the name Thummosis, made the same as Thothmosis by Manetho.⁵⁹ Now, no such name as either Thothmosis or Rameses occurs before the so-called⁶⁰ 18th dynasty of Manetho; and all the kings bearing these names are found between the 18th and 20th dynasties. The 18th dynasty is not only entirely different in character from that which precedes it, a Shepherd line, but is represented as having erected or at least greatly extended its empire upon the ruins of the Shepherd power. The first of this new race, Amosis, also called Thothmosis and Alisphrag, or Misphrag-nuthosis, drove out the Shepherds.⁶¹ After this Amosis, or Ahmes as he is generally called, are

⁵³ Diod. Sic. L. iii, c. 20.

⁵⁴ *Historia Philippica*, L. xxxvi, c. 2.

⁵⁵ Tacitus *Histor.* L. v, c. 2.

⁵⁶ Exod. i, 8.

⁵⁷ Exod. i, 11.

⁵⁸ Lepsius' *Letters from Egypt*, &c.; Bohn, p. 448, note.

⁵⁹ Josephus *Cont. Ap.* i, sec. 14.

⁶⁰ There is no foundation, beyond the ingenious result of Manetho's multiplying powers, for anything like this number even of contemporary dynasties. There were no more than three consecutive dynasties in Egypt from the beginning of sovereignty there till the Exodus of Israel, a well marked period, when Proteus or Anarchy arose; the first, of the old Menes or Mencherian line, the second of the so-called Shepherds, and the third, which came of a line that, descending from the first rulers of Egypt, had governed Upper Egypt contemporaneously with the Shepherds, and that had strengthened itself by Assyrian or Asiatic alliances, until it became strong enough to resume the dominion which its ancestors had lost.

⁶¹ Josephus *Cont. Ap.* i, sec. 14, &c.

placed the Thothmoses to the number of four; and the Rameses to the number of fourteen represent the 19th dynasty. My firm conviction is that Thothmosis and Rameses are different names for the same individual. Time will permit me to do little more than to indicate the line of argument which I would pursue in order to justify this statement.

1. Their shields, giving not only the name Thothmosis or Rameses, but also various titles of honour, are found confusedly (if they be different persons) on many buildings, which one or more Thothmoses and many Rameses are together represented as erecting, so that there is hardly a temple of a Thothmosis that a Rameses is not supposed to have finished two hundred years after.⁶²

2. They overcame the same enemies in the same localities, and have the same products presented to them as tribute by the same peoples, under precisely similar circumstances.⁶³

3. In their family relations, the names of their wives, the gods worshipped by them, and the length of their reigns, as well as in their immediate ancestors, there are great points of resemblance, that might be termed remarkable coincidences, to which the history of other lands and ages affords no parallel.⁶⁴

4. Tacitus ascribes the tablet, expounded by the Egyptian priests in the hearing of Germanicus, to a Rameses;⁶⁵ but Osburn and others agree that it is of Thothmosis.⁶⁶ This very statistical tablet of Karnak mentions the setting up of a stele in Naharaina, and the form of the stele, as represented in the inscription, exactly corresponds with those cut in the rock at Nahrelkelb bearing the image of Rameses III.⁶⁷

Pliny seems to indicate,⁶⁸ and Ammianus Marcellinus plainly states, in his Greek translation of the hieroglyphic inscription,⁶⁹ that the obelisk now in the Piazza del Popolo at Rome was erected by a Rameses, while it really bears the name of Thothmosis IV.⁷⁰

⁶² Kenrick's *Ancient Egypt* under the Pharaohs, ii, 181, 215, 224; De Lanoye's *Rameses the Great*, translated, New York, 1870, p. 172; Lepsius' *Letters from Egypt*, 248-9.

⁶³ Kenrick, ii, 216; also compare 178 and 213. Lenormant and Chevalier, i, 240, &c.; Kenrick, ii, 226; Rawlinson's *Herodotus*, Appendix, book ii, c. 8, p. 310.

⁶⁴ As the female regent that is found with similar relationships in each case; the names common to queens of Thothmoses and Rameses, Ahmes, Nofre Ari and Atari; the gods Ra Thoth, Anun, &c.; the two long reigns of Thothmosis III. and Rameses II.; and the descent of each from Horus.

⁶⁵ Tacitus *Annales*, ii, 60.

⁶⁶ Osburn, ii, 453; Kenrick, ii, 192.

⁶⁷ Kenrick, ii, 190.

⁶⁸ Pliny *Hist. Nat. L. xxxvi*, c. 13, &c.

⁶⁹ *Am. Marcell. L. xvii*, c. 4.

⁷⁰ Sharpe's *Early History of Egypt*.

5. Herodotus and Diodorus Siculus, who give the history of Egypt from the earliest times, with other writers who treat of ancient Egyptian affairs, know nothing either of the name Thothmosis or of that of Rameses, unless it be in the forms Rhampses and Rhampsinitus, ascribing the deeds of all the Thothmoses and Rameses to two kings both called Sesostris or Sesoois, the first of whom was a great conqueror, and the second an unfortunate Pharaoh, after whose death came Proteus or Anarchy.⁷¹

6. The Rev. W. B. Galloway, a recent suggestive writer, decides that Amosis, Thothmosis and Rameses are the same, or variations of the same name, produced by the prefixes Ra, the sun, and Thoth, Mercury.⁷² An older authority, Mr. Henry Salt, does not scruple to say, "I may remark that one of the most interesting names of kings is that of Rameses Thothmosis, who was nearly contemporary, as the best chronologists agree, with Moses."⁷³ I observe that Mr. Osburn, in a portion of a recent little work, which must have been under his supervision, permits the omission of all the Thothmoses.⁷⁴

7. An insuperable difficulty in the way of reconciling the Scripture narrative with monumental evidence as it is now taken, has all along been felt to arise from the long period of time by which the supposed two great conquerors and enslavers of the 18th and 19th dynasties were separated. The following statement of M. de Lanoye, in his little book on Rameses the Great, will illustrate this:—"Rameses II. was the persecutor of the Israelite family, whose increasing number became a subject of alarm for his policy. * * We should point out that the cruel policy practised by Rameses towards the Hebrews was not exclusively his own; it had been that of all his predecessors," among whom he specially mentions Thothmosis III.⁷⁵ If we are to believe the chronology of M. de Lanoye, which is that now generally received, two centuries at least intervened between these two men, concerning whose cruel treatment of the Israelites many monuments testify. The book of Exodus mentions only two kings in immediate succession, whose joint reigns cannot have amounted at most to one hundred years, as Israel's oppressors. In spite, therefore, of Lepsius' attempted reconciliation,⁷⁶

⁷¹ Herod. L. ii, cc. 102-112; Diod. Sic. L. i, s. 2, cc. 9-12.

⁷² Egypt's Record of Time to the Exodus of Israel, 1869, p. 90.

⁷³ Essay on Dr. Young and M. Champollion's Phonetic System of Hieroglyphics, &c.; 1825.

⁷⁴ Facts and Dates, by Dr. Mackay, 1869, the Introduction to Egyptian Chronology being written by Mr. Osburn.

⁷⁵ De Lanoye's Rameses the Great, p. 200.

⁷⁶ Lepsius' Letters, 421.

the discrepancy will remain while Thothmosis and Rameses are kept apart. Mr. Osburn, in his *Monumental Egypt*, seeing this difficulty, draws them much closer together, finding that Thothmosis was a persecutor of Israel equally with Rameses.⁷⁷ The first of the two Pharaohs of the book of Exodus must be he of whose reign bricks containing straw are first found, and on whose monuments captives with Israelitish features are represented engaged in brick-making and building. Kenrick,⁷⁸ following Rosellini, calls this monarch Thothmosis III; while M. Chabas and Dr. Brugsch, on the authority of two papyri mentioning the Aperiu or Hebrews as this subject people, and of the rock inscription at Hamamat, decide for Rameses II.⁷⁹ Admitting the impossibility of Rameses II. coming after the Exodus, if the Scripture narrative be true, I decide for both of these, and, with Mr. Salt, call the Pharaoh Rameses-Thothmosis, who is Sesostris the later, or Sesoois,⁸⁰ the conqueror of the Shepherd line, and the father of an effeminate and unfortunate son Sesoois II, Pheron, or Nuncoreus, reported by Herodotus and Diodorus to have impiously shot his arrows against the Nile, and to have become blind in consequence.⁸¹

Ancient and modern writers upon Egyptian affairs, who have not, like Mr. Salt, cut the gordian knot of the 18th and following dynasties, are divided between the Thothmoses and the Rameses as furnishing from their number the Pharaoh of the Exodus. We may as well discard the numerical designations of the kings of these names, as they may tend to confuse, and as there is not a complete agreement among Egyptologists in the use of them. The cool way in which a few Rameses are thrown in to make up a dynasty is exemplified in Prof. Rawlinson's *Manual of Ancient History*. After mentioning Rameses VIII, he says, "Six or seven other kings of the same name followed."⁸² We shall deal, therefore, only with Thothmoses and Rameses. As my argument hangs principally upon the first of these names, we may consider first the testimonies in favour of the latter.

Manetho, in one place,⁸³ and Chaeremon,⁸⁴ call the Pharaoh in whose

⁷⁷ Osburn's *Monumental History of Egypt*, vol. ii, 249, 296.

⁷⁸ Kenrick, ii, p. 194; see also *A Popular Account of the Ancient Egyptians*, by Sir J. G. Wilkinson, abridged edition, vol. ii, p. 194.

⁷⁹ Chabas, *Mélanges Egyptologiques*. Brugsch, *Aus dem Orient*.

⁸⁰ It is found that Sesou forms part of the name of Rameses II, although Thothmosis III. and Sesostris are often identified. See De Lanoy's *Rameses the Great*, Appendix v.

⁸¹ Herod. L. ii c. 3; Diod. Sic. L. I, s. 2, c. 11.

⁸² *A Manual of Ancient History*, by George Rawlinson, M.A., 1869, p. 69.

⁸³ Josephus, *Cont. Ap.* i, 26, 27.

⁸⁴ *Id.* i, 32.

reign Israel went out of Egypt, either Sethos, Rameses or Amenophis, it being distinctly stated by them that Sethos and Rameses are names of the same person, as the monuments also testify, and that Amenophis is father or son of a Rameses. Usher⁸⁵ favours the idea that a son of Rameses the Great or Sesostris was the drowned monarch; and the majority of later writers, whose opinions are of value, including the Duke of Northumberland,⁸⁶ Lepsius,⁸⁷ Osburn⁸⁸ and Lenormant,⁸⁹ give their voice for Seti Menephtah or Merenphtah, who is Chaeremon's Amenophis or Amenophath, the son of the great Rameses.

On the side of a Thothmosis we find Manetho⁹⁰ in another place, where he is plainly inconsistent with himself if Thothmosis and Rameses are not the same, Julius Africanus⁹¹ and George Syncellus,⁹² and, among the moderns, Sir J. Gardner Wilkinson, almost alone. The view of Sir J. G. Wilkinson, it is but right to state, is the only one that agrees with the Usanian or any other rational chronology of the Old Testament Scriptures. He says: "The rising of Sothis, in the reign of Tothmes III, now calculated by the learned M. Biot to correspond to between 1464 and 1424 B.C., shows that my placing his reign from 1495 to 1456 B.C. only differed from his real date by about thirty years."⁹³ Most writers place the first of the Rameses about 1320 B.C., which will not at all tally with the Scripture account of the period which follows.

The Amenophis of Chaeremon should not be set in opposition to Thothmosis, seeing that in the 18th dynasty, as given by Africanus, Eusebius, and on the tablet of Abydos, we have Amemophis, Horus, Thothmosis, Aencheres and Rameses, all together, and among them Thothmosis and Amenophis in intimate connection.⁹⁴

I am quite prepared to say, with Sir J. G. Wilkinson, that the arguments in favour of placing the Exodus after Rameses II. are exceedingly strong. It is, however, an undesigned coincidence of Eusebius with the statements of Manetho and Africanus that furnishes the strongest ground for making a Thothmosis the Pharaoh of the Exodus. In the list which he gives of the 18th dynasty, he passes by Thothmoses and Rameses, and appends to the name of an Aencheres,

⁸⁵ *Annales, Vet. Test.* p. 17.

⁸⁶ Rawlinson, *Herod. Appendix*, bk. ii. c. 8.

⁸⁷ Lepsius' *Letters*, 424.

⁸⁸ *Monumental History of Egypt*, p. 595.

⁸⁹ *Ancient History of the East*, vol. 1, p. 261.

⁹⁰ *Josephus Cont. Ap.* i, 14, 26.

⁹¹ *Ap. Euseb. Prep. Evan.* x, 10.

⁹² Syncellus, 63, B, &c.

⁹³ *Ancient Egypt, abridged*, ii, 255.

⁹⁴ Kenrick's *Ancient Egypt*, ii, 167, &c.

who stands midway between them, the note, "Under him Moses led the Jews in their exodus from Egypt."⁹⁵ The name Acencheres, either in full or in a mutilated form as Acherres, occurs twice or three times in all the lists of the 18th dynasty; and in one list, that of Africanus, as given by Du Pin in his *Bibliothèque Universelle des Historiens*, it occurs in its complete form, and, in each case, with a reign of twelve years appended.⁹⁶ The first Acencheres follows a Horus, although, on the tablet of Abydos, Rameses is the name that occupies a similar position, and Thothmosis III, in an inscription, arrogates to himself the name of Horus.⁹⁷ I may also here remark that, in the Canon of the 18th dynasty of Manetho, as given by Theophilus, Chencheres, who is this Acencheres, immediately precedes Sethos Miammu, which is a name of the great Rameses, and of him only.⁹⁸ The name Acencheres has been much overlooked by writers on Egyptian history. Mr. Osburn finds a connection for it between Mesphres Thothmosis and his son, who is at the same time his grandson, also called Thothmosis.⁹⁹ It is true, he does not identify Acencheres with either of these, but represents him as a son of the first and an uncle of the second. He shows, however, that in him the names Acencheres and Thothmosis meet, and thus reconciles the statement of Eusebius with other early records, in which a Thothmosis is made the unhappy Pharaoh. Both Thothmosis and Acencheres, from their frequent repetition, appear to be dynastic names, indicating of themselves no particular individual. On the tablet of Abydos we find Mesphres, Acencheres and Thothmosis represented by three Thothmoses; and the lists of Syncellus and Eusebius name the same trio Misaphris, Misphragmuthosis and Touthmosis. Of the latter Kenrick says: "Misaphris or Miphres and Misphragmuthosis have the appearance of both originating from a title and a phonetic name, Miphra Touthmosis or Tothmes beloved of Phre. These will be the Tothmes I. and II. of the tablet; and the Touthmosis of the lists will correspond with the Tothmes II. of the Tablet."¹⁰⁰ Misphragmuthosis is said by Manetho to have been the new Pharaoh who first subdued the Shepherds, and his son Thummosis or Thothmosis, the king in whose reign the exodus of Israel took place.¹⁰¹ In Thothmosis and his predecessor Mesphres Thothmosis, whose reign, according to

⁹⁵ Euseb. Armen. Canon, vol. ii, p. 105.

⁹⁶ Du Pin Bib. Un. des Historiens, p. 273.

⁹⁷ Osburn's Mon. His. of Egypt, ii, 300.

⁹⁸ Cory's Ancient Fragments, 158.

⁹⁹ Osburn's Mon. His. of Egypt, ii, 183, &c.

¹⁰⁰ Kenrick's Ancient Egypt, ii, 170.

¹⁰¹ Josephus Cont. Ap. i, 14.

Osburn, must have been an exceedingly long one, we must have the Pharaoh of the Exodus and the first enslaver of Israel. But there is another individual, called Mesphres, whose reign is constantly of the same length as that of Acencheres, namely, twelve years.¹⁰² Now, the death of Mesphres, father and grandfather of Thothmosis, took place in the twenty-third year of the age and reign of the latter.¹⁰³ No inscription of Thothmosis is found later than the thirty-fifth year of his age and reign, thus giving to him a true reign of twelve years.¹⁰⁴ He dwelt at On or Heliopolis, worshipped the god Ra and built a temple to him, oppressed the Israelites, inaugurated songs in his own honour in the temple of Karnak, and was adored as the great Horus and son of the sun.¹⁰⁵ The most remarkable statement, however, made in regard to him is that he was the offspring of an incestuous marriage,¹⁰⁶ a crime which, by a very strange coincidence, is not only charged upon Mesphres and his daughter Amenses, but also upon Rameses the Great and his daughter Bent Anat,¹⁰⁷ from whom doubtless came the successor of Rameses, Setei Menephtah. An inscription designates Thothmosis *Son-mautf*, brother of his mother.¹⁰⁸ We may reasonably conclude that the three dynastic names and religious designations, Acencheres, Mesphres and Thothmosis, to say nothing as yet of Rameses, Sethos and Menephtah or Merenphtah, are equally applicable to two individuals at least, one of whom stands in the double relation of father and grandfather to the other.

The name Acencheres seems to consist, like most Egyptian names, of two parts, the latter, *cheres*, common to many other words, as Mencheres, Nephcheres, Zebercheres, being a kind of Charis or strongly aspirated Horus. The first part of the name, Acen or Aken, is an epithet of Vulcan, and corresponds to the Sanscrit Agni and the Latin Ignis, so that Ptah would be another form for it, Ptah being Hephaestus.¹⁰⁹ The whole name has much in common with the Greek Agenor, or with Cenchrus the son of Neptune; mentioned by Pausanias.¹¹⁰ We

¹⁰² See lists of kings 18th dyn., Cory's An. Frag. ¹⁰⁶ Id. ii, 301.

¹⁰³ Osburn's Mon. His. of Egypt, ii, 231, 303. ¹⁰⁷ Lenormant & Chevallier's Manual, i, 256.

¹⁰⁴ Kenrick's Ancient Egypt, ii, 196.

¹⁰⁸ Osburn's Mon. His. of Egypt, ii, 302.

¹⁰⁵ Osburn's Mon. His. of Egypt, ii, 208, &c.

¹⁰⁹ De Lanoye's Ram. Gt., p. 78. We also find the designation Haqan changed to Hickpoun, belonging to a Rameses (De Lanoye, 172); and the Rev. W. B. Galloway, Egypt. Record, 371, speaks of Rameses Kheuephres. In each the Aken appears.

¹¹⁰ There is a decided connection of Agenor with Phœnicia, and, as we shall see, of Egypt with Phœnicia, about the time of the Exodus. Buttman proves that Cnar is the Phœnician name of Agenor (Mythol. i, 232); and Ernest Renan shows that the Phœnicians, in the time of

have seen that the initial vowel is not at all constant, as in the form Cencheres given by Theophilus, which is almost the same as Concharis, the last Lower Egyptian king in the list of Syncellus, in whose fifth year the Cynic Cycle was completed.¹¹¹ It is said that this Concharis must be the Timaeos of Manetho, under whom a great calamity, supposed to be the Shepherd invasion, happened to Egypt.¹¹² That it was not the Shepherd invasion is abundantly manifest, since all the Rameses precede him, and the king after whom the Shepherds came was not Concharis but Mencheres.¹¹³ Timaeus or Concharis is thus the unfortunate king, and last of his race of another and later period, his two names connecting with Thothmosis (in the form Thummosis) and Acencheres. The Pharaoh of the Exodus, or his near relations, occur under a somewhat disguised form of the same name Acencheres in two quotations from ancient writers.¹¹⁴ The form is Chenephres or Knaphra instead of Cencheres, *phres*, *phra* or *phre*, the sun, taking the place of the ordinary termination *cheres*, as in the case of Menophres substituted for Mencheres. The first of these quotations is from Artapanus. He says that Palmanothes bore himself severely towards the Jews, and compelled them to build Kessa and the temple in Heliopolis. He had a daughter named Merris, who married a king named Chenephres, then reigning in Memphis, for there were at that time several kings in Egypt. She brought up a child of the Jews, and named it Moses, whom the Greeks called Musacus. The second, from Bar-Hebraeus, states that Trimuthisa, called Damris by the Hebrews, daughter of Amenophathis and wife of Knaphra, was the person who saved Moses. Now, Amenophathis, who has a long reign of forty-three years assigned him, immediately precedes Pharoun Phsunu, the drowned in the Red Sea, and is himself preceded by Tumuthus, a form of Thothmosis, and Miphrus with the standard reign of twelve years, who in this place is made immediately to follow the Shepherds.

In addition to Acencheres Mesphres Thothmosis, the first who was the enslaver of the Israelites, and his son and grandson, who perished in the Red Sea, our attention has been drawn by the monuments and the historical extracts to the princess who comes between them. One

the Hebrews, called their land Chna or Cna, Stephanus of Byzantium and Hecataeus both know it by the former name (*vide* Baldwin's Prehistoric Nations, 137).

¹¹¹ Syncellus, in Cory's Ancient Fragments, 140.

¹¹² Kenrick's Ancient Egypt, ii, 159-160.

¹¹³ Osburn's Men. History of Egypt, i, 351.

¹¹⁴ Cory's Ancient Fragments, 161, 165.

is loath to think that the daughter of Pharaoh, who saved the infant Moses, is the utterly abandoned woman of whom the monuments speak. There may easily have been more than one daughter of the great Mesphres, exercising at different times a regal or vice-regal prerogative, since Lenormant gives the name of the guardian of young Thothmosis' minority as Hatasu,¹¹⁵ which is plainly the Atossa of ancient story, made the same as Semiramis, and a name different from any mentioned by Egyptian historiographers in this connection. Still, even Hatasu assumes the dress and names of a man,¹¹⁶ as does Amenses or Amenset, occupying the same position between Thothmosis I. and Thothmosis III. Josephus, who calls the princess that saved Moses Thermuthis,¹¹⁷ places before Mesphres a princess named Amerses or Amesses, and a little later mentions another princess called Acencheres, daughter of Horus.¹¹⁸ For the latter no confirmation can be found, and the former is easily reconciled with Amenses. The name Amerses is not unlike the Merris of Artapanus or even the Damris of Bar-Hebraeus. The Alexandrian chronicle calls the same queen Myrina. I may also state that, as Bar-Hebraeus makes Damris the daughter of Amenophath, so we find that Amenset is called the sister of Amenophis, son of Thothmosis, and daughter of Amosis or Thothmosis himself.¹¹⁹ There is much obscurity here in the matter of relationships, which it would be useless to attempt to remove in this paper. The great facts that stand out prominently amid it all, and which are quite sufficient for the purposes of argument, are that the dynastic names, Acencheres, Mesphres and Thothmosis, are intimately connected with the Pharaoh of the Exodus, and that two of the monarchs bearing

¹¹⁵ Lenormant & Chevalier's Manual, i, 229.

¹¹⁶ The facts of a warlike queen succeeding a great conqueror such as Mesphres Thothmosis, of her dress and habits being those of a man, of the names connected with her being Ahmes, Amosis, Amesses, &c., and of other names applied to her being Hatasu (Atossa) and Myrina, are strong links to bind the traditional Semiramis and the Amazons in one. I do not dwell on Menones, Ascalon, Jupiter Ammon as connected with the myth of Semiramis, nor on the Indian Umes (Ahmes) whence Umasoona, or the Semi-Ramessi, both of whom are Parvati: these I hope to take up on a future occasion.

¹¹⁷ Josephus Antiq. ii, ix, 7. Thermuthis is simply Toermaut, great mother.

¹¹⁸ Id. Cont. Ap. i, 15. The confusion in this extract from Manetho is very great. The Mephres who follows Amesses is plainly the Pharaoh of the Exodus, with his twelve years' reign. The preceding Amenophis is the son of Thothmosis who died before him, generally called Thothmosis II. Chebron is altogether out of place: and the first Tethmosis is the first Mesphres. The rest of the list is a simple repetition of the two kings who ruled independently, the one that during his lifetime acted as viceroy, and the queen that stands between the two former, and is called sister of the latter.

¹¹⁹ Kenrick's Ancient Egypt, ii, 172.

these names connect in a female relation, whom we may confidently call Amerses after Josephus, since he does not connect the Exodus with this name.

There are a few hints that I would throw out before leaving this part of the subject, as to the forms under which, in addition to that of Thummosis and Tumuthus, the name Thothmosis may appear. Timaeus has already been connected with Concharis. Plato, in his *Phædrus*, joins Thamus, the old king of Egyptian Thebes, with Teuth or Thoth.¹²⁰ Thum, the god whose name occurs in Pithom, should not be a stranger to the Rameses line. Even Teutamas, the so-called Assyrian king, who sent Memnon to Troy, in spite of the generally allowed discrepancy in time, may have links to bind him to Thothmosis.¹²¹

In the reign of the Pharaoh of the Exodus there existed an intimate connection between Egypt, Phœnicia and Greece.

It is hardly necessary to do more than quote the words of Lenormant and Chevalier in regard to the reign of Thothmosis III, who follows his elder sister, the warlike queen, called by them Hatasu.¹²² The wall catalogue of Karnak gives an account of Thothmosis' march from Gaza in Philistia, which he made the base of his military operations, to Megiddo under Mount Carmel, where he defeated the allied army of Asia. Then he passed on triumphantly through Palestine, as far as Lebanon, and eastward to the Euphrates. It also describes his expedition, four years later, into Cœle-Syria, which he subdued, together with the Phœnician coast, to his sceptre. He created a fleet on the Mediterranean, doubtless manned by Phœnicians, who, from the date of their submission to Thothmosis, preserved for many centuries towards his kingdom an unshaken fidelity, in complete contrast with the conduct of other Canaanitish peoples. The fleets of the great Pharaoh conquered Cyprus and Crete, and subjected the southern islands of the Archipelago, a large part of the coasts of Greece and Asia

¹²⁰ Plato *Phædrus*, iii, 274, &c. ; see also Galloway's *Egypt. Record*, 106.

¹²¹ Teutamas sent Memnon to Troy. Memnon, however, is made by Syncellus the same as Amenophis, the son of Thothmosis, who is followed by Horus and Acancheres. That Teutamas is called king of Assyria need not interfere with the connection any more than Memnon's being called a Persian as well as an Ethiopian. The Rev. W. B. Galloway shows (*Egypt. Record*, 147) that Assyria or Athyria was an old name for Egypt. I have already stated that the new Egyptian line had oriental, Syrian and Assyrian, connections. This fact may be alluded to in Isaiah lii, 4: "My people went down aforesaid into Egypt to sojourn there; and the Assyrian oppressed them without cause." Pliny places the siege of Troy in the time of Rameses Miamun and testimony from other authors is not wanting in support of his statement.

¹²² Lenormant and Chevalier's *Manual*, i, 231, &c.

Minor, and possibly even the south of Italy.¹²³ Allowing, with these writers, that Mereuphtah, son of the great Rameses, is the Pharaoh of the Exodus, which I have not the slightest difficulty in doing, so long as Acencheres Mesphres Thothmosis is not excluded from that unenviable position, we find even more intimate connections of Egypt with Greece and Phœnicia.¹²⁴ In his time, Gebal or Byblus, Berytus, Sidon, Sarepta and Tyre are described as subject to Egypt. His first enemies, in addition to the Libyans, the Pelasgian Tyrrenians, Sicilians and Sardinians, were Pelasgians of Crete, Achæans of Peloponnesus and Laconians. These statements are made on the authority of monumental evidence of the most unquestionable character.

The facts of Egyptian supremacy in Phœnicia, and of warfare between Egypt and Greece in the reign of the Pharaoh of the Exodus being thus established, there can be no antecedent improbability in the assumption that the event which terminated his reign and life was known both to Phœnicians and Greeks. To the Phœnicians, as faithful subjects of the Egyptian empire, the news would bring sorrow second only to that of the Egyptians themselves. To many of the Greeks the overthrow of their great enemy would undoubtedly be matter of rejoicing; but those who had taken no part in the warfare between the two peoples would be led by their Phœnician sympathies to join in the general cry of lamentation for the woes of the master of the world. This lamentation might be supposed very naturally to perpetuate itself in rite and story such as are associated with the name of Adonis.

III.—THE CIRCUMSTANCES CONNECTED WITH THE DEATH OF THE PHARAOH OF THE EXODUS, HIS NAMES AND PARENTAGE, CLEARLY POINT HIM OUT AS THE ADONIS OF PHœNICIA AND GREECE.

The death of the Pharaoh of the Exodus with all his army would of itself be a national calamity not easily forgotten. It would not, however, be a peculiar case, for frequently of many a gallant army that has gone forth in all the pomp and circumstance of war, but a few stragglers have returned to tell the tale of disaster and defeat. The smiting of the first born throughout the whole land, concerning which

¹²³ We have no evidence that the Egyptian power ever extended beyond the confines of Phœnicia and Syria. No Egyptian army, in the ancient times referred to, ever visited Asia Minor, much less Greece or Italy. The Pharaohs met Greeks and Italians in Libya, Egypt, Palestine and southern Syria; but no proof has yet been given that the said Greeks and Italians were the natives of any other regions than those in which they encountered the Egyptians. If immigrants at all, they came from the east, and assuredly not from the west.

¹²⁴ Lenormant and Chevalier's Manual, i, 256-260.

Moses divinely instructed said, "There shall be a great cry throughout all the land of Egypt, such as there was never like it nor shall be like it any more,"¹²⁵ was a greater calamity still. Universal mourning must have accompanied that awful event which Scripture so simply records, "There was not a house where there was not one dead."¹²⁶ Such universal mourning I find connected with Adonis and with no other character in ancient mythology. The story of his death is well known. Ardently attached to the chase, he insisted, in spite of the entreaties of Venus, in going in pursuit of wild beasts, and was killed by a boar (which some ancient writers state is only a figurative way of saying that he fell in battle against a fierce enemy)¹²⁷ against an encounter with which he had been specially warned. The people of Byblus in Phœnicia, of many places in Cyprus, and of most Grecian cities, held an annual festival in his honour, or in commemoration of his death. "On the first day all the citizens put themselves in mourning; *coffins were exposed at every door*; the statues of Venus and Adonis were borne in procession with certain vessels full of earth, in which the worshippers had raised corn, herbs and lettuce, and these vessels were called the gardens of Adonis. After the ceremony was over, they were thrown into the sea or some river, where they soon perished, and thus became emblems of the premature death of Adonis, who had fallen, like a young plant, in the flower of his age."¹²⁸

The extract just given leads to a connection of Adonis with water, such as we should expect to find in the case of one representing the Pharaoh who met his death in the Red Sea. The Adonis river, below Byblus and not very far from the NahrelKelb, on the face of whose rocky cliff the great Rameses Thothmosis left three inscriptions, at certain seasons of the year was fabled to flow red with the blood of the favourite of Venus. Cocytus also, personified as a physician, is said to have washed the incurable wound of Adonis.¹²⁹ Another remarkable

¹²⁵ Exodus, xi, 6.

¹²⁶ Exodus, xii, 30.

¹²⁷ Banier, i, 550.

¹²⁸ Anthon's Classical Dictionary, Art. Adonia.

¹²⁹ Banier, i, 559. In connection with this, I would refer to the 111th chapter of the second book of Herodotus, which, with much that bears upon the story of the Pharaoh of the Exodus and upon that of Adonis, is unfit for transcription. The following is the Rev. W. B. Galloway's eloquent comment upon the passage:—"This was the king (Pheron or Sesosis II.) to whom Moses was commissioned, and whose hardened heart and infatuated blindness to the irresistible will of God admitted of but one remedy. That blindness is said to have been judicially inflicted upon the king for his impiety towards God in smiting the river by hurling his spear into the midst of its swollen and angry waters. The Lord hardened Pharaoh's heart, and his infatuated blindness lasted, according to the allegory, as many years as there are counted plagues of Egypt. The dreadful corruption of manners is scoffingly depicted in the allegory. The king, and indeed

connection is found in the fish called Adonis, mentioned by Ælian, which is equally at home in the sea and on the shore, and which the naturalist thought was so called because Adonis was in love with two goddesses, one of the land and the other of the sea.¹³⁰ Finally, in this connection, we have the statement of Lucian, of which Mr. Kenrick thus speaks: "There is a close resemblance between the rites which related to the death and revival of Adonis at Byblus, and of Osiris in Egypt."¹³¹ Some of the people of Byblus claimed to have the sepulchre of Osiris among them, and maintained that all the rites commonly referred to Adonis properly related to Osiris. Their connection appears from the story related by Lucian, that a head formed of papyrus, or a vessel of papyrus containing a letter, was annually thrown into the sea

all his dominions, are represented as hardly possessing one chaste and faithful wife. Yet there was one who was destined to be found faithful to her lord, and who would effect the decisive cure of his blindness. The chaste, bright Erythrean Sea had been mystically betrothed and wedded to Egypt. Hasten, O Pharaoh! gather together all thy royal state. Thy blindness shall be removed; thine eyes shall be washed and opened in the waters of the bright Erythrean, and thou shalt sleep ever after in the embraces of thy one faithful wife, the bright, chaste sea. Go, with oriental pomp and luxury; take with thee all thy harem, the lewd ministers of thy revelings, and all thy faithless wives and concubines. They shall have their reward. They all shall be hopelessly shut up as in a walled city, in the Erythrean gleebe, into which thou shalt have gathered them; and even as when a city is burned, they shall see the narrowing and narrowing space, the nearer and nearer bursting and crashing and falling in of the encircling walls on every side; the surging, eddying and roaring of the resistless and rapidly advancing element in which they are inevitably doomed to be engulfed!"—*Egypt. Record*, 403.

¹³⁰ Ælian *de Natura Animalium*, L. ix, c. 36. The explanation which Ælian fails to give may be found in the words of inspiration:—"The waters returned and covered the chariots and the horsemen, and all the host of Pharaoh that came into the sea after them: there remained not so much as one of them. * * * And Israel saw the Egyptians dead upon the sea-shore."—*Exod.* xiv, 28, 30. It is to be remarked that Pharaoh is not specially mentioned among the drowned. Bishop Patrick thus writes, in his commentary upon the first of the verses quoted above: "Some have fancied that all the host of Pharaoh did not perish, but only so many of them as pursued the Israelites into the sea, which they fancy this place intimates some did not. But the plain meaning is that they all came into the sea after the Israelites, and were all drowned in it. It is a wilder fancy that Pharaoh alone was saved by the angels Michael and Gabriel, because he cried out, as he had done heretofore (*Exod.* ix, 17), 'The Lord is righteous, and I and my people are wicked.' Thus the author of *Dibre Hajamin* (or the Life and Death of Moses), who says they transported him to Nineveh, where he reigned as long as the Israelites wandered in the wilderness. The same is related by other such fabulous writers, who are soberly confuted by Aben Ezra from the following words: 'There remained not so much as one of them;' and from *Exodus*, xv, 4, 19, where Moses, in his song, plainly makes Pharaoh to have perished among the rest." The restoration of Adonis to life, commemorated in the Finding of Adonis, may connect with such statements as Aben Ezra sought to disprove.

¹³¹ I cannot agree with this author and others in their belief that Osiris and Adonis are the same. Osiris I regard as very much older, and identical with the Phrygian Atys, the Arabian Ad, and the Egyptian Actoes of the lists or Atti of the monuments, who was killed, like Actaeon, by his own guards. It is, however, not at all unlikely that the old Typhonian myth was superseded by the later catastrophe, and that the Solar Rameses Thothmosis was put in the place of his ancestor, the Solar Ati, who preceded the Shepherds, being himself often reckoned as one of them.

at Alexandria, and floated to Byblus, and, by its arrival there, informed the women of Byblus that Adonis was found. Now, the mourning for Adonis is evidently the same as the mourning for Thammuz, spoken of by Ezekiel, and therefore the Egyptian mourning was probably an ancient custom, not one introduced by the Greeks at Alexandria. Since the papyrus grew in Phœnicia as well as in Egypt, it would be easy to keep up this ceremony of the annual exhibition of the head or the vessel of papyrus at Byblus."¹³² This connection of water is an element well worthy of consideration in identifying Adonis with Pharaoh.

An Egyptian dirge, which Herodotus links with Phœnicia and Cyprus, and which might easily be the later form of the great cry that rose throughout Egypt when the first-born were slain by the angel of death, next engages our attention. "The Egyptians adhere to their own national customs, and adopt no foreign usages. Many of these customs are worthy of note; among others, their song, which is sung under various names, not only in Egypt, but in Phœnicia, in Cyprus, and in other places; and which seems to be exactly the same as that in use among the Greeks, and by them called Linus. There were very many things in Egypt which filled me with astonishment, and this was one of them. Whence could the Egyptians have got the Linus? It appears to have been sung by them from the very earliest times; for the Linus, in Egyptian, is called Maneros, and they told me that Maneros was the only son of their first king,¹³³ and that, on his untimely death, he was honoured by the Egyptians with these dirge-like strains; and in this way they got their first and only melody."¹³⁴ From the notes of Prof. Rawlinson, the translator of the above extract, we learn that Maneros was supposed to connect with Horus, son of Osiris; that Pausanias states that "Linus and Adonis were sung together by Sappho;" and that Athenæus tells of Nymphis speaking of a youth having gone to fetch water for the reapers, who never returned, and was lamented by different people, in Egypt being called Maneros.¹³⁵ I think that Maneros and Mencheres are the same word, the breathing in

¹³² Kenrick's Ancient Egypt, i, 348.

¹³³ This would be quite true in regard to the later Egyptians, for the father of the Pharaoh of the Exodus was their first king, and his successor was his only remaining son, all the others having died before him. Mencheres the older did not die an untimely death, and was not the son of the first king of any line.

¹³⁴ Herodotus, L. II, c. 79.

¹³⁵ Rawlinson's Herodotus, notes to book ii, c. 79.

the latter becoming strong and guttural, as in the case of the Hebrew *Heth*,^{135*} which is almost invariably rendered by *Chi* in the Septuagint. Mencheres was the last king of any note of the line that preceded the Shepherds, a line to which the new race pretended to belong, and was held in high honour by them. *Men* with *terra*; *teru-ra* and *ra* affixed to it, appears in the 44th, 46th and 49th places of the tablet of Abydos, Rameses Miamun occupying the 51st and last; and the name Mencheres was even adopted as a title, either in the original form or as Menophres.^{135**} Mencarus, the name of a god or hero, mentioned by Strabo, may possibly connect, since the *Men* which enters into its composition stands for the moon, as does the *Men* of Mencheres, and no satisfactory derivation can be proposed for the *carus*, while Mencheres was certainly made a god in Egypt.¹³⁶ Nuncoreus, whom Pliny makes the son of Sesoosis and the same as Pheron, who lost his sight, is but another form of Mencheres, the *N* taking the place of the *M*, as in the case of Memphis, which in Hebrew is *Moph* or *Noph*.¹³⁷ The form Menophres, in which *phre*, or the sun, takes the place of *cheres*, which I believe must connect with *Florus* in some such way as the *Charites* and the *Horae* connect, is an interesting and suggestive one. It may be the same as the *Mainphre* of *Mainphre Siphthah*, whose name appears in connection with Rameses III, and whom Mr. Osburn makes the guardian of the Pharaoh of the Exodus.¹³⁸ It is worthy of remark that Ovid, in the 7th book of his *Metamorphoses*, speaks of one *Menephron*, called *Menophrus* by *Hyginus*, as guilty of a crime equal in turpitude to that which the father of the Pharaoh of the Exodus, whether *Thothmosis* or *Rameses*, committed.¹³⁹ A still more remarkable connection of the name is found in the statement of *Theon*, the astronomer, that a *Sothic* cycle began in the reign of a king *Menophres*, whom *Bunsen* has given very strong reasons for making the same as *Setei Menephthah II*, who is generally supposed to be the drowned Pharaoh.¹⁴⁰ If with this we connect *Sir J. G. Wilkinson's* statement, given above, that *Sothis* rose

^{135*} *Maneros* may not be *Mencheres*, but *Menra*. If this be the case, the difference between *Maneros* and *Menophres* arises simply from the insertion of the Coptic article *Ph*, *Phre* and *Re* or *Ita* being the same word with and without the article.

