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YONGE STREET AND DUNDAS STREET.

THE MEN AFTER WHOM THEY WERE NAMED.*

BY HENRY SCADDING, D.D.

When it has happened that a town, city or region has received a name intended to be an enduring memorial of a particular personage, it is natural to suppose that some interest in his history and character will there be felt. In the many places, for example, which have been, or are sure to be, called *Livingstone*, we may expect that hereafter a special acquaintance with the story of the great explorer and missionary will be kept up. But names quickly become familiar and trite on the lips of men; and unless now and then attention be directed to their significance, they soon cease to be much more than mere sounds.

The inhabitants of Lorraine probably seldom give much thought to the Lothaire, of whose realm, *Lotharii regnum*, their province is the representative. Few citizens of Bolivia waste time in recalling Bolivar. To the Astorians, Astoria speaks faintly now of John Jacob Astor; and Aspinwall, to its occupants, has by this time lost the personal allusion implied in the word. Ismailia, on the Upper Nile, may be a momentary exception. That is altogether too frequent a creation. Who Ismail, the living Khedive, is, must be sufficiently well known at present to the people there.

Nevertheless, I suppose, even where the notability commemorated has almost wholly departed out of the public mind, a recurrence to

* Read before the Canadian Institute.

the story really wrapped up in the name of a given place cannot be unwelcome.

Sir Thomas Browne, in his "Urn burial," says: "To be content that times to come should only know there was such a man, without caring whether they knew more of him, was a frigid ambition in Cardan. For who careth," he asks, "to subsist like Hippocrates' patients, or Achilles' horses in Homer, under naked nominations, without deserts and noble acts, which are the balsam of our memories, the entelechia and soul of our subsistences?"

And even so in respect of local names amongst us, borrowed from worthies of a former day—it may be taken for granted that thoughtful persons will not wish to rest content with "naked nominations;" but, on the contrary, will desire to become familiar with the "entelechia," as Sir Thomas Browne chooses learnedly to express himself—the true motive and "soul of their subsistences."

I accordingly proceed to summon up, so far as I may, the shades of two partially forgotten personages, commemorated and honoured in the style and title of two great thoroughfares familiar to Toronto people and Western Canadians generally—Yonge Street and Dundas Street. I refer to Sir George Yonge and the Right Hon. Henry Dundas, from whom those two well-known main-roads of the Province of Ontario respectively have their appellations.

I am assisted in my attempt to revive the forms of these two men of mark in a former generation, by the possession of an engraved portrait of each of them. That of Sir George Yonge is from a painting by Mather Brown, engraved by E. Scott, "engraver to the Duke of York and Prince Edward." It shows a full, frank, open, English countenance, smoothly shaven, with pleasant intelligent eyes; the mouth rather large, but expressive; the chin double; the hair natural and abundant, but white with powder. The inscription below is: "The Right Honourable Sir George Yonge, Bart., Secretary at War, Knight of the Bath, One of Her Majesty's Most Honourable Privy Council, F.R.S., F.A.S., &c., M.P."

I.—SIR GEORGE YONGE.

Sir George Yonge was the chief representative of an ancient Devonshire family. He was born in 1732, and sat in Parliament for the borough of Honiton from 1754 to 1796. His father, the fourth baronet, Sir William Yonge, sat for the same place before



SIR GEORGE YONGE, BART. (1732—1812).

AFTER WHOM YONGE STREET, PROVINCE OF ONTARIO, WAS NAMED.

him. Sir George was Secretary at War from 1782 to 1791, when he was succeeded by William Windham. He also held the offices of Vice-Treasurer for Ireland, and Master of the Mint. In 1797 he became Governor and Commander-in-Chief at the Cape of Good Hope, succeeding Lord Macartney there. He died at Hampton Court, September 26, 1812, æt. 80.

In the debates taking place in the House of Commons during the movement in the American Colonies which resulted in their independence, Sir George Yonge took a favourable view of the intentions and wishes of the colonists. Thus, in reply to Lord North, when some resolutions were being adopted on a petition from Nova Scotia setting forth the grievances of that loyal colony, and calling respectfully for a redress of them at the hands of the Imperial Parliament, Sir George Yonge said: "The sentiments of the petitioners were the sentiments of the General Congress: they alike acknowledge the Parliament of Great Britain as the supreme legislature; they alike own it their duty to contribute to the exigencies of the State; and they alike claim the right of giving and granting their own money." He added, "that it was in the power of the Ministry so to frame the bill as to give peace to all America, and he wished that were their inclination." Thus his remarks are summarized in the *Gentleman's Magazine* of December, 1776. As a specimen of Sir George's speeches at a later period, as Secretary at War, I give the summary of one preserved in the same periodical, which will show that he possessed tact and address. It relates to a proposed reduction in the Household Troops in 1787, to effect which, however, a larger sum than usual was to be asked for from the Parliament. The point was to make it clear that the extra charge on the revenue would result in a "saving to the public."

The reporter of the *Gentleman's Magazine* informs us that "The Secretary of War rose and said, that when he presented the army estimates, he had not included in them those of the King's household troops, because, as he had long since informed the House, His Majesty had at that time under consideration a plan of reform in those corps by which a considerable saving might be made to the public. It being impracticable, however, to digest this plan so soon as was expected, the intended reform could not take place till the 24th of June next. It was therefore necessary to vote the pay of all the household troops from Christmas Day last up to Midsummer.

After the latter period, two troops of Life-Guards would be reduced, and replaced by the Grenadier Guards. The pay would be continued to the officers until vacancies happened in other regiments; and to the private gentlemen, all of whom had purchased their situations, it would be but just to make compensation. It was the King's intention," Sir George proceeded to say, "that the two colonels of the troops to be reduced should receive £1,200 each a year for life; but a vacancy having lately happened in a regiment of dragoons by the death of General Carpenter, one of them would be appointed to fill it, and thus £1,200 a year would be saved to the nation; the other Colonel (the Duke of Northumberland), who was far above all pecuniary consideration, and had nothing so much at heart as the good of the service, had nobly requested that the annuity designed for him might make part of the saving that was to arise from the reform. He (Sir George) said that the public would save by the reform, at first, between £11,000 and £12,000 a year; but that when the officers shall be otherwise provided for, or drop off by death, the savings would then amount to £24,000 per annum. Such advantage, however, could not be expected this year; on the contrary, this year's expense would be much greater than that of any which preceded it; but then the cause of its increase would never occur again, particularly as he proposed to move that the sum of £28,000 should be allowed as a compensation to the private gentlemen for their purchase money." Sir George then concluded by moving for the full establishment of 715 men, officers included, of the four troops of Horse and Grenadier Guards up to Midsummer Day, after which one half of their establishment should be reduced; and for the several sums for compensation, which, on the whole, amounted to £79,543 5s. He remarked, before he sat down, that much had recently been said on the subject of patronage; but this reduction was a proof that the extension of patronage was not a favourite object with His Majesty, who proposed it, as it was clear he might have greatly lessened the expenses of the nation, and yet preserved the usual patronage, by reducing the privates and keeping up the establishment of the officers. It is then added: "The sums moved for were voted without debate, and the House was immediately resumed."

The nominally independent action of the King in relation to the Household Troops, and its open allegation by the Secretary, tell of an age when the Stuart ideas of