^{135**} *Osburn's Monumental History of Egypt*, i, 334, &c.

¹³⁶ *Strabo*, L. xii, p. 31, c. viii, p. 20; *vide* note 135.

¹³⁷ *Pliny*, N. H. xxxvi, 15.

¹³⁸ *Osburn's Monumental History of Egypt*, ii, 553, &c. Mr. Osburn plainly identifies *Mainphre Siphthah* with the king called *Chenephres* or *Knaphra* by *Artapanus* and *Bar Hebraeus*.

¹³⁹ *Ovid*, *Metamorphoses*, L. vii, 386; *Hyginus*, 253.

¹⁴⁰ *Kenrick's Ancient Egypt*, ii, 247-8.

in the reign of Thothmosis III, and that of Syncellus, also mentioned above, to the effect that a Sothic cycle was completed in the fifth year of Concharis, we shall find the chain of evidence that binds Mencheres or Menophres, or Mainphre Siphthah, Setei Menephthah, Thothmosis and Acencheres in one not easily to be broken.¹⁴¹ We shall yet, however, find other than astronomical links in the myth of Adonis, with which to connect the music of Maneros.

The names of Adonis next engage our attention. The first of these, after Adonis itself, which, if applied to a man at all, must have designated a supreme lord or king, is Thammuz or Tammuz.¹⁴² Almost all authorities are agreed that the Syrian Tammuz is Adonis. Milton, in conformity with the belief of mythologists even in his time, spoke of "smooth Adonis," that

"Ran purple to the sea, supposed with blood
Of Thammuz, yearly wounded."¹⁴³

When the Jews relapsed into idolatry, they observed the annual festival that kept up not only a remembrance of Pharaoh's fate, but perpetuated his vile debaucheries.¹⁴⁴ I have already hinted at a connection between Timæus, who is the same as Concharis, and Thamus, the old king of Egyptian Thebes. Bishop Cumberland, in his *Essay on Sanchoniatho's Phœnician History*, takes up this connection in the following language: "I think it most certain that this Timæus, in Josephus, is but a different way of writing that eldest king Thamus, to whom Plato, in his *Phædrus*, informs us that Thoth showed his invention of letters in Egypt. Tau and Theta are letters easily changed in Greek; and in the East also those letters differ but by a point added to Tau (Hebrew). Thammuz is also the Hebrew name of Adonis or Osiris or Menes, the titles of Thoth's king and father. So *Chronicon Alexandrinum*, cited by Selden, makes Thammuz signify Adonis, who from Stephanus and Lucian, is known to be Osiris or the first king of Egypt."¹⁴⁵ Take away from the above passage the confusion which the

¹⁴¹ I find that the names Menophra Thothmosis are combined by Mr. Sharpe, the author of *Chronology and Geography of Ancient Egypt*, and by other writers. This agrees with the tablet of Abydos, in which Menra or Menerra is Amosis, the father of a Thothmosis.

¹⁴² The Hebrew form is Tammuz as it is rendered in our English Scriptures, but the Septuagint write Thammuz.

¹⁴³ *Paradise Lost*, i, 446, &c.

¹⁴⁴ Ezekiel, viii, 14. One can hardly imagine an instance of blacker ingratitude than the weeping of the women of Israel for the fate of their greatest enemy, which was the cause of their greatest national deliverance, and should have been a subject of perpetual rejoicing.

¹⁴⁵ *Sanchoniatho's Phœnician History*, translated, &c., by the Rt. Rev. R. Cumberland, D.D., late Bishop of Peterborough, p. 359.

name of Osiris and the mention of the first king of Egypt create, and the statement of identity is not at all an improbable one. Certainly we know that there was an Egyptian god Thoum or Tum, after whom Pithom was named, who was honoured at Heliopolis, and whose name is frequently found upon the monuments of Rameses the Great.¹⁴⁶ The form Thummosis, given by Josephus, quoting Manetho,¹⁴⁷ instead of Thothmosis, can hardly be an accidental coincidence. If I could find any Egyptian name connecting this god with the termination *cheres* or *re*, in the same manner as Thoth is connected in Tatcherer of Manetho's fifth dynasty, I would not hesitate to embrace the Greek Thamyris, the unfortunate minstrel, who is of Ammonian birth, and gives name to a Phœnician river, the Tamyras, not very far from the Adonis, and to a class of Cyprian priests, in the number of mythical characters representing the Pharaoh of the Exodus.¹⁴⁸ My reasons for such a connection will appear more worthy of attention from what is to follow. We have already a Timæus who is Concharis, and a Thothmosis, sometimes called Thummosis, who is an Acencheres or a Cœcherès. With Timæus, by means of Plato's old king Thamus, the Syrian Thammuz has been linked. It remains to find a synonym for Thammuz, in order to complete the third pair of allied names. There is a title of Adonis which furnishes all that is desired. It is Gingras.¹⁴⁹ This name at once suggested a comparison by the similarity of sound with "Pharaoh Cingris, who pursued the children of Israel as they fled from slavery, and perished in the Red Sea with all his army," as Dr. Keating informs us in his History of Ireland, compiled from the ancient Irish chronicles.¹⁵⁰ I am not aware that the name of this or any other Pharaoh appears in any ancient Irish document. Dr. Keating may have taken it from Eusebius. Let that be as it may, the argument will not be affected. The name is simply suggestive as affording a step in the descending scale which brings Acencheres down to a form that bears much the same relation to it which Maneros bears to Mencheres. That form is Cinyras, which is but a variation of the name Gingras. Cinyras

¹⁴⁶ Lepsius' Letters from Egypt, &c., p. 448.

¹⁴⁷ Josephus Cont. Ap. i, 14.

¹⁴⁸ I have since found the name required, which indeed has been lying on the surface all along. Re-Athom or Re-Thoum simply requires the transposition of its constituents to give a name very near to Thamyris, especially in their allowable and not uncommon forms Thum-
erra.

¹⁴⁹ Guigniaut Religions de l'Antiquité, ii, 45.

¹⁵⁰ Keating's General History of Ireland, translated from the original Irish, &c., by Dermod O'Connor, Esq., p. 107.

was the father of Adonis, and the word often designates Adonis himself, being plainly a dynastic name. As late as the time of Pompey, we are informed by Strabo that a tyrant of Byblus, the city of Adonis, bore this name;¹⁵¹ and a class of priests called Cinyrads long disputed with the Tamyrads the religious supremacy in Cyprus.¹⁵² Thus we have found four instead of three pairs of names that exhibit unmistakable signs of a common origin:

- | | |
|--|--|
| I. { Timacus }
{ Thamus } — Concharis. | III. Thammuz.—Gingras. |
| II. { Thummosis }
{ Thothismosis } — { Acencheres.
Cencheres.
Cingeris. | IV. { Tamyras }
{ Thamyris } — Cinyras. |

There are other names of Adonis which cannot very well be considered apart from the story of his birth and parentage. Before leaving this part of the subject, however, the consideration of the names already mentioned may furnish us with a confirmation of the relevancy to the story of Adonis of the Egyptian Maneros in its double aspect of music and mourning. Thamyris himself is the disciple of Linus, the vanquished of the Muses, the blinded for his presumption. Gingras is the name of a small flute, and is applied to querulous tones, such as might be produced by an instrument of the kind; and from Cinyras come the Greek verb *kinuromai*, meaning to utter a plaintive sound, lament, wail, &c., and other words of similar signification.¹⁵³

The story of the birth of Adonis and the names of his parents are given with great variations by different authors. Apollodorus, among Greek writers, and Ovid, among the Latins, are the chief authorities on these points; but before investigating their statements it will be well to dispose of the composite accounts given by Newton and Le Clerc. Sir Isaac Newton says that the Venus of Syria was Calycopsis, daughter of Otreus, king of Phrygia, who married Thoas or Vulcan, surnamed Cinyras, who was king of Cyprus and Byblus. With this Venus, Adonis is joined.¹⁵⁴ M. Le Clerc's is given by the Abbé Banier, who accuses Newton of building his story upon a short passage in Tacitus.

¹⁵¹ Strabo, Lib. xvi, c. xi, § 18.

¹⁵² Guingnaut ii, 211, 1021.

¹⁵³ A very remarkable musical connection, which, while it draws Cinyras and Thamyris together, exhibits the enmity of the Greek towards the supposed king of Byblus, is found in Eustathius. He says that Cinyras was cursed by Agamemnon, engaged in a musical contest with Apollo and perished by his hand. Guingnaut, ii, 219.

¹⁵⁴ The Chronology of Ancient Kingdoms Amended, cited by Banier, Vol. ii, 160.

Le Clerc followed Seldon and Marsham, taking Phurnutus or Cornutus, and other mythologists as his authorities, and omitting Ovid from the number. He says that Cinyr or Cinyras, grandfather of Adonis, having one day drunk to excess, was exposed after the manner of Noah, and that his daughter-in-law, Mor or Myrrha, wife of his son Ammon, with her son Adonis, having seen him in this state, were, on his awaking, cursed by him, and fled to Arabia. Some time afterwards Adonis, with Ammon his father, and his mother Myrrha, went to *Egypt*. There Ammon died, and Adonis became king. Astarte or Isis was his wife, whom he loved with great tenderness. Having gone to Syria, he was wounded by a wild boar near Mount Lebanon, and Astarte, believing him dead, inaugurated great lamentations in his honour. He recovered from the wound, but the annual festival was retained. Banier cites Lucian and Plutarch as authorities for making the rites of Adonis and those of Osiris the same, giving many reasons why they should be so regarded.¹⁵⁵ One thing at least must appear very probable from this account, viz., the Egyptian connection of Adonis. According to Apollodorus, the most ancient authority, Cinyras, the father of Adonis, descended from Hermes and the daughter of Cecrops through Cephalus, whom Aurora carried to Syria, Tithonus, Phaethon, Astinuous and Sandochus,¹⁵⁶ who went from Syria to Cilicia and became the father of Cinyras, king of the Assyrians, by Thanacea or Pharnace, daughter of Megessareus. Cinyras went to Cyprus, and, having married Metharme, daughter of Pygmalion, king of the Cyprians, had two sons, Oxiporus and Adonis, and three daughters, Orsedice, Laogore and Bresia. These daughters married strangers, and died in *Egypt*. Adonis was early killed by a wild boar. He states that some writers make the mother of Adonis Alpheisibœa, daughter of Phœnix, and that Panyasis derives him from Thoas, king of the Assyrians, and his daughter Myrrha, sometimes called Smyrna.¹⁵⁷ Ovid, with Hyginus, following the more common tradition, call Adonis the son of Cinyras and his daughter Myrrha.¹⁵⁸

¹⁵⁵ Banier, i, 549-50.

¹⁵⁶ The name Sandochus is made by Bochart the same as Sadoc or Sydyk, in accordance with a rule of etymology that appears in the changes of the Semitic Hud or Hoddu into the Indo-European Hindoo, and even in the *h*, which is inserted in the present and other tenses of the indicative and other moods of Latin verbs (e. g. frangere) not being part of the root. *Vide* Bochart *Geographia Sacra*, Lib. i, c. 5. Sydyk is Soutech, which, in its form of Sethos or Seti, forms part of the name of the father of the great Rameses, Seti Menephthah I. *Vide* Osburn, ii, 395-G, &c. Lenormant and Chevalier, i, 241. Kenrick, ii, 214.

¹⁵⁷ Apollodorus, iii, xiv, 3, &c.

¹⁵⁸ Ovid *Met.* x, 290, &c. *Hyg. Fab.* 58.

Ovid makes Cinyras the son of Paphos, whom others make his son, and Paphos the son of Pygmalion and the statue. Paphos is a purely Egyptian name, corrupted from Apophis or Epaphus, as Concharis and Cencheres from Acencheres. The city of that name in Cyprus is said to have been founded by Cinyras, son of Apollo, or by Paphos, son of Cinyras, or, according to Tacitus, by Ærias, an old name of Egypt.¹⁵⁹ In addition to the double connection of Adonis with Pygmalion, through his mother Metharme and his father Cinyras, there is a link to bind him in another of his names, which is Pygmæon.¹⁶⁰ Pygmæon and Pygmalion bear a similar relation to one another, to that which exists between Myrsus and Myrsilus, who are united as father and son,¹⁶¹ and the longer form doubtless connects with the Egyptian festival of the Paamyliia mentioned by Plutarch, which was the occasion of a phallic ceremony.¹⁶² Stripped of their contradictions, these various narrations give us in Pygmalion and his statue or daughter Metharme, Thoas and his daughter Smyrna, and Cinyras and his daughter Myrrha, the guilty pair of whom came Adonis or the Pharaoh of the Exodus. In Cinyras, Thoas, Pygmalion or Pygmæon, Abobus (which no doubt connects with Apophis and Paphos), Gingras and Thammuz, we have some of the many forms in which the titles of the two oppressors of Israel have been handed down; and in Metharme, Smyrna and Myrrha, it is not difficult to recognize Amersis, Myrina, or Merhis, the daughter of Pharaoh. While Acencheres and Thothmosis are reproduced in Cinyras and Thammuz, the Mesphres which unites them is not left unaccounted for or unnoticed in the myth. Mesphres or Miphre, literally "beloved of *re* or the sun," is a solar designation identical with Mithras,¹⁶³ a *phi* which is the Coptic article, unnecessary inasmuch as Meire answers every purpose, taking the place of a similarly useless *theta*. This opens up a great Persian connection, on which, according to my promise, I forbear at present to enter.¹⁶⁴ The line of

¹⁵⁹ Anthon's Class. Dict. Art Paphos.

¹⁶⁰ Guigniaut, ii, 926.

¹⁶¹ Vide Rawlinson, note in Herod, i, 7.

¹⁶² DeIside et Osiride, xii.

¹⁶³ It is not a mere accidental coincidence that appears in Pliny's naming the first Egyptian King who erected an obelisk to the sun Mestres, whom Mr. Sharpe, in his Early History of Egypt, identifies with Mesphres Thothmosis (Pliny Hist. Nat. xxxvi, 13, &c.), and in Belus, II, father of Pygmalion, being surnamed Mestres also (Vide Baner, iii, 492, note; Notes of Gronovius in Justin, xviii, 4). Neither is it unworthy of attention that the name Agenor already mentioned as a probable form of Acencheres, occurs in the same family.

¹⁶⁴ Vide Guigniaut, i, 375. Mithras is brought from Ethiopia and Egypt, being identified with the Greek hero Perseus, whom I hope to identify in some future paper with the great Rameses or Thothmosis. In the Assyrian Cann Mithreus precedes Teutamas.

Pharaohs to which the Thothmoses and Rameses belong, is one essentially solar in its character, its Ra and Horus designations plainly distinguishing it in this respect. But Thammuz or Adonis is made by Macrobius to be no other than the sun; ¹⁶⁵ and of him Lenormant says: "This famous person, who to the Greeks was but a simple Syrian hunter, was to the Phœnicians the sun-god himself."¹⁶⁶ "Ra or Erra," says Kenrick, "is the Coptic name for king, appropriated to the sun, like the names Baal, Melek, Adonai, which in the Syro-Arabian languages denote monarchy, and were also titles of the sun."¹⁶⁷ The affection of Venus for Adonis is not without its place in the history which Egyptian records teach us. Athor, supposed to be the Greek Aphrodite, and who is the Athara of Syria and the Astarte of Phœnicia, was specially worshipped by the Thothmoses and the Rameses, temples being erected by them in her honour, and her name and attributes being frequently given to their queens. Thus Setei Menephthah himself is said to have dedicated a temple to Athor,¹⁶⁸ and the lists of Eusebius, Syncellus and Theophilus unite Athoris and Cencheres, who are Venus and Adonis.¹⁶⁹

Even in regard to the more remote ancestors of the personages I have sought to identify, coincidences are found which would be valueless if standing alone, but which tend to strengthen an independent argument. Thothmosis calls himself Horus, and Rameses is designated the son of Horus; so Cinyras Thammuz is made a son of Apollo. In the religious title, Thothmosis, the principal element is the name of the god Thoth, who is Hermes; and Cinyras, as we have seen in the genealogy given by Apollodorus, is a descendant of Hermes and the daughter of Cecrops, Cecrops himself being generally considered to have been an Egyptian. The occurrence of Tithonus, the first syllable of whose name is Teuth or Thoth, in the genealogy, and whose Egyptian affinities are seen in his son Memnon, called by Manetho the son of Thothmosis, tends to strengthen the connection.

In endeavouring to keep within the bounds prescribed for such a paper as this, I have been compelled to omit the mention of many incidents that would tend somewhat to justify the removal of the scene of events in the history of Adonis to regions farther south than those

¹⁶⁵ Macrobi. Saturnal, l. i, c. 21.

¹⁶⁶ Lenormant and Chevalier, ii, 221.

¹⁶⁷ Kenrick, i, 328.

¹⁶⁸ Iepsius' Letters, 100.

¹⁶⁹ Cory's Ancient Fragments, 142, 158.

generally assigned them; such, for instance, as Ovid's statement that Myrrha fled from her father through Arabia, and the fabulous Panchaia of Euhemerus to Sabæa.¹⁷⁰ I trust, however, that enough has been said without these to make the case of identity—of which I am fully persuaded in my own mind—appear not improbable to the minds of some more competent to judge of its merits.

Let me briefly recapitulate. In the introduction I have argued that some myths may have an historical basis, and that, if history be found in them, there is no reason why it should not in certain cases be found to confirm the ancient Bible narrative. In my first theorem I stated that Egypt, Phœnicia and Greece were most intimately connected in various ways from very ancient times. After giving evidence for the truth of this statement, I concluded that there was no antecedent improbability in the assumption that the knowledge of such a calamity as the overthrow in the Red Sea should be possessed and retained by Phœnicians and Greeks, although the tradition would no doubt be perpetuated in a very corrupt form. My second theorem consisted of two parts, the first of which was that Acencheres Mesphres Thothmosis was the Pharaoh of the Exodus. Here a difficulty appeared in the candidature of a Rameses, or rather the son of a Rameses, named Menephthah or Merenphthah, for the position. Then the undesigned coincidence furnished by Eusebius and the monuments in Acencheres, with his many connections, brought the weight of evidence on the side of Thothmosis. The second part of the theorem was that in the reign of Thothmosis of the Exodus, the intimate relation already spoken of existed among Egyptians, Phœnicians and Greeks. Indisputable proof was given of this, it being shown, among other things, that Phœnicia in his time was subject to Egypt and a friendly dependency. My last point to be proved was that the circumstances connected with the death of the Pharaoh of the Exodus, his names and parentage, clearly point him out as the Adonis of Phœnicia and Greece. In proving this I inverted the order somewhat, taking Adonis instead of Pharaoh as the first term of comparison. I then showed, first, that the story of Adonis' death, and the ceremonies observed in connection with it, as bringing in the elements of water, representing an untimely end, and calling for universal mourning, might very well refer to the Pharaoh of the Exodus; second, that the names of Adonis are closely allied to those of Acen-

¹⁷⁰ Ovid *Metam.*, x. 475, &c. There is nothing in the way of a connection of Panchaia with Phœnicia or the neighbouring regions, in which Pan was worshipped from time immemorial.

cheres Mesphres Thothmosis, and in such a variety of ways that no hypothesis of accidental coincidence can account for the similarity; third, that the incestuous birth of Adonis, together with the names of his parents, find an exact parallel in the history of Thothmosis; and finally, that, as representing the Sun-god as beloved of Venus, descended from Apollo, and of the line of Hermes, he reproduces the son of the Sun, favourite of Athor, the son of Horus, and prince of the line of Thoth, Acencheres Mesphres Thothmosis.

ON TRILINEAR CO-ORDINATES.

BY JAMES LOUDON, M.A.

MATHEMATICAL TUTOR AND DEAN, UNIVERSITY COLLEGE, TORONTO.

The following method of treating the properties of the straight line occurred to me in 1867, since which time I have used it with advantage in the Lecture Room :

1. To find the equation of the line $A'B'C'$ which cuts the sides BC , CA , AB of the triangle of reference in the points A' , B' , C' respectively.

Let the angles at A' , B' , C' be denoted by θ , ϕ , ψ , respectively; then if P be a point in the line between A' and B' of which the trilinear co-ordinates are α , β , γ ,

$$A'C' \cdot PB' + B'C' \cdot PA' = A'B' \cdot PC'$$

$$\therefore \frac{A'C'}{\sin \phi} \beta + \frac{B'C'}{\sin \theta} \alpha - \frac{A'B'}{\sin \psi} \gamma = 0$$

Similar relations hold for different positions of P .

If now the convention be made that α , β , γ are, respectively, negative according as P lies between B' and C' ; C' and A' , A' and B' , and positive in all other cases, the above relations may be written

$$\frac{B'C'}{\sin \theta} \alpha + \frac{C'A'}{\sin \phi} \beta + \frac{A'B'}{\sin \psi} \gamma = 0,$$

or

$$l\alpha + m\beta + n\gamma = 0, \dots\dots\dots (1)$$

which is the required equation.

The signs of (1) will evidently depend on the position of P .

2. From (1) it follows that

$$\frac{l \sin \theta}{B'C'} = \frac{m \sin \phi}{C'A'} = \frac{n \sin \psi}{A'B'} \dots\dots\dots (2)$$

Let $B'C' = p'$, $C'A' = q'$, $A'B' = r'$, and let p , q , r be the perpendiculars from A , B , C on the line $A'B'C'$; then

$$\begin{aligned} A'B &= \frac{q' \sin \psi}{\sin B}, \quad AB' = \frac{p' \sin \psi}{\sin A}, \quad AC' = \frac{p' \sin \phi}{\sin A} \\ p &= AB' \sin \phi = \frac{p' \sin \phi \sin \psi}{\sin A}, \\ q &= A'B \sin \theta = \frac{q' \sin \psi \sin \theta}{\sin B}, \\ r &= A'C \sin \theta = \frac{r' \sin \theta \sin \phi}{\sin C}, \\ \therefore \frac{p'}{\sin \theta} &= \frac{p \sin A}{\sin \theta \sin \phi \sin \psi}, \quad \&c. \end{aligned}$$

whence from (2) it follows that

$$\frac{l}{p \sin A} = \frac{m}{q \sin B} = \frac{n}{r \sin C} \dots \dots \dots (3)$$

3. From (2), since $B'C' + C'A' + A'B' = 0$, there follows the relation

$$l \sin \theta + m \sin \phi + n \sin \psi = 0. \dots \dots \dots (4)$$

the signs being determined by the convention that lines measured in a direction contrary to the first named (as $B'C'$) are considered negative.

The relation (4) can also be deduced immediately from the two forms of the equation to the line

$$lx + m\beta + n\gamma = 0 \text{ and } \frac{\alpha-f}{\sin \theta} = \frac{\beta-g}{\sin \phi} = \frac{\gamma-h}{\sin \psi}$$

4. To find the angles made by the line $lx + m\beta + n\gamma = 0$ with the sides of the triangle of reference.

In (4) θ , ϕ , ψ are always $< \pi$; but that relation may also be written in the equivalent form

$$l \sin \theta_1 + m \sin \theta_2 + n \sin \theta_3 = 0,$$

the previous convention being neglected, if θ_1 , θ_2 , θ_3 be the angles which the sides of the triangle of reference when projected make with the given line.

Projecting a , b , c on a line perpendicular to the given line we get

$$a \sin \theta_1 + b \sin \theta_2 + c \sin \theta_3 = 0$$

$$\begin{aligned} \therefore \frac{\sin \theta_1}{bn - cm} &= \frac{\sin \theta_2}{cl - an} = \frac{\sin \theta_3}{am - bl} \\ &= \left\{ \frac{2 \sin A \sin B \sin C}{(bn - cm)^2 \sin 2A + \dots} \right\}^{\frac{1}{2}} \dots \dots (5) \end{aligned}$$

since (*vide* Can. Jour. 1865) $\sin^2 \theta_1 \sin 2A + \dots = 2 \sin A \sin B \sin C$.

It may be noted that

$$(bn - cm)^2 \sin 2A + \dots = 4 \Delta \cdot \{R + \dots - 2mn \cos A - \dots\}$$

And

$$l \cos \theta_1 + m \cos \theta_2 + n \cos \theta_3 = \{R + \dots - 2mn \cos A - \dots\}^{\frac{1}{2}} \dots \dots \dots (6)$$

5. If two lines (l, m, n) , (l', m', n') are parallel, it follows from (5) that

$$\frac{bn - cm}{bn' - cm'} = \frac{cl - an}{cl' - an'} = \frac{am - bl}{am' - bl'}$$

6. To find the condition that the two lines (l, m, n) , (l', m', n') shall be perpendicular to each other.

From the relations (4) and (6) we get

$$l \sin \theta_1 + m \sin \theta_2 + n \sin \theta_3 = 0$$

$$l \cos \theta_1 + m \cos \theta_2 + n \cos \theta_3 = R, \text{ suppose}$$

$$l' \cos \theta_1 + m' \cos \theta_2 + n' \cos \theta_3 = 0$$

$$l' \sin \theta_1 + m' \sin \theta_2 + n' \sin \theta_3 = R'$$

Multiplying the 1st and 4th of these equations together, and also the 2nd and 3rd, and adding the resulting equations, we get

$$ll' + \dots + (m'n + mn') \cos \overline{\theta_2 - \theta_3} + \dots = 0,$$

or

$$ll' + \dots - (m'n + mn') \cos A - \dots = 0,$$

the required condition.

7. To find the length of the perpendicular p from (f, g, h) on (l, m, n) .

The equations to the line through (f, g, h) perpendicular to (l, m, n) are

$$\frac{\alpha - f}{\cos \theta_1} = \frac{\beta - g}{\cos \theta_2} = \frac{\gamma - h}{\cos \theta_3} = p$$

$$= \frac{l(\alpha - f) + \dots}{l \cos \theta_1 + \dots}$$

$$= \frac{lf + mg + nh}{l \cos \theta_1 + m \cos \theta_2 + n \cos \theta_3}$$

$$= \frac{lf + mg + nh}{\{R + \dots - 2mn \cos A - \dots\}^{\frac{1}{2}}}$$

The relation (3) follows at once from this.

8. To find the distance d between the points (α, β, γ) , $(\alpha', \beta', \gamma')$.

From the equations to the line

$$d = \frac{\alpha - \alpha'}{\sin \theta} = \frac{\beta - \beta'}{\sin \phi} = \frac{\gamma - \gamma'}{\sin \psi},$$

$$\therefore d^2 = \frac{(\alpha - \alpha')^2 + (\beta - \beta')^2 + (\gamma - \gamma')^2}{2 \sin A \sin B \sin C}$$

since $\sin 2A \sin^2 \theta + \dots = 2 \sin A \sin B \sin C$.

9. To find the angle λ between the lines (l, m, n) , (l', m', n') .

Let $(\theta_1, \theta_2, \theta_3)$, (ϕ_1, ϕ_2, ϕ_3) be the angles made by the lines with the sides of the triangle of reference; then

$$\cos \theta_1 + m \cos \theta_2 + n \cos \theta_3 = R$$

$$\sin \theta_1 + m \sin \theta_2 + n \sin \theta_3 = 0$$

$$l' \cos \phi_1 + m' \cos \phi_2 + n' \cos \phi_3 = R'$$

$$l' \sin \phi_1 + m' \sin \phi_2 + n' \sin \phi_3 = 0$$

Multiplying the second and third of these together, and also the first and fourth, and subtracting the resulting equations, we get

$$ll' \sin \overline{\theta_1 - \phi_1} + \dots + mn' \sin \overline{\theta_2 - \phi_3} + m'n \sin \overline{\theta_3 - \phi_2} + \dots =$$

$$\therefore (ll' + \dots) \sin \lambda + mn' \sin (\overline{\theta_2 - \theta_3} + \overline{\theta_3 - \phi_3}) \\ + m'n \sin (\overline{\theta_3 - \theta_2} + \overline{\theta_2 - \phi_2}) + \dots = 0$$

which reduces to

$$(ll' + \dots) \sin \lambda + (mn' - m'n) \sin \overline{\theta_2 - \theta_3} \cos \lambda \\ + (mn' + m'n) \cos \overline{\theta_2 - \theta_3} \sin \lambda + \dots = 0$$

$$\therefore \tan \lambda = \frac{(m'n - mn') \sin A + \dots}{ll' + \dots - (m'n + mn') \cos A - \dots}$$

November 12, 1870.

PAUL KANE, THE CANADIAN ARTIST.

In the earlier numbers of the new series of the *Canadian Journal*, several papers on various Indian tribes of the North West, from the pen of Paul Kane, attracted considerable attention, as the results of travel and personal observation in the remote Hudson's Bay Territory, and beyond the Rocky Mountains. Their author had long been known in Canada as a self-taught artist of great promise, who had devoted himself to the study of the native Indian tribes of British North America; and his contributions to this journal were the first published results of explorations, the fruits of which were afterwards set forth in more comprehensive form in his "Wanderings of an Artist among the Indians of North America," published by Messrs. Longman & Co., of London, in 1859.

The recent death of Mr. Kane invites some special notice of him in this journal, to which he was for some time a valued contributor. His father, Mr. Michael Kane, was originally in the British Army, and served latterly, we believe, in the small force which accompanied Lieutenant-Governor Simcoe, when he removed to the selected site of the future capital of Western Canada, in 1794. On his leaving the army, he settled in the newly founded city, where his son was born in 1810. Toronto was then, and long afterwards, a very humble little back-wood settlement. The Mississaga Indians, whose wigwams occupied the cleared ground near the mouth of the Don, when Colonel Bouchette made his first survey in 1793, long continued to haunt this favourite spot; while an Indian trail through the partially cleared pine forest, to the old French Fort, and another northward to Holland Landing, were the precursors of the long lines of costly stores, hotels, and public buildings, which now extend for miles along King and Yonge streets.

In the midst of this conflict between the artless rudeness of savage life, and the progressive energy of the Anglo-Saxon colonist, young Paul grew up from boyhood, with few external influences calculated in the slightest degree to stimulate artistic tastes, or to direct his attention to the study of Indian manners and customs. For the Indian, as seen in his worst debasement, haunting the centres of new civilisation, is little calculated to attract the eye of the artist or ethnical observer.

Nevertheless, Mr. Kane remarks, in the preface to his *Travels*, when referring to his resolution to devote himself to painting a series of studies of North American scenery and Indian life: "The subject was one in which I felt a deep interest in my boyhood. I had been accustomed to see hundreds of Indians about my native village: then Little York, muddy and dirty, just struggling into existence, now the City of Toronto, bursting forth in all its energy and commercial strength."

The youth of the future artist and traveller was passed amid all the disadvantages pertaining to the infancy of the embryo city. What little education he had was mainly received at the District Grammar School. There also he obtained whatever instruction he received in the art to which he was to devote his life, from Mr. Drury, a clever but eccentric teacher of drawing. But his early manifestations of an artistic bias were regarded as the mere purposeless amusements of a boy; and his disinclination for the ordinary trading pursuits, which alone promised profitable occupation in the young settlement, seemed to unappreciative seniors only a further proof of his distaste for the restraints of steady industry. The circumstances of the community were indeed too frequently inimical to the fostering of settled habits among its youth. Dr. Scadding has remarked, when describing the first years of the District Grammar School, that "during the time of the early settlements in this country, the sons of even the most respectable families were brought into contact with semi-barbarous characters. A sporting ramble through the woods, a fishing excursion on the waters, could not be undertaken without communication with Indians and Half-breeds, and bad specimens of the French voyageur: It was from such sources that a certain idea was derived, which, as we remember, was in great vogue among the more fractious of the lads at the school at York. The proposition circulated about, whenever anything went counter to their notions, always was to run away to the Nor' West! What that process really involved, or what the Nor' West precisely was, were things vaguely realised. A sort of savage land of Cocagne, a region of perfect freedom among the Indians, was imagined; and to reach it, Lakes Huron and Superior were to be traversed." In this way young Kane's mind was early familiarised with the idea of that expedition across the continent, to ocean shores beyond the Rocky Mountains, of which he has left so many memorials by means of his facile pencil and pen.

The first industrial pursuits of the boy appear to have been carried on in the employment of Mr. Conger, subsequently sheriff of Peterborough, but then engaged in the manufacture of household furniture. In this occupation his latent talent found expression in the ornamentation of various pieces of furniture, till he began to be recognized as one whose artistic abilities deserved encouragement. But in his native village no works of art existed to furnish the slightest hint to the aspiring boy, and no teacher could be found to supply adequate instruction. He was thus a purely self-taught artist. Some of his crude efforts at portraiture would probably have amused himself at a later date. But his early patrons were, fortunately, not too critical; and thus he was enabled to overcome the first difficulties of his artistic career, and to save a little money for making an independent start in life.

His first scene of artistic labour, after leaving Toronto, was Cobourg, where portraits of Sheriff and Mrs. Conger, her sister Mrs. Perry, Sheriff Ruttan, and others of his early patrons, were executed. By this means he acquired sufficient funds to enable him to set off for the neighbouring States, there to try his fortune as a portrait painter, in the hope of accumulating the requisite means for the bold project he had already formed of visiting Europe, and perfecting himself in his favourite art by studying the works of the great masters. A letter from his father, addressed to him at Detroit, in 1836, speaks of difficulties that "will probably prevent your Italian excursion." Thereafter he is found, at various dates between that and the year 1841, at Mobile, St. Louis, and other American cities, closing with New Orleans, from whence he set sail, in June of the latter year, for Marseilles.

The following four years were spent by Paul Kane in some of the great cities of European art, studying and copying the works of the Italian masters. Unfortunately, a journal which he kept during this period has perished; so that the details of his continental sojourn are no longer recoverable. But we trace him, by means of his passports and other evidence, at Paris, Genoa, Milan, Verona, Venice, Bologna, Florence, Rome and Naples. While in the latter city, he availed himself of an offered passage in a Levantine cruiser, and visited the coasts both of Asia and Africa. He joined a party of Syrian explorers, and was already on his way to Jerusalem, when they were deserted by their Arab guides, and, after being exposed to great danger, were

compelled to return to the coast, and abandon the attempt. This failure to accomplish a visit to the most sacred scenes of the ancient historic world, was always a subject of mortifying reflection to him. It was on his return from this unsuccessful pilgrimage that he landed on some part of the African shore; and so was able to say, on regaining his Canadian home, that he had been in every quarter of the globe.

Mr. Kane brought back with him, as the fruits of his four years' professional tour, copies of famous pictures in the galleries of Venice, Florence and Rome. His mind had been enlarged by observation, and by intimate intercourse with artists trained in the best schools of Europe. A letter of introduction, given to him by an Irish artist, whose friendship he had acquired while at Rome, is addressed to the Right Rev. Dr. Purcell, Bishop of Cincinnati, in which the latter is urged by no means to miss the opportunity of seeing Mr. Kane's "admirable copy of Raffaele's portrait of Pope Paul II." He also copied some of the most prized pictures in the Palazzo Pitti, at Florence; and on his return, brought with him well executed paintings from Raphael's Madonna in the Pitti Palace, and his portrait of Pope Julius II.; Leonardo da Vinci's and Rembrandt's fine portraits of themselves, in the Florentine gallery; Murillo's Madonna, in the Corsini Palace at Rome, and other favourite artistic studies; along with a highly finished copy of Busato's portrait of Pope Gregory XVI.

Stewart Watson, a well known Scottish artist, appears to have been one of his special friends while in Italy. They returned together from Italy to London, and there for a time shared the same lodgings and studio, "at Mr. Martin's, Russell-street." Another of his brother-artists, and fellow-travellers while in Italy, Mr. Hope James Stewart, thus writes to him from Edinburgh: "After London, this place looks like a dead city, and reminds me much of the way you and I felt the quietness of Rome, after our trip to that noisy and favourite place, Naples."

In 1844, Mr. Kane returned to Canada, with all the prestige of a skilled artist, who by his own unaided energy had overcome every obstacle, and achieved for himself opportunities of studying the works of the great masters in the most famous galleries of Europe. He was now to display the same indomitable energy and self-reliance in widely different scenes. In the preface to his "Wanderings of an Artist among the Indians of North America," he remarks: "On my return to Canada from the continent of Europe, I determined to devote

whatever talents and proficiency I possessed to the painting of a series of pictures illustrative of the North American Indians and scenery." On applying to Sir George Simpson, the Governor of the Hudson's Bay Company, and showing him studies of Indians he had already made, Sir George entered cordially into his plan; furnished him with letters of introduction to the chief factors at the Company's posts, and ordered him a passage in the brigade of canoes which was to start for Lake Superior in the spring of 1846. But before his arrangements could be completed,—including all the miscellaneous supplies required for an artistic tour through regions where it would be vain to seek for the most simple appliances of his art,—the voyageurs had set out, and he only succeeded in joining them, after much toil and hardship, before the party reached the mountain pass, forty miles above the Hudson's Bay Fort on the Kaministaqueah River, at the head of Lake Superior.

Mr. Kane's romantic experiences and adventures during the next four years are detailed with graphic truthfulness in the volume published by him in 1859. He crossed the continent in canoe and on foot, made his way up the valley of the Saskatchewan, and over the vast prairies beyond it, stretching westward to the Rocky Mountains. Crossing them, he navigated the Columbia River to Oregon, visited and explored Puget's Sound, Vancouver's Island, and other regions of the then savage West: which, though now rapidly filling up with European settlers, are described by him as "those wild scenes, amongst which I strayed almost alone, and scarcely meeting a white man, or hearing the sound of my own language." Everywhere his pencil was busily employed on portraits of chiefs, warriors, and medicine-men of the Indian tribes; and on hunting scenes, games, dances, and other characteristic native rites and customs. He pictured various of the Flathead Indians of the Cowlitz, Chinook, Newatee, and other tribes; had opportunities of studying the Crees, Blackfeet, Chimpseyans, Clalams and others, including even the Esquimaux; and was everywhere received among them with mingled respect and apprehension, as a great medicine-man, whose reproduction of their likenesses by his mysterious art was supposed to give him some strange power over them.

Among the most striking of the Indian portraits executed by him, is one of Kea-keke-sacowaw, head chief of the Crees, whom he met when travelling on the Saskatchewan, engaged in raising a war-party against the Blackfeet. He had with him eleven elaborately decorated pipe-stems, ten of which were the pledges of as many chiefs engaged

to join him in the proposed expedition. On learning that the artist was a great medicine-man, he agreed to exhibit to him the pipe-stems, in the belief that his sketching them would greatly increase their efficiency when opened on the war-path. A pipe-bowl was accordingly filled with tobacco and some aromatic weed; the chief chaunted a war-song; and then inserting one of the stems into the bowl, he lighted it, inhaled the smoke, and blew a long cloud upwards. This was his offering to the Great Spirit, whom he invoked to confer success on their expedition. Another prolonged puff, directed earthward, was followed by an appeal to the earth to produce an abundant supply of roots and buffalo for the coming season. The third was directed to Kane himself, with a request for his influence on their behalf. He had then to smoke all the eleven pipes; and thus enlisted in the cause, the portrait he then painted of the grim old chief, adorned with his war-paint, and holding in his hand his own pipe-stem, decorated with the head and plumage of an eagle, was esteemed a great medicine, calculated to contribute materially to the success of the war-party.

At length, after many wild adventures and hair-breadth escapes, Mr. Kane returned to Toronto in 1848, with a valuable portfolio of studies of Indians and scenery of the great North West. While still at the Saskatchewan, he received from Sir George Simpson a commission for a dozen paintings of "buffalo hunts, Indian camps, councils, feasts, conjuring matches, dances, warlike exhibitions, or any other pieces of savage life you may consider to be most attractive or interesting." Other commissions followed; and in 1851, by a vote of the Legislature of the Province of Canada, he was authorised to execute a series of Indian pictures which now hang in the Parliamentary library at Ottawa. But his most liberal patron was the Hon. G. W. Allan, to whom he subsequently dedicated the narrative of his travels, "as a token of *gratitude for the kind and generous interest he has always taken in the author's labours; as well as a sincere expression of admiration of the liberality with which, as a native Canadian, he is ever ready to foster Canadian talent and enterprise.*"

In 1853, Mr. Kane married Miss Harriet Glench, of Cobourg, a lady who, among other attractions, had a skill with her pencil and brush akin to his own. Thus happily domesticated, with a companion able to sympathise with him in his artistic labours, Mr. Kane devoted himself to the execution of an extensive series of oil paintings, including one hundred pictures of Indian scenes, landscapes, portraits

and groups, now in the Hon. G. W. Allan's collection at Moss Park. There also a very curious collection of Indian implements, weapons, masks, drums, carvings and other specimens of native art, obtained by Mr. Kane, during his travels in the North West, is now preserved.

In 1857 he revisited Europe, and superintended the execution of the chromolithographic illustrations of his travels. On his return to Toronto in the following year, he resumed his pencil, and indulged in the long-cherished hope of being able to follow up that volume by a more extensive work, illustrative of the characteristics, habits, and tribal peculiarities of the Indians of British North America, and the scenery of the regions they occupy. But soon after his return to Canada his eye-sight began to fail; and he had scarcely completed the liberal commission of Mr. Allan, when he was compelled entirely to abandon the favourite art, which till then he had pursued with such energetic zeal, in defiance of every impediment.

Mr. Kane had, at least in his later years, somewhat of the quiet, unimpressible manner of the Indians, among whom he had spent some of the most eventful years of his life. A reviewer in the *Athensæum*, in noticing the published narrative of his travels, described him as "an American artist, who had studied in Europe, and apparently unites the refinement of the Old World with the Indian energy of the New." His memory was singularly retentive; and, in spite of his reserved manner, his descriptive powers were great, when he could be induced to give them free scope. In the company of those who did not sympathise with his favourite pursuits, his words were few and abrupt; but he was a man of acute observation, and, when questioned by an intelligent enquirer, abounded with curious information in reference to the native tribes among whom he had sojourned. His published narrative is a modest, but interesting and vivid description of novel scenes and incidents of travel; and his career is a creditable instance of the pursuit of a favourite art, by a self-taught artist, in spite of the most discouraging impediments to success.

D. W.

CANADIAN INSTITUTE.

ANNUAL REPORT OF THE COUNCIL FOR THE YEAR 1869-'70.

The Council of the Canadian Institute have the honor to present the following Report of the proceedings of the Society for the past year from 1st December, 1869, to the 30th November, 1870.

MEMBERSHIP.

The present state of Membership is as follows :

Members at commencement of Session, December 1st, 1869	354
Elected during Session 1869-'70.....	5
“ by Council during Recess	1
	360

Deduct.

Deaths	5
Withdrawn	3
Left the Province	3
For non-payment of Subscription.....	6
	17

Total 30th November, 1870..... 343

Composed of

Honorary Members....	4
Life “	27
Corresponding Members	6
Ordinary “	306
	343

COMMUNICATIONS.

The following list of papers read at the ordinary meetings held during the Session will be found to contain many valuable communications, and some of general interest :

- 3rd December, 1869.—Rev. Prof. Hincks, “Ferns.”
 10th December, 1869.—Doctor C. B. Hall, “On Injuries of the Trachea.”
 17th December, 1869.—The Annual Report was read and adopted.
 14th January, 1870.—Inaugural Address of the President, Rev. W. Hincks.
 21st January, 1870.—Doctor Geikie, “On certain differences in the Treatment of Disease formerly and in recent times.”
 4th February, 1870.—Doctor Oldright, “On Acute Ergot Poisoning.”
 25th February, 1870.—Doctor D. Wilson, LL.D.; “On the present state and future prospects of the Indian Race in British North America.”
 18th February, 1870.—Dr. Cumming’s Paper postponed.
 4th March, 1870.—Dr. Cumming, “On the changes in Therapeutics that have resulted from advances in Medical Science.”
 11th March, 1870.—No paper read. Mr. R. Lee was unavoidably absent.
 18th March, 1870.—Doctor J. J. O’Dea, New York, “On Relapsing Fever.”

- 25th March, 1870.—Rev. J. McCaul, LL.D., "On Ancient Scramblings."
 1st April, 1870.—Doctor W. W. Ogden, "On Menorrhagia, with its Treatment by Bromide of Ammonium."
 8th April, 1870.—J. Loudon, Esq., M.A., "On the Pronunciation of the Latin Language." R. Leo, Esq., "On the Native Tribes of Polynesia."
 29th April, 1870.—Doctor Reeve, "On Diseases of the Ear."
 6th May, 1870.—Doctor Thorburn read a paper by Dr. Eastwood, of Whitby, "On our Relations to the Public."
 13th May, 1870.—"On a case of Injury to the Spine."
 27th May, 1870.—Doctor Canniff, "Remarks on the Sanitary Condition of the City."
 21st October, 1870.—Dr. Rosebrugh, "On Sympathetic Ophthalmia."
 25th November, 1870.—Dr. Geikie, "Notes of some cases of Typhoid Fever."

STATEMENT OF THE GENERAL ACCOUNT OF THE CANADIAN INSTITUTE, FOR
 THE YEAR 1869-70:

FROM THE 1ST DECEMBER, 1869, TO THE 30TH NOVEMBER, 1870.

Debtor.

Cash Balance last year.....		\$597 78
" Received from Members.....		268 00
" For rent.....		86 45
" Parliamentary grant for 1870.....		750 00
" For Interest on loan of \$3,100, to 7th January.....		186 00
" For Interest from other sources.....		52 64
" Due for <i>Journal</i>	{ Old Series.....	0 83
	{ New Series.....	4 00
		<u>4 33</u>
" Due by Members.....		1,755 75
" Due for <i>Journal</i>	{ Old Series.....	114 25
	{ New Series.....	48 24
		<u>157 50</u>
		<u>\$3,858 45</u>

Creditor.

Cash paid for <i>Journal</i> , Vol. XII., Nos. 3, 4, 5, 6.....	\$536 39
Compensation for Editor of <i>Journal</i>	240 00
Postage.....	9 05
Library and Museum.....	22 36
Cash paid on account of Institute—	
Salary.....	336 00
Insurance.....	102 25
Wood.....	57 25
Printing.....	49 50
Periodicals.....	58 49
Repairs to Building.....	87 15
Advertising.....	9 37
Postage.....	4 92
Stationery.....	6 44
Sundries.....	8 04
Estimated Balance.....	2,331 24
	<u>\$3,858 45</u>

TREASURER IN ACCOUNT WITH THE CANADIAN INSTITUTE, FOR THE YEAR
1869-70—FROM THE 1ST DECEMBER, 1869, TO THE 30TH NOVEMBER, 1870.

Debtor.

Cash Balance last year		\$597 78
" Received from Members.....		268 00
" For rent.....		86 45
" Parliamentary grant, 1870.....		750 00
" For Interest of \$3,100, to 7th January, 1870		186 00
" For Interest from other sources.....		52 64
" Sale of <i>Journal</i>	{ Old Series..... { New Series.....	0 33
		4 00
		4 33
Securities		3,100 00
		\$5,045 20

Creditor.

Cash paid for <i>Journal</i> , Vol. XII., Nos. 3, 4, 5, 6		\$536 39
Compensation for Editor <i>Journal</i>		240 00
Postage		9 05
Library and Museum		22 36
Cash paid on account of Institute—		
Salary	336 00	
Insurance.....	102 25	
Wood.....	57 25	
Printing	49 50	
Periodicals	58 49	
Repairs to Building	87 15	
Advertising.....	9 37	
Postage	4 92	
Stationery	6 44	
Sundries	8 04	
		719 41
Securities		3,100 00
Balance Cash in Bank.....		417 99
		\$5,045 20

Toronto, Dec. 12, 1870.

SAMUEL SPREULL.

The undersigned Auditors have compared the vouchers for the items of these accounts with the cash book, and find them to agree. The balance in hands of the Treasurer is \$417 99.

W. J. McDONELL
GEO. MURRAY.

	VOLS.
Die Thierarten des Aristoteles Von Den Klasson, &c., Carl J. Sundevall, &c., Stock., 1863.....	1 *
On the existence of Rocks, &c., Sweden, translated from Communications read to the Royal Swedish Academy of Sciences at Stockholm, 1867	1 *
Kongl. Svenska Vetenskaps-Akademien, May, 1866.....	1 *
“ “ “ 1867.....	1 *
“ “ “ 1868.....	1 *
“ “ “ 1869.....	1 *
Om Gotlands Nutida Mollusker af G. Lindstrom, 1868.....	1 *
Lefnadsteckningar öfver Kongl. Svenska Vetenskaps Akademiens Efter ar 1854, Afidna Ledamöter Band 1, Hafto 1.....	1 *
Öfversigt af K. Vetenskaps-Akademiens Forhandlingar, 1865.....	1 *
“ “ “ 1866.....	1 *
“ “ “ 1867.....	1 *
“ “ “ 1868.....	1 *
Netulandsch Meteorologisch Jyarbock Voor 1868, Utrecht, 1868.....	1
From the Society—	
Records of the Priory of the Isle of Man, edited by John Stewart, LL.D., Secretary of the Society of Antiquaries of Scotland	1
From the Society—	
Memoirs read before the Anthropological Soc. of London, 1867-8-9, vol. iii.	1
From the Boston Society of Natural History—	
Report on the Invertebrata of Massachusetts, published agreeably to an order of the Legislature, 2nd edition, comprising the Mollusca, by Augusta A. Gould, M.D.; edited by W. G. Binny, Boston; 1870....	1
From L. Heyden, Esq.—	
Observations on the Right of British Colonies to Representation in the British Parliament; by Daniel Chisholm	1
Life of Colonel Talbot; by E. Ermatinger.....	1
From the Society of Antiquaries of North Copenhagen—	
Renseignements sur les Premiers Habitants de la Cote Occidentale du Groenland, par Carl Christian Rafn Traduits in Groenlandais par Samuel Klimeschmidt.....	1
From the Smithsonian Institution, Washington—	
Smithsonian Miscellaneous Collections, vols. viii. & ix.	2
Smithsonian Contributions to Knowledge, vol. xvi.....	1
From Rev. W. D. Stark—	
Linnæi Species Plantarum, vols. i. & ii.	2
Latham's Index Ornithologus, vols. i. & ii.....	2
From the Queen's Printer—	
The Statutes of Canada; 32 & 33 years of the reign of Her Majesty; 15th April, 1869, 22nd June same year; 1870.....	1
Bought—	
Allibone's Dictionary of English Literature and British and American Authors, vol. ii.....	1

From the Societies—

The Journal of the Royal Asiatic Society, vol. iv, Part 2	1	*
The Journal of the Royal Geographical Society, vol. xxxix, 1869.....	1	*
Proceedings of " " " " vol. xii, No. 5.....	1	*
" " " " " " " " vol. xiii, No. 5.....	1	*
" " " " " " " " vol. xiv, No. 1.....	1	*
" " " " " " " " vol. xiv, No. 2.....	1	*
List of the Geological Society, Nov. 1st, 1869.....	1	*
Quarterly Journal of ditto, Feb. 1st, 1869, vol. xxv, Part 1, No. 97.....	1	*
" " " " " " " " Nov. 1st, 1869, vol. xxv, Part 4, No. 100.....	1	*
" " " " " " " " Feb. 1st, 1876, vol. xxv, Part 1, No. 401.....	1	*
" " " " " " " " May 2nd, 1870, vol. xxvi, Part 2, No. 102.....	1	*
" " " " " " " " August 1st, 1870, vol. xxvi, Part 3, No. 103..	1	*

DONATIONS OF PAMPHLETS RECEIVED.

From the Provincial Lunatic Asylum—

Report of the Medical Superintendent	1
--	---

From the Nova Scotia Institute—

The Antiquity of Man in America.....	1
--------------------------------------	---

From the Smithsonian Institution—

Istituzioni—di Diritto Commerciale, &c., 1867	3
Sulla Riabilitazione des Condannati Trattatos di Nicola Alianelli.....	1
Bur Tusohichte, &c. &c.....	1
Societe D'Ethnographie Fondée in 1857 and 1869.....	1
Norsk Meteorologisk Aarbag for 1868.....	1
Le Glacier de Boium in Juillet, 1868, par S. A. Saxe.....	1
Index Scholarum in Universitate Regia Fredericiania, 1869	1
En Anat. nisk Beskrivelser af de Paa Overog Underextremitaterne, &c., af A. S. D. Synnestvedt	1
La Norvege Litteraire, Par Paul Botten Hausen, Christiania, 1868	1
Fortælling om Thomas Becket, Ekebishop of Canterbury C.R. Unger, 1865	1
Ungadreskte, Unbrachtete and wenig Beachtete Quellen, &c.....	1
Forhandlinger i Videnskabselskabet J Christiania aar. 1868	1
" " " " " " " " ved de Skandinaviske Naturforsheres Tiende Møde, J Chris- tiania, Fra den 4de Til den 10de Juli, 1868.....	1
Nyt Magazine for Naturvidenskaberne ved M. Sars og M. Kjerwolf. Six- tende Binds forste Hefte	1
Do. do. Sextende Binds fjerde Hefte Med 1, Lith Tavier.....	1
Do. do. Sextende Binds andet og tredie Hefte Med 2, Lith Tavier.....	1
Foreningen til Nors. Fortidsmindesmerkers Bavaring, 1868.	1
Det Kongilge Norske Videnskabserselskabs, skrifter i det 19 de Aarhu- drede. Fente Bind, 1868.....	1
Do. do. 5te Binds 13te Hefte	1
Beretning om Sodsfaengslats Virksomhed i aaret, 1868.....	1

En fornstilling af det Norske Aristokratis historie indtil Kong Svertes tid af Ebbe Hetzberg, 1869.....	1 *
Det Kongelige Norske Fredericks Universitets for aar, 1868.....	1 *
Generalberetning fra Gausted Sindssygeasyl for aar, 1868.....	1 *
Massachusetts	1 *
The Principles of the Electric System of Medicine, by J. Morrison, M.D., M.A.	1 *
Report upon the Oyster Resources of Maryland, by H. Davidson, Esq., 1870	1 *
Report of Peabody Institute, Baltimore.....	1 *
From the Author—	
On the Graphite of the Laurentian of Canada, by J. W. Dawson, LL.D..	1 *
From the Boston Natural History Society—	
Address delivered on the Centennial Anniversary of the Birth of Alex. Von Humbolt, under the auspices of the Boston Society of Natural History, by Louis Agassiz, &c.....	1
From L. Heyden, Esq.—	
Catalogue D'Ouvrages Sur L'Histoire de L'Amerique, &c.....	1
From the Institute, Baltimore—	
Discourse on the Life and Character of George Peabody.....	1
From the University—	
Abstract of the Annual Calendar of McGill College, 1870-71	1
Unknown—	
Catalogue des Livres Anciens qui se Trouvent à la Librairie Tross, a Paris Annee, 1870, No. 5	1
From the Society of Antiquaries of North Copenhagen—	
Memoires de la Societe Royale des Antiquaires du Nord, Nouvelle Serie, 1867 and 1868.....	2
Tilleg til Aarboger for Nordisk Oldkyndighed og Historie, Aargang 1867 and 1868	2
From the Museum, New-York State Library—	
First Annual Report of the American Museum of Natural History, Jan. 1870	1
17th Annual Report of the Regents of the University of the State of New York, Cabinet of Natural History, April, 1864	1
18th Annual Report of ditto, March 22nd, 1865	1
19th " " " April 2nd, 1866	1
20th " " " April 15th, 1867	1
22nd " " " April 10th, 1869	1
52nd " " of the Trustees of N. Y. State Library, Jan. 19, 1870	1
3rd " " of the Provost to the Trustees of the Peabody Institute, Baltimore, June 2nd, 1870.....	1
Through the Smithsonian Institution—	
Abhandlungen herausgegeben Vom Naturwissenschaftlichen Vereine Zu Bremen, 2 Bd. 2nd Heft, 1870	1

Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien xix, Band. 1 Heft	1
Do. do. " ii. & iii. Hest.....	1
Do. do. " iv. Hest	1
Commelinaceae Indicae, Imprimis Archipelagi Indici adjectis Nonnullis hisce Tetris alienis, Auctore Carlo Hasskarl Ph. D. Vindobonae, 1870.	1
Beiträge zur Fauna der Nicobaren Von Georg. Ritter Von Frauenfeld, iii.	1
Das Gesetz der Winde, &c. Über Nord West Europa, Von Dr. M. A. F. Prestel, &c. in Emden xiv, 1869.....	1
From the Superintendent of the Survey—	
Records of the Geological Survey of India, vol. i, Part 1, 1868.....	1
" " " " vol. i, Part 2, "	1
" " " " vol. i, Part 3, "	1
" " " " vol. ii, Part 1, 1869.....	1
Annual Report of the Geological Survey of India, and of the Museum of Geology, Calcutta, 12th year, 1867	1
Memoirs of the Geological Survey of India, vol. vi, Part 3	1
Blandford. W. F., on Geology of the Taptee and Lower Nubudda Valleys	1
Wynne, A. B., on Frog Beds in Bombay Island	1
Stoliczka, F., on <i>Oxyglossus Pusillus</i> Owen sp.....	1
Title, Prefatory Notice and List of Contents, vol. vi.....	1
Palæontologia Indica, &c.....	1
Gasteropoda, Ser. 5, Parts 5 & 6, pp. 205-284.....	1
" v, 7-10, Cretaceous Rocks of Southern India, by Frederick Stoliczka Ph. D., Geolog. Survey of India	1
From the Leeds Philosophical and Literary Society—	
The Annual Report for 1869-70	1

PUBLICATIONS BOUGHT 1869-70.

Saturday Review.
 Boston Medical Journal.
 The Student.
 The Fortnightly Review (Monthly).
 Quarterly Journal Microscopical Science.
 Journal of the Chemical Society.
 The Edinburgh Medical Journal.
 British and Foreign Medical Chirurgical Review.
 Quarterly American Journal of Medical Sciences.
 Medical Times and Gazette.

RECEIVED IN EXCHANGE FOR "JOURNAL"

Journal of the Society of Arts; two sets.
 Journal of Education, Upper Canada.
 Journal of Franklin Institute, Philadelphia.

The Artizan, London. .
Silliman's Journal.
The Canadian Entomologist.
Proceedings of the Antiquarian Society, Worcester.
Proceedings of the Academy of Sciences, Philadelphia.
Historical Recollections of the Essex Institute.
Annals des Mines.
Bulletin de la Société Géologique.
Proceedings of the Boston Natural History Society.
Anthropological Review.
Canadian Naturalist.
Proceedings of the Geological Society of the West Riding of Yorkshire.
Transactions of the Nova Scotia Institute
Nature.
Proceedings of the Society of Antiquaries of Scotland.
Transactions of the Royal Scottish Society of Arts.
Proceedings of the American Academy of Arts and Sciences.
Journal of the Royal Geological Society of Ireland.
Transactions of the Edinburgh Geological Society.



CANADIAN LOCAL HISTORY.

TORONTO OF OLD:

A SERIES OF COLLECTIONS AND RECOLLECTIONS.

(Continued from Vol. XII., p. 532.)

BY THE REV. DR. SCADDING.

XXXI.—QUEEN STREET FROM GEORGE STREET TO YONGE STREET.

When we pass George Street we are in front of the park-lot originally selected by Mr. Secretary Jarvis. It is now divided from south to north by Jarvis Street, a thoroughfare opened up through the property in the time of Mr. Samuel Peters Jarvis, the Secretary's son. Among the pleasant villas that now line this street on both sides, there is one which still is the home of a Jarvis, the Sheriff of the County. Besides filling the conspicuous post indicated by his title, Mr. Secretary Jarvis was also the first Grand Master of the Masons in Upper Canada. The archives of the first Masonic Lodges of York possess much interest. Through the permission of Mr. Alfio de Grassi who has now the custody of them, we are enabled to give the following extracts from a letter of Mr. Secretary Jarvis, bearing the early date of March 28th, 1792:—"I am in possession of my sign manual from his Majesty," Mr. Jarvis writes on the day just named, from Pimlico, to his relative Munson Jarvis, at St. John, New Brunswick, "constituting me Secretary and Registrar of the Province of Upper Canada, with power of appointing my Deputies, and in every other respect a very full warrant. I am also" he continues "very much flattered to be enabled to inform you that the Grand Lodge of England have within these very few days appointed Prince Edward, who is now in Canada, Grand Master of Ancient Masons in Lower Canada; and William Jarvis, Secretary and Registrar of Upper Canada, Grand Master of Ancient Masons in that Province. However trivial it may appear to you who are not a Mason, yet I assure you that it is one of the most honourable appointments that they could have conferred. The Duke of Athol is the Grand Master of Ancient Masons in England. Lord Dorchester with his private Secretary, and the Secretary of the Province, called on us yesterday" Mr. Jarvis proceeds to say "and found us in the utmost confusion, with half a dozen porters in the house packing up. However his Lordship would come in, and sat down in a small room which was reserved from the general bustle. He then took Mr. Peters home with him to dine: hence we conclude a favourable omen in regard to his consecration, which we hope is not far distant. Mrs. Jarvis," the Secretary informs his relative, "leaves England in great spirits. I am ordered my passage on board the transports with the Regiment, and to do duty without pay for the passage only. This letter," he adds, "gets to Halifax by favour of an intimate friend of Mr. Peters, Governor Wentworth, who goes out to take possession of his Government. The ship that I am allotted to is the *Henneker*, Captain Winter, a transport with the Queen's Rangers on board."

The Prince Edward spoken of was afterwards Duke of Kent and father of the present Queen. Lord Dorchester was the Governor-General of the Province of Quebec before its division into Upper and Lower Canada. Mr. Peters was in *posse* the Bishop of the new Province about to be organized. It was a part of the original scheme, as shewn by the papers of the first Governor of Upper Canada, that there should be an episcopal see in Upper Canada, as there already was at Quebec in the lower province. But this was not carried into effect until 1839, nearly half a century later. When Jarvis Street was opened up through the Secretary's park-lot, the family residence of his son Mr. Samuel Peters Jarvis, a handsome structure of the early brick era of York, in the line of the proposed thoroughfare, was taken down. Its interior fittings of solid black walnut were bought by Capt. Carthew and transferred by him without much alteration to a house which he put up on part of the Deer-park property on Yonge Street, (now the R. C. cemetery). A large fragment of the offices attached to Mr. Jarvis's house was utilized and absorbed in a private residence on the west side of Jarvis Street, and the gravel drive to the door is yet in some places to be traced in the less luxuriant vegetation of certain portions of the

adjoining flower gardens. Mr. Secretary Jarvis died in 1818. He is described by those who remember him as possessing a handsome, portly presence. Col. Jarvis, the first military commandant in Manitoba, is a grandson of the Secretary.

Of Mr. McGill, first owner of the next park-lot, and of his personal aspect, we have had occasion to speak in connexion with the interior of St. James's Church. Situated in fields at the southern extremity of a stretch of forest, the comfortable and pleasantly situated residence erected by him for many years seemed a place of abode quite remote from the town. It was still to be seen in 1870 in the heart of McGill Square, and was long occupied by Mr. McCutcheon, a brother of the inheritor of the bulk of Mr. McGill's property, who in accordance with his uncle's will, and by authority of an act of Parliament, assumed the name of McGill, and became subsequently well known throughout Canada as the Hon. Peter McGill. The founder of McGill College in Montreal was of a different family. The late Capt. James McGill Strachan derived his name from the connexion of his father by marriage, with the latter. In the *Gazette & Oracle* of Nov. 13th, 1803, we observe Mr. McGill of York advertising "as "agent for purchases" of pork and beef to be supplied to the troops stationed "at Kingston, York, Fort George, Fort Chippewa, Fort Erie, and Amherstburg." In 1818 he is Receiver-General, and Auditor-General of land patents. He had formerly been an officer in the Queen's Rangers, and his name repeatedly occurs in "Simcoe's History" of the operations of that corps during the war of the American Revolution. From that work we learn that in 1779 he with the commander himself of the corps, then Lieut. Col. Simcoe, fell into the hands of the revolutionary authorities, and was treated with great harshness in the common jail of Burlington, New Jersey; and when a plan was devised for the Colonel's escape, Mr. McGill volunteered, in order to further its success, to personate his commanding officer in bed, and to take the consequences, while the latter was to make his way out. The whole project was frustrated by the breaking of a false key in the lock of a door which would have admitted the confined soldiers to a room where "carbines and ammunition" were stored away. Lieut. Col. Simcoe, it is added in the history just named, afterwards offered Mr. McGill an annuity, or to make him Quarter-master of Cavalry: the latter, we are told, he accepted of, as his grandfather had been an officer in King William's army; and "no man," Col. Simcoe himself notes, "ever executed the office with greater integrity, courage and conduct."

The southern portion of Mr. McGill's park-lot has, in the course of modern events, come to be assigned to religious uses. McGill Square, which contained the old homestead and its surroundings, and which was at one period intended, as its name indicates, to be an open public square, was secured in 1870 by the Wesleyan Methodist body and made the site of its principal place of worship and of various establishments connected therewith. Immediately north, on the same property, the Roman Catholics had previously built their principal place of worship and numerous appurtenances, attracted possibly to the spot by the expectation that McGill Square would continue forever an open ornamental piece of ground.

A little farther to the north a cross-street, leading from Yonge Street eastward, bears the name of McGill. An intervening cross-street preserves the name of Mr. Crookshank, who was Mr. McGill's brother-in-law.

The name that appears on the original survey of York and its suburbs as first occupant of the park-lot westward of Mr. McGill's, is that of Mr. George Playter. This is the Captain Playter, senior, of whom we have already spoken in our excursion up the valley of the Don. We have named him also among the forms of a past age whom we ourselves remember often seeing in the congregation assembled of old in the wooden St. James's. Mr. Playter was an Englishman by birth, but had passed many of his early years in Philadelphia, where for a time he attached himself to the Society of Friends, having selected as a wife a member of that body. But on the breaking out of the troubles that led to the independence of the United States, his patriotic attachment to old far-off England compelled him, in spite of the peaceful theories of the denomination to which he had united himself, promptly to join the Royalist forces. He used to give a somewhat humorous account of his sudden return to the military creed of ordinary mundane men. "Lie there, Quaker!" cried he to his cutaway, buttonless, formal coat, as he stripped it off and flung it down, for the purpose of donning the soldier's habiliments. But some of the Quaker observances were never relinquished in his family. We well remember, in the old homestead on the Don, and afterwards at his residence on Caroline Street, a silent

mental thanksgiving before meals, that always took place after every one had taken his seat at the table; a brief pause was made, and all bent for a moment slightly forwards. The act was solemn and impressive. Old Mr. Playter was a man of sprightly and humorous temperament, and his society was accordingly much enjoyed by those who knew him. A precise attention to his dress and person rendered him an excellent type in which to study the costume and style of the ordinary unofficial citizen of a past generation. Colonel M. F. Whitehead, of Port Hope, in a letter kindly expressive of his interest in these reminiscences of York, which we are endeavouring to record, has incidentally furnished a little sketch that will not be out of place here. "My visits to York, after I was articled to Mr. Ward, in 1819," Colonel Whitehead says, "were frequent. I usually lodged at old Mr. Playter's, Mrs. Ward's father. [This was when he was still living at the homestead on the Don.] The old gentleman often walked into town with me, by Castle Frank; his three-cornered hat, silver knee-buckles, broad-toed shoes and large buckles, were always carefully arranged." To the equipments, so well described by Colonel Whitehead, we add from our own boyish recollection of Sunday sights, white stockings and a gold-headed cane of a length unusual now. According to a common custom prevalent at an early time, Mr. Playter set apart on his estate on the Don a family burial-plot, where his own remains and those of several members of his family and their descendants were deposited. Mr. George Playter, son of Captain George Playter, was some time Deputy Sheriff of the Home District; and Mr. Eli Playter, another son, represented for some sessions in the Provincial Parliament the North Riding of York. A daughter, who died unmarried in 1832, Miss Hannah Playter, "Aunt Hannah" as she was styled in the family, is pleasantly remembered as well for the genuine kindness of her character, as also for the persistency with which, like her father, she carried forward into a new and changed generation, and retained to the last, the costume and manners of Queen Charlotte's days. As a specimen of the mode in which marriages were occasionally announced in our York papers in the olden time, we subjoin the record of a wedding in Captain Playter's family, as given in the *Gazette and Oracle* of December 29, 1798. "Married last Monday," the record runs, "Mr. James Playter to the agreeable Miss Hannah Miles, daughter of Mr. Abner Miles of this town."

XXXII.—QUEEN STREET—SOME MEMORIES OF THE OLD COURT HOUSE.

Immediately in front of the extreme westerly portion of the park-lot which we are now passing, and on the south side of the present Queen Street in that direction, was situated an early Court House of York, associated in the memories of most of the early people with their first acquaintance with forensic pleadings and law proceedings. This building was a notable object in its day. In an old plan of the town we observe it conspicuously delineated in the locality mentioned—the other public buildings of the place, viz., the Commissariat Stores, the Government House, the Council Chamber (at the present north-west corner of York and Wellington Streets), the District School, St. James's Church, and the Parliament House (by the Little Don), being marked in the same distinguished manner. It was a plain two-storey frame building, erected in the first instance as an ordinary place of abode by Mr. Montgomery, father of the Montgomeries, once of the neighbourhood of Eglinton, on Yonge Street. It stood in a space defined by the present line of Yonge Street on the west, by nearly the present line of Victoria Street on the east, by Queen Street on the north and by Richmond Street on the south. Though situated nearer Queen Street than Richmond Street it faced the latter and was approached from the latter. It was Mr. Montgomery who obtained by legal process the opening of Queen Street in the rear of his property. In consequence of the ravine of which we have had occasion so often to speak, the allowance for this street as laid down in the first plans of York had been closed up by authority from Yonge Street to Caroline Street. It was seriously proposed in 1800 to close up Queen Street to the westward also from Yonge Street "as far as the Common," that is, the Garrison Reserve, on the ground that such street was wholly unnecessary, there being in that direction already one highway into the town, namely Richmond Street, situated only ten rods to the south. In 1800 the southern termination of Yonge Street was where we are now passing, at the corner of Montgomery's lot. At this point the farmer's waggons from the north turned off to the eastward, proceeding as far as Toronto Street, down which they wended their way to Richmond Street, and so on to Church Street and King Street

finally reaching the Market Place. Of the opening of Yonge Street through a tier of building lots that in 1800 blocked the way from Queen Street southwards we shall speak hereafter in the excursion which we propose to make through Yonge Street from south to north the moment we have finished recording our collections and recollections in relation to Queen Street.

In the *Oracle* for Saturday, January 21, 1804, we have this brief advertisement:—"The subscribers for opening Lot Street are requested to meet at Cooper's Hotel on Monday next at 11 o'clock in the forenoon. York, January 21st, 1804." No account of the meeting is afterwards given and the names of the subscribers do not appear.

According to the old plans, the original Toronto Street started southward from Queen Street exactly four chains and twenty links to the east of the present south-east corner of Yonge Street. It then ran, as we have said, a little to the west of the present Victoria Street which was first known as Upper George Street. The fact that the street which in modern times is called Toronto Street is the nearest passage to King Street from the lower end of what is virtually the old Toronto Street, probably suggested the name—Toronto Street.

In the old Court House, situated as we have described, we received our first boyish impressions of the solemnities and forms observed in Courts of Law. In paying a visit of curiosity subsequently to the singular series of Law Courts which are to be found ranged along one side of Westminster Hall in London—each one of them entered in succession through the heavy folds of lofty mysterious-looking curtains, each of them crowded with earnest pleaders and anxious suitors, each one of them provided with a judge elevated in solitary majesty on high, each one of them seeming to the passing stranger more like a scene in a drama than a prosaic reality—we could not but revert in memory to the old upper chamber at York where the remote shadows of such things were for the first time encountered. It was startling to remember of a sudden that our early Upper Canadian Judges, our early Upper Canadian Barristers, came fresh from these Westminster Hall Courts! What a contrast must have been presented to these men in the rude wilds to which they found themselves transported. Riding the Circuit in the Home, Midland, Eastern and Western Districts at the beginning of the present century was no trivial undertaking. Accommodation for man and horse was for the most part scant and comfortless. Locomotion by land and water was perilous and slow and racking to the frame. The apartments procurable for the purposes of the Court were of the humblest kind. Our pioneer juriconsults in the several degrees, however, like our pioneers generally, unofficial as well as official, did their duty. They quietly initiated in the country, customs of gravity and order which have now become traditional; and we see the result in the decent dignity that surrounds, at the present day, the administration of justice in Canada in the Courts of every grade.

Prior to the occupation of Mr. Montgomery's house as the Court House at York, the Court of King's Bench held its sessions in a portion of the Government Buildings at the east end of the town, destroyed in the war of 1813. On June 25, 1812, the Sheriff, John Beikie, advertises in the *Gazette* that "a Court of General Quarter Sessions of the Peace for the Home District will be holden at the Government Buildings in the town of York on Tuesday the fourteenth day of July now next ensuing, at the hour of ten o'clock in the forenoon, of which all Justices of the Peace, Coroners, Constables, High Constables, Constables and Bailiffs are desired to take notice, and that they be then and there present with their Rolls, Records and other Memoranda to do and perform those things which by reason of their respective offices shall be to be done."

It is with the Court Room in the Government Buildings that the Judge, Sheriff and Crown Counsel were familiar, who were engulfed in Lake Ontario in 1805. The story of the total loss of the government schooner *Speedy*, Captain Thomas Paxton, is widely known. In that ill-fated vessel suddenly went down in a gale in the dead of night, along with its commander and crew, Judge Cochrane, Solicitor-General Gray, Mr. Angus McDonell, Sheriff of York, Mr. Fish, the High Bailiff, an Indian prisoner about to be tried at Presquille for murder, two interpreters, Cowan and Ruggles, several witnesses, and Mr. Herchmer, a merchant of York; in all thirty-nine persons, of whom no trace was ever afterwards discovered. The weather was threatening, the season of the year was stormy (7th October), and the schooner was suspected not to be sea-worthy. But the orders of the Governor, General Peter Hunter, were peremptory. Mr. Weekes, of whom we have heard before, escaped the fate that befel so many connected with his profession, by deciding to make the journey to Presquille on horseback, which he did. It was the occurrence of this fatal casualty to Mr. McDonell that occasioned the vacancy in the

representation for which Mr. Weekes afterwards became the successful candidate. The name of the Indian who was on his way to be tried was Ogetoneut. His brother, Whistling Duck, had been killed by a white man, and he took his revenge on John Sharp, another white man. The deed was done at Ball Point on Lake Scugog, where John Sharp was in charge of a trading-post for furs belonging to the Messrs. Farewell. The Governor had promised, so it was alleged, that the slayer of Whistling Duck should be punished. But a twelvemonth had elapsed and nothing had been done. The whole tribe, the Muskrat branch of the Chippewas, with their Chief Wabbekisheco at the head, came up in canoes to York on this occasion, starting from the mouth of Annis's creek near Port Oshawa, and encamping at Gibraltar Point on the peninsula in front of York. A guard of soldiers went over to assist in the arrest of Ogetoneut, who, it appears, had arrived with the rest. The Chief, Wabbekisheco, took the culprit by the shoulder and delivered him up. He was lodged in the jail at York. During the summer it was proved by means of a survey that the spot where Sharp had been killed was within the District of Newcastle. It was held necessary, therefore, that the trial should take place in that District. Sellick's, at the Carrying Place, was to have been the scene of the investigation, and thither the *Speedy* was bound when she foundered. Mr. Justice Cochrane was a most estimable character personally, and a man of distinguished ability. He was only in his 28th year, and had been Chief Justice of Prince Edward Island before his arrival in Upper Canada. He was a native of Halifax, in Nova Scotia, but had studied law in Lincoln's Inn, and was called to the Bar in England.

In the old Court House, near which we are now passing, were assigned to convicted culprits, with unflinching severity and in no inconsiderable number of instances, all the penalties enjoined in the criminal code of the day—the lash, the pillory, the stocks, the gallows. We have conversed with an old inhabitant of Toronto, who had not only here heard the penalty of branding ordered by the Judge, but had actually seen it in open court inflicted, the iron being heated in the great wood-stove that warmed the room, and the culprit made to stretch out his hand and have burnt thereon the initial letter of the offence committed.

Here cases came up repeatedly, arising out of the system of slavery which at the beginning was received in Canada, apparently as an inevitable part and parcel of the social arrangements of a colony on this continent. On the first of March, 1811, we have it on the record, "William Jarvis, of the town of York, Esq., (this is the Secretary again,) informed the Court that a negro boy and girl, his slaves, had the evening before been committed to prison for having stolen gold and silver out of his desk in his dwelling house, and escaped from their said master; and prayed that the Court would order that the said prisoners, with one Coachly, a free negro, also committed to prison on suspicion of having advised and aided the said boy and girl in eloping with their master's property." Thereupon it was "Ordered,—That the said negro boy named Henry, commonly called Prince, be re-committed to prison, and there safely kept till delivered according to law, and that the girl do return to her said master; and Coachly be discharged."

At the date just mentioned Slavery was being gradually extinguished by an Act of the Provincial Legislature of Upper Canada, passed at Newark in 1793, which forbade the further introduction of slaves, and ordered that all slave children after the 9th of July in that year should be free on attaining the age of twenty-five.

Most gentlemen, from the Administrator of the Government downwards, possessed some slaves. Peter Russell, in 1806, was anxious to dispose of two of his, and thus advertised in the *Gazette and Oracle*, mentioning his prices: "To be sold: a Black Woman named Peggy, aged forty years, and a Black Boy, her son, named Jupiter, aged about fifteen years, both of them the property of the subscriber. The woman is a tolerable cook and washervoman, and perfectly understands making soap and candles. The boy is tall and strong for his age, and has been employed in the country business, but brought up principally as a house servant. They are each of them servants for life. The price of the woman is one hundred and fifty dollars. For the boy two hundred dollars, payable in three years, with interest from the day of sale, and to be secured by bond, &c. But one-fourth less will be taken for ready money. York, Feb. 19th, 1806. PETER RUSSELL."

According to our ideas at the present moment, such an advertisement as this is shocking enough. But we must judge the words and deeds of men by the spirit of the age in which they lived and moved.

Similar notices were common a century since in the English newspapers. It is in fact asserted that at that period there were probably more slaves in England than in Virginia. In the *London Public Advertiser*, of March 23th, 1769, we have, for example, the following: "To be sold, a Black Girl, the property of J. B—, eleven years of age, who is extremely handy, works at her needle tolerably, and speaks English perfectly well; is of an excellent temper, and willing disposition. Enquire of Mr. Owen, at the Angel Inn, behind St. Clement's Church, in the Strand." And again, in the *Edinburgh Evening Courant* of April 18th, 1768, we have, "A Black Boy to Sell. To be sold a Black Boy with long hair, stout made and well limbed; is good tempered: can dress hair, and take care of a horse indifferently. He has been in Britain near three years. Any person that inclines to purchase him may have him for £40. He belongs to Captain Abercrombie, at Brighton. This advertisement not to be repeated."

The poet Cowper sings—

"Slaves cannot breathe in England: if their lungs
Receive our air, that moment they are free;
They touch our country and their shackles fall."

But this was not true until Lord Mansfield in 1772 uttered his famous judgment in the case of James Somersett, a slave brought over by a Mr. Stewart from Jamaica. Cowper's lines are in reality a versification of a portion of Lord Mansfield's words. A plea had been set up that villeinage had never been abolished by law in England; ergo, the possession of slaves was not illegal. But Lord Mansfield ruled: "Villeinage has ceased in England, and it cannot be revived. The air of England," he said, "has long been too pure for a slave, and every man is free who breathes it. Every man who comes into England," Lord Mansfield continued, "is entitled to the protection of English law, whatever oppression he may heretofore have suffered, and whatever may be the colour of his skin: *Quamvis ille niger, quamvis tu candidus esses.* Let the negro be discharged." But this is a digression.

Peter Russell's Peggy had been giving him uneasiness a few years previous to the advertisement copied above. She had been absenting herself without leave. Of this we are apprised in an advertisement dated York, September 2nd, 1803. It runs as follows: "The subscriber's black servant Peggy, not having his permission to absent herself from his service, the public are hereby cautioned from employing or harbouring her without the owner's leave. Whoever will do so after this notice may expect to be treated as the law directs. PETER RUSSELL."

In the papers published at Niagara advertisements similar to those just given are to be seen. In the *Niagara Herald* of January 2nd, 1802, we have, "For sale: A Negro man slave, 18 years of age, stout and healthy; has had the small pox, and is capable of service either in the house or out-doors. The terms will be made easy to the purchaser, and cash or new lands received in payment. Enquire of the printer." And again in the *Herald* of January 18th: "For sale; the Negro man and woman, the property of Mrs. Widow Clement. They have been bred to the business of a farm; will be sold on highly advantageous terms for cash or lands. Apply to Mrs. Clement."

Cash and lands were plainly beginning to be regarded less precarious property than human chattels. In 1797 purchasers, however, were still advertising. In the *Gazette and Oracle* of October 11th, in that year, we read: "Wanted to purchase, a negro girl from seven to twelve years of age, of good disposition. For fuller particulars apply to the subscribers, W. & J. Crooks, West Niagara, Oct. 4th."

In respect to the following notice some explanation is needed. We presume the "Indian slave" spoken of must have been only part Indian. The detention of a native as a slave, if legal, would have been difficult. Mr. Charles Field, of Niagara, on the 28th of August, 1802, gives notice in the *Herald*: "All persons are forbidden harboring, employing, or concealing my Indian slave Sal, as I am determined to prosecute any offender to the extremity of the law; and persons who may suffer her to remain in or upon their premises for the space of half-an-hour, without my written consent, will be taken as offending, and dealt with accordingly."

In the early volumes of the *Quebec Gazette* these slave advertisements were common. A rough wood-cut of a black figure running frequently precedes them. It appropriately illustrates the following one: "Run away from the subscriber on Tuesday, the 25th ult., a negro man, named Drummond, near six feet high, walks heavily; had on when he went away a dark

coloured cloth coat and leather breeches. Whoever takes up and secures the said negro, so that his master may have him again, shall have Four Dollars reward, and all reasonable charges paid, by John McCord. Speaks very bad English and next to no French." Another reads thus: "To be sold, a healthy Negro Boy, about fifteen years of age, well qualified to wait on a gentleman as a Body Servant. For further particulars inquire of the Printers."

Mr. Sol. General Gray, lost in the *Speedy*, manumitted by his will, dated August 27th, 1803, and discharged from the state of slavery in which, as that document speaks, "she now is," his "faithful black woman servant, Dorinda," and gave her and her children their freedom; and, that they might not want, directed that £1200 should be invested and the interest applied to their maintenance. To his black servants, Simon and John Baker, he gave, besides their freedom, 200 acres of land each, and pecuniary legacies. The Simon here named went down with his master in the *Speedy*; but John long survived. He used to state that his mother, Dorinda, was a native of Guinea, and to describe Governor Hunter as a rough old warrior, who carried snuff in an outside pocket, whence he took it in handfuls, to the great disfigurement of his ruffled shirt-bosoms. His death was announced in the public papers by telegram from Cornwall, Ontario, bearing date January 17, 1871. "A colored man," it said, "named John Baker, who attained his 105th year on the 25th ult., died here to-day. He came here as a chattel of the late Colonel Gray, in 1792, having seen service in the Revolutionary war. Subsequently he served throughout the war of 1812. He was wounded at Lundy's Lane, and has drawn a pension for fifty seven years." Mr. Gray, it may be added, was a native of our Canadian town of Cornwall. His place of abode in York was in what is now Wellington Street, on the lot immediately to the west of where the old "Council Chamber" (afterwards the residence of Chief Justice Draper) stood.

We ourselves, we remember, used to gaze, in former days, with some curiosity at the pure negress, Amy Pompadour, here in York, knowing that she had once been legally made a present of by Miss Elizabeth Russell to Mrs. Captain Denison.

But enough of the subject of Canadian slavery, to which we have been inadvertently led.

The old Court House, when abandoned by the law authorities for the new buildings on King Street, was afterwards occasionally employed for religious purposes. By an advertisement in the *Advocate*, in March, 1834, we learn that the adherents of David Willson, of Whitechurch, sometimes made use of it. It is there announced that "The Children of Peace will hold Worship in the Old Court House of York, on Sunday, the 16th instant, at Eleven and Three." Subsequently it became for a time the House of Industry or Poor House of the town.

Besides the legal cases tried and the judgments pronounced within the homely walls of the Old Court House, interest would attach to the curious scenes—could they be recovered and described—that there occurred, arising sometimes from the primitive rusticity of juries, and sometimes from their imperfect mastery of the English language, many of them being, as the German settlers of Markham and Vaughan were indiscriminately called, Dutchmen. Peter Ernest, appearing in court with the verdict of a jury of which he was foreman, began to preface the same with a number of peculiar German-English expressions which moved Chief Justice Powell to cut him short by the remark that he should have to commit him if he swore; when Ernest observed that the perplexities through which he and the jury had been endeavouring to find their way were enough to make better men than they were express themselves in an unusual way. The verdict, pure and simple, was demanded. Ernest then announced that the verdict which he had to deliver was, that half of the jury were for "guilty" and half for "not guilty." That is, the Judge observed, you would have the prisoner half-hanged, or the half of him hanged. To which Peter replied, that would be as his Lordship pleased. It was a case of homicide. Being sent back, they agreed to acquit. Odd passages, too, between pertinacious counsel and nettled judges sometimes occurred, as when Mr. H. J. Boulton, fresh from Inner Temple, sat down at the peremptory order of the Chief Justice, but added, "I will sit down, my Lord, but I shall instantly stand up again." Chief Justice Powell, when on the Bench, had a humorous way, occasionally, of indicating by a kind of quiet *ly-play*, by a gentle shake of the head, a series of little nods, or movements of the eye or eyebrow, his estimate of an *outré* hypothesis or an *ad captandum* argument. This was now and then disconcerting to advocates anxious to figure, for the moment, in the eyes of a simple-minded jury, as oracles of extra authority.—Nights, likewise, there would be to be described, passed by juries in the

diminutive jury room, either through perplexity fairly arising out of the evidence, or through the dogged obstinacy of an individual. Once, as we have heard from a sufferer on the occasion, the late Colonel Duggan was the means of keeping a jury locked up for a night here, he being the sole dissentient on a particular point. That night, however, was converted into one of memorable festivity, our informant said, a tolerable supply of provisions and comforts having been conveyed in through the window, sent for from the homes of those of the jury who were residents of York. The recusant Colonel was refused a moment's rest throughout the livelong night. During twelve long hours pranks and sounds were indulged in that would have puzzled a foreigner taking notes of Canadian Court House usages. When 10 o'clock a. m. of the next day arrived, and the Court reassembled, Colonel Duggan suddenly and obligingly effected the release of himself and his tormentors by consenting to make the necessary modification in his opinion.—Of one characteristic scene we have a record in the books of the Court itself. On the 12th of January, 1813, as a duly impanelled jury were retiring to their room to consider of their verdict, a remark was addressed to one of their number, namely, Samuel Jackson, by a certain Simeon Morton, who had been a witness for the defence: the remark, as the record notes, was in these words, to wit, "Mind your eye!" to which the said Jackson replied "Never fear!" The Crier of the Court, John Bazell, duly made affidavit of this illicit transaction. Accordingly, on the appearance in court of the jury, for the purpose of rendering their verdict, Mr. Baldwin, attorney for the prosecution, moved that the said Jackson be taken into custody: and the Judge gave order "that Samuel Jackson do immediately enter into recognizances, himself in £50, and two sureties in £25 each, for his appearance on the Saturday following at the Clerk of the Peace Office, "which," as the record somewhat inelegantly adds, "he done." He duly appeared on the Saturday indicated, and, pleading ignorance, was discharged.

In the Court House in 1822 was tried a curious case in respect of a horse claimed by two parties, Major Heward of York and General Wadsworth, commandant of the United States Garrison at Fort Niagara. Major Heward had reared a sorrel colt on his farm east of the Don; and when it was three years old it was stolen. Nothing came of the offer of reward for its recovery until a twelvemonth after the theft, when a young horse was brought by a stranger to Major Heward at York and instantly recognized by him as his lost property. Some of the major's neighbours likewise had no doubt of the identity of the animal, which, moreover, when taken to the farm entered of its own accord the stable, and the stall, the missing colt used to occupy, and, when let out into the adjoining pasture, greeted in a friendly way a former mate, and ran to drink at the customary watering place. Shortly after, two citizens of the United States, Kelsey and Bond, make their appearances at York and claim the horse which they find on Major Heward's farm as the property of General Wadsworth, commandant at Fort Niagara. Kelsey swore that he had reared the animal; that he had docked him with his own hands when only a few hours old; and that he had sold him about a year ago to General Wadsworth. Bond also swore positively that this was the horse which Kelsey had reared, and that he himself had broken him in, prior to the sale to General Wadsworth. It was alleged by these persons that a man named Dockstader had stolen the horse from General Wadsworth at Fort Niagara and had conveyed him across to the Canadian side.

In consequence of the positive evidence of these two men the jury gave their verdict in favour of General Wadsworth's claim, with damages to the amount of £50. It was nevertheless generally held that Kelsey and Bond's minute narrative of the colt's early history was a fiction; and that Dockstader, the man who transferred the animal from the United States side of the river to Canadian soil, had also had something to do with the transfer of the same animal from Canada to the United States a twelvemonth previously.

The subject of this story survived to the year 1851, and was recognized and known among all old inhabitants as "Major Heward's famous Toby."

Within the Court House on Richmond Street took place in 1818 the celebrated trial of a number of prisoners brought down from the Red River Settlement on charges of "high treason, murder, robbery and conspiracy," as preferred against them by Lord Selkirk, the founder of the Settlement. When our neighbourhood was itself in fact nothing more than a collection of small isolated clearings, rough-hewn out of the wild, "the Selkirk Settlement" and "the North West" were household terms among us for remote regions in a condition of infinite savagery, in

omparison with which we, as we prided ourselves, were denizens of a paradise of high refinement and civilization. Now that the Red River district has attained the dignity of a province and become a member of our Canadian Confederation, the trial referred to, arising out of the very birth-throes of Manitoba, has acquired a fresh interest.

The Earl of Selkirk, the fifth of that title, was a nobleman of enlightened and cultivated mind. He was the author of several literary productions esteemed in their day; among them, of a treatise on Emigration, which is spoken of by contemporaries as an exhaustive, standard work on the subject. For practically testing his theories, however, Lord Selkirk appears to have desired a field exclusively his own. Instead of directing his fellow-countrymen to one or other of the numerous prosperous settlements already in process of formation at easily accessible and very eligible spots along the St. Lawrence and the Lakes Ontario, Erie and Huron, he induced a considerable body of them to find their way to a point in the far interior of our northern continent, where civilization had as yet made no sensible inroad; to a locality so situated that if a colony should contrive to subsist there, it must apparently of necessity remain for a very long period dismally isolated. In 1803, Bishop Macdonell asked him, what could have induced a man of his high rank and great fortune, possessing the esteem and confidence of the Government and of every public man in Britain, to embark in an enterprise so romantic; and the reply given was, that, in his opinion, the situation of Great Britain, and indeed of all Europe, was at that moment so very critical and eventful, that a man would like to have a more solid footing to stand upon, than anything that Europe could offer.—The tract of land secured by Lord Selkirk for emigration purposes was a part of the territory held by the Hudson's Bay Company, and was approached from Europe not so readily by the St. Lawrence route as by Hudson's Strait and Hudson's Bay. The site of the actual settlement was half-a-mile north of the confluence of the Assiniboine and Red Rivers, streams that unitedly flow northward into Lake Winnipeg, which communicates directly at its northern extremity with Nelson River, whose outlet is at Port Nelson or Fort York on Hudson's Bay. The population of the Settlement in the beginning of 1813 was 100. Mr. Miles Macdonell, formerly a captain in the Queen's Rangers, appointed by the Hudson's Bay Company first Governor of the District of Assiniboia, was made by the Earl of Selkirk superintendent of affairs at Kildonan. The rising village was called Kildonan, from the name of the parish in the county of Sutherland whence the majority of the settlers had emigrated.

The Montreal North West Company of Fur Traders was a rival of the Hudson's Bay Company. Whilst the latter traded for the most part in the regions watered by the rivers flowing into Hudson's Bay, the former claimed for their operations the area drained by the streams running into Lake Superior.

The North West Company of Montreal looked with no kindly eye on the settlement of Kildonan. An agricultural colony, in close proximity to their hunting grounds, seemed a dangerous innovation, tending to injure the local fur trade. Accordingly it was resolved to break up the infant colony. The Indians were told that they would assuredly be made "poor and miserable" by the new-comers if they were allowed to proceed with their improvements; because these would cause the buffalo to disappear. The Colonists themselves were informed of the better prospects open to them in the Canadian settlements, and were promised pecuniary help if they would decide to move. At the same time, the peril to which they were exposed from the alleged ill-will of the Indians was enlarged upon. Moreover, attacks with fire-arms were made on the houses of the Colonists, and acts of pillage committed. The result was that, in 1815, the inhabitants of Kildonan dispersed; proceeding, some of them, in the direction of Canada, and some of them northwards, purposing to make their way to Port Nelson, and to find, if possible, a conveyance thence back to the shores of old Scotland. Those, however, who took the northern route proceeded only as far as the northern end of Lake Winnipeg, establishing themselves for a time at Jack River House. They were then induced to return to their former settlement, by Mr. Colin Robertson, an agent of the Hudson's Bay Company, who assured them that a number of Highlanders were coming, via Hudson's Bay, to take up land at Kildonan. This proved to be the fact; and, in 1816, the revived colony consisted of more than 200 persons. On annoyance being offered to the settlement by the North West Company's agent, Mr. Duncan Cameron, who occupied a post called Fort Gibraltar, about half a mile off, Mr. Colin Robertson, with the aid of his Highlandmen, seized that establishment, and recovered two field-pieces and thirty stand of arms that had been taken

from Kildonan the preceding year. Cameron himself was also made a prisoner. (Miles Macdonell, governor of Assiniboia, had been captured by the same Cameron in the preceding year, and sent to Montreal.) A strong feeling was aroused among the half-breeds, far and near, who were in the interest of the North West Company. In the spring of 1816, Mr. Semple, the governor of the Hudson's Bay Company, appeared in person at the Red River, having been apprized of the growing troubles. During an angry conference, on the 18th of June, with a band of seventy men, headed by Cuthbert, Grant, Lacerte, Fraser, Hoole, and Thomas McKay, half-breed employés of the North West Company, he was violently assaulted; and in the mêlée he was killed, together with five of his officers and sixteen of his people. Out of these events sprang the memorable trials that took place in the York Court House in 1818.

The Earl of Selkirk being desirous of witnessing the progress made by his emigrants at Red River, paid a visit to this continent in the autumn of 1815. On arriving at New York he heard of the dispersion at Kildonan, and the destruction of property there. He proceeded at once to Montreal and York to consult with the authorities. The news next reached him that his colony had been re-established, at least partially. He immediately despatched a trusty messenger, one Lagimoniere, with assurances that he himself would speedily be with them, bringing proper means of protection. But Lagimoniere was waylaid and never reached his destination.

It happened, about this time, in consequence of the peace just established with the United States, that the De Meuron, Watteville and Glengary Fencible Regiments were disbanded in the country. About eighty men of the De Meuron, with four of the late officers, twenty of the Watteville, and a few of the Glengary, with one of their officers, agreed to accompany Lord Selkirk to the Red River. On reaching the Sault, the tidings met the party of the second dispersion of the colony, and of the slaughter of Governor Semple and his officers. The whole band at once pushed on to Fort William, where were assembled many of the partners of the North West Company, with Mr. McGillivray, their principal Agent. Here were also some of the persons who had been made prisoners at Kildonan.

Armed simply with a commission of a Justice of the Peace, Lord Selkirk then and there, at his encampment opposite Fort William across the Kaministiquia, issued his warrant for the arrest of Mr. McGillivray.

It is duly served, and Mr. McGillivray submits. Two partners who came over with him as bail are also instantly arrested. The prisoners had been previously liberated and information was procured from them.

Warrants were then issued for the arrest of the remainder of the partners, who were found in the Fort. Some resistance was now offered. The gate of the Fort was partially closed by force; but a party of twenty-five men instantly rushed up from the boats and cleared the way into the Fort. At the signal of a bugle-call more men came over from the encampment, and their approach put an end to the struggle. The arrests were then completed, and the remaining partners were marched down to the boats. "At the time this resistance to the warrant was attempted there were," our authority informs us, "above 200 Canadians, i.e., French, in the employment of the Company, in and about the Fort, together with 60 or 70 Iroquois Indians, also in the Company's service."

The Earl of Selkirk was plainly a man not to be trifled with; a chief who in the olden time, on the roughest emergency that might chance to present itself, would have been equal to the occasion.

The prisoners brought down from Fort William, and after the lapse of nearly two years placed at the Bar in the Old Court House of York, were arraigned as follows: "Paul Brown and F. F. Boucher, for the murder of Robert Semple, Esq., on the 19th of June, 1816. John Siveright, Alexander McKenzie, Hugh Gillis, John McDonald, John McLaughlin and Simon Fraser, as accessories to the same crime. Cooper and Bennerman, for taking, on the 3rd of April, 1815, with force and arms, eight pieces of cannon and one howitzer, the property of the Right Hon. Thomas Earl of Selkirk, from his dwelling house, and putting in bodily fear of their lives certain persons found therein." The cannons were further described as being two of them brass field-pieces, two of them brass swivels, four of them iron swivels. In each case the verdict was "not guilty."

The judges were Chief Justice Powell, Mr. Justice Campbell, Mr. Justice Boulton, and Associate Justice W. Allan, Esq. The counsel for the Crown were Mr. Attorney-General Robinson,

Mr. Solicitor-General Boulton. The counsel for the prisoners were Samuel Sherwood, Livius P. Sherwood, and W. W. Baldwin, Esq. The juries in the three trials were not quite identical.

Those that served on one or other of them are as follows: George Bond, Joseph Harrison, Wm. Harrison, Joseph Shepperd, Peter Lawrence, Joshua Leach, John McDougall, jun., Wm. Moore, Alexander Montgomery, Peter Whitney, Jonathan Hale, Michael Whitmore, Harbour Stimpson, John Wilson, John Hough, Richard Herring.

The Earl of Selkirk was not present at the trials. He had proceeded to New York, on his way to Great Britain. He probably anticipated the verdicts that were rendered. The North-West Company influence in Upper and Lower Canada was very strong.

At a subsequent Court of Oyer and Terminer held at York a true bill against the Earl and nineteen others was found by the Grand Jury for "conspiracy to ruin the trade of the North-West Company;" Mr. Wm. Smith, Under-Sheriff of the Western District, obtained a verdict

£500 damages for having been seized and confined by the said Earl when endeavouring to serve a warrant on him in Fort William; and Daniel McKenzie, a retired partner of the North-West Company, obtained a verdict of £1,500 damages for alleged false imprisonment by the Earl in the same Fort.—Two years later, namely, in 1820, Lord Selkirk died at Pau, in the South of France.

XXXIII.—QUEEN STREET—FROM YONGE STREET TO TERAULAY STREET.

Leaving now the site of our ancient Court House, the spot at which we arrive in our tour is one of very peculiar interest. It is the intersection at right angles of the two great military ways carved out through the primitive forest of Western Canada by order of its first Governor. Dundas Street and Yonge Street were laid down in the first MS. maps of the country as high-ways destined to traverse the land in all future time, as nearly as practicable in right lines, the one from east to west, the other from south to north. They were denominated "streets," because their idea was taken from the famous ancient ways still in several instances called "streets," which the Romans, when masters of primitive Britain, constructed for military purposes. To this day it is no unpleasant occupation for the visitor who has leisure, to track out the lines of these ancient roads across England. We ourselves once made a pilgrimage expressly for the purpose of viewing the intersection of Iknield Street and Watling Street in the centre of Dunstable, and from our actual knowledge of what Canada was when its Yonge Street and Dundas Street were first hewn out, we realized all the more vividly the condition of central England when the Roman road-makers first began their work there.

Dundas Street has its name from the Right Hon. Henry Dundas, Secretary of State for the Colonies in 1794. In that year Governor Simcoe wrote as follows to Mr. Dundas: "Dundas Street, the road proposed from Burlington Bay to the river Thames, half of which is completed, will connect by an internal communication the Detroit and settlements at Niagara. It is intended, he says, to be extended northerly to York by the troops, and in process of time by the respective settlers to Kingston and Montreal." In another despatch to the same statesman he says: "I have directed the surveyor, early in the next spring to ascertain the precise distance of the several routes which I have done myself the honour of detailing to you, and hope to complete the Military Street or Road the ensuing autumn." In a MS. map of about the same date Dundas Street is laid down from Detroit to the Pointe au Bodet, the terminus on the St. Lawrence of the old boundary line between Upper and Lower Canada. From the Rouge River it is sketched as running somewhat further back than the line of the present Kingston Road; and after leaving Kingston it is drawn as though it was expected to follow the water-shed between the Ottawa and the St. Lawrence. A road is sketched, running from the Pointe au Bodet to the Ottawa, and this Road is struck at an acute angle by Dundas Street.

A manuscript note appears on the map, "The Dundas Street is laid out from Oxford to the Bay of Quinte: it is nearly finished from Oxford to Burlington Bay."

In 1799 the *Constellation*, a paper published at Niagara, informs us under the date of Friday, August 2nd, in that year, that "the wilderness from York to the Bay of Quinte is 120 miles; a road of this distance through it is contracted out by Government to Mr. Danforth, it informs its readers, to be cut and completed by the first of July next; and which when completed will open a communication round the Lake by land from this town [Niagara] with the Bay. Kingston.

&c. Hitherto, the *Constellation* continues, in the season of winter our intercourse with that part of the province has been almost totally interrupted. Mr. Danforth has already made 40 miles of excellent road, the editor encourages his patrons by saying, and procured men to the number sufficient for doing the whole extent by the setting in of winter. It would be desirable also, Mr. Tiffany suggests, were a little labour expended in bridging the streams between Burlington Bay and York: indeed the whole country, it is sweepingly declared, affords room for amendment in this respect."

It is plain from this extract that if the men of the present generation would have a just conception of what was the condition of the region round Lake Ontario seventy years ago, they must pay a visit to the head of Lake Superior and perform the journey by the Dawson-road and the rest of the newly opened route from Fort William to Winnipeg.

The road referred to above in the *Niagara* paper, as being about to be opened by Mr. Danforth in 1799, is still known as the Danforth Road. It runs somewhat to the north of the present Kingston Road, entering it by the town line at the "Four Mile Tree." Yonge Street, which we purpose duly to perambulate hereafter, has its name from Sir George Younge, a member of the Imperial Government in the reign of George III. He was of a distinguished Devonshire family, and a personal friend of Governor Simcoe's.

The first grantees of the park-plot which we next pass in our progress westward was Dr. Macaulay, an army surgeon attached successively to the 33rd Regiment and the famous Queen's Rangers. His sons, Sir James Macaulay, first Chief Justice of the Common Pleas, and Colonel John Simcoe Macaulay, a distinguished officer of Engineers, are well remembered. Those who have personal recollections of Dr. Macaulay speak of him in terms of great respect. The southern portion of this property was at an early period laid out in streets and small lots. The collection of houses that here began to spring up was known as Macaulay Town, and was long considered as bearing the relation to York that Yorkville does to Toronto now. So late as 1833 Walton in his Street Guide and Register speaks of Macaulay Town as extending from Yonge Street to Osgoode Hall.

James Street retains the Christian name of Dr. Macaulay. Teraulay Street led up to the site of his residence, Teraulay Cottage, which after having been moved from its original position in connection with the laying out of Trinity Square off Yonge Street, was destroyed by fire in 1848. The northern portion of Macaulay Town was bounded by Macaulay Lane, described by Walton as "fronting the fields." This was Louisa Street.

Of the memorable possessor of the property on the south side of Queen Street opposite Macaulay Town, Mr. Jesse Ketchum, we shall have occasion to speak hereafter, when we pass his place of abode in our proposed journey through Yonge Street. The existing Free Kirk place of worship, known as Knox's Church, stands on land given by Mr. Ketchum, and on a site previously occupied by a lone oblong red brick chapel which looked towards what is now Richmond Street, and in which a son-in-law of his, Mr. Harris, officiated to a congregation of United Synod Presbyterians. The donor was probably unconscious of the remarkable excellence of this particular position as a site for a conspicuous architectural object. The spire that towers up from this now central spot is seen with peculiarly good effect as one approaches Toronto by the thoroughfare of Queen Street whether from the east or from the west.

KXII.—QUEEN STREET—DIGRESSION SOUTHWARD AT BAY STREET.

Old inhabitants say that Bay Street, where we are now arrived, was at first in fact "Bear Street," and that it was popularly so called from a noted chase given to a bear out of the adjoining wood on the north, which, to escape from its pursuers, made for the water along this route. Mr. Justice Boulton's two horses, Bonaparte and Jefferson, were once seen, we are told, to attack a monster of this species that intruded on their pasture on the Grange property a little to the west. They are described as plunging at the animal with their fore feet. In 1809, a straggler from the forest of the same species was killed in George Street by Lieut. Fawcett of the 160th regiment, who cleft the creature's head open with his sword. This Lieut. Fawcett was afterwards Lieut. Col. of the 100th, and was severely wounded in the war of 1812.

Bay Street, as we pass it, recalls one of the early breweries of York. We have already in another place briefly spoken of Shaw's and Hugill's. At the second north-west corner south-

ward, beer of good repute in the town and neighbourhood was manufactured by Mr. John Doel up to 1847, when his brewery was accidentally burnt. Mr. Doel's name is associated with the early post-office traditions of York. For a number of years he undertook and faithfully accomplished the delivery with his own hands of all the correspondence of the place that was in those days thus distributed. His presence at a door in the olden time was often a matter of considerable interest. In the local commotions of 1837, Mr. Doel ventured in an humble way to give aid and comfort to the promoters of what proved to be a small revolution. We cannot at this hour affirm that there was any thing to his discredit in this. He acted, no doubt, in accordance with certain honest instincts. Men of his class and stamp, shrewd in their ideas and sturdy against encroachments, civil and religious, abound in the old Somersetshire, where he first drew breath. His supposed presumption in having opinions on public questions induced the satirists of the non-progressive side to mention him occasionally in their philippics and pasquinades. His name has thus become associated in the narrative of Upper Canadian affairs with those of the actual chiefs of the party of reform. In 1827, Robert Randal, M.P., was despatched to London as a delegate on the part of the so-called "Aliens" or unnaturalized British subjects of United States origin. A series of burlesque nominations, supposed to be suggested by Randal to the Colonial Secretary, appeared at this time, emanating of course from the friends of the officials of the day. We give the document. It will be seen that Mr. Doel is set down in it for the "Postmaster-Generalship." The other persons mentioned will be all remembered.

"Nominations to be dictated by the Constitutional Meeting, on Saturday next, in the petition for the redress of grievances to be forwarded to London by Ambassador Randal. BARNABAS BIDWELL—President of Upper Canada—with an extra annual allowance for a jaunt, for the benefit of his health, to his native State of Massachusetts. W. W. BALDWIN—Chief Justice, and Surgeon-General to the Militia Forces—with 1,000,000 acres of land for past services, he and his family having been most shamefully treated in having grants of land withheld from them heretofore. JOHN ROLPH—Attorney-General, and Paymaster-General to the Militia—with 500,000 acres of land for his former accounts as District Paymaster, faithfully rendered. MARSHALL S. BIDWELL—Solicitor-General—with an annual allowance of as much as he may be pleased to ask for, rendering no account—for the purpose of "encouraging emigration from the United States," and a contingent account if he shall find it convenient to accompany the President to Massachusetts. THE PUISNE JUDGES—to be chosen by ballot in the Market Square, on 4th July in each and every year, subject to the approval of W. W. B., the Chief Justice. Their salaries to be settled when going out of office. JESSE KERCHUM, JOS. SHEPPARD, DR. STOVELL, and A. BURNSIDE—Executive and Legislative Councillors. Joint Secretaries—WILLIAM LYON MCKENZIE and FRANCIS COLLINS, with all the printing. JOHN CAREY—Assistant Secretary, with as much of the printing as the Joint Secretaries may be pleased to allow him. MOSES FISH—Inspector of Public Buildings and Fortifications. J. S. BALDWIN—Contractor-General to the Province, with a monopoly of the trade. T. D. MORRISON—Surveyor-General, and Inspector of Hospitals. LITTLE DOEL—Postmaster-General. PETER PERRY—Chancellor of the Exchequer and Receiver-General. The above persons being thus amply provided for, their friends, alias their stepping stones, the document just quoted proceeds to state, may shift for themselves; an opportunity, however, will be offered them for 'doing a little business' by disposing of all other public offices to the lowest bidder, from whom neither talent nor security will be required for the performance of their duties. Tenders received at Russell Square [Abbey], Front Street, York. The Magistracy, being of no consequence, is to be left for after consideration. The Militia, at the particular request of Paul Peterson [Peter Paterson], to be done away altogether; and the roads to take care of themselves. The Welland Canal to be stopped immediately, and Colonel By to be recalled from the Rideau Canal. N.B. Any suggestions for further improvements will be thankfully received at Russell Square, as above."

Mr. Doel arrived in York in 1818; occupying a month in the journey from Philadelphia to Oswego, and a week in that, from Oswego to Niagara, being obliged from stress of weather to put in at Sodus Bay. At Niagara he waited three days for a passage to York. He and his venerable helpmeet were surviving in 1870, at the ages respectively of 80 and 82. Not without reason, as the event proved, they lived for many years in a state of apprehension in regard to

the stability of the lofty spire of a place of worship close to their residence. In 1862, that spire actually fell, eastward as it happened, and not westward, doing considerable damage. Mr. Doel died in 1871.

By the name of the short street passing from Adelaide Street to Richmond Street, a few chains to the west of Mr. Doel's corner, we are reminded of Harvey Shepard, a famous worker in iron of the former time, whose imprint on axe, broad axe or adze, was a guarantee to the practical backwoodsman of its temper and serviceable quality. Harvey Shepard's axe factory was on the west side of this short street. Before his establishment here, he worked in a stithy of the customary village type, on King Street, on the property of Jordan Post. Like Jordan Post himself, Harvey Shepard was of the old fashioned New England mould, elongated and wiry. After a brief suspension of business, a placard hung up in the country inns characteristically announced to his friends and the public that he had resumed his former occupation and that he would, "by the aid of Divine Providence," undertake to turn out as good axes as any that he had ever made; which acknowledgment of the source of his skill is commendable surely, if unusual. So also, there is no one who will refuse to applaud an epigrammatic observation of his, when responding to an appeal of charity. "Though dealing usually in iron only, I keep," he said, "a little stock of silver and gold for such a call as this." The factory on Shepard Street was afterwards worked by Mr. J. Armstrong, and subsequently by Mr. Thos. Champion, formerly of Sheffield, who, in 1833, advertised that he had "a large stock of Champion's warranted cast steel axes, made at the factory originally built by the late Harvey Shepard, and afterwards occupied by John Armstrong. As Shepard's and Armstrong's axes have been decidedly preferred before any others in the Province, the advertisement continues, it is only necessary to state that Champion's are made by the same workmen, and from the very best material, to ensure for them the same continued preference."

XXXV.—QUEEN STREET—TERAULAY STREET TO OSGOODO HALL.

Chief Justice Elmsley was the first possessor of the hundred acres westward of the Macaulay lot. He effected, however, a certain exchange with Dr. Macaulay. Preferring land that lay higher, he gave the southern half of his lot for the northern half of his neighbour's, the latter at the same time discerning, as is probable, the prospective greater value of a long frontage on one of the highways into the town. Of Mr. Elmsley, we have had occasion to speak in our perambulation of King Street in connexion with the Government House, which in its primitive state was his family residence; and in our progress through Yonge Street hereafter we shall again have to refer to him. In 1802 he was promoted from a Puisne Judgeship in Upper Canada to the Chief Justiceship of Lower Canada.

The park-lot which follows was originally secured by one who has singularly vanished out of the early traditions of York—the Rev. T. Raddish. His name is inscribed on this property in the first plan, and also on part of what was afterwards Russel Square. He emigrated to these parts under the express auspices of the first Lieutenant Governor, and was expected by him to take a position of influence in the young colony of Upper Canada. But, habituated to the amenities and conveniences of an old community, he speedily discovered either that an entirely new society was not suited to him or that he himself did not dovetail well into it. He appears to have remained in the country only just long enough to acquire for himself and heirs the fee simple of a good many acres of its virgin soil. In 1826 the southern portion of Mr. Raddish's lot became the property of Sir John Robinson, at the time Attorney General. The site of Osgoode Hall, six acres, was the generous gift of Sir John Robinson to the Law Society, and the name which the building bears was his suggestion. The east wing of the existing edifice was the original Osgoode Hall, erected under the eye of Dr. W. W. Baldwin, at the time Treasurer of the Society. It was a plain square matter-of-fact brick building two storeys and a half in height. In 1844-46 a corresponding structure was erected to the west, and the two were united by a building between, surmounted by a low dome. In 1857-60 the whole edifice underwent a renovation; the dome was removed; a very handsome façade of cut stone was put up; the inner area, all constructed of Caen stone, reminding one of the interior of a Genoese or Roman Palace, was added, with the Court Rooms, Library and other appurtenances, on a scale of dignity and in a style of architectural beauty surpassed only by the new Law Courts

In London. The pediment of each wing, sustained aloft on fluted Ionic columns, seen on a fine day against the pure azure of a northern sky, is something enjoyable. Great expense has been lavished by the Benchers on this Canadian *Palais de Justice*; but the effect of such a pile, kept in its every nook and corner and in all its surroundings in scrupulous order, is invaluable, tending to refine and elevate each successive generation of our young candidates for the legal profession, and helping to inspire amongst them a salutary *esprit de corps*. The Library, too, here to be seen, noble in its dimensions and aspect, must, even independently of its contents, tend to create a love of legal study and research. The Law Society of Osgoode Hall was incorporated in 1822. The Seal bears a Pillar on which is a Beaver holding a Scroll inscribed *MAGNA CHARTA*. To the right and left are figures of Justice and Strength (Hercules).

An incident associated in modern times with Osgoode Hall is the Entertainment given there to the Prince of Wales during his visit to Canada in 1800, on which occasion, at night, all the architectural lines of the exterior of the building were brilliantly marked out by long rows of minute gas-jets.

Here, too, were held the impressive funeral obsequies of Sir John Robinson, the distinguished Chief Justice of Upper Canada, in 1802. In the library is a large painting of him in oil, in which his finely cut Reginald Heber features are well delineated. Sayer Street, passing northward on the east side of Osgoode Hall, was so named by Chief Justice Robinson in honour of his mother. In 1870 the name was changed, probably without reflection and certainly without any sufficient cause.

The series of paintings begun in Osgoode Hall, conservative to future ages of the outward presentment of our Chief Justices, Chancellors and Judges, is very interesting. No portrait of Chief Justice Osgoode, however, is here to be seen. It may be satisfactory to know that one in oil exists in the collection of Capt. J. K. Simcoe, R. N., at Wolford Lodge in the County of Devon. After filling the office of Chief Justice in Upper Canada Mr. Osgoode was removed to the same high position in Lower Canada. He resigned in 1801 and returned to England. Among the deaths in the *Canadian Review* of July, 1824, his is recorded in the following terms: "At his Chambers in the Albany, London, on the 17th of February last, Wm. Osgoode, Esq., formerly Chief Justice of Canada, aged 70. By the death of this gentleman, it is added, his pension of £300 sterling paid by this Province now ceases." It is said of him "no person admitted to his intimacy ever failed to conceive for him that esteem which his conduct and conversation always tended to augment." Garneau, in his *History of Canada*, iii, 117, without giving his authority, says that he was an illegitimate son of George III. Similar tattle has been rife from time to time in relation to other personages in Canada.

A popular designation of Osgoode Hall long in vogue was "Lawyers' Hall:"

"Farewell, Toronto, of great glory,
Of valour too, in modern story;
Farewell to Courts, to Lawyers' Hall,
To Justice seats, both great and small:
Farewell Attornies, Special Pleaders,
Equity Draftsmen, and their Readers.
Canadian Laws, and Suits, to song
Of future Bard, henceforth belong."

Thus closed a curious production in rhyme entitled *Curie Canadienses*, published anonymously in 1843, but written by Mr. John Rumsey, an English barrister, sometime domiciled here. In one place is described the migration of the Court of Chancery back from Kingston, whither it was for a brief interval removed, when Upper and Lower Canada were reunited. The minstrel says:

"Dreary and sad was Frontenac:
Thy duke ne'er made a clearer sack,
Than when the edict to be gone
Issued from the Vice-regal Throne.
Exeunt omnes, hëlter skelter
To Little York again for shelter:
Little no longer: York the New
Of imports such can boast but few:
A goodly freight, without all brag,
When comes, 'mongst others, Master Spragge,
And skilful Turner, versed in pleading.
Thîe Kingston exiles gently leading."

To the last three lines the following notes are appended:

J. G. Spragge, Esq., the present very highly esteemed and respected Master of the Court of Chancery, R. J. Turner, Esq., a skilful Equity Draftsman and Solicitor in Chancery. See *Journals of House of Assembly, 1841.*"

The notes to *Curia Canadenses* teem with interesting matter relating to the laws, courts, erms, districts and early history, legal and general, of Lower as well as Upper Canada. A copious table of contents renders the volume quite valuable for reference. The author must have been an experienced compiler, analyst, and legal index maker. In the text of the work, Christopher Anstey's poetical "Pleaser's Guide" is taken as a model. As a motto to the portion of his poem that treats of Upper Canada he places the line of Virgil, "*Genasque virum truncis et duro robore nata,*" which may be a compliment or not. The title in full of Mr. Rumsey's brochure, which consists of only 126 octavo pages, is as follows: "*CURIA CANADENSES; or, THE CANADIAN LAW COURTS: being a Poem, describing the Several Courts of Law and Equity which have been erected from time to time in the Canadas; with copious notes, explanatory and historical, and an Appendix of much useful Matter. Itur in antiquam Sylvam, stabula alta ferarum; Procumbunt piceæ, sonant icta securibus illex, Fraxineaque trabes: cuneis et fissile robur Scinditur: advolvunt ingentes montibus ornos.—Virgil. By PLINIUS SECUNDUS. Toronto: H. & W. Rowsell, King Street, 1843.*" The typography and paper are admirable. The *Curia*, in a jacket of fair calf, should be given a place on the shelves of our Canadian law-libraries.

XXXVI.—QUEEN STREET—YORK STREET.

It rather puzzles one to conceive why York Street received that name. If a commemoration of the Duke of York of sixty years since was designed, the name of the whole town was that sufficiently already. Frederick Street, besides, recorded his specific Christian name, and Duke Street his rank and title. Although interesting now as a memento of a name borne of old by Toronto, York Street, when Toronto was York, might well have been otherwise designated, it seeming somewhat irrational for any particular thoroughfare in a town to be distinguished by the name of that town.—A certain poverty of invention in regard to street names has in other instances been evinced amongst us. Victoria Street, for example, was for a time called Upper George Street, to distinguish it from George Street proper, so named from George, Prince of Wales, the notable Prince Regent. It is curious that no other name but George should have been suggested for the second street; especially too as that street might have been so fittingly named Toronto Street, as being situated within a few feet of the line of the original thoroughfare of that name which figures so largely in the early descriptions of York.—If in "York Street" a compliment had been intended to Charles Yorke, Secretary at War in 1802, the orthography would have been "Yorke Street."

After all, however, the name "York Street" may have arisen out of the circumstance that, at an early period, this was for teams on their way to York, the beaten track, suddenly turning off here to the south out of the line of Dundas or Lot Street, which, if followed, would take the traveler to Kingston.

The street on the west of the grounds of Osgoode Hall is now known as University Street. By the donor to the public of the land occupied by the street, it was designated Park Lane—not without due consideration, as is likely. In London there is a famous and very distinguished Park Lane. It leads from Oxford Street to Piccadilly, and skirts the whole of the east side of Hyde Park. The position of what was our Park Lane is somewhat analogous, it being open along its whole length on the left to the plantation of an ornamental piece of ground. Unmeddled with, our Park Lane would have suggested from time to time in the mind of the ruminating wayfarer pleasant thoughts of a noble and interesting part of the great home metropolis. The change to University Street was altogether uncalled for. It ignored the adjoining "College Avenue," the name of which shewed that a generally recognized, "University Street" existed already: it gave moreover a name which is pretentious, inasmuch as the roadway indicated is comparatively narrow.

Of the street on the east side of the grounds of Osgoode Hall we have already spoken. But in connexion with the question of changes in street names, we must here again refer to it.

What particular advantage was secured, we may ask, by altering the name of that street from "Sayer" to "Chestnut?" As a name imposed by the donor of the land, commemorative of a name which he desired in perpetuity to honour, the appellation "Sayer" should have been respected.

It is unfortunate when persons, apparently without serious retrospective thought, apparently without sympathy with the local past, have a momentary chance to make changes of this kind. Chancery might well be invoked to undo in some instances what has been done, and to prohibit like inconsiderate doings in the future. Equity would surely say that a citizen's private right should not be infringed, so long as it worked no harm to the community, and that perplexity in the registration and description of property should not needlessly be created.

And again, if it was deemed necessary to obliterate "Sayer," why, in particular, was "Chestnut" selected as the new designation? The street, now so named, is in no way remarkable for trees yielding that esculent. The name of the donor of the land would have been less objectionable. "Elm Street," which intersects this street to the north, probably in some vague way suggested a tree-name. "Elm Street," however, might better have suggested the propriety of regulating the imposition of street names by a principle. The name "Elm street" had a reason for its existence. Many persons still remember a solitary Elm, a relic of the forest, which was long conspicuous just where Elm Street enters Yonge Street.

As to Pine Street and Sumach Street in the east: there is a fitness also in their names, for these streets pass through a region where, as is still remembered, pines and sumachs abounded.

[Since the writing of our xxvith section, the name of "McMahon Street" has been superseded by that of "Ontario Street"—a thoroughfare, that is now supposed to extend to Yorkville. At the same time, by way of compensation perhaps, the name of "Sherbourne Street" is made to supersede that of "Caroline Street," down to the water's edge. "Caroline Street," as we have seen in Section I. of these papers, had a good old historic significance; and, accordingly, it should not have been lightly blotted out. In view of the origin of the name (*see* Section xxviii.), "Sherbourne," as applied to what was Caroline Street, especially in its lower portion, is altogether without point or meaning. It simply serves to difference the street from other streets; and the name "Caroline" did that already.—Note, that the site of Mr. McMahon's residence was on a portion—not of the Small park-lot, as stated in Section xxvii., but—of the adjoining White park-lot.—Note also, that towards the end of Section vi., "Baty," copied from Liancourt, should be "Berzey;" likewise that in Section viii., "Lord Stanley" should be "Lord Derby."]

Although by so doing we shall forestall ourselves a little, we shall here say what we have to say in regard to another change in a street name near Osgoode Hall. William Street, immediately west of the Avenue leading to the University, has in recent times been changed to Simcoe Street. It is true, William Street was nearly in a line with Simcoe Street; nevertheless, starting as it conspicuously did somewhat to the west of that line on the north side of a great intersecting thoroughfare, it was a street sufficiently distinct to be entitled to retain an independent name. Here again, an item of local history has been obscured by the change. William Street was a record on the soil of the first name of an early Chief Justice of Upper Canada, who projected the street and gave the land. Dummer Street, the next street westward, bears his second name. Of "Powell," his third name, we have already elsewhere spoken, and which again almost immediately have to speak. (Note, that an excellent portrait of Chief Justice Powell exists in the possession of his descendants in Toronto, but not in Osgoode Hall, as was stated in Section ix. of these papers.)

When the proposal comes up for an alteration in "Dummer Street," with the hope perhaps of improving its fame along with its name, let the history of March Street be recalled. In the case of March Street, the rose, notwithstanding a change of name, retained its perfume: and the Colonial Minister of the day, Lord Stanley, received but a sorry compliment when his name was made to displace that of the Earl of March. (It was from this second title of the Duke of Richmond that March Street had its name.) It is probable that the Dummer Street of to-day, like the March Street of yesterday, would, under another name, continue much the same. In all such localities, it is not a change of name that avails: but the presence of the schoolmaster and home-missionary, backed up by landlords and builders possessed of reasonable ideas in regard to matters sanitary as well as monetary.

XXXVII.—QUEEN STREET—THE COLLEGE AVENUE AND PARK.

The fine vista of the College Avenue, opposite to which we have now arrived, always recalls to our recollection a certain bright spring morning, when on reaching school a whole holiday was unexpectedly announced; and when, as a mode of filling up a portion of the unlooked-for vacant time, it was agreed between two or three young lads to pay a visit to the place on Lot Street where, as the report had spread amongst us, they were beginning to make visible preparations for the commencement of the University of King's College. The minds of growing lads in the neighbourhood of York at that period had very vague ideas of what a University really was. It was a place where studies were carried on, but how or under what conditions, there was of necessity little conception. Curiosity, however, was naturally excited by the talk on the lips of every one that a University was one day to be established at York; and now suddenly we learned that actual beginnings were to be seen of the much-talked-of institution. On the morning of the fine spring day referred to, we accordingly undertook an exploration.

On arriving at the spot to which we had been directed, we found that a long strip of land running in a straight line northwards had been marked out, after the manner of a newly-opened side line or concession line in the woods. We found a number of men actually at work with axes and mattocks; yokes of oxen, too, were straining at strong ploughs, which forced a way in amongst the roots and small stumps of the natural brushwood, and, here and there, underneath a rough mat of tangled grass, bringing to light, now black vegetable mould, now dry clay, now loose red sand: Longitudinally, up the middle of the space marked off, several bold furrows were turned up, those on the right inclining to the left; and those on the left inclining to the right, as is the wont in primitive turmpiking.

One novelty we discovered, viz., that on each side along a portion of the newly cleared ground, young saplings had been planted at regular intervals; these, we were told, were young horse-chestnuts, procured from the United States, expressly for the purpose of forming a double row of trees here. In the neighbourhood of York the horse-chestnut was then a rarity.

Everywhere throughout the North American continent; as in the numerous newly-opened areas of the British Empire elsewhere on the globe's surface, instances, of course, abound of wonderful progress made in a brief interval of time. For ourselves, we seem sometimes as if we were moving among the unrealities of a dream when we deliberately review the steps in the march of physical and social improvement, which, within a fractional portion only of a range of recollections not so very extended, can be recalled, in the region where our own lot has been cast, and, in particular in the neighbourhood where we are at this moment pausing.

The grand mediæval-looking structure of University College in the grounds at the head of the Avenue, continues to this day to be a surprise somewhat bewildering to the eye and mind, whenever it breaks upon the view. It looks so completely a thing of the old world and of an age long past away. To think that one has walked over its site before one stone was laid upon another thereon, seems almost like a mental hallucination. A certain quietness of aspect and absence of overstrain after architectural effect give the massive pile an air of great genuineness. The irregular grouping of its many parts appears the undesigned result of accretion growing out of the necessities of successive years. The whole looks in its place, and as if it had long occupied it. The material of its walls, left for the most part superficially in the rough, has the appearance of being weather-worn. An impression of age too is given by the smooth finish of the surrounding grounds and spacious drives by which, on several sides, the building is approached, as well as by the goodly size of the well-grown oaks and other trees through whose outstretched branches it is usually first caught sight of, from across the picturesque ravine. Of the still virgin condition of the surrounding soil, however, we have some unmistakable evidence in the ponderous granitic boulders every here and there heaving up their gray back above the natural greensward, undisturbed since the day when they dropped suddenly down from the dissolving ice-rafts that could no longer endure their weight. Seen at a little distance, as from Yonge Street for example, the square central tower of the University, with the con-capped turret at one of its angles, rising above a pleasant horizon of trees, and outlined against an afternoon sky, is something thoroughly English, recalling Rugby or Warwick. On a nearer approach, this same tower, combined with the portal below, bears a certain resemblance to the gateway of the Abbey of Bury St. Edmunds, as figured in Palsgrave's "Anglo-Saxons;" and the

elaborate and exquisite work about the recessed circular-headed entrance enables one to realize with some degree of certainty how the enriched front of that and other noble medieval structures, seen by us now corroded and mutilated, looked when fresh from the hands that so cunningly carved them. In the two gigantic blind-worms, likewise, stretched in terror, on the sloping parapets of the steps leading to the door, benumbed, not dead; giving in their extremities, still faint evidence of life, we have a sermon in stone, which the brethren of a masonic guild of Wykeham's day would readily have expounded. As we enter a house devoted to learning and study, is it not fitting that the eye should be greeted with a symbol of the paralyzing power of Science over Ignorance and Superstition?

Moreover sounds that come at stated intervals from that central tower, make another link of sympathy with the old motherland. Every night at nine, "swinging slow with solemn roar" the great bell of the University is agreeably suggestive of Christ Church, Oxford, St. Mary's, Cambridge, and other places beyond the sea, which to the present hour give back an echo of the ancient Curfew.—And if to this day the University building, in its exterior aspect and acc'dents, is startling to those who knew its site when as yet in a state of nature, its interior also, when traversed and explored, tends in the same persons to produce a degree of confusion as between things new and old; as between Canada and elsewhere. Within its walls are to be seen appliances and conveniences and luxuries for the behoof and use of teacher and student, unknown a few years since in many an ancient seat of learning. In a library of Old World aspect and arrangement, is a collection rich and recherché in the Greek and Latin Classics, in Epigraphy and Archaeology, beyond anything of the kind in any other collection on this continent, and beyond what is to be met with in those departments in many a separate College within the precincts of ancient Universities—a pre-eminence due to the tastes and special studies of the first president and other early professors of the Canadian Institution. Strange, it is, yet true, that hitherto, as to a recognized source of indispensable aid in identification and decipherment, are duly transmitted by cast, rubbing and photograph, the "finds" that from time to time create such excitement and delight among the epigraphists, and ethnologists, the minute historical investigators, archaeologists, and cranologists, of the British Islands and elsewhere.

The original architectural design for the great educational institution to which the Avenue was intended to be an approach, was a very curious one. A model of it on a large scale, cut out in cork, wood and card-board used to be preserved in the Old Hospital. If it had been carried into effect a large portion of the park provided for the reception of the University would have been covered with buildings. A multitude of edifices, isolated and varying in magnitude, were scattered about, with gardens and ornamental grounds interspersed. These were halls of science, lecture-rooms, laboratories, residences for president, vice-president, professors, officials and servants of every grade. On the widely-extended premises occupied by the proposed institution, a population was apparently expected to be found that would have sufficed to justify representation in Parliament—a privilege the college was actually by its charter to enjoy. We should have had in fact realized before our eyes, on a considerable scale, a part of the dreams of Plato and More, a fragment of Atlantis and Utopia.

When the moment arrived, however, for calling into visible being the long-contemplated seat of learning, it was found expedient to abandon the elaborate model which had been constructed. Mr. Young, a local architect, was directed to devise new plans. His ideas appear to have been wholly modern. Notwithstanding the tenor of the Royal Charter, which suggested the precedents of the old universities of "our United Kingdom of Great Britain and Ireland," wherever practicable to be followed, the architecture and arrangements customary in those places were ignored. Girard College, Philadelphia, seems to have inspired the idea of the new designs. Happily only a minute angle of one of the buildings of the new plan was destined ever to exist. The formal commencement of the abortive work took place on the 23rd of April, 1842—a day indelibly impressed on the memory of those who participated in the proceedings.—It was one of the sunniest and brightest of days. In the year just named it happened, that so early as St. George's day the leaves of the horse-chestnut were bursting their glossy sheaths, and the vegetation generally was in a very advanced stage. A procession, such as had never before been seen in these parts, slowly defiled up the Avenue to the spot where the corner-stone of the proposed University was to be laid.

A high-wrought contemporary description of the scene is given in a note in *Curia Canadenses*, "The vast procession opened its ranks, and his Excellency, the Chancellor, with the President,

the Lord Bishop of Toronto, on his right, and the Senior Visitor, the Chief Justice, on his left, proceeded on foot through the College Avenue to the University grounds. The countless array moved forward to the sound of military music. The sun shone out with cloudless meridian splendour, one blaze of banners flashed upon the admiring eye.—The Governor's rich Lord Lieutenant's dress, the Bishop's sacerdotal robes, the Judicial Ermine of the Chief Justice, the splendid Convocation robes of Dr. McCaul, the gorgeous uniforms of the suite, the accoutrements of the numerous Firemen, the national badges worn by the Office-bearers of the different Societies, and what on such a day (St. George's) must not be omitted, the Red Crosses on the breasts of England's congregated sons, the grave habiliments of the Clergy and Lawyers, and the glancing lances and waving plumes of the First Incorporated Dragoons, all formed one moving picture of civic pomp, one glorious spectacle which can never be remembered but with satisfaction by those who had the good fortune to witness it. The following stanza from a Latin Ode," the note goes on to say, "recited by Master Draper, son of the late Attorney General, after the ceremony, expresses in beautifully classical language the proud occasion of all this joy and splendid pageantry :

"Io! triumphe! flos Canadensium!
Est alma nobis mater; æmula
Britanniæ hæc sit nostra terra,—
Terra diu domibus negata!"

Another contemporary account adds: "As the procession drew nearer to the site where the stone was to be laid, the 43rd Regiment lined the way, with soldiers bearing arms and placed, on either side, at equal interval. The 93rd regiment was not on duty here, but in every direction the gallant Highlanders were scattered through the crowd, and added by their national garb and nodding plumes to the varied beauty of the animated scene. When the site was reached," this account says, "a new feature was added to the interest of the ceremony. Close to the spot, the north-east corner, where the foundation was to be deposited, a temporary building had been erected for the Chancellor, and there, accompanied by the officers of the University and his suite, he took his stand. Fronting this was a kind of amphitheatre of seats, constructed for the occasion, tier rising above tier, densely filled with ladies, who thus commanded a view of the whole ceremony. Between this amphitheatre and the place where the Chancellor stood, the procession ranged itself."

The Chancellor above spoken of was the Governor General of the day, Sir Charles Bagot, a man of noble bearing and genial, pleasant aspect. He entered with all the more spirit into the ceremonies described, from being himself a graduate of one of the old universities. Memories of far-off Oxford and Christ Church would be sure to be roused amidst the proceedings that rendered the 23rd of April, 1842, so memorable amongst us. A brother of Sir Charles' was at the time Bishop of Oxford. In his suite, as one of his Secretaries, was Captain Henry Bagot, of the Royal Navy, his own son. Preceding him in the procession, bearing a large gilded mace, was an "Esquire Bedell," like the Chancellor himself, a Christ Church man, Mr. William Cayley, subsequently a member of the Canadian Government.

Although breaking ground for the University building had been long delayed, the commencement now made proved to be premature. The edifice begun was never completed, as we have already intimated; and even in its imperfect, fragmentary condition, it was not fated to be for any great length of time a scene of learned labours. In 1856 its fortune was, to be converted into a Female Department for the over-crowded Provincial Lunatic Asylum.

The educational system inaugurated in the new building in 1843, was, as the plate enclosed in the foundation-stone finely expressed it, "prestantissimum ad exemplar Britannicarum Universitaturum." But the "exemplar" was not, in practice, found to be, as a whole, in harmony with the genius of the Western Canadian people. (In truth, the same "exemplar," as constituted in 1842, was pronounced not long afterwards out of harmony with the genius of modern Britain itself.)

The revision of the University scheme for Upper Canada with a view to adapting it to the wants of the Western Canadian people, was signalized by the erection in 1857 of a new building on an entirely different site, and a migration bodily of president, professors and students to it, continuing however still within the limits of the spacious park originally provided for the

institution; and it is remarkable that, while departing educationally and otherwise, in some points, from the exemplar of the ancient universities, as they were in 1842, a nearer approach, architecturally, was made to the mediæval English College than any that had been thought of before. Mr. Cumberland, the designer of the really fine and most appropriate building in which the University at length found a resting place, was imbued, as is evident, with a large measure of the spirit of Wykeham and Wyneflete.

The story of our University is a part of the history of Upper Canada. From the first foundation of the colony the idea of some such seat of learning entered into the scheme of its organization. In 1791 before he had yet left England for the unbroken wilderness in which his Government was to be set up, we have General Simcoe speaking to Sir Joseph Banks, the President of the Royal Society, of "a college of a higher class," as desirable in the community which he was about to create. "A college of a higher class," he says, "would be eminently useful, and would give a tone of principles and of manners that would be of infinite support to Government." In the same letter he remarks to Sir Joseph, "My friend the Marquis of Buckingham has suggested that Government might allow me a sum of money to be laid out for a Public Library, to be composed of such books as might be useful in the colony. He instanced the Encyclopedia, extracts from which might occasionally be published in the newspapers. It is possible," he adds, "private donations might be obtained, and that it would become an object of Royal munificence."

It was naturally long before the community of Upper Canada was ripe for a college of the character contemplated; but provision for its ultimate existence and sustenance was made, almost from the beginning, in the assignment to that object of a fixed and liberal portion of the public lands of the country.—In 1819-20, Gourlay spoke of the unpreparedness of Upper Canada as yet for a seat of learning of a high grade. Meanwhile, as a temporary expedient, he suggested a romantic scheme. "It has been proposed," he says, "to have a College in Upper Canada; and no doubt in time colleges will grow up there. At present, and for a considerable period to come, any effort to found a College would prove abortive. There could neither be got masters nor scholars to ensure a tolerable commencement for ten years to come; and a feeble beginning might beget a feeble race of teachers and pupils. In the United States," he continued, "academies and colleges, though fast improving, are yet but raw; and greatly inferior to those in Britain, generally speaking. Twenty-five lads sent annually at public charge from Upper Canada to British Universities, would draw after them many more. The youths themselves, generally, would become desirous of making a voyage in quest of learning.—Crossing the ocean on such an errand, would elevate their ideas, and stir them up to extraordinary exertions. They would become finished preachers, lawyers, physicians, merchants; and returning to their native country would repay in wisdom what was expended in goodness and liberality. What more especially invites the adoption of such a scheme, is the amiable and affectionate connexion which it would tend to establish between Canada and Britain. But it will not do at present to follow out the idea." His prediction that "in time colleges will grow up there" has been speedily verified. The town especially, of which in its infant state, he spoke in such terms of contempt, has been so prolific of colleges, that it is now become a kind of Salamanca for the country at large; a place of resort for students from all parts.—It is well probably for Canada that Gourlay's scheme of draughting a batch of young students periodically to the old country, was not acted on. Canada would thereby possibly, on the one hand, have lost the services of some of the cleverest of her sons, who, on obtaining academic distinction would have preferred to remain in the mother country, entering on one or other of the public careers to which academic distinction there opens the ready path; and, on the other hand, she should, in many an instance, it is to be feared, have received back her sons, just unfitted in temper and habit, for life, under matter-of-fact, colonial conditions.

As a closing remark, we will observe that in the original planting of the Avenue, up whose fine vista we have been gazing, the mistake was committed of imitating nature too closely. A multitude of trees and shrubs of different kinds and habits were densely mingled together as they are usually to be seen in a wild primitive wood; and thus the growth and fair development of all were hindered. The horse-chestnuts alone should have been relied on to give character to the avenue; and of these there should have been on each side a double row, with a promenade for pedestrians underneath, after the manner of the great walks in the public parks of the old towns of Europe.

XXXVIII.—QUEEN STREET—FROM THE COLLEGE AVENUE TO JOHN STREET.

Pursuing our way now westward from the Avenue leading to the University, we pass the Powell park-lot, on which was, up to recent times, the family vault of the Powells, descendants of the Chief Justice. The whole property was named by the fancy of the first possessor, *Caer-Hoel*, *Castle-Hoel*, in allusion to the mythic Hoel, from whom all ap-Hoels boast to be sprung. Dummer Street, which opens northward a little further on, retains, as we have said, the second baptismal name of Chief Justice Powell.

Beverly-house and its surroundings, on the side opposite the *Caer-Hoel* estate, recall one whose name and memory must repeatedly recur in every narrative of our later Canadian history, Sir John Robinson.

The Park-lot which follows that occupied by Chief Justice Powell was selected by Solicitor General Gray, of whom fully already. It afterwards became the property of Mr. D'Arcy Boulton, eldest son of Mr. Justice Boulton, and was known as the Grange estate. The house which bears the name of the "Grange," was built at the beginning of the brick-era of York, and is a favorable specimen of the edifices of that period. The Grange-gate, now thrust far back by the progress of improvement, was long a familiar land-mark on the line of Lot Street. It was just within this gate that the fight already recorded took place between Mr. Justice Boulton's horses, *Bonaparte* and *Jefferson*, and the bears. A memorandum of Mr. G. S. Jarvis of Cornwall, in our possession, affirms that Mr. Justice Boulton drove a phaeton of some pretensions, and that his horses, *Bonaparte* and *Jefferson*, were the crack pair of the day at York. As to some other equipages he says: "The Lieut. Governor's carriage was considered a splendid affair, but some of the Toronto cabs would now throw it into the shade. The carriage of Chief Justice Powell, he adds, was a rough sort of omnibus, and would compare with the Gael van used now." We remember the late Bishop's account of a carriage sent up for his own use from Albany or New York: it was constructed on the model of the ordinary oval stage coach, with a kind of hemispherical top. To our former notes of Mr. Justice Boulton, we add, that he was the author of a work in quarto published in London in 1803, entitled a "A Sketch of the Province of Upper Canada."

John Street, passing south just here, is, as was noted previously, a memorial, so far as its name is concerned, of the first Lieutenant Governor of Upper Canada. On the plan of the "new town," as the first expansion westward, of York, was termed,—while this street is marked "John,"—the next parallel thoroughfare eastward is named "Graves," and the open square included between the two, southward on Front Street, is "Simcoe-place." The three names of the founder of York were thus commemorated. The expression "Simcoe-place" has fallen into disuse. It indicated, of course, the site of the present Parliament Buildings of the Province of Ontario. Graves Street has become Simcoe Street, a name, as we have seen, recently extended to the thoroughfare northward, with which it is nearly in a right line, viz., William Street, which previously recorded, as we have said, the first Christian name of Chief Justice Powell. The name "John Street" has escaped change. The name sounds trivial enough; but it has an interest.

In the minds of the present generation, with John Street will be specially associated the memorable landing of the Prince of Wales at Toronto in 1860. At the foot of John Street, for that occasion, there was built, as will be remembered, a vast semi-colosseum of wood, opening out upon the waters of the Bay; a pile whose capacious concavity was densely filled again and again, during the Prince's visit, with the inhabitants of the town and the population of the surrounding country. And on the brow of the bank, immediately above the so-called amphitheatre, and exactly in the line of John Street was erected a finely designed triumphal arch, recalling those of Septimius Severus and Titus. This architectural object, while it stood, gave a peculiarly fine finish to the vista, looking southward along John Street. The usually monotonous water-view presented by the bay and lake, and even the common-place straight line of the Island, seen through the frame-work of three lofty vaulted passages, acquired for the moment a genuine picturesqueness. An ephemeral monument it was indeed; but as long as it stood its effect was delightfully classic and beautiful. The whole group—the arch and the huge amphitheatre below, furnished around its upper rim at equal intervals with tall masts, each bearing a graceful gonfalon, and each helping to sustain on high a luxuriant festoon of evergreen which

alternately drooped and rose again round the whole structure and along the two sides of the grand roadway up to the arch—all seen under a sky of pure azure, and bathed in cheery sunlight, surrounded too and thronged with a pleased multitude—constituted a spectacle not likely to be forgotten.

Turning down John Street a few chains, the curious observer may see on his left a particle of the old area of York retaining several of its original natural features. In the portion of the Macdonell-block not yet divided into building-slips we have a fragment of one of the many shallow ravines which meandered capriciously, every here and there, across the broad site of the intended town. To the passer-by it now presents a refreshing bit of bowery meadow, out of which towers up one of the grand elm-trees of the country, with stem of great height and girth, and head of very graceful form, whose healthy and undecayed limbs and long-trailing branchlets, clearly shew that the human regard which has led to the preservation hitherto of this solitary survivor of the forest, has not been thrown away. This elm and the surrounding grove are still favorite stations or resting-places for our migratory birds. Here, for one place, in the spring, are sure to be heard the first notes of the robin.

At the south-east angle of the Macdonell block still stands in a good state of preservation the mansion put up by the Hon. Alexander Macdonell. We have from time to time spoken of the brick era of York. Mr. Macdonell's imposing old homestead may be described as belonging to an immediately preceding era—the age of framed timber and weather-board, which followed the primitive or hewn-log period. It is a building of two full storeys, each of considerable elevation. A central portico with columns of the whole height of the house, gives it an air of dignity.

Mr. Macdonell was one more in that large group of military men who served in the American Revolutionary war, under Col. Simcoe, and who were attracted to Upper Canada by the prospects held out by that officer when appointed Governor of the new colony. Mr. Macdonell was the first Sheriff of the Home District. He represented in successive parliaments the Highland constituency of Glengary, and was chosen Speaker of the House. He was afterwards summoned to the Upper House. He was a friend and correspondent of the Earl of Selkirk, and was desired by that zealous emigrational theorist to undertake the superintendence of the settlement at Kildonan on the Red River. Though he declined this task, he undertook the management of one of the other Highland settlements included in the Earl of Selkirk's scheme, namely, that of Baldoon, on Lake St. Clair; Mr. Douglas undertaking the care of that established at Moulton, at the mouth of the Grand River. Mr. Macdonell, in person rather tall and thin, of thoughtful aspect, and in manner quiet and reserved, is one of the company of our early worthies whom we personally well remember. An interesting portrait of him exists in the possession of his descendants: it presents him with his hair in powder, and otherwise in the costume of "sixty years since." He died in 1842, "amid," a contemporary obituary speaks, "the regrets of a community who loved him for the mild excellence of his domestic and private character, no less than they esteemed him as a public man." Mr. Miles Macdonell, the first Governor of Assinibola, under the auspices of the Hudson's Bay Company, and Alexander Macdonell, the chief representative in 1816 of the rival and even hostile Company of the North West Traders of Montreal, were both near relations of Mr. Macdonell of York, as also was the barrister lost in the *Speedy*, and the well-known R. C. Bishop Macdonell of Kingston. Col. Macdonell, slain at Queenston, with General Brock, and whose remains are deposited beneath the column there, was his brother. His son, Mr. Allan Macdonell, has on several occasions stood forward as the friend and spirited advocate of the Indian Tribes, especially of the Lake Superior region, on occasions when their interests, as native lords of the soil, seemed in danger of being overlooked by the Government of the day.

On Richmond Street a little to the west of the Macdonell block, was the town residence of Col. Smith, some time President of the Province of Upper Canada. He was also allied to the family of Mr. Macdonell. Col. Smith's original homestead was on the Lake Shore to the west, in the neighbourhood of the river Etobicoke. Gourlay in his "Statistical Account of Upper Canada," has chanced to speak of it. "I shall describe the residence and neighbourhood of the President of Upper Canada from remembrance," he says, "journeying past it on my way to York from the westward, by what is called the Lake Road through Etobicoke. For many miles," he says, "not a house had appeared when I came to that of Colonel Smith's, lonely and

desolate. It had once been genteel and comfortable; but was now going to decay. A vista had never opened through the woods towards Lake Ontario; but the riotous and dangling undergrowth seemed threatening to retake possession from the Colonel, of all that had once been cleared, which was of narrow compass. How could a solitary half-pay officer help himself," candidly asks Gourlay, "settled down upon a block of land, whose very extent barred out the assistance and convenience of neighbours? Not a living thing was to be seen around. How different might it be, thought I, were a hundred industrious families compactly settled here out of the redundant population of England! The road was miserable," he continues; "a little way beyond the President's house it was lost on a bank of loose gravel slung up between the contending waters of the lake and the Etobicoke stream." He here went astray. "It was my anxious wish," he says, "to get through the woods before dusk; but the light was nearly gone before the gravel bank was cleared. There seemed but one path, which took to the left. It led me astray: I was lost: and there was nothing for it but to let my little horse take his own way. Abundant time was afforded for reflection on the wretched state of property slung away on half-pay officers. Hero was the head man of the Province, 'born to blush unseen,' without even a tolerable bridle-way between him and the capital city, after more than twenty years' possession of his domain. The very gravel-bed which caused me such turmoil might have made a turnpike, but what can be done by a single hand? The President could do little with the axe or wheelbarrow himself; and half-pay could employ but few labourers at 3s. 6d. per day with victuals and drink." He recovers the road at length and then concludes: "After many a weary twist and turn I found myself," he says, "on the banks of the Humber, where there was a house and a boat." In the *Gazette and Oracle* of Saturday, Oct. 26, 1779, published at York, we have the record of Col. Smith's marriage. We give it as another specimen of the quaint style occasionally adopted at the period in such announcements: "Married last Monday, by the Rev. Mr. Addison, Colonel Smith, of the Queen's Rangers, to the most agreeable and accomplished Miss Mary Clarke."—Col. Smith did something in his day, to improve the breed of horses in Upper Canada. He expended considerable sums of money in the importation of choice animals of that species from the United States.

The house which led us to this notice of President Smith is, as we have said, situated on Richmond Street. On Adelaide Street, immediately south of this house, and also a little west of the Macdonell block, was a residence of mark, erected at an early period by Mr. Hugh Heward, and memorable as having been the abode for a time of the Naval Commissioner or Commodore, Bouchette, who first took the soundings and constructed a map of the harbour of York. His portrait is to be seen prefixed to his well-known "British Dominions in North America." The same house was also once occupied by Dr. Stuart, afterwards Archdeacon of Kingston; and at a later period by Mrs. Caldwell, widow of Dr. Caldwell, connected with the Naval establishment at Penetanguishene. Her sons, John and Leslie, two tall sociable youths, now both deceased, were our classmates at school. We observe in the *Oracle* of Saturday, May 23, 1803, a notice of Mr. Hugh Heward's death in the following terms: "Died lately at Niagara, on his way to Detroit, after a lingering illness, Mr. Hugh Heward, formerly clerk in the Lieut. Governor's office, and a respectable inhabitant of this town (York)." Just beyond was the abode of Lieut. Col. Foster, long Adjutant General of Militia; an officer of the antique Wellington school, of a fine type, portly in figure, authoritative in air and voice; in spirit and heart warm and frank. His son Colley, also we here name, as a congenial and attached schoolboy friend, likewise now deceased, after a brief but not undistinguished career at the Bar.

A few yards further on was the home of Mr. John Ross, whose almost prescriptive right it gradually became, whenever a death occurred in one of the old families, to undertake the funeral obsequies. Few were there of the ancient inhabitants who had not found themselves, at one time or another, wending their way, on a sad errand, to Mr. Ross's doorstep. On his sombre and very unpretending premises were put together the perishable shells in which the mortal remains of a large proportion of the primitive householders of York and their families are now reverting to their original dust. Almost up to the moment of his own summons to depart hence, he continued to ply his customary business, being favoured with an old age unusually green and vigorous, like "the ferryman austere and stern," Charon; to whom also the "incivilities" of a plentiful supply of hair and beard, along with a certain staidness, taciturnity and rural homeliness of manner and attire, further suggested a resemblance.

Many things thus combined to render Mr. John Ross not the least notable of our local dramatic personæ. He was led, as we have understood, to the particular business, which was his usual avocation, by the accident of having been desired, whilst out on active service as a militiaman in 1812, to take charge of the body of Gen. Brock, when that officer was killed on Queenston Heights.

While in this quarter we should pause too for a moment before the former abode of Mr. Robert Stanton, sometime King's Printer for Upper Canada, as noted already, and afterwards editor of the *Loyalist*; and subsequently Collector of Customs at York:—a structure of the secondary brick period, and situated on Peter Street, but commanding the view eastward along the whole length of Richmond Street. Mr. Stanton's father was an officer in the Navy, who between the year 1771 and 1786 saw much active service in the East and West Indies, in the Mediterranean, at the siege of Gibraltar under General Elliott, and on the American coast during the Revolutionary war. From 1786 to 1823 he was in the public service in several military and civil capacities in Lower and Upper Canada. In 1806 he was, for one thing, we find, issuer of Marriage Licenses at York. From memoranda of his while acting in this capacity we make a few extracts. The unceremoniousness of the record in the majority of cases, is refreshing. The names are all familiar ones in this neighbourhood. The parties set down as about to pledge their troth, either to other, have not, in every instance, even yet (1871), passed off the scene.

1803, Nov. 26, Stephen Heward to Mary Robinson. Same date, Ely Playter to Sophia Beman. Dec. 11, same year, Geo. T. Denison to C. B. Lippincott. 1807, Feb. 3, Jordan Post to M. Woodruffe. July 13, Hiram Kendrick to Hester Vanderburgh. Dec. 28, Jarvis Ashley to Dorothy McDougal. 1808, Jan. 13, D'Arcy Boulton, Junr., to Sally Ann Robinson. March 17, James Finch to M. Reynolds. April 9, David Wilson to Susannah Stone. May 2, John Langstaff to Lucy Miles. May 30, John Murchison to Frances Hunt. Aug. 8, John Powell, Esq., to Miss Isabella Shaw. Sep. 12, Hugh Heward to Eliza Mnir. 1809, April 14, Nicholas Hagarman to Polly Fletcher. May 18, William Cornwall to Rhoda Torry. June 19, John Ashbridge to Sarah Mercer. June 21, Jonathan Ashbridge to Hannah Barton. July 15, Orrin Hale to Hannah Barrett. Aug. 5, Henry Drear to Jane Brooke. Dec. 14, John Thompson to Ann Smith. 1810, March 8, Andrew Thomson to Sarah Smith. March 30, Isaac Pilkington to Sarah McBride. June 2, Thomas Bright to Jane Hunter. July 3, John Scarlett to Mary Thomson. Sept. 10, William Smith to Eleanor Thompson. June 22, William B. Sheldon to Jane Johnson. July 30, Robert Hamilton, gent., to Miss Maria Lavinia Jarvis. 1811, Sept. 20, George Duggan to Mary Jackson.

The family of Mr. Stanton, senior, was large. It was augmented by twins on five several occasions. Not far from Mr. Stanton's house, a lesser edifice of brick of comparatively late date on the north side of Richmond Street, immediately opposite the premises associated just now with the memory of President Smith, may be noted as having been built and occupied by the distinguished Admiral Vansittart, and the first example in this region, of a cottage furnished with light, tasteful verandahs in the modern style.

XXXIX.—QUEEN STREET—FROM JOHN STREET TO BROCK STREET AND SPADINA AVENUE.

We now return from our digression, and again proceed on our way westward. The grantee of the park-lot which followed Solicitor-General Gray's, was the famous Hon. Peter Russell, of whom we have had occasion again and again to speak. A portion of the property was brought under cultivation at an early period, and a substantial farm-house put up thereon—a building which in 1871 is still in existence. The name attached to this house and clearing was Peterfield. Human predators prowled about a solitary place like this. At their hands in 1803, Mr. Russell suffered a serious loss, as we learn from an advertisement which about mid-summer in that year appeared in several successive numbers of the *Oracle*. It ran as follows: "Five Guineas Reward. Stolen on the 12th or 13th instant from Mr. Russell's farm, near this town, a Turkey Hen, with her brood of six half-grown young ones. Whoever will give such information and evidence as may lead to the discovery of the Thieves shall receive from the subscriber the above reward upon conviction of any of the delinquents. Peter Russell, York, Aug. 15th, 1803." Another advertisement has been mentioned to us, issuing from the same

sufferer, announcing the theft of a Plough from the same farm. We observe that Mr. Justice Alcock, in May, 1802, lost in a similar way the iron teeth out of his harrow. In the *Oracle* of the date named we read:—"Twenty Dollars Reward will be paid by the subscriber to any person who will discover the man who is so depraved and lost to every sense of social duty, as to cut with an axe or knife, the withes which bound some of the fence round the late Chief Justice's Farm on Yonge Street, and to throw down the said Fence. Independent of the above inducement, it is the duty of every good member of society to endeavour to find out who the character is that can be guilty of such an infamous act, in order that he may be brought to justice. Robert J. D. Gray, York, June 23th, 1803."

Occasionally notices of the reverse order appear, indicative of honesty in finders. A homely article picked up on the Common was judged to be of sufficient importance to its owner to induce the finder to advertise as follows in the *Oracle* of Saturday, Aug. 14th, 1802:—"Found lately near the Garrison, a Cow-bell. Whoever has lost the same, may have it again by applying to the Printer hereof, on paying the expense of this advertisement, and proving property. York, Aug. 7, 1802." Again, in the *Oracle* of Feb. 25, 1804: "Found on Saturday last, the 11th instant, a Bar of Iron. The owner may have it again, by applying to the Printer hereof. York, Feb. 5th." And again: "Found on Friday, the 5th instant, two silk handkerchiefs. The owner can have them again by applying to the Printer, and paying the expense of this advertisement, York, Oct. 12th, 1804." In October, 1806, an Iron Pot was picked up: "Found, on Sunday last, the 12th instant, on the beach opposite Messrs. Ashbridge's; an Iron Pot capable of containing about two palls full. Whoever may own the above mentioned Pot, may have it again by proving property, and paying charges, on application to Samuel Lewis or to the Printer hereof. York, Oct. 16th, 1806." A barrel of flour was found on the beach near the Garrison in 1802, and was thus advertised: "The Public are hereby informed that there has been a barrel of flour left on the beach near the Garrison by persons unknown. Whoever will produce a just claim to the same may have it, by applying to the Garrison Sergeant-Major, and paying the expense of the present advertisement. J. Petto, G. S. Major, York, March 22, 1802."

Peter Russell's name has become locally a household word for a kind of *helluo agrorum*, an inordinate self-appropriator of broad acres; and not without some show of reason, as the following list to be seen in successive numbers of the *Oracle* of 1803 would seem to indicate. Of the lands enumerated he styles himself, at the close of the advertisement, the proprietor. We have no desire, however, to perpetuate the popular impression, which was that all the said properties had been patented by himself to himself. This, of course, was an impossibility. He simply chose, as he was at liberty to do, after acquiring what he and his family were entitled to legally, in the shape of grants, to invest his means in lands, which in every direction were to be had for a mere song.—The document spoken of reads thus: "To be Sold.—The Front Town Lot, with an excellent dwelling-house and a kitchen recently built thereon, in which Mr. John Denison now lives, in the town of York, with a very commodious water-lot adjoining, and possession given to the purchaser immediately. The Lots Nos. 5, 6, and 7 in the 2nd, and lots Nos. 6 and 7 in the 3rd concession of West Flamboro' township, containing 1,000 acres, on which there are some very good mill seats; the lots No. 4 and 5, in the 1st concession of East Flamboro' with their broken fronts, containing, according to the Patent, 600 acres more or less; the lots Nos. 1, 3 and 4 in the 2nd, and lots No. 2 and 3 in the 3rd concession of Beverley, containing 1,000 acres; the lots Nos. 16 in the 2nd and 3rd concession of the township of York containing 400 acres; the lots 32 and 33 with their broken fronts, in the 1st, and lots No. 31 and 32 in the 2nd concession of Whitby, containing 800 acres; the lots 22 and 24 in the 11th, lot 23 in the 12th, and No. 24 in the 13th and 14th concessions of Townsend, containing 1,000 acres; the lots No. 12, 13 and 14 in the 1st and 2nd concessions of Charlotteville, immediately behind the Town plot, containing 1,200 acres; the lots Nos. 16 and 17 in the 1st concession of Delaware township, on the river Thames (La Trench [sic]) containing 800 acres; the lots Nos. 1, 3, 4, 5, and 7 in the 10th; No. 1, 2, 4, 6, and 7 in the 11th, and Nos. 3, 4, 5, and 7 in the 12th concession of Dereham, containing 3,000 acres, with mill-seats thereon; and also the lots Nos. 22, 24, 25, 26, and 28 in the 1st, Nos. 22, 23, 25, 27 and 28 in the 3rd, Nos. 22, 24, 25, 26 and 28 in the 11th, and Nos. 22, 24, 25, 26 and 28 in the 12th concession of Norwich, containing 600 acres, with mill-seats thereon. The terms are either cash, or good bills of exchange on London, Montreal and Quebec, for the whole of such purchase, in which case a proportionably less price

will be expected, or the same for one moiety of each purchase, and bonds properly secured for principal and interest, until paid, for the other. The prices may be known by application to the proprietor at York. PETER RUSSELL."

An idea of the prospective value of property in Canada had clearly dawned upon the mind of Mr. Russell in the year 1803; and he aimed to create for himself speedily a handsome fortune. His plans, however, in the long run, came to little, as in another connexion, we have heard already. Survivors of the early period of Upper Canada have been heard sometimes to express, like Lord Clive, after his dealings with the rajahs, their surprise that they did not provide for themselves more largely than they did, when the broad acres of their adopted country were to be had to any extent, almost for the asking. But this reflection should console them; in few instances are the descendants of the early very large land holders much better off at the present hour than probably they would have been, had their fathers continued landless.

Mr. Russell's estate passed at his decease, as we have elsewhere stated, to his sister, Miss Elizabeth Russell; and from her at her decease, to Dr. W. W. Baldwin.

At the beginning of Peter Russell's advertisement of properties, it will have been observed that he offered for sale "an excellent dwelling-house in the town of York," described as being in the occupation of Mr. John Denison. The building referred to, situate, as it is further mentioned, on a "front town lot, with a very convenient water-lot adjoining," was the "ornamental cottage" noted in our journey along Front Street, as having been once inhabited by Major Hillier of the 74th. On its site was afterwards built Dr. Baldwin's town residence, which subsequently became first a Military Hospital and then the head office of the Toronto and Nipissing Railroad. But Peterfield was also associated with the history of Mr. Denison, who was the progenitor of the now numerous Canadian family of that name. Through an intimacy with Mr. Russell, springing out of several years' campaigning together in the American Revolutionary war, Mr. Denison was induced by that gentleman, when about to leave England in an official capacity in company with General Simcoe, to emigrate with his family to Upper Canada in 1792. He first settled at Kingston, but, in 1796, removed to York, where, by the authority of Mr. Russell, he temporarily occupied Castle Frank on the Don. He then, as we have seen, occupied "the excellent dwelling-house" put up "on a front lot" in the town of York by Mr. Russell himself; and afterwards, he was again accommodated with quarters by his friend in the newly-erected homestead of Peterfield.

We have evidence that in 1805 a portion of Peterfield was under cultivation, and that under Mr. Denison's care it produced fine crops of a valuable vegetable. Under date of York, 20th December, 1805, in a contemporary Oracle, we have the following advertisement: "POTATOES: To be sold at Mr. Russell's Farm at Peterfield, by Mr. John Denison, in any quantities, not less than ten bushels, at Four Shillings York Currency the bushel, if delivered at the purchasers' houses, or Three Shillings the bushel, if taken by them from the Farm."

Our own personal recollection of Mr. Denison is associated with Peterfield, the homely cosiness of whose interior, often seen during its occupancy by him, lighted up by a rousing hospitable fire of great logs, piled high in one of the usual capacious and lofty fire-places of the time, made an indelible impression on the boyish fancy. The venerable Mrs. Sophia Denison, too, Mr. Denison's better half, was in like manner associated in our memory with the cheery interior of the ancient Peterfield farm-house—a fine old English matron and mother, of the antique, strongly-marked, vigorous and sterling type. She was one of the Taylors, of Esscx; among whom, at home and abroad, ability and talent, and traits of a higher and more sacred character, are curiously hereditary. We shall have occasion, further on, to speak of the immediate descendants of these early occupants of Peterfield.

On the south side of the expansion of Queen Street, in front of Peterfield, and a little beyond Peter Street (which as we have previously noticed had its name from Peter Russell) was the abode of Mr. Dunn, long Receiver-General of Upper Canada. It was (and is) a retired family house almost hidden from the general view by a grove of ornamental trees. A quiet-looking gate led into a straight drive up to the house, out of Queen Street. Of Mr. Dunn we have already discoursed, and of Mrs. Dunn, one of the graceful lady-chiefs in the high life of York in the olden time. In the house at which we now pause was born their famous son, Alexander Roberts Dunn, in 1833; who not only had the honour of sharing in the charge of the Light

Brigade at Balaclava in 1856, now so renowned in history and song, but who, of all the six hundred there, won the highest meed of glory. Six feet three inches in stature, a most powerful and most skilful swordsman, and a stranger to fear, Lieut. Dunn, instead of consulting his own safety in the midst of that frightful and untoward mêlé, deliberately interposed for the protection of his comrades in arms. Old troopers of the Eleventh Hussars long told with kindly eyes how the young lieutenant seeing Sergeant Bentley of his own regiment attacked from behind by two or three Russian lancers, rushed upon them single-handed, and cut them down; how he saved the life of Sergeant Bond; how Private Levett owed his safety to the same friendly arm, when assailed by a Russian Hussar. Kinglake, the historian of the Crimean war, records that the Victoria Cross placed at the disposal of the Eleventh Hussars was unanimously awarded by them to Lieut. Dunn; the only cavalry officer who obtained the distinction. To the enthusiasm inspired by his brilliant reputation was mainly due the speedy formation in Canada of the Hundredth Regiment, the Prince of Wales' Royal Canadian Regiment, in 1857. Of this regiment, chiefly raised through his instrumentality, Mr. Dunn was gazetted the first major; and on the retirement of the Baron de Rottenburg from its command, he succeeded as its Lieutenant Colonel. In 1864 he was gazetted full Colonel: at the time he had barely completed his twenty-seventh year. Impatient of inactivity, he caused himself to be transferred to a command in India, where he speedily attracted the notice of General Napier, afterwards Lord Napier of Magdala; and he accompanied that officer in the expedition against King Theodore of Abyssinia. While halting at Senafé in that country, he was accidentally killed by the sudden explosion of his rifle while out shooting deer. The sequel can best be given, as well as an impression of the feelings of his immediate associates on the deplorable occasion, by quoting the touching words of a letter addressed at the time to a near relative of Colonel Dunn, by a brother officer:

"In no regiment," says this friend, "was ever a commanding officer so missed as the one we have just so unhappily lost: such a courteous, thorough gentleman in word and deed, so thoughtful for others, so perfect a soldier, so confidence-inspiring a leader. Every soldier in the regiment misses Colonel Dunn; he was a friend, and felt to be such, to every one of them. The regiment will never have so universally esteemed a commander again. We all feel that. For myself I feel that I have lost a brother who can never be replaced. I can scarcely yet realize that the dear fellow is really dead, and as I pass his tent every morning I involuntarily turn my head, expecting to hear his usual kind salutation, and to see the dear, handsome face that has never looked at me but with kindness. I breakfasted with him on the morning of the 25th, and he looked so well as he started off with our surgeon for a day's shooting. Little did I think that I had looked on his dear old face for the last time in life. * * * I cannot describe to you what a shock the sad news was to every one, both in my regiment and indeed in every one in the camp. Our dear Colonel was so well known, and so universally liked and respected."

"Next day, Sunday, the 26th of January, he was buried about 4 o'clock p.m. I went to look at the dear old fellow, before his coffin was closed, and his poor face, though looking so cold, was yet so handsome, and the expression of it, so peaceful and happy. I cut off some of his hair, which lately he wore very short, a lock of which I now send you, keeping one for myself, as the most valuable souvenir I could have of one I loved very dearly. And I knelt down to give his cold forehead a long farewell kiss. He was buried in uniform, as he had often expressed a wish to me to that effect. Every officer in the camp attended his funeral, and, of course, the whole of his own regiment, in which there was not a single dry eye, as all stood round the grave of their lost commander. He has been buried in a piece of ground near where our camp now stands, at the foot of a small hill covered with shrubbery and many wild flowers. We have had railings put round the grave, and a stone is to be placed there with the inscription: In memory of A. R. Dunn, V.C., Col. 33rd Regiment, who died at Senafé on the 25th January, 1865, aged 34 years and 7 months."

Thus in remote Abyssinia rest the mortal remains of one who in the happy unconsciousness of childhood, sported here in the grounds and groves which we are now passing on Queen Street. In numerous other regions of the earth, once seemingly as unlikely to be their respective final resting-places, repose the remains of Canadian youth, who have died in the public service of England. We are sharing in the fortune and history of the mother country,

and like her, or rather like the ubiquitous Roman citizen of old, we may even already ask "*Quæ caret ora cruore nostro!*"—sadly as individuals perhaps, but proudly as a people.

The occupant of Mr. Dunn's house at a later period was Chief Justice McLean, who died here in 1865. He was born at St. Andrews, near Cornwall, in 1791. At the battle of Queenston, he served as Lieutenant in Capt. Cameron's No. 1 Flank Company of York Militia, and received a severe wound in the early part of the engagement. He was afterwards for some time Speaker of the House. An admirable full-length painting of Chief Justice McLean exists at Osgoode Hall.

XL.—QUEEN STREET, FROM BROCK STREET AND SPADINA AVENUE TO BATHURST STREET.

Immediately after the grounds and property of Mr. Dunn, on the same side, and across the very broad Brock Street, which is an opening of modern date, was to be seen, until recently, a modest dwelling-place of wood, somewhat peculiar in expression, square, and rather tall for its depth and width, of dingy hue; its roof four-sided; below, a number of lean-to's and irregular extensions clustering round; in front, low shrubbery, a circular drive, and a wide, open-barred gate. This was the home of one who has acquired a distinguished place in our local annals, military and civil—Colonel James Fitzgibbon. A memorable exploit of his, in the war with the United States in 1813, was the capture of a force of 450 infantry, 50 cavalry and two guns, when in command himself, at the moment, of only forty-eight men. He had been put in charge of a dépôt of stores, at the Beaver Dams, between Queenston and Thorold. Colonel Boerstler, of the invading army, was despatched from Fort George, at Niagara, with orders to take this dépôt. Fitzgibbon was apprized of his approach. Reconnoitring, and discovering that Boerstler had been somewhat disconcerted, on his march, by a straggling fire from the woods, kept up by a few militiamen and about thirty Indians under Captain Kerr, he conceived the bold idea of dashing out and demanding a surrender of the enemy! Accordingly, spreading his little force judiciously, he suddenly presented himself, waving a white pocket-handkerchief. He was an officer, he hurriedly announced, in command of a detachment: his superior officer, with a large force, was in the rear; and the Indians were unmanageable. (Some extemporized war-whoops were to be heard at the moment in the distance.) The suggestion of a capitulation was listened to by Colonel Boerstler as a dictate of humanity. The truth was, Major DeHaren, of the Canadian force, to whom, in the neighbourhood of what is now St. Catharines, a message had been sent, was momentarily expected, with 200 men. To gain time, Fitzgibbon made it a matter of importance that the terms of the surrender should be reduced to writing. Scarcely was the document completed when DeHaren arrived. Had there been the least further delay on his part, how to dispose of the prisoners would have presented considerable difficulty.

Lieutenant Fitzgibbon was now soon Captain Fitzgibbon. He had previously been a private in the 19th and 61st Regiments, having enlisted in Ireland at the age of seventeen. On the day of his enrolment, he was promoted to the rank of sergeant; and a very few years later he was a sergeant-major. He saw active service in Holland and Denmark. His title of Colonel was derived from his rank in our Canadian Militia.

His tall, muscular figure, ever in buoyant motion; his gray, good-humoured, vivacious eye, beaming out from underneath a bushy, light-coloured eyebrow; the cheery ring of his voice, and its animated utterances, were familiar to everyone. In the midst of a gathering of the young, whether in the school-room or on the play-ground, his presence was always warmly hailed. They at once recognized in him a genuine sympathizer with themselves in their ways and wants; and he had ever ready for them words of hope and encouragement.

Our own last personal recollection of Colonel Fitzgibbon is connected with a visit which we chanced to pay him at his quarters in Windsor Castle, where, in his old age, through the interest of Lord Seaton, he had been appointed one of the Military Knights. Though most romantically ensconced and very comfortably lodged, within the walls of the noblest of all the royal residences of Europe, his heart, we found, was far away, ever recurring to the scenes of old activities. Where the light streamed in through what seemed properly a loophole for cannon, pierced through a wall several yards in thickness, we saw a pile of Canadian newspapers. To

pore over these was his favourite occupation. After chatting with him in his room, we attended Divine Service with him in the magnificent Chapel of St. George, close by. We then strolled together round the ramparts of the Castle, enjoying the incomparable views. Since the time of William IV. the habit of the Military Knights is that of an officer of high rank in full dress, cocked hat and feather included. As our venerable friend passed the several sentries placed at intervals about the Castle, arms were duly presented; an attention which each time elicited from the Colonel the words, rapidly interposed in the midst of a stream of earnest talk, and accompanied by deprecatory gestures of the hand, "Never mind me, boy! never mind me!"

Colonel Fitzgibbon took the fancy of Mrs. Jameson when in Canada. She devotes several pages of her "Winter Studies" to the story of his life. She gives some account of his marriage. The moment he received his captaincy, she tells us, "he surprised General Sheaffe, his commanding officer, by asking for a leave of absence, although the war was still at its height. In explanation, he said he wished to have his nuptials celebrated, so that if a fatal disaster happened to himself, his bride might enjoy the pension of a captain's widow. The desired leave was granted, and after riding some 150 miles and accomplishing his purpose, he was back in an incredibly short space of time at head-quarters again. No fatal disaster occurred, and he lived," Mrs. Jameson adds, "to be the father of four brave sons and one gentle daughter." The name of Colonel Fitzgibbon recalls the recollection of his sister, Mrs. Washburn, remarkable of old, in York, for dash and spirit on horseback, spite of extra *en bon point*; for a distinguished dignity of bearing, combined with a marked Hibernian heartiness and gaiety of manner. As to the "four brave sons and one gentle daughter," all have now passed away: one of the former met with a painful death from the giving way of a crowded gallery at a political meeting in the Market Square, as previously narrated. All four lads were favourites with their associates, and partook of their father's temperament.

Of Spadina Avenue, which we crossed in our approach to Col. Fitzgibbon's old home, and of Spadina house, visible in the far distance at the head of the Avenue, we have already treated in our collections and recollections, connected with Front Street.

In passing we make an addition to what was then said. The career of Dr. Baldwin, the projector of the Avenue, and the builder of Spadina, is now a part of Upper Canadian history. It presents a curious instance of that versatility which we have had occasion to notice in so many of the men who have been eminent in this country. A medical graduate of Edinburgh, and in that capacity, commencing life in Ireland—on settling in Canada, he began the study of Law and became a leading member of the Bar. On his arrival at York, from the first Canadian home of his father on Baldwin's Creek in the township of Clarke, his purpose was to turn to account for a time his own educational acquirements, by undertaking the office of a teacher of youth. In several successive numbers of the *Oracle* of 1802-3 we read the following advertisement: "Dr. Baldwin, understanding that some of the gentlemen of this Town have expressed some anxiety for the establishment of a Classical School, begs leave to inform them and the public that he intends on Monday the first day of January next, to open a School in which he will instruct Twelve Boys in Writing, Reading, the Classics and Arithmetic. The terms are, for each boy, eight guineas per annum, to be paid quarterly or half-yearly; one guinea entrance and one cord of wood to be supplied by each of the boys on opening the School. N.B.—Mr. Baldwin will meet his pupils at Mr. Willcocks' house on Duke Street. York, December, 15th, 1802." We have not at hand any record of the results of this enterprise.

The Russell bequest augmented in no slight degree the previous possessions of Dr. Baldwin. We have probably in the magnificent dimensions assigned to the thoroughfare opened up by him in the neighbourhood of Peterfield, a visible expression of the large-handed generosity which a pleasant windfall is apt to inspire. Spadina Avenue is 166 feet wide throughout its mile-and-a-half length; and the part of Queen Street which bounds the front of the Peterfield park lot, is made suddenly to expand to the width of 90 feet. Maria Street also, a short street here, is of extra width. The portion of York, now Toronto, laid out by Dr. Baldwin on a fraction of the land opportunely inherited, will, when solidly built over, rival Washington or St. Petersburg in grandeur of ground-plan and design.

The career of Dr. Rolph, another of our early Upper Canadian notabilities, resembles in some respects, that of Dr. Baldwin. Before emigrating from Gloucestershire, he began life as a medical man. On arriving in Canada he transferred himself to the Bar. In this case however,

after the attainment of eminence in the newly adopted profession, there was a return to the original pursuit, with the acquisition in that also, of a splendid reputation. Both acquired the local style of Honourable: Dr. Rólph by having been a member of the Hincks-ministry from 1851 to 1854; Dr. Baldwin by being summoned, six months before his decease, to the Legislative Council of United Canada, while his son was Attorney-General.

Mr. William Willcocks, allied by marriage to Dr. Baldwin's family, selected the park-lot at which we arrive after crossing Spadina Avenue. A lake in the Oak Ridges (Lake Willcocks) has its name from the same early inhabitant. In 1802 he was Judge of the Home District Court. He is to be distinguished from the ultra-Reformer, Sheriff Willcocks, of Judge Thorpe's day, whose name was Joseph; and from Charles Willcocks, who in 1818 was proposing, through the columns of the *Upper Canada Gazette*, to publish, by subscription, a history of his own life. The advertisement was as follows (what finally came of it, we are not able to state):—"The subscriber proposes to publish, by subscription, a History of his Life. The subscription to be One Dollar, to be paid by each subscriber; one half in advance; the other half on the delivery of the Book. The money to be paid to his agent, Mr. Thomas Deary, who will give receipts and deliver the Books. Charles Willcocks, late Lieutenant, City of Cork Militia. York, March 17, 1818."—This Mr. Charles Willcocks once fancied he had grounds for challenging his namesake, Joseph, to mortal combat, according to the barbaric notions of the time. But at the hour named for the meeting, Joseph did not appear on the ground. Charles waited a reasonable time. He then chipped off a square inch or two of the bark of a neighbouring tree, and, stationing himself at duelling distance, discharged his pistol at the mark which he had made. As the ball buried itself in the spot at which aim had been taken, he loudly bewailed his old friend's reluctance to face him. "Oh, Joe, Joe!" he passionately cried, "if you had only been here!" Although Joseph escaped this time, he was not so fortunate afterwards. He fell, as we have already noted in connexion with the Early Press, "foremost fighting" in the ranks of the invaders of Upper Canada in 1814. The incident is briefly mentioned in the *Montreal Herald* of the 15th October in that year, in the following terms: "It is officially announced by General Ripley (on the American side, that is), that the traitor Willcocks was killed in the sortie from Fort Erie on the 4th ult., greatly lamented by his general and the army." Undertaking with impetuosity a crusade against the governmental ideas which were locally in the ascendant, and encountering the resistance customary in such cases, he cut the knot of his discontent by joining the Republican force when it made its appearance.

The Willcocks park-lot, or a portion of it, was afterwards possessed by Mr. Billings, a well-remembered Commissariat officer, long stationed at York. He built the house subsequently known as Englefield, which, later, was the home of Colonel Loring, who, at the time of the taking of York, in 1813, had his horse killed under him; and here he died. Mr. Billings and Colonel Loring both had sons, of whom we make brief mention as having been in the olden time among our own school-boy associates, but who now, like so many more personal contemporaries, already noted, are, after brief careers, deceased.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —MAY, 1870.
 Latitude—43° 30'4 North. Longitude—8h. 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°			Temp. of the Air.			Tension of Vapour.			Humidity of Air.			Direction of Wind.			Velocity of Wind.			Rain Inches.	Snow Inches.						
	6 A.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.								
1	29.768	29.705	29.8010	68.3	0	0	—	0.99	—	—	15	—	—	S W b W	N N W	Cal.	8.0	10.5	0.0	7.60	7.67	...	...	
2	29.820	29.840	29.840	68.4	40.8	60.0	52.32	5.13	234	211	74	41	46	62	N E b E	E b E	Cal.	0.0	5.5	0.0	2.42	2.62	...	...
3	29.839	29.862	29.862	68.5	42.1	61.6	60.955	7.2	204	268	78	48	69	62	N W b N	N W b N	Cal.	0.0	3.4	0.0	1.03	3.48	...	...
4	29.868	29.899	29.899	68.6	43.0	62.7	61.622	13	142	353	321	50	68	64	N W b N	N W b N	Cal.	6.2	7.3	6.2	7.73	10.17	...	...
5	29.908	29.939	29.939	68.7	43.6	63.0	62.555	14	229	321	48	50	62	64	N W b N	N W b N	Cal.	6.2	6.0	6.2	4.64	4.82	...	...
6	29.948	29.979	29.979	68.8	44.2	63.6	63.488	15	211	204	36	33	50	65	N W b N	N W b N	Cal.	6.4	15.0	1.2	8.08	8.48	...	...
7	29.988	30.019	30.019	68.9	44.8	64.2	64.421	16	204	190	211	75	63	64	N W b N	N W b N	Cal.	8.0	1.6	3.6	2.16	2.35	...	...
8	30.028	30.059	30.059	69.0	45.4	64.8	65.354	17	202	202	—	63	—	—	N W b N	N W b N	Cal.	0.3	5.6	2.9	0.71	2.42	...	...
9	30.068	30.109	30.109	69.1	46.0	65.4	66.287	18	240	262	86	47	69	65	N W b N	N W b N	Cal.	0.0	5.8	0.0	0.63	2.41	...	...
10	30.108	30.149	30.149	69.2	46.6	66.0	67.220	19	238	292	82	52	91	90	N W b N	N W b N	Cal.	0.0	2.8	0.0	1.31	1.92	...	...
11	30.148	30.189	30.189	69.3	47.2	66.6	68.153	20	293	282	98	65	88	83	N W b N	N W b N	Cal.	0.0	10.0	2.2	3.10	4.52	...	...
12	30.188	30.229	30.229	69.4	47.8	67.2	69.286	21	293	260	85	68	80	79	N W b N	N W b N	Cal.	2.8	9.0	8.2	2.61	4.63	...	...
13	30.228	30.269	30.269	69.5	48.4	67.8	70.419	22	246	143	202	199	68	44	40	N W b N	N W b N	Cal.	11.2	18.0	11.5	12.70	12.89	...	...
14	30.268	30.309	30.309	69.6	49.0	68.4	71.552	23	216	367	258	292	57	44	49	N W b N	N W b N	Cal.	6.8	7.0	4.6	5.69	6.45	...	...
15	30.308	30.349	30.349	69.7	49.6	69.0	72.685	24	216	405	—	43	—	—	N W b N	N W b N	Cal.	2.8	10.5	1.5	5.09	5.45	...	...
16	30.348	30.389	30.389	69.8	50.2	69.6	73.818	25	216	362	390	78	54	86	72	N W b N	N W b N	Cal.	1.0	3.6	9.4	2.81	5.37	...	...
17	30.388	30.429	30.429	69.9	50.8	70.2	74.951	26	216	318	210	272	88	63	61	64	N W b N	N W b N	Cal.	0.0	4.4	3.4	2.89	3.24	...	...
18	30.428	30.469	30.469	70.0	51.4	70.8	76.084	27	216	270	413	379	71	67	93	77	N W b N	N W b N	Cal.	0.0	3.2	0.0	4.22	4.38	...	...
19	30.468	30.509	30.509	70.1	52.0	71.4	77.217	28	197	379	319	88	53	63	63	63	N W b N	N W b N	Cal.	0.6	7.4	2.0	1.21	4.26	...	...
20	30.508	30.549	30.549	70.2	52.6	72.0	78.350	29	222	269	272	293	64	32	55	51	N W b N	N W b N	Cal.	3.2	7.2	3.4	2.94	3.65	...	...
21	30.548	30.589	30.589	70.3	53.2	72.6	79.483	30	269	263	291	64	69	78	64	64	N W b N	N W b N	Cal.	7.2	2.5	0.8	2.04	3.04	...	...
22	30.588	30.629	30.629	70.4	53.8	73.2	80.616	31	278	—	—	74	—	—	—	—	N W b N	N W b N	Cal.	0.0	8.4	3.6	3.77	4.67	...	...
23	30.628	30.669	30.669	70.5	54.4	73.8	81.749	32	283	316	311	91	76	94	87	78	N W b N	N W b N	Cal.	4.0	10.6	6.0	3.99	4.46	...	...
24	30.668	30.709	30.709	70.6	55.0	74.4	82.882	33	303	359	356	369	97	83	78	68	N W b N	N W b N	Cal.	13.6	11.8	4.8	11.41	11.67	...	...
25	30.708	30.749	30.749	70.7	55.6	75.0	84.015	34	303	311	350	369	97	83	78	68	N W b N	N W b N	Cal.	5.0	8.31	10.10	5.0	8.31	...	...
26	30.748	30.789	30.789	70.8	56.2	75.6	85.148	35	287	296	315	267	73	64	72	68	N W b N	N W b N	Cal.	8.2	9.6	8.2	5.66	7.72	...	...
27	30.788	30.829	30.829	70.9	56.8	76.2	86.281	36	236	230	227	59	60	62	62	62	N W b N	N W b N	Cal.	11.0	9.0	5.8	7.16	8.80	...	...
28	30.828	30.869	30.869	71.0	57.4	76.8	87.414	37	236	214	248	55	50	52	52	52	N W b N	N W b N	Cal.	6.4	4.4	4.8	1.23	5.60	...	...
29	30.868	30.909	30.909	71.1	58.0	77.4	88.547	38	219	308	254	259	62	63	51	51	N W b N	N W b N	Cal.	4.1	6.5	8.1	2.02	3.86	...	...
30	30.908	30.949	30.949	71.2	58.6	78.0	89.680	39	207	318	292	291	39	34	43	40	N W b N	N W b N	Cal.	5.2	4.9	10.8	2.02	3.86	...	...
31	30.948	30.989	30.989	71.3	59.2	78.6	90.813	40	312	351	434	344	61	62	80	63	N W b N	N W b N	Cal.	0.0	7.0	0.0	2.68	2.71	...	...
32	30.988	31.029	31.029	71.4	59.8	79.2	91.946	41	276	394	283	292	71	63	68	63	N W b N	N W b N	Cal.	4.2	18.2	3.49	5.48	1.150	...	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MAY, 1870.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer 29.918 at 8 a.m. on 22nd } Monthly range= 29.116 at 6 a.m. on 7th }
 Lowest Barometer 29.116 at 6 a.m. on 7th } 0.802 inches.
 5. } Maximum Temperature 81°2 on 14th } Monthly range= 81°2 }
 6. } Mean Maximum Temperature 38°8 on 3rd } 42°4 }
 7. } Mean Minimum Temperature 60°348 }
 8. } Mean Minimum Temperature 47°37 }
 9. } Greatest daily range 30°8 from a.m. to p.m. of 13th.
 10. } Least daily range 7°5 from a.m. to p.m. of 26th.
 Warmest Day 30th. } Mean Temperature 68°53 } Difference=21°45
 Coldest Day 10th. } Mean Temperature 47°03 }
 Maximum { Solar 96°5 on 30th }
 Radiation. { Terrestrial 28°0 on 1st }
 Aurora observed on 7 nights viz., 1st, 2nd, 17th, 19th, 20th 27th and 28th.
 Possible to see Aurora on 19 nights; impossible on 12 nights.
 Raining on 10 days; depth 1.150 inches; duration of fall 26.4 hours.
 Mean of Cloudiness=0.61.

WIND.

Resultant Direction N. 23° E.; Resultant Velocity 1.09.
 Mean Velocity 6.48 miles per hour.
 Maximum Velocity 21.8 miles, from 2 to 3 p.m. of 24th.
 Most Windy day 24th; Mean Velocity 11.67 miles per hour.
 Least Windy day 10th; Mean Velocity 1.92 miles per hour.
 Most Windy hour 1 p.m.; Mean Velocity 8.52 miles per hour.
 Least Windy hour 7 p.m.; Mean Velocity 3.12 miles per hour.

Thunder on 11th and 30th.
 Solar haloes on 16th, 26th and 27th. Lunar haloes on 7th, 8th and 9th.
 The solar haloes on the 28th and 27th were very fine.
 Last frost of season on 13th. Thin ice at 5 a.m. of same day.

COMPARATIVE TABLE FOR MAY.

YEAR.	TEMPERATURE.			RAIN.			SNOW.			WIND.	
	Mean	Maxt. min.	Range.	No. of days.	Inches.	No. of days.	No. of days.	Inches.	Direction.	Velocity	Mean Velocity
1842	49.1	74.8	27.3	7	1.276	0	0	0	0	...	0.53 Ms
1843	49.1	79.8	30.0	6	1.576	0	0	0	...	...	0.52
1844	53.6	78.4	28.7	14	5.576	0	0	0	...	...	0.55
1845	49.6	77.8	27.8	8	2.300	0	0	0	...	...	0.50
1846	55.6	79.7	33.1	9	4.376	0	0	0	...	...	0.46
1847	54.4	72.1	26.7	45.4	12.204	0	0	0	...	...	0.29
1848	51.1	77.8	31.3	46.7	13.520	0	0	0	N 40 W	1.31	4.56ms
1849	48.0	72.2	21.9	44.3	16.3115	0	0	0	N 51 E	1.97	5.33
1850	47.6	77.8	27.5	60.3	17.0445	1	Inap.	0	N 64 W	2.05	6.32
1851	51.4	73.3	28.0	45.3	12.2950	1	0.6	0.6	N 32 W	1.59	6.34
1852	51.4	73.3	32.2	41.3	7.125	1	Inap.	0	S 52 W	0.99	4.00
1853	60.0	78.4	32.2	49.7	17.425	1	Inap.	0	N 2	0.83	5.16
1854	62.2	71.4	25.2	46.2	11.450	0	0	0	E	0.40	5.38
1855	63.1	77.6	33.0	44.5	6.2655	2	0.0	0.0	N 1 W	2.76	5.93
1856	60.5	72.9	31.2	51.0	14.580	1	Inap.	0	N 4 E	3.99	9.81
1857	48.9	74.8	26.0	48.8	15.415	1	Inap.	0	N 23 W	1.14	5.13
1858	48.9	69.8	31.0	38.8	17.6367	0	0	0	N 42 E	3.33	9.30
1859	55.2	74.5	39.5	40.1	11.3410	0	0	0	N 72 E	1.69	5.70
1860	56.5	74.5	42.0	42.0	11.816	0	0	0	N 26 E	2.03	7.17
1861	47.5	73.0	28.0	45.0	12.3350	0	0	0	N 47 W	3.60	9.17
1862	52.2	78.5	32.5	46.1	8.1427	0	0	0	N 53 W	2.00	7.87
1863	54.3	79.0	35.4	42.6	14.3553	1	0.1	0.1	N 56 E	0.41	5.89
1864	54.5	79.0	32.2	46.8	14.070	0	0	0	N 7 W	1.86	5.64
1865	52.3	79.0	30.0	49.0	11.4005	0	0	0	N 3 W	1.63	6.48
1866	48.3	74.4	33.4	40.0	13.2850	0	0	0	N 46 W	4.49	9.26
1867	46.5	74.4	33.5	40.4	18.3220	1	Inap.	0	N 51 W	3.55	8.40
1868	51.8	74.4	32.6	38.8	16.670	0	0	0	N 38 E	3.16	6.87
1869	50.8	74.2	31.4	42.4	16.2505	1	Inap.	0	N 20 W	2.35	6.55
1870	56.3	81.2	38.8	42.4	10.1150	0	0	0	N 23 E	1.09	5.48
Results to 1869	51.89	76.70	30.42	45.28	12.10	3.355	0.4	0.07	N 12 W	1.70	6.76
Excess for 70	4.91	6.60	8.86	2.88	2.1	2.200	0.4	0.07	...	...	1.28

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JUNE, 1870.
COMPARATIVE TABLE FOR JUNE.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from the observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and results for the wind are from hourly observations.

Highest Barometer..... 29.878 at 8 a.m. on 22nd. } Monthly range= 0.694
 Lowest Barometer..... 29.184 at 4 p.m. on 30th. }
 { Maximum temperature 88.4 on 18th. } Monthly range= 3.894
 { Minimum temperature 69.0 on 2nd. }
 { Mean maximum temperature..... 76.39 } Mean daily range= 19.61
 { Mean minimum temperature..... 57.33 }
 { Greatest daily range..... 31.69 from a.m. to p.m. of 17th. }
 { Least daily range..... 6.98 from a.m. to p.m. of 10th. }
 Warmest day..... 28th; mean temperature 77.070 } Difference= 20.27
 Coldest day..... 10th; mean temperature 51.433 }
 Radiation { Solar..... 104.00 on 26th. } Monthly range= 63.00
 { Terrestrial..... 41.90 on 21st. }
 Aurora observed on 7 nights, viz.: 3rd, 16th, 18th, 19th, 20th, 24th & 27th.
 Possible to see aurora on 21 nights; impossible on 9 nights.
 Raining on 16 days; depth, 8.090 inches; duration of fall, 60.7 hours.
 Mean of cloudiness= 0.51.

WIND.

Resultant direction, N. 17° E.; Recurrent velocity, 0.40.
 Mean velocity, 5.14 miles per hour.
 Maximum velocity, 25.0 miles, from 3 to 4 a.m. of 20th.
 Most windy day, 20th; mean velocity, 11.62 miles per hour.
 Least windy day, 2nd; mean velocity, 0.00 miles per hour.
 Most windy hour, 1 p.m.; mean velocity, 8.41 miles per hour.
 Least windy hour, 4 a.m.; mean velocity, 3.01 miles per hour.

Thunder storms on 4th, 6th, 8th, 10th, 13th, 19th, 20th, 23th, 26th, 27th, 28th & 30th.
 Fog on 6th, 24th & 25th.
 Dew recorded on 13 mornings.

It will be seen from the comparative table that June 1870 stands unequalled with regard to heat and moisture: the temperature being 6.9° above the average, and the amount of rain is nearly twice the usual quantity.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.		
	Mean.	Excess above Average.	Max. num.	Min. num.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant Direction.	Mean Velocity.
1842	55.0	- 6.8	80.2	28.1	6.1	15	6.765	...	...	...	0.31 lbs
1843	58.4	- 3.0	83.3	23.2	55.1	12	4.693	...	...	...	0.27
1844	69.9	- 1.5	83.3	33.2	50.1	9	3.553	...	...	...	0.27
1845	61.0	- 0.4	84.0	35.5	40.1	11	3.716	...	...	...	0.30
1846	63.3	+ 1.9	84.2	30.1	45.1	10	1.920	...	...	...	0.32
1847	58.4	+ 3.0	77.8	37.7	41.1	14	2.623	...	...	...	0.30
1848	62.9	+ 1.6	92.0	37.4	54.0	7	1.810	...	...	N 61 W	1.90
1849	63.2	+ 1.8	84.4	35.2	49.2	8	2.026	...	...	N 71 E	0.49
1850	64.5	+ 2.9	85.6	34.0	51.4	10	3.341	...	...	S 69 W	0.38
1851	69.2	+ 2.2	87.2	31.0	42.2	11	2.668	...	...	S 2 W	1.26
1852	60.8	- 0.6	86.1	31.2	48.9	10	3.166	...	...	S 70 W	1.49
1853	65.6	+ 4.1	89.5	39.2	60.3	9	1.650	...	...	N 1 W	0.10
1854	64.1	+ 2.7	92.5	35.2	51.3	9	1.460	...	...	N 24 W	0.71
1855	69.9	+ 1.6	91.5	36.2	55.3	17	4.076	...	...	N 69 W	1.33
1856	62.1	+ 0.7	89.2	42.0	47.2	13	3.206	...	...	S 21 W	0.90
1857	66.9	- 4.6	70.0	35.0	41.0	21	5.056	...	...	N 49 W	1.16
1858	66.2	+ 4.8	90.2	42.6	47.7	12	2.943	...	...	S 20 W	0.25
1859	68.3	+ 3.1	86.4	37.2	54.2	16	4.083	...	...	N 77 E	1.95
1860	63.2	+ 1.8	81.8	49.2	32.4	14	2.120	...	...	N 44 W	3.13
1861	61.3	- 0.1	87.8	41.6	46.2	13	2.329	...	...	N 59 W	2.29
1862	60.6	- 0.9	85.4	39.4	46.0	10	1.007	...	...	N 26 W	1.77
1863	60.1	- 1.3	84.8	37.4	47.4	13	1.682	...	...	N 65 W	2.26
1864	63.0	+ 1.6	83.4	34.8	58.6	6	0.570	...	...	N 30 W	1.72
1865	64.6	+ 3.1	90.2	43.0	47.2	7	2.068	...	...	S 30 W	0.60
1866	60.2	- 1.2	90.6	40.0	50.6	16	2.724	...	...	S 16 W	0.71
1867	64.3	+ 2.9	88.5	44.0	44.8	8	0.881	...	...	S 84 E	0.48
1868	62.0	+ 0.6	84.2	38.0	46.2	11	2.215	...	...	N 16 W	0.85
1869	68.4	- 3.0	81.4	36.4	45.0	22	4.373	...	...	N 80 W	1.77
1870	67.3	+ 6.9	88.4	60.0	38.4	10	8.090	...	...	N 17 E	0.40
Results for 1869	61.43	.....	85.85	37.63	48.32	11.78	2.796	...	...	N 63 W	0.82
Excess for 1870	6.80	+ 2.65	12.47	- 9.92	+ 4.27	5.294	.....	.....	.....	.....	0.01

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JULY, 1870.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that refer to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and results for the wind are from hourly observations.

Highest Barometer.....29.773 at 8 a.m. on 31st. } Monthly range=
 Lowest Barometer.....29.186 at 2 p.m. on 7th. } 0.586.
 { Maximum Temperature.....87.4 on 23rd. } Monthly range=
 { Minimum Temperature.....48.0 on 16th. } 39.4.
 { Mean Maximum Temperature.....71.57. } Mean daily range=
 { Mean Minimum Temperature.....60.98. } 17.50.
 { Greatest daily range.....24.00 from a.m. to p.m. of 6th.
 { Least daily range.....4.8 from a.m. to p.m. of 11th.
 Warmest day.....23rd. Mean Temperature.....76.95. } Difference=14.90.
 Coldest day.....16th. Mean Temperature.....60.76. }
 Maximum { Solar.....101.26 on 23rd. } Monthly range=
 Radiation. { Terrestrial.....37.4 on 16th. } 64.01.
 Aurora's observed on 4 nights, viz.: 5th, 18th, 27th and 30th.
 Possible to see Aurors on 20 nights; impossible on 11 nights.
 Raining on 16 days; depth 1.830 inches; duration of fall 38.8 hours.
 Mean of Cloudiness=0.63.

WIND.

Resultant Direction E. 78° W.; Resultant Velocity 1.69.
 Mean Velocity 4.83 miles per hour.
 Maximum Velocity 30.0 miles, from 9 to 10 a.m. of 20th.
 Most Windy day 20th; Mean Velocity 10.43 miles per hour.
 Least Windy day 27th; Mean Velocity 1.60 miles per hour.
 Most Windy hour 8 p.m.; Mean Velocity 7.68 miles per hour.
 Least Windy hour 6 a.m.; Mean Velocity 2.20 miles per hour.

Fog recorded on 4 occasions, 16th, 25th, 27th and 28th.
 Dew on 10 mornings.
 Thunder and lightning on 11 days.

The storm on the 20th was long protracted, and was accompanied by a violent gust of wind for about 1 hour. This storm was very generally felt throughout Canada.

COMPARATIVE TABLE FOR JULY.

YEAR.	TEMPERATURE.			RAIN.		SNOW.		WIND.		
	Excess above average.	Max. num.	Min. num.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant Direction.	Mean Velocity.
1842	64.7	81.0	42.6	38.6	4	3.050	...	...	0	0.33 lbs
1843	64.6	80.8	38.7	41.1	8	4.608	...	...	...	0.44
1844	66.0	83.0	40.1	42.9	12	2.816	...	...	...	0.19
1845	66.2	85.0	46.7	40.3	7	2.198	...	...	...	0.29
1846	68.0	87.0	44.0	43.0	9	2.895	...	...	...	0.20
1847	68.0	87.0	43.2	43.8	8	3.355	...	...	...	0.19
1848	65.6	82.2	41.1	38.1	10	1.896	...	...	N 14 W	0.18
1849	69.4	88.0	45.2	43.4	4	3.416	...	...	S 6 W	0.16
1850	68.0	86.2	41.0	34.0	12	2.270	...	...	N 81 E	0.59
1851	68.0	82.1	46.6	36.2	12	3.024	...	...	N 60 W	0.88
1852	66.8	80.1	48.0	41.0	8	4.025	...	...	N 43 W	0.93
1853	65.6	81.3	41.0	40.7	10	0.016	...	...	S 68 E	0.24
1854	72.6	98.0	42.6	55.6	0	4.805	...	...	S 49 W	0.87
1855	67.0	82.8	40.2	43.0	13	3.245	...	...	S 19 W	0.73
1856	69.0	86.0	49.6	47.1	8	1.120	...	...	N 79 W	1.51
1857	67.8	85.0	47.0	39.0	15	3.476	...	...	S 08 E	0.81
1858	67.8	85.0	62.0	33.0	13	3.072	...	...	N 15 E	1.13
1859	60.0	88.0	44.7	43.8	12	2.011	...	...	N 60 W	1.48
1860	63.0	84.0	43.8	44.2	13	4.336	...	...	S 60 W	2.16
1861	65.1	84.6	47.0	37.6	16	2.638	...	...	N 74 W	1.43
1862	66.7	85.0	48.2	47.8	16	6.344	...	...	S 89 W	1.82
1863	67.6	83.5	48.0	36.6	16	3.406	...	...	N 16 W	0.40
1864	68.7	90.2	49.0	41.2	8	1.332	...	...	N 61 W	2.23
1865	65.0	83.0	45.6	37.2	11	2.470	...	...	N 60 W	2.28
1866	70.4	94.0	47.8	40.2	16	6.300	...	...	S 79 W	0.91
1867	68.2	91.0	48.2	46.6	12	1.966	...	...	N 48 W	1.40
1868	75.6	86.4	59.0	34.4	6	0.510	...	...	S 87 E	0.72
1869	64.6	81.9	40.8	35.1	13	4.610	...	...	S 67 W	2.01
1870	68.8	87.4	48.0	39.4	10	1.896	...	...	S 78 W	1.59
Range to 1870.	67.0	90.29	46.6	42.73	10.47	3.393	.....	.....	N 73 W	0.71
Excess for 70	1.51	1.69	1.44	3.33	6.63	1.497	.....	.....	...	0.14

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —AUGUST, 1870.

Latitude—43° 39' 4" North, Longitude—8h. 17m. 33s. West. Elevation above Lake Ontario, 108 Feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Tension of Vapour.			Humidity of Air.			Direction of Wind.			Velocity of Wind.			Rain Inches.	Snow Inches.
	6 A.M.	10 P.M.	Mean.	6 A.M.	10 P.M.	Mean.	6 A.M.	10 P.M.	Mean.	6 A.M.	10 P.M.	Mean.	6 A.M.	10 P.M.	Mean.	6 A.M.	10 P.M.	Mean.		
1	29.588	29.623	29.538	67.0	67.0	67.0	2.93	5.13	4.68	631	89	72	8 W	N W	N W	3.0	6.8	7.0	3.16	0.22
2	571	560	541	63.0	61.0	62.0	0.57	4.37	4.67	476	76	71	N W	N W	N W	5.0	3.4	4.2	2.25	3.78
3	623	601	588	62.3	60.3	61.3	1.42	4.22	4.62	445	78	63	W	N W	N W	6.0	8.0	6.0	3.70	6.49
4	503	487	445	67.0	65.0	66.0	0.98	3.62	4.35	442	73	76	N W	N W	N W	5.2	7.2	6.4	4.63	7.02
5	431	363	443	63.4	63.4	63.4	0.96	4.01	4.70	557	84	80	W	N W	N W	4.5	10.8	4.0	5.52	4.46
6	428	410	503	64.1	63.4	63.7	4.02	5.65	5.46	682	94	64	E	N W	N W	1.0	10.0	4.1	3.44	4.85
7	593	593	593	77.8	77.8	77.8	—	—	—	—	30	—	N	N	N	2.0	4.2	4.1	4.32	4.73
8	603	618	684	81.1	71.7	73.0	6.53	6.46	7.08	741	93	80	N	N	N	2.4	13.0	0.0	3.24	4.08
9	626	606	639	69.9	78.5	69.0	6.72	6.82	6.50	632	92	84	N	N	N	2.0	9.4	5.5	1.84	2.86
10	701	700	691	69.8	61.5	68.2	4.77	5.32	6.59	601	668	82	W	N	N	1.2	6.2	4.0	1.01	3.38
11	785	702	697	69.4	69.4	69.4	4.62	6.00	4.51	466	86	49	N	N	N	3.0	6.0	1.0	3.08	4.09
12	650	645	741	67.4	61.4	64.4	1.48	6.47	6.16	291	82	61	W	N	N	3.2	17.2	0.0	1.46	7.81
13	763	716	645	69.7	68.0	68.8	0.38	4.39	4.32	405	88	70	N	N	N	12.0	11.6	7.0	0.83	10.44
14	704	676	608	69.0	69.0	69.0	1.30	3.51	5.27	410	433	67	N	N	N	1.6	7.0	4.0	1.53	4.80
15	688	473	413	66.0	65.0	65.5	0.21	3.16	4.65	430	424	79	N	N	N	5.0	6.4	2.4	3.08	4.46
16	376	275	312	63.7	71.0	67.4	4.40	4.62	6.22	485	481	70	W	N	N	3.0	18.8	9.0	10.31	10.33
17	473	616	634	65.0	65.0	65.0	4.76	4.97	6.80	557	672	60	W	N	N	2.0	7.5	1.0	2.78	3.62
18	635	476	487	64.8	71.3	68.0	0.76	6.69	6.18	710	638	64	W	N	N	2.2	13.0	9.4	6.78	10.77
19	718	705	830	64.7	69.0	68.0	4.65	3.37	3.14	292	73	93	N	N	N	4.4	4.0	0.3	4.73	6.23
20	835	835	835	69.5	69.5	69.5	—	—	—	—	61	—	N	N	N	2.5	6.0	3.5	2.72	4.07
21	924	807	801	62.0	62.0	62.0	3.38	3.53	4.16	303	381	59	N	N	N	3.0	6.0	14.4	6.48	7.25
22	807	642	610	60.1	63.4	61.8	2.16	3.76	4.16	621	463	72	W	N	N	4.8	11.0	2.2	7.33	3.41
23	770	641	611	64.1	66.0	65.0	3.10	6.18	6.27	681	612	93	W	N	N	4.3	8.8	4.3	4.01	4.79
24	801	646	651	67.0	73.0	70.0	6.28	6.53	6.12	666	659	83	W	N	N	2.6	7.0	17.0	10.64	13.49
25	826	922	845	49.0	64.1	60.8	0.30	2.10	2.11	201	227	76	N	N	N	4.8	11.0	2.2	7.33	3.41
26	968	781	785	68.2	68.2	68.2	—	—	—	—	83	—	N	N	N	4.8	11.0	2.2	7.33	3.41
27	968	906	945	48.2	64.1	63.6	0.30	2.10	2.11	201	227	76	N	N	N	4.8	11.0	2.2	7.33	3.41
28	401	220	407	63.4	68.8	61.0	3.96	6.74	7.00	425	670	98	W	N	N	4.0	10.0	2.0	6.35	6.65
29	635	635	635	63.0	63.0	63.0	0.10	3.51	3.18	402	380	85	W	N	N	3.5	9.5	6.0	3.36	6.74
30	621	621	621	65.2	65.2	65.2	—	—	—	—	84	—	N	N	N	3.5	9.5	6.0	3.36	6.74
31	596	596	596	64.1	64.1	64.1	1.14	4.64	5.33	465	458	84	W	N	N	3.49	8.65	4.53	5.92	3.42

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR AUGUST, 1870.

Note.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 9 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

COMPARATIVE TABLE FOR AUGUST.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.		
	Meas.	Excess above Average	Maxi. num.	Mini. num.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant Direction.	Mean Velocity.
1842	68.7	-0.3	81.8	43.0	38.9	6	2.506	...	...	0	0.30 lbs.
1843	68.4	+0.4	83.1	34.0	39.1	4	4.850	...	...	...	0.12
1844	67.3	+1.7	80.8	43.5	43.3	17	Imp.	...	...	...	0.16
1845	67.9	+1.1	84.8	41.5	43.3	9	1.725	...	...	...	0.19
1846	68.4	+2.4	86.4	49.5	36.9	10	1.770	...	...	...	0.17
1847	65.1	+0.2	82.0	44.0	38.0	9	2.140	...	...	...	0.19
1848	69.2	+3.2	87.0	48.7	38.3	8	0.855	...	...	S 21 W	0.98
1849	66.3	+0.3	79.0	49.0	39.0	10	3.970	...	...	N 71 W	0.68
1850	66.8	+0.8	85.0	41.0	44.0	13	4.355	...	...	N 15 E	0.58
1851	63.6	-2.4	79.8	42.0	37.8	10	1.360	...	...	N 63 W	0.49
1852	65.9	+0.1	81.2	45.8	35.4	9	2.695	...	...	N 70 W	0.56
1853	68.0	+2.0	94.9	42.5	52.4	11	2.575	...	...	S 35 E	1.30
1854	68.0	+2.0	90.2	45.0	53.6	5	0.452	...	...	N 64 W	1.76
1855	64.1	-1.1	83.5	40.0	43.5	7	1.465	...	...	N 63 W	1.04
1856	63.6	-2.1	82.7	41.5	41.2	12	1.680	...	...	N 60 W	2.88
1857	65.3	-0.7	82.2	40.0	42.2	13	5.285	...	...	N 77 W	1.61
1858	67.6	+1.0	84.0	44.0	40.0	11	3.890	...	...	N 69 W	1.61
1859	66.0	+0.5	82.2	45.8	36.4	11	3.900	...	...	N 33 W	1.62
1860	64.5	-1.5	87.0	49.8	40.2	14	3.405	...	...	N 70 W	1.83
1861	65.5	-0.5	85.2	47.0	38.2	12	2.952	...	...	N 8 E	1.41
1862	67.6	+1.6	89.5	42.8	46.7	15	3.482	...	...	N 78 W	1.67
1863	63.6	+2.0	94.0	47.0	45.5	12	2.208	...	...	N 41 W	1.84
1864	68.0	+2.0	81.3	44.4	43.4	16	5.060	...	...	N 70 W	1.88
1865	68.2	-0.2	87.3	42.4	31.6	14	1.990	...	...	N 60 W	1.65
1866	69.8	+1.2	95.2	42.2	53.0	10	4.467	...	...	N 69 W	2.56
1867	68.1	+2.1	84.4	46.8	37.0	13	2.440	...	...	N 70 W	1.25
1868	67.2	+1.2	80.0	43.5	45.5	11	1.662	...	...	S 68 W	1.01
1869	63.6	+1.1	84.0	40.0	41.0	14	4.272	...	...	S 42 W	1.95
1870	67.1	.....	86.05	44.44	41.61	10.80	3.016	...	...	N 66 W	1.07
Resultant Direction.	60.0	.....	86.05	44.44	41.61	10.80	3.016	...	...	.....	6.18
Ex. for 1870.	.....	.....	2.05	4.44	2.39	3.200	4.07	.....	.....	.....	0.74

Highest Barometer.....20.977 at 8 a.m. on 27th. } Monthly range=
 Lowest Barometer.....29.224 at 4 p.m. on 29th. } 0.763 inches.
 Maximum temperature.....84.00 on 1st. } Monthly range=
 Minimum temperature.....40.90 on 27th. } 44.0
 Mean maximum temperature.....76.80 } Mean daily range=
 Mean minimum temperature.....57.02 } 19.74
 Greatest daily range.....39.8 from a.m. to p.m. of 27th.
 Least daily range.....8.4 from a.m. to p.m. of 23rd.
 Warmest day..... 8th; mean temperature.....73.907 } Difference=18.07.
 Coldest day..... 27th; mean temperature.....54.980 } 69.8.
 Maximum Solar.....10.090 on 12th. } Monthly range=
 Radiation { Terrestrial..... 30.52 on 27th. }
 Aurora observed on 12 nights, viz.—18th, 19th, 20th, 22nd, 24th, 25th, 26th, 27th, 28th,
 29th, 30th, and 31st.
 Possible to see Aurora on 26 nights; impossible on 5 nights.
 Raining on 14 days; depth, 3.422 inches; duration of fall, 36.0 hours.
 Mean of cloudiness=0.48.

WIND.

Resultant: direction, N. 76° W.; resultant velocity, 1.80.
 Mean velocity, 6.92 miles per hour.
 Maximum velocity, 26.1 miles, from 11 p.m. to midnight of 19th.
 Most windy day, 25th; mean velocity, 13.49 miles per hour.
 Least windy day, 28th; mean velocity, 1.33 miles per hour.
 Most windy hour, 2 p.m.; mean velocity, 9.64 miles per hour.
 Least windy hour, 5 a.m.; mean velocity, 3.35 miles per hour.

Solar haloes on 2nd and 24th. Lunar haloes on 6th and 8th.
 Fog on 6 occasions. Dew on 6 mornings.
 Hoar frost at 5 a.m. of 27th.
 Thunder storms on 5th, 8th, 24th, 28th and 29th. Lightning on 1st, 3rd, 4th,
 20th, 25th and 30th.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—SEPTEMBER, 1870.
 Latitude—43° 39' 34" North. Longitude—81° 17m 33s West. Elevation above Lake Ontario, 108 Feet.

Day	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal				Fusion of Vapour.				Humidity of Air.				Direction of Wind.				Resultant		Velocity of Wind.				Rain in Inches.	Snow in Inches.		
	9 A.M.		10 P.M.		9 A.M.		10 P.M.		9 A.M.		10 P.M.		9 A.M.		10 P.M.		9 A.M.		10 P.M.		9 A.M.		10 P.M.		9 A.M.		10 P.M.		9 A.M.				10 P.M.	
	Barom.	Temp.	Barom.	Temp.	Excess	Fusion	Humidity	Dir.	Dir.	Vel.	Vel.	Dir.	Dir.	Vel.	Vel.	Dir.	Dir.	Vel.	Vel.	Dir.	Dir.	Vel.	Vel.	Dir.	Dir.	Vel.	Vel.	Dir.	Dir.	Vel.			Vel.	
1	29.579	61.9	29.587	62.0	+0.25	401.595	531.515	73	67	85	73	N	E	10.5	2.5	3.03	5.86	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	29.477	66.2	29.491	66.2	+0.88	323.033	464.644	84	72	84	79	N	W	2.0	0.4	3.43	6.67	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	29.610	65.3	29.630	65.9	+2.20	412.467	451.447	86	87	88	87	N	W	6.6	10.4	7.47	8.91	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	29.596	66.3	29.616	66.3	+0.47	407.407	447.407	86	86	86	86	N	W	19.8	8.0	8.80	8.93	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	29.581	62.6	29.601	62.6	+0.27	363.411	350.372	80	64	77	78	Calm.	Calm.	0.6	0.2	0.26	2.00	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	29.584	63.6	29.604	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
42	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
43	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82	70	82	75	N	E	8.8	4.4	5.83	6.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44	29.581	63.6	29.601	63.6	+0.06	340.476	441.322	82																										

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR SEPTEMBER, 1870.

Notes.—The monthly means do not include Sunday observations. The daily means, excepting those that fall to the wind, are derived from the observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....30.001 at 10 a.m. on 13th. } Monthly range= }
 Lowest Barometer.....29.413 at 4 p.m. on 3rd. } 0.588.
 { Maximum Temperature.....78° on 1st. } Monthly range= }
 { Minimum Temperature.....45° on 20th. } 32.2. }
 { Mean Maximum Temperature.....69° 17. } Mean daily range= }
 { Mean Minimum Temperature.....61° 27. } 14° 30. }
 { Mean daily range.....24° from a.m. to p.m. of 20th. }
 { Greatest daily range.....3° from a.m. to p.m. of 24th. }
 Warmest day.....1st... Mean Temperature.....68° 80. } Difference=12° 62.
 Coldest day.....19th... Mean Temperature.....66° 98. }
 Maximum { Solar.....94° 35 on 2nd. }
 Radiation. { Terrestrial.....37° 1 on 20th. }
 Aurora observed on 8 nights, viz.: 7th, 18th, 20th, 21st, 24th, 25th, 26th and 28th.
 Possible to see Aurora on 21 nights; impossible on 9 nights.
 Raining on 11 days; depth 6.794 inches; duration of fall 85.6 hours.
 Mean of Cloudiness=0.53.

WIND.

Resultant Direction N. 29° E.; Resultant Velocity 2.29.
 Mean Velocity 5.04 miles per hour.
 Maximum Velocity 18.5 miles, from 8 to 9 a.m. of 4th.
 Most Windy day 30th; Mean Velocity 11.33 miles per hour.
 Least Windy day 6th; Mean Velocity 1.09 miles per hour.
 Most Windy hour 1 p.m.; Mean Velocity 7.23 miles per hour.
 Least Windy hour 8 p.m.; Mean Velocity 3.90 miles per hour.

Lunar halo 5th. Lunar corona 7th.

Lightning alone on 1st, 2nd and 8th. Thunder storms 9th, 15th and 24th.

Very heavy rain storm, accompanied by thunder, 15th.

Fog on 10th, 22nd, 23rd, 26th and 29th.

Dew on 11 mornings during month.

COMPARATIVE TABLE FOR SEPTEMBER.

YEAR.	TEMPERATURE.			RAIN.		SNOW.		WIND.	
	Mean	Excess above average	Range	No. of days	Inches.	No. of days	Inches.	Resultant Direction.	Mean Velocity.
1842	65.7	-2.3	27.9	12	0.180	...	...	0	0.45 lbs
1843	69.1	+1.1	89.0	10	0.160	...	...	...	0.47
1844	68.6	+0.6	81.8	16	0.246	...	...	...	0.26
1845	69.6	+0.6	84.3	11	0.595	...	...	...	0.33
1846	65.6	-2.4	74.5	16	0.665	...	...	...	5.81 miles
1847	64.2	-3.8	80.4	11	1.116	...	...	N 71 W	2.38
1848	68.2	+0.2	80.1	9	1.480	...	...	N 76 W	0.69
1849	66.6	-1.5	76.0	11	1.735	...	...	S 05 W	1.02
1850	60.0	-2.0	80.3	9	2.665	...	...	N 14 E	1.03
1851	67.6	+0.5	81.8	10	3.630	...	...	N 77 W	0.63
1852	63.8	-0.8	85.6	12	3.140	...	...	...	4.33
1853	61.0	+3.1	93.6	14	6.376	...	...	N	1.04
1854	61.0	+1.6	82.6	13	5.685	...	...	N 22 W	1.33
1855	69.6	+0.9	83.0	12	4.105	...	...	N 20 E	1.29
1856	67.1	+0.9	78.4	13	4.105	...	...	S 79 W	1.98
1857	68.6	+0.6	82.0	11	2.610	...	...	N 68 W	1.01
1858	69.1	+1.1	81.4	8	0.735	...	...	S 74 W	1.63
1859	65.2	-2.7	75.8	15	3.625	...	...	N 41 W	1.60
1860	65.8	-2.1	75.8	14	1.958	...	...	N 71 W	2.63
1861	69.1	+1.1	78.8	17	3.667	...	...	N 10 W	1.39
1862	69.0	+1.0	79.4	9	2.344	...	...	N 60 W	1.01
1863	66.9	-2.1	80.0	8	1.235	...	...	N 46 W	0.92
1864	66.4	+1.6	73.0	11	2.608	...	...	N 38 W	1.89
1865	64.6	+0.5	90.5	12	2.460	...	...	S 66 E	0.47
1866	65.2	-2.8	80.0	15	5.057	...	...	N 33 W	1.45
1867	67.9	+0.1	87.0	9	1.232	...	...	N 37 W	1.48
1868	66.0	-1.7	75.5	16	4.239	...	...	N 74 W	0.86
1869	61.7	+2.4	81.0	8	4.927	...	...	N 63 W	1.18
1870	69.3	+3.8	78.0	11	0.769	...	...	N 29 E	2.26
Resultant to 1860	68.03	...	81.34	11.17	3.094	...	...	N 66 W	1.07
Excess for 70	3.75	...	3.34	0.17	3.100	...	...	...	0.41

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —OCTOBER, 1870.
 Latitude—43° 39'4 North. Longitude—84° 17m. 33s. West. Elevation above Lake Ontario, 103 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Excess of Mean above Normal.			Tension of Vapour.			Humidity of Air.			Direction of Wind.			Insolent.	Velocity of Wind.					Rain in Inches.	Snow in Inches.
	6 A.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	0 P.M.	0 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	0 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.		2 P.M.	10 P.M.	10 P.M.	Mean.			
	29.633	29.613	29.6210	58.0	62.0	58.7	60.46	0.47	427	461	410	450	80	72	85	N W	N W	N E		8.0	2.6	1.0	2.84	3.68		
1	29.633	29.613	29.6210	58.0	62.0	58.7	60.46	0.47	427	461	410	450	80	72	85	N W	N W	N E	8.0	2.6	1.0	2.84	3.68	...	...
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

29.6924 29.6002 29.6368 29.6123 60.155 23.48 37.40 9.95 + 3.67 273.320 253.256 36 70 80 79
 6.51 8.49 5.21 7.11 2.690

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR OCTOBER, 1870. COMPARATIVE TABLE FOR OCTOBER.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.		
	Mean.	Excess above Average	Maxi. mum.	Mini. mum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant Direc- tion. city	Mean Velocity.
1842	45.1	-0.5	68.0	27.5	41.1	8	6.176	0	6.176	0	0.35 lbs.
1843	41.8	-3.8	68.0	24.2	43.8	12	3.790	4	2.5	...	0.64
1844	43.3	-2.3	71.6	16.9	55.7	7	Impr.	4	12.0	...	0.43
1845	46.4	+ 0.8	70.1	19.7	49.3	11	1.760	1	Insap.	...	0.25
1846	44.0	+ 1.0	64.0	20.7	44.3	14	4.180	2	Insap.	...	0.44
1847	46.3	+ 1.6	64.6	20.4	44.2	13	4.390	2	Insap.	...	0.19
1848	48.3	+ 0.7	61.8	24.5	37.3	11	1.585	0	Insap.	N 54 W	4.69 mls.
1849	45.3	- 0.2	68.9	24.2	31.7	13	5.985	1	Insap.	N 12 W	1.27
1850	45.4	+ 1.8	66.2	25.2	41.0	10	1.686	0	0.3	N 65 W	1.10
1851	47.4	+ 2.4	70.7	23.8	46.9	12	6.280	0	0.3	N 5 E	1.19
1852	48.0	+ 2.2	64.7	23.4	41.3	10	0.875	0	Insap.	N 88 W	1.74
1853	44.4	+ 1.2	64.7	23.4	41.3	10	1.495	3	Insap.	N 45 W	1.62
1854	49.5	+ 3.9	75.4	26.4	49.0	15	2.485	5	0.8	N 82 W	4.91
1855	45.4	- 0.2	68.0	22.6	45.4	14	2.485	5	0.1	N 76 W	2.15
1856	45.3	- 0.2	64.0	26.5	37.5	10	0.876	2	0.2	N 19 W	2.63
1857	48.8	+ 3.2	76.3	31.5	44.8	17	1.797	1	Insap.	N 84 W	0.36
1858	43.0	+ 1.7	69.8	22.3	47.5	11	0.946	4	Insap.	N 68 W	5.04
1859	47.3	+ 3.1	68.0	28.4	39.5	15	1.618	1	Insap.	N 9 W	2.00
1860	48.7	+ 3.1	71.0	29.0	42.0	15	1.993	1	Insap.	N 61 W	1.06
1861	48.7	+ 3.1	76.0	28.2	50.4	19	2.684	2	0.5	N 78 W	2.89
1862	45.9	+ 0.3	66.4	30.5	35.9	10	2.622	0	Insap.	N 71 W	0.48
1863	45.2	+ 0.4	67.0	28.0	39.0	22	3.321	1	Insap.	N 60 W	3.17
1864	46.6	+ 1.1	71.4	21.6	49.8	17	2.705	3	4.6	N 30 W	3.65
1865	49.1	+ 3.5	71.0	31.8	39.2	11	2.470	1	Insap.	N 36 W	0.84
1866	49.0	+ 4.3	75.4	31.0	44.4	11	1.970	0	Insap.	N 45 W	1.51
1867	42.4	- 3.2	67.6	24.0	43.0	11	3.365	2	2.0	N 89 W	1.27
1868	42.3	- 3.5	69.8	18.7	51.1	8	0.962	7	2.3	N 73 W	3.72
1869	50.0	+ 4.4	68.5	30.2	38.3	10	2.690	0	...	N 85 W	1.36
1870	50.0	+ 4.4	68.5	30.2	38.3	10	2.690	0	...	N 85 W	1.36
Results	45.65	.....	68.75	24.76	43.99	12.37	2.420	1.93	0.93	N 59 W	1.31
Excess	+ 4.31	.....	- 0.25	+ 5.44	- 5.69	+ 3.63	- 0.270	- 1.93	0.93	...	+ 1.03

Note.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind are derived from six observations daily, namely, at 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....30.162 at 8 a.m. on 27th. } Monthly range = 1.116 inches.
 Lowest Barometer.....29.046 from 6 a.m. and 2 p.m. on 20th. }
 Maximum temperature.....68°5 on 1st. } Monthly range = 38°3
 Minimum temperature.....30°2 on 10th. }
 Mean maximum temperature.....68°44 } Mean daily range = 15°20
 Mean minimum temperature.....43°18 }
 Greatest daily range.....29°4 from a.m. to p.m. of 27th.
 Least daily range.....7°1 from a.m. to p.m. of 3rd.
 Warmest day.....1st; mean temperature.....69°45 } Difference = 21°67.
 Coldest day.....26th; mean temperature.....38°78 }
 Maximum { Solar.....8°20 on 1st. } Monthly range = 6°90.
 Radiation { Terrestrial.....20°00 on 19th. }
 Auroras observed on 5 nights, viz.:—3rd, 20th, 24th, 25th and 27th.
 Possible to see Auroras on 20 nights; impossible on 11 nights.
 Raining on 16 days; depth, 2.690 inches; duration of fall, 65.7 hours.
 Mean of cloudiness=0.62.

WIND.

Resultant direction, N. 85° W.; resultant velocity, 1.86.
 Mean velocity, 7.11 miles per hour.
 Maximum velocity, 35.3 miles, from 5.30 to 6.30 a.m. of 18th.
 Most windy day, 30th; mean velocity, 15.68 miles per hour.
 Least windy day, 10th; mean velocity, 1.74 miles per hour.
 Most windy hour, 11 a.m.; mean velocity, 10.07 miles per hour.
 Least windy hour, 10 p.m.; mean velocity, 4.77 miles per hour.
 Fog recorded, 1st, 11th and 17th. Dew on 2nd and 8th.
 Lightning on 8th. Lightning with Thunder, 17th and 21st.
 Lunar halos on 1st, 10th at 4 20th. Lunar corona on 7th.
 10th, first recorded ice of season.
 20th, 10.67 a.m. shock of an earthquake felt in Toronto and generally in Canada.
 Rainbows on 18th and 23th.
 24th and 25th. During the auroral display on both evenings, a brilliant red band extended from W. to S.E., vertex about 30° S. of zenith, about 5° in width, but ill defined.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, — NOVEMBER, 1870.
 Latitude—43° 39' 4 North. Longitude—76° 17' 33. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°			Temp. of the Air.			Excess of Mean above Normal	Tension of Vapour.			Humidity of Air.			Direction of Wind.			Hesulant.	Velocity of Wind.				Inches In Rain.	Inches In Snow.				
	6 A.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.		G.M.	2 P.M.	10 P.M.	6 P.M.			10 P.M.	10 P.M.	10 P.M.	
1	29.003	29.401	29.5013	38.1	49.7	43.642	87	0.70	193.255	214	213	85	71	75	77	SV	SEW	SW	8 28 W	8 28 W	8 28 W	3.0	6.76	6.04	...	...
2	.410	.283	.140	37.0	55.6	60.840	62	7.70	108.273	283	254	76	62	78	67	SE	8 W	SW	8 28 W	8 28 W	8 28 W	1.813	7.4	6.69	7.98	...	
3	.245	.489	.065	40.23	46.8	43.42	12	+	0.48	166	171	176	67	45	89	WN	NW	WNW	N 67 W	N 67 W	N 67 W	14.0	20.3	12.6	12.43	12.93	
4	.665	.665	.665	40.667	49.0	49.0	41	+	0.21	157	232	228	209	90	67	Caln.	SW	SW	8 51 W	8 51 W	8 51 W	0.0	14.0	0.8	3.19	4.14	
5	.601	.857	.937	8.002	43.6	47.2	35.6	40.77	0.85	205	164	167	170	72	60	NW	NW	NW	N 61 W	N 61 W	N 61 W	9.28	11.13	12.9	...	...
6	.938	.938	.938	42.1	42.1	42.1	42.1	—	170	—	—	—	—	—	62	NW	EDN	EDN	N 61 E	N 61 E	N 61 E	8.3	9.0	1.4	4.66	0.37	
7	.930	.928	.813	8.000	33.4	42.6	38.5	37.70	2.85	163	164	162	169	85	59	NW	SE	SE	8 74 E	8 74 E	8 74 E	5.4	6.2	7.5	2.84	5.79	
8	.603	.300	.230	3.810	39.9	52.6	62.048	37	4.37	198.321	342	291	79	80	86	ENE	SE	SE	8 15 W	8 15 W	8 15 W	6.0	9.6	14.2	7.20	8.97	
9	.076	.305	.678	3.648	50.8	47.6	37.844	37	4.37	366.216	183	244	96	65	80	SW	WS	WS	N 83 W	N 83 W	N 83 W	13.4	21.0	19.4	16.15	17.08	
10	.933	30.007	.978	9.722	30.2	40.3	39.033	87	5.50	149	133	120	137	89	62	WN	WN	WN	N 83 W	N 83 W	N 83 W	1.0	11.8	2.4	6.15	6.23	
11	.932	29.704	.640	7.722	29.1	39.2	34.034	10	5.20	141	180	170	160	87	76	WN	SE	SE	8 30 E	8 30 E	8 30 E	5.0	6.5	2.8	2.43	3.78	
12	.572	.616	.471	6.228	30.6	47.6	36.338	60	0.37	162	223	193	193	89	69	WN	WN	WN	N 83 W	N 83 W	N 83 W	2.8	10.0	1.0	2.63	3.78	
13	.630	.630	.404	8.603	30.7	36.7	31.034	65	—	188	—	—	—	—	69	WN	WN	WN	N 83 W	N 83 W	N 83 W	3.3	7.8	8.5	7.83	8.18	
14	.366	.366	.404	3.603	30.7	36.7	31.034	65	3.28	205	188	187	179	94	86	Caln.	NW	NW	N 83 W	N 83 W	N 83 W	0.0	7.5	4.8	4.70	6.69	
15	.400	.368	.410	3.900	28.8	37.8	28.831	91	0.67	144	131	129	130	90	81	NW	W	W	N 81 W	N 81 W	N 81 W	3.6	14.0	2.0	6.61	6.79	
16	.421	.374	.632	5.218	31.1	39.2	32.434	55	2.90	138	131	146	138	73	64	SW	WS	WS	8 61 W	8 61 W	8 61 W	5.6	16.5	8.0	10.43	14.25	
17	.675	.663	.686	6.697	36.3	41.4	39.238	90	1.88	193	178	168	195	90	67	SW	SW	SW	8 62 W	8 62 W	8 62 W	10.6	22.4	8.5	10.43	14.25	
18	.602	.637	.630	6.870	32.4	24.4	25.22	—	8.88	168	116	117	125	87	62	81	NN	NN	NN	N 81 W	N 81 W	N 81 W	17.0	15.0	10.0	4.77	15.17
19	.638	.619	.640	6.903	22.3	32.0	30.927	62	8.65	100	111	134	118	83	63	SW	NN	NN	N 81 W	N 81 W	N 81 W	16.8	12.0	3.8	8.65	10.58	
20	.447	.447	.447	4.47	42.6	42.6	42.6	—	227	—	—	—	—	—	83	SW	SW	SW	N 81 W	N 81 W	N 81 W	16.8	12.0	11.3	11.33	11.88	
21	.014	.770	.856	7.867	35.6	34.0	24.130	43	4.85	177	142	107	140	85	73	W	WN	WN	N 81 W	N 81 W	N 81 W	10.5	24.0	0.8	9.05	9.95	
22	.048	.713	.390	6.630	29.8	31.0	28.427	43	6.98	107	148	142	131	87	83	NE	EDN	EDN	N 81 W	N 81 W	N 81 W	7.8	17.2	15.8	13.58	14.30	
23	.183	.322	.652	3.673	27.3	30.6	27.253	10	5.07	133	162	121	131	89	80	SW	WDS	WDS	N 81 W	N 81 W	N 81 W	13.6	11.5	10.0	10.39	11.92	
24	.616	.600	.702	6.197	32.7	38.5	30.244	17	0.27	165	175	149	163	88	74	SW	WDS	WDS	N 81 W	N 81 W	N 81 W	9.0	13.6	2.0	6.86	8.08	
25	.660	.614	.320	4.910	28.4	38.5	33.433	23	0.16	134	182	163	166	86	78	SW	SW	SW	N 81 W	N 81 W	N 81 W	11.5	11.0	6.5	10.65	10.74	
26	.272	.232	.210	2.450	32.7	38.5	39.636	82	3.88	164	173	202	182	85	74	SW	SW	SW	N 81 W	N 81 W	N 81 W	8.0	7.4	2.8	4.86	4.95	
27	.432	.432	.432	4.32	49.3	49.3	49.3	—	212	—	—	—	—	—	50	SW	SW	SW	N 81 W	N 81 W	N 81 W	3.6	9.0	2.8	4.25	4.93	
28	.710	.638	.633	6.812	33.8	41.7	42.139	45	7.48	168	237	232	213	81	80	SW	SW	SW	N 81 W	N 81 W	N 81 W	6.8	13.2	5.0	6.07	7.13	
29	.696	.830	.864	8.403	38.8	40.7	33.437	03	5.65	195	168	134	164	82	66	73	NW	NW	NW	N 81 W	N 81 W	N 81 W	6.8	13.2	5.0	6.07	7.13
30	.807	.807	.807	8.07	27.3	37.8	35.633	63	2.66	118	163	167	164	79	72	80	NW	SW	SW	N 81 W	N 81 W	N 81 W	2.2	11.0	13.2	7.81	8.81
31	29.6948	29.6793	29.6921	83.73	41.20	35.30	30.55	—	0.60	108	182	176	176	84	69	82	79	7.4	13.49	6.78	...	8.74	0.694	3.1

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR NOVEMBER, 1870.

Note.—The monthly means do not include Sunday observations. The daily means, excepting those that refer to the day, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 11 A.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

COMPARATIVE TABLE FOR NOVEMBER.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.			
	Mean.	Excess above average.	Max. minimum.	Min. minimum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Direction.	Velocity.	Mean Velocity.
1842	33.3	+ 3.4	68.8	8.1	48.7	9	5.310	10	..	..	..	1.22 lbs
1843	33.5	+ 3.2	52.0	14.1	38.5	10	4.766	7	1.2	..	..	0.59
1844	34.0	+ 1.5	56.0	12.1	43.9	18	Imp.	4	8.0	..	..	0.48
1846	36.8	+ 0.1	59.5	8.1	51.4	7	1.103	4	5.0	..	..	0.53
1847	38.0	+ 4.6	55.6	18.0	37.6	12	5.803	2	0.4	..	..	0.64
1848	38.0	+ 1.9	57.0	8.7	49.2	14	3.156	3	Imp.	..	..	0.36
1848	34.5	+ 2.2	49.0	15.9	33.1	9	0.2020	2	1.4	N 31 W	1.81	4.81 mls
1849	42.6	+ 5.9	66.4	26.5	20.0	10	2.816	3	1.0	N 30 W	1.65	4.78
1850	38.5	+ 2.1	62.8	11.0	51.8	7	2.982	1	Imp.	N 2 W	1.43	5.27
1851	32.0	- 3.8	60.2	13.8	38.4	5	3.882	6	6.7	N 60 W	1.23	4.70
1852	35.6	+ 0.7	60.4	18.2	32.2	7	1.772	3	2.0	N 59 W	1.53	0.59
1853	38.7	+ 2.0	65.6	12.8	42.8	15	2.425	0	2.7	N 9 W	0.55	5.32
1854	36.8	+ 0.1	55.4	13.8	41.6	13	1.113	4	1.3	N 9 W	3.44	7.54
1855	38.0	+ 1.9	59.2	16.5	43.7	8	4.590	0	3.0	N 63 W	3.18	10.81
1856	37.4	+ 3.7	66.4	18.3	37.6	10	1.371	9	0.6	8 55 W	2.05	8.75
1857	33.5	+ 3.2	68.2	- 3.5	61.7	14	3.225	9	0.9	8 61 W	5.45	9.25
1858	34.2	+ 2.6	63.0	15.3	37.7	12	3.876	13	4.0	N 25 W	3.14	8.57
1859	38.9	+ 2.9	62.6	21.8	40.5	12	5.103	0	0.6	N 81 W	3.39	9.65
1860	37.9	+ 1.2	64.5	13.2	51.9	8	2.569	8	1.9	8 39 W	4.83	11.02
1861	37.1	+ 0.4	62.4	23.0	29.4	14	4.294	8	3.2	N 40 W	1.94	7.44
1862	35.6	+ 1.1	58.0	16.2	41.8	11	2.203	6	5.3	N 48 W	3.00	6.60
1863	39.1	+ 2.4	67.0	17.8	49.2	13	3.657	11	0.7	N 88 W	3.50	7.80
1864	36.0	+ 0.2	60.2	21.0	39.2	8	1.768	8	4.6	8 72 W	3.82	7.90
1865	38.6	+ 1.9	63.2	23.0	39.6	5	0.976	7	1.1	N 79 W	2.98	7.00
1866	38.4	+ 1.7	54.2	21.8	32.4	13	2.962	4	0.2	N 88 W	3.08	6.96
1867	36.9	+ 0.5	60.4	9.0	50.5	8	1.831	0	0.9	N 87 W	4.02	7.76
1868	36.2	+ 0.6	60.5	20.1	30.4	14	5.166	10	3.3	N 35 W	2.10	5.16
1869	32.7	- 4.0	58.0	13.0	45.0	18	0.544	18	10.2	N 78 W	3.69	8.12
1870	36.6	- 0.1	57.2	19.4	37.8	6	0.594	5	3.1	N 89 W	4.30	8.74
Results in 1862	30.72	...	57.00	15.30	41.70	10.17	3.070	3.77	3.24	N 78 W	2.57	7.64
Excess for '70	0.17	...	+ 0.20	+ 4.10	3.00	4.17	2.476	1.77	0.14	...	...	+ 1.20

Highest Barometer 30.071 at 6 a.m. on 30th } Monthly range =
 Lowest Barometer 29.076 at 6 a.m. on 9th } 0.995 inches.
 { Maximum Temperature 57.2 on 2nd } Monthly range =
 { Minimum Temperature 19.4 on 22nd } 37.8
 { Mean Maximum Temperature 49.14 } Mean daily range =
 { Mean Minimum Temperature 30.18 } 13.96
 { Greatest daily range 2.27 from a.m. to p.m. of 2nd.
 { 4.8 from a.m. to p.m. of 14th.
 Warmest Day 2nd .. Mean Temperature 49.62 } Difference = 22.919
 Coldest Day 22d .. Mean Temperature 27.43 }
 Maximum { Solar 8.60 on 2nd } Monthly range =
 Radiation. { Terrestrial 10.50 on 24th } 7.60
 Aurora observed on 8 occasions, viz., 12th, 15th, 16th, 18th, 19th a.m., and p.m. 21st, 24th.
 Possible to see Aurora on 19 nights; impossible on 11 nights.
 Snowing on 5 days; depth 3.1 inches; duration of fall 16.5 hours.
 Raining on 6 days; depth 0.694 inches; duration of fall 22.8 hours.
 Mean of Cloudiness = 0.60.
 WIND.
 Resultant Direction N. 89° W.; Resultant Velocity 4.50.
 Mean Velocity 8.74 miles per hour.
 Maximum Velocity 30.0 miles, at 10 a.m., noon, and 1 p.m. of 3rd.
 Most Windy day 9th; Mean Velocity 17.08 miles per hour.
 Least Windy day 11th; Mean Velocity 3.57 miles per hour.
 Most Windy hour 1 p.m.; Mean Velocity 13.82 miles per hour.
 Least Windy hour 11 p.m.; Mean Velocity 5.98 miles per hour.
 Fog recorded on 4th, 6th, 7th, 12th and 13th. Solar haloes on 7th, 11th and 16th
 Lunar haloes on 2nd, 7th, 10th and 30th.
 Thunder on November 8th. Lightning 2nd.
 1st and 2nd very much like Indian Summer.
 10th. 3 to 5 a.m. First snow of season.
 7th. Grasshoppers still numerous and active.

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —DECEMBER, 1870.
 Latitude—43° 30' 4" North. Longitude—76° 17m. 53s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Excess of Mean above Normal.			Tension of Vapour.			Humidity of Air.			Direction of Wind.			Result.	Velocity of Wind.			Rain in Inches.	Inches			
	G. A.M.	2 P.M.	10 P.M.	G. A.M.	2 P.M.	10 P.M.	G. A.M.	2 P.M.	10 P.M.	G. A.M.	2 P.M.	10 P.M.	G. A.M.	2 P.M.	10 P.M.	G. A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.			10 A.M.	4 P.M.	10 P.M.
1	29.688	29.405	29.5138	35.3	37.4	37.83	+ 7.30	146	157	170	157	71	68	75	69	W S W	S W	S W	W S W	W S W	W S W	W S W	6.58 W	8.58 W	8.58 W
2	316	304	3307	32.0	43.2	38.87	+ 7.77	157	190	170	157	87	88	71	74	W S W	W S W	W S W	W S W	W S W	W S W	W S W	N 84 W	N 84 W	N 84 W
3	600	632	6255	32.1	44.8	39.6	+ 8.40	157	100	184	117	84	87	76	78	W S W	W S W	W S W	W S W	W S W	W S W	N 82 W	N 82 W	N 82 W	...	...
4	462	189	28.807	37.4	43.5	38.90	+ 10.27	204	250	219	219	95	91	92	92	E S W	E S W	E S W	E S W	E S W	E S W	N 82 W	N 82 W	N 82 W	...	...
5	031	422	29.622	37.4	37.1	39.684	+ 6.73	204	174	136	174	91	78	83	85	N W	N W	N W	N W	N W	N W	N 88 W	N 88 W	N 88 W	...	...
6	647	238	29.688	32.0	31.6	37.836	+ 8.57	168	199	208	187	81	85	91	87	W S W	W S W	W S W	W S W	W S W	W S W	N 85 E	N 85 E	N 85 E	...	...
7	767	495	074	34.6	32.7	30.632	+ 4.72	163	166	162	163	82	85	89	85	N W S	N W S	N W S	N W S	N W S	N W S	N 75 W	N 75 W	N 75 W	...	...
8	074	895	074	27.3	28.4	28.027	+ 1.03	133	119	139	129	80	76	90	84	N W S	N W S	N W S	N W S	N W S	N W S	N 75 W	N 75 W	N 75 W	...	...
9	004	985	097	30.0038	28.0	29.1	+ 0.23	131	137	116	126	80	85	80	87	N W S	N W S	N W S	N W S	N W S	N W S	N 19 W	N 19 W	N 19 W	...	...
10	004	985	097	30.0038	28.0	29.1	+ 0.23	131	137	116	126	80	85	80	87	N W S	N W S	N W S	N W S	N W S	N W S	N 19 W	N 19 W	N 19 W	...	...
11	009	985	097	30.0038	28.0	29.1	+ 0.23	131	137	116	126	80	85	80	87	N W S	N W S	N W S	N W S	N W S	N W S	N 19 W	N 19 W	N 19 W	...	...
12	040	655	060	29.6802	33.4	37.4	+ 10.68	171	213	227	206	89	95	99	95	E S W	E S W	E S W	E S W	E S W	E S W	N 68 E	N 68 E	N 68 E	...	...
13	621	500	424	4760	36.7	37.8	+ 33.4	35.55	+ 10.26	205	173	178	184	94	77	83	89	89	89	89	89	N 49 E	N 49 E	N 49 E	...	...
14	387	634	4463	32.0	33.8	29.131	+ 4.7	6.58	168	168	141	101	81	87	85	W S W	W S W	W S W	W S W	W S W	W S W	N 76 W	N 76 W	N 76 W	...	...
15	710	760	7840	23.0	23.3	18.6	+ 21.26	3.32	109	103	990	695	86	82	89	84	N W S	N W S	N W S	N W S	N W S	N 45 W	N 45 W	N 45 W	...	...
16	887	863	810	15.4	24.4	25.2	+ 22.16	2.08	077	089	107	043	87	88	70	78	N W	N W	N W	N W	N W	N 45 W	N 45 W	N 45 W	...	...
17	095	440	400	4862	20.0	32.4	+ 30.6	23.70	+ 5.80	119	185	152	131	85	74	89	82	82	82	82	82	N 71 W	N 71 W	N 71 W	...	...
18	601	448	28.970	31.47	28.7	31.6	+ 31.52	+ 8.18	138	141	163	161	87	76	91	85	Calm	Calm	Calm	Calm	Calm	N 18 E	N 18 E	N 18 E	...	...
19	978	150	29.178	1217	32.0	34.3	+ 32.0	32.53	+ 9.47	173	161	143	161	96	76	70	82	82	82	82	82	N 18 E	N 18 E	N 18 E	...	...
20	393	608	729	6832	21.9	18.3	+ 12.2	16.57	+ 0.28	087	062	059	057	82	81	78	73	73	73	73	73	N 65 W	N 65 W	N 65 W	...	...
21	783	772	772	7772	8.2	40.5	+ 10.4	11.82	+ 11.10	062	064	055	051	68	78	77	77	77	77	77	77	N 65 W	N 65 W	N 65 W	...	...
22	681	639	663	6380	8.2	14.3	+ 11.4	049	+ 0.65	051	056	73	78	69	77	77	77	77	77	77	77	N 65 W	N 65 W	N 65 W	...	...
23	771	908	8287	6.4	12.8	8.2	+ 8.68	+ 13.63	+ 0.66	064	052	055	05	83	85	85	85	85	85	85	85	N 65 W	N 65 W	N 65 W	...	...
24	602	675	601	5607	10.4	27.3	+ 27.0	21.78	+ 0.05	055	118	197	094	78	79	73	77	77	77	77	77	N 62 W	N 62 W	N 62 W	...	...
25	778	605	641	6533	22.3	13.6	+ 1.3	11.07	+ 10.55	107	097	040	064	89	83	85	84	84	84	84	84	N 16 W	N 16 W	N 16 W	...	...
26	443	650	642	6955	-5.6	4.2	+ 1.0	0.68	+ 20.83	029	036	041	037	86	88	81	81	81	81	81	81	N 16 W	N 16 W	N 16 W	...	...
27	678	650	642	6955	-5.6	4.2	+ 1.0	0.68	+ 20.83	029	036	041	037	86	88	81	81	81	81	81	81	N 16 W	N 16 W	N 16 W	...	...
28	418	008	28.933	1005	20.6	27.3	+ 33.4	27.92	+ 6.47	086	147	163	155	70	99	85	86	86	86	86	86	N 16 W	N 16 W	N 16 W	...	...
29	103	354	29.610	3857	30.6	30.2	+ 24.4	28.12	+ 6.72	142	136	110	131	89	80	84	84	84	84	84	84	N 73 W	N 73 W	N 73 W	...	...
30	6412	29.5173	30.6265	24.86	28.97	26.03	+ 26.46	+ 1.60	127	132	131	129	80	77	84	82	82	82	82	82	82	10.00	14.48	10.80	...	...
31	6412	29.5173	30.6265	24.86	28.97	26.03	+ 26.46	+ 1.60	127	132	131	129	80	77	84	82	82	82	82	82	82	10.00	14.48	10.80	...	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR DECEMBER, 1870.
COMPARATIVE TABLE FOR DECEMBER.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.		
	Mean.	Excess above Average.	Maxi. mum.	Mini. mum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant.	Mean Velocity.
1842	24.7	+ 1.8	46.6	8.2	37.3	3	0.880	17	...	0	0.61 lb
1843	30.0	+ 2.0	48.5	3.1	45.4	6	1.044	8	8.1	...	0.83
1844	28.2	+ 4.2	48.6	1.6	46.9	6	Imp.	6	4.2	...	0.40
1845	21.3	+ 4.9	39.7	2.4	42.1	2	Imp.	12	4.7	...	0.70
1846	27.5	+ 1.5	49.2	3.9	45.3	7	1.215	9	0.0	...	0.57
1847	30.1	+ 4.1	49.6	-0.3	49.3	5	1.183	8	6.8	...	0.35
1848	29.1	+ 3.1	49.8	1.1	47.7	7	2.750	7	16.5	...	1.12
1849	26.5	+ 0.5	40.8	6.5	47.3	5	0.840	12	9.0	...	5.44 m.
1850	21.7	+ 4.3	48.8	9.0	57.8	2	0.190	18	20.5	...	2.66
1851	21.5	+ 4.5	44.0	-13.8	68.8	6	1.071	15	10.7	...	2.93
1852	31.9	+ 0.9	51.0	13.2	87.8	7	3.995	7	3.995	...	4.00
1853	25.3	+ 0.7	46.2	8.4	54.8	4	0.623	13	22.3	...	1.03
1854	25.0	+ 5.1	44.8	7.0	51.8	5	0.590	12	17.2	...	2.39
1855	28.8	+ 0.8	47.0	5.2	62.2	6	1.845	10	29.5	...	4.98
1856	22.9	+ 3.1	42.2	9.1	51.3	6	1.790	20	16.3	...	4.30
1857	31.9	+ 6.3	46.0	4.7	41.3	7	3.205	14	9.0	...	11.66
1858	27.4	+ 1.4	45.4	4.2	41.2	11	1.657	10	89	...	6.84
1859	17.9	+ 8.1	39.0	0.0	60.8	3	1.033	23	37.4	...	9.35
1860	24.0	+ 2.0	39.0	7.0	40.0	3	1.362	21	13.5	...	4.60
1861	31.0	+ 5.1	55.2	6.5	49.7	6	0.560	8	6.8	...	3.50
1862	27.8	+ 2.8	60.1	3.4	53.5	5	1.945	8	10.4	...	7.48
1863	37.0	+ 1.0	53.4	1.5	54.9	10	2.960	17	7.1	...	9.40
1864	24.7	+ 1.3	50.4	-10.4	60.8	9	2.044	18	27.1	...	4.94
1865	27.7	+ 1.7	54.2	6.7	48.5	7	1.727	11	6.2	...	7.98
1866	25.1	+ 0.9	40.5	-5.0	59.0	7	2.780	13	15.5	...	4.96
1867	21.6	+ 4.4	40.5	3.8	62.3	1	1.403	17	1.403	...	9.91
1868	22.5	+ 3.5	44.2	3.2	47.4	7	1.003	18	15.5	...	10.82
1869	28.5	+ 2.7	46.2	6.0	39.0	6	2.590	10	2.590	...	8.90
1870	26.5	+ 0.5	46.0	5.8	51.0	6	2.430	16	16.9	...	8.44
Results to 1869	26.02	.....	47.43	-2.11	49.54	6.771	1.652	13.30	14.08	N 76 W	3.09
Excess for 1870	0.44	.....	+ 2.23	3.69	+ 1.46	0.230	0.776	2.70	1.82	...	+ 2.95

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the Great Lakes, are taken daily from 6 A.M. to 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....30.066 at 6 a.m. on 25th.
 Lowest Barometer.....28.807 at 10 p.m. on 5th.
 { Maximum temperature.....45°2 on 6th. } Monthly range= 1.259
 { Minimum temperature.....51°0 on 24th. } Monthly range= 51°0
 Mean maximum temperature.....31°07 } Mean daily range= 11°49
 Mean minimum temperature.....29°48 }
 Greatest daily range.....36°0 from p.m. of 29th. to p.m. of 30th.
 Least daily range.....3°5 from a.m. to p.m. of 8th and 9th.
 Warmest day.....5th; mean temperature 38°00 } Difference=38°22
 Coldest day.....29th; mean temperature 0°88 }
 Maximum { Solar.....58°0 on 3rd. } Monthly range= 11°49
 Radiation { Terrestrial.....11°5 on 29th. }
 Aurors observed on 4 occasions, viz.: 10th, 16th a.m. 21st and 24th.
 Possible to see aurora on 10 nights; impossible on 21 nights.
 Snowing on 16 days; depth 16.9 inches; duration of fall 76.3 hours.
 Raining on 6 days; depth, 2.430 inches; duration of fall, 42.1 hours.
 Mean of cloudiness=0.78.

WIND.
 Resultant direction, N. 89° W.; Resultant velocity, 6.60.
 Mean velocity, 11.40 miles per hour.
 Maximum velocity, 27.4 miles, from 11.30 p.m. of 14th. to 0.30 a.m. of 15th.
 Most windy day, 14th; mean velocity, 19.08 miles per hour.
 Least windy day, 18th; mean velocity, 4.17 miles per hour.
 Most windy hour, 1 p.m.; mean velocity, 16.05 miles per hour.
 Least windy hour, midnight; mean velocity, 8.74 miles per hour.
 Solar haloes recorded on 1st, 16th, 23rd & 24th. Lunar halo on 6th.
 Lunar corona on 6th, 16th & 31st. Fog on 7th & 19th.
 Butterflies about on 3rd.
 22nd. Day frozen over.

GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1870.

GENERAL METEOROLOGICAL

MAGNETICAL OBSERVATORY

Latitude 43° 39' 4" North. Longitude 5h. 17m. 33s. West. Elevation above

	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.
Mean temperature.....	21.45	21.54	28.27	44.58	56.30	67.29	68.79
Difference from average (30 years)...	+ 1.35	- 1.43	- 3.35	+ 3.62	+ 4.91	+ 5.86	+ 1.51
Thermic anomaly (lat. 43° 40').....	- 8.35	-13.16	-13.83	- 5.62	- 1.80	+ 2.69	+ 0.09
Highest temperature.....	45.0	40.8	44.0	67.0	81.2	88.4	87.4
Lowest temperature.....	- 3.2	- 8.6	5.2	29.6	38.8	50.0	48.0
Monthly and annual ranges.....	48.2	47.2	38.8	37.4	42.4	38.4	39.4
Mean maximum temperature.....	32.15	28.02	32.07	53.51	66.48	76.39	77.67
Mean minimum temperature.....	17.63	14.74	20.40	32.50	47.37	57.38	59.98
Mean daily range.....	14.57	13.28	12.51	17.01	19.11	19.01	17.69
Greatest daily range.....	36.2	33.2	26.4	29.6	30.8	31.8	24.0
Mean height of the Barometer.....	29.6241	29.5315	29.6440	29.6088	29.5627	29.5734	29.5332
Difference from average (29 years)...	- 0.0183	- 0.0960	+ 0.0434	+ 0.0147	- 0.0059	- 0.0016	- 0.0647
Highest barometer.....	30.212	30.175	30.174	29.956	29.918	29.878	29.773
Lowest barometer.....	28.166	28.900	28.881	29.273	29.116	29.184	29.185
Monthly and annual ranges.....	2.046	1.275	1.293	0.683	0.802	0.694	0.588
Mean humidity of the air.....	82	80	78	67	63	72	74
Mean elasticity of aqueous vapour.....	0.115	0.099	0.116	0.193	0.232	0.435	0.523
Mean of cloudiness.....	0.77	0.73	0.68	0.56	0.61	0.51	0.53
Difference from average (17 years)...	+ 0.03	+ 0.01	+ 0.06	- 0.04	+ 0.03	- 0.02	+ 0.03
Resultant direction of the wind.....	S. 89 W.	N. 29 W.	N. 18 E.	N. 40 E.	N. 23 E.	N. 17 E.	S. 78 W.
velocity of the wind.....	2.63	2.84	4.73	3.55	1.09	0.40	1.59
Mean velocity (miles per hour).....	8.93	8.10	10.15	7.03	5.48	5.14	4.82
Difference from average (22 years)...	+ 0.79	- 0.50	+ 1.33	- 1.12	- 1.23	- 0.01	- 0.14
Total amount of rain.....	3.412	0.520	0.755	2.145	1.150	8.090	1.896
Difference from average (29-30 years)	+2.247	-0.417	-0.652	-0.274	-2.200	+5.294	-1.497
Number of days of rain.....	8	2	2	9	10	16	16
Total amount of snow.....	21.3	20.1	62.4	0.1	...	...	...
Difference from average (27 years)...	+ 5.53	+ 0.98	+52.07	- 2.41	- 0.07	...	...
Number of days of snow.....	18	18	18	2	...	...	...
Number of fair days.....	9	10	12	20	21	14	15
Number of auroras observed.....	4	1	6	11	7	7	4
Possible to see aurora (No. of nights)...	10	10	12	18	19	21	20
Number of thunder-storms.....	...	...	...	1	1	11	9

REGISTER FOR THE YEAR 1870.

TORONTO, ONTARIO.

Lake Ontario, 103 feet. Approximate elevation above the Sea, 342 feet.

Aug.	Sept.	Oct.	Nov.	Dec.	1870.	1869.	1868.	1867.	1866.	1865.	1864.
67.10 - 1.09 1.40	61.78 + 3.75 + 0.23	49.96 + 4.32 - 3.84	38.65 - 0.07 - 6.55	28.16 - 0.44 - 9.54	45.93 + 1.83 - 5.07	43.13 - 0.97 - 7.57	43.33 - 0.77 - 7.67	43.84 - 0.20 - 7.16	43.51 - 0.59 - 7.49	44.02 + 0.82 - 6.08	44.70 + 0.60 - 6.30
84.0 49.0 44.6	78.0 45.8 32.2	68.5 30.2 38.5	57.2 20.8 36.4	45.2 - 5.8 51.0	88.4 - 6.6 95.0	89.0 - 5.4 94.4	83.4 - 15.6 109.0	95.2 - 12.8 105.0	94.0 - 14.0 108.0	90.5 - 10.0 100.5	91.0 - 15.0 109.0
78.82 57.14 19.76 30.	69.17 54.27 14.90 24.0	58.44 43.38 15.25 29.4	44.14 30.18 13.96 22.7	31.97 20.48 11.45 36.0	...	...	...	...	...	...	...
29.5518 - 0.426	29.7514 + 0.0956	29.6123 - 0.0337	29.5921 - 0.0188	29.5323 - 1.234	29.5956 - 0.219	29.5970 - 0.205	29.6421 + 0.246	29.6140 - 0.035	29.6216 + 0.041	29.6330 + 0.0155	29.5596 - 0.070
29.977 20.224 0.753	30.601 29.413 0.588	30.162 29.046 1.116	30.071 29.076 0.995	30.066 28.607 1.259	30.212 28.166 2.046	30.223 28.793 1.430	30.445 28.824 1.621	30.332 28.768 1.564	30.940 28.807 2.133	30.354 28.707 1.647	30.327 28.671 1.656
72	79	79	79	82	76	77	76	74	75	75	76
0.458	0.442	0.203	0.175	0.129	0.279	0.252	0.264	0.252	0.248	0.259	0.263
0.48 0.00	0.53 + 0.04	0.62 + 0.01	0.60 - 0.15	0.78 + 0.03	0.62 + 0.02	0.66 + 0.06	0.64 + 0.04	0.61 + 0.01	0.61 + 0.01	0.61 + 0.01	0.65 + 0.05
N. 75 W. 1.80 5.92 + 0.74	N. 29 E. 2.26 5.04 - 0.41	N. 85 W. 1.86 7.11 + 1.03	N. 89 W. 4.36 8.74 + 1.20	N. 89 W. 5.60 11.46 + 2.95	N. 45 W. 1.61 7.33 + 0.39	N. 64 W. 1.55 7.20 + 0.26	N. 57 W. 1.47 7.69 + 0.75	N. 60 W. 2.05 7.00 + 0.06	N. 73 W. 2.83 7.41 + 0.47	N. 66 W. 1.95 6.78 - 0.16	N. 76 W. 2.49 7.40 + 0.46
3.422 + 0.407 14	6.794 + 3.100 11	2.690 + 0.270 16	0.594 - 2.476 6	2.430 + 0.778 6	33.898 + 1.374 116	31.182 + 1.658 115	29.408 - 0.116 103	19.041 - 10.483 100	34.209 + 4.685 126	26.599 - 2.925 111	29.486 - 0.038 132
...	...	...	3.1 + 0.14	15.9 + 1.82 16	122.9 + 56.83 77	84.6 + 18.53 81	78.7 + 12.63 82	110.5 + 44.43 84	52.1 - 13.93 69	63.3 - 2.77 68	74.6 + 8.53 70
17	19	15	20	13	165	160	190	181	160	201	180
12	8	6	8	4	77	47	50	43	44	55	24
28	21	20	19	10	206	182	193	202	209	201	188
6	4	1	1	...	34	32	25	23	24	17	24

TEMPERATURE.

	1870.	Average of 30 years.	Extremes.	
	°	°	°	°
Mean temperature of the year.....	45.93	44.10	40.36 in '46	42.16 in '56
Warmest month.....	July.	July	July, 1868	Aug. 1861.
Mean temperature of the warmest month.....	68.79	67.33	75.80	64.46
Coldest month.....	February	February	Jan. 1857.	Feb. 1848.
Mean temperature of the coldest month.....	21.54	23.02	12.75	26.60
Difference between the temperatures of the warmest and the coldest months.....	47.25	44.31	...	...
Mean of deviations of monthly means from their respective averages of 30 years, signs of deviation being disregarded.....	2.65	2.41	3.59 in 1843	1.31 in 1864.
Months of greatest deviation without regard to sign.....	June	January	Jan. 1857.	...
Corresponding magnitude of deviation.....	5.66	3.87	10.3	...
Warmest day.....	June 28	...	July 14, '68	July 31, '44
Mean temperature of the warmest day.....	77.70	77.74	84.50	72.75
Coldest day.....	Dec. 29	...	Feb. 6, '55 Jan. 22, '57.	Dec. 22, '42
Mean temperature of the coldest day.....	0.68	-1.11	-14.88	0.57
Date of the highest temperature.....	June 18	...	Aug. 24, '64	Aug. 19, '40
Highest temperature.....	88.4	91.0	99.2	82.4
Date of the lowest temperature.....	Feb'y 21	...	Jan. 10, '59.	Jan. 2, '42.
Lowest temperature.....	-6.6	-12.3	-26.5	1.9
Range of the year.....	95.0	103.3	118.2	87.0

BAROMETER.

	1870.	Average of 29 years.	Extremes.	
Mean pressure of the year.....	29.5956	29.6175	{ 29.6670 in 1849.	29.5002 in 1864.
Month of highest mean pressure.....	Sept.	Sept.	Jan. 1849.	June, 1864.
Highest mean monthly pressure.....	29.7614	29.6458	29.6046	29.6325
Month of lowest mean pressure.....	February	May.	March, 1859	Nov. 1849.
Lowest mean monthly pressure.....	29.4315	29.5658	29.4143	29.5856
Date of highest pressure in the year.....	{ Jan. 16, 10 a.m.	...	Jan. 8, '66.	Jan. 14, '70.
Highest pressure.....	30.212	30.350	30.940	30.212
Date of lowest pressure in the year.....	{ Jan. 2, 9-30 p.m.	...	Jan. 2, '70.	Mar. 17, '45.
Lowest pressure.....	28.166	28.698	28.166	28.939
Range of the year.....	2.046	1.652	{ 2.133 in 1866.	1.303 in 1845.

RELATIVE HUMIDITY.

	1870.	Average of 28 years.	Extremes.	
	Mean humidity of the year	76	77	82 in 1851	73 in 1853
Month of greatest humidity	Jan. Dec.	January	Jan. 1857.	Dec. 1853.
Greatest mean monthly humidity	82	83	89	81
Month of least humidity	May.	May	Feb. 1843.	Apr. 1849.
Least mean monthly humidity	63	71	68	76

EXTENT OF SKY CLOUDED.

	1870.	Average of 17 years.	Extremes.	
	Mean cloudiness of the year	0.62	0.60	0.66 in '69.	0.57 in '66
Most cloudy month	Decem.	Novem.	...	...
Greatest monthly mean of cloudiness	0.78	0.75	0.83	0.73
Least cloudy month	August	August	...	...
Lowest monthly mean of cloudiness	0.48	0.48	0.29	0.60

WIND.

	1870.	Result of 22 years.	Extremes.	
	Resultant direction	N. 45° W.	N. 61° W.	...
Resultant velocity in miles	1.61	1.90	...	...
Mean velocity, without regard to direction	7.38	6.94	8.55 in '60.	5.10 in 1873
Month of greatest mean velocity	Decem.	March	Mar. 1860.	Jan. 1848.
Greatest monthly mean velocity	11.46	8.77	12.41	6.82
Month of least mean velocity	July	July	Aug. 1852.	Sept. 1860.
Least monthly mean velocity	4.82	4.96	3.30	5.79
Day of greatest mean velocity	Feb. 12	...	Mar. 19, '59.	Dec. 2, '48.
Greatest daily mean velocity	20.92	23.23	31.16	15.30
Day of least mean velocity	June 2	...	...	...
Least daily mean velocity	0.00	...	...	...
Hour of greatest absolute velocity	Oct. 18, 5-30 to 6-30 a.m.	...	Dec. 27, '61.	Mar. 14, '53.
Greatest velocity	35.3	39.4	9-10 a.m.	11 to noon.
			460	256

RAIN.

	1870.	Average of 30 years.	Extremes.	
Total depth of rain in inches	33 898	29-525	43-555 in '43	19 041 in '67
Number of days in which rain fell.....	116	109	130 in 1861	80 in 1841
Month in which the greatest depth of rain fell.	June.	Sept.	Sept. 1843.	Sept. 1848.
Greatest depth of rain in one month	8-090	3-694	9 760	3 115
Months in which the days of rain were most } frequent.....	June, July and Oct.	October.	Oct. 1864. } June '69. }	May, 1841
Greatest number of rainy days in one month....	16	12	22	11
Day in which the greatest amount of rain fell....	June 11	...	Sept. 14, '43	Sept. 14, '48
Greatest amount of rain in one day.....	2 360	2-054	3-455	1-000

SNOW.

	1870.	Average of 27 years.	Extremes.	
Total depth in the year in inches.....	122-9	66-1	122-9 in '70.	38-4 in 1851
Number of days in which snow fell.....	77	62	87 in 1859	33 in 1848
Month in which the greatest depth of snow fell	March	February	March, 1870	Dec. 1851
Greatest depth of snow in one month	62-4	19-14	62 4	10 7
Months in which the days of snow were most } frequent.....	Jan. Feb. and Mar.	January	Jan. 1861	Feb. 1848
Greatest number of days of snow in one month.	18	14	23	8
Day in which the greatest amount of snow fell.	March 27	...	Feb. 5, 1863 Mar. 27, '70.	Jan. 10, '57.
Greatest fall of snow in one day.....	16-0	8-9	16-0	5-5

PERIODICAL OR OCCASIONAL EVENTS—1870.

- January 19. Bay frozen. The bay had been previously frozen, (Dec. 8, 1869); but the ice was broken up on the following night.
- March 27. Very severe snow storm; ice broken and almost driven from the bay by the gale.
- April 1. Some attempt at sleighing.
- " 2. Schooner arrived, and left with a cargo.
- " 5. First steamer arrived.
- " 6. Last snow of season.
- " 19. Ploughing in vicinity.
- " 22. Swallows arrived.
- May 13. Last frost and ice of season.
- Aug. 19-25. Swallows moving, almost gone by 25th.
- " 27. Frost at an early hour.
- October 19. First recorded ice.
- " 24. }
Nov. 1 & 2. } Much like Indian Summer.
- " 7. Grasshoppers numerous.
- " 10. First snow of season
- Decem. 3. Butterflies seen.
- " 12. First heavy snow storm.
- " 22. Bay frozen over.
- " 29. Coldest day of year.

IMPORTANT VOLUMES RECENTLY PUBLISHED.

- A TREATISE ON NAVAL ARCHITECTURE.** By Commander Richard Meade, U. S. N., §6.
- DOE'S PROTECTION PROTECT?** By W. M. Grosvenor; §2 50.
- OTHER WORLDS THAN OURS.** By Richard A. Proctor. F.R.A.S.; §2 25
- THE RECOVERY OF JERUSALEM.** A Narrative of Exploration and Discovery in the City and the Holy Land. By Capt. Wilson. R.E., and Capt. Warren, R.E.; §3 25.
- ORIGIN AND DEVELOPMENT OF RELIGIOUS BELIEF.** By S. Baring Gould. English edition; §4 50.
- THE LIFE AND TIMES OF HENRY LORD BROUGHAM.** Written by Himself. Vols. I. & II. ready; §1 75.
- WALKS IN ROME.** By Augustus J. C. Hare; §5 25.
- THE PICTORIAL FIELD BOOK OF THE WAR OF 1812.** By Benjamin J. Lossing; §7 50.
- THE HEART OF THE CONTINENT.** A record of travel across the Plains and in Oregon. By Fitz Hugh Ludlow; §3 25.
- ESSAYS, THEOLOGICAL AND LITERARY.** By R. H. Hutton: 2 Vols.; §6 00.
- THE CORRELATION AND CONSERVATION OF FORCES.** A Series of Expositions by Prof. Grove, Prof. Helmholtz, Dr. Mayel, Dr. Farady, Dr. Carpenter, &c.; §1 75.
- LIFE OF MARCUS TULLIUS CICERO.** New Edition. By William Forsyth, M.A.; §2 50.

FOR SALE BY

COPP, CLARK & CO.

PUBLISHERS, BOOKSELLERS AND STATIONERS,

17 & 19 KING STREET EAST, TORONTO.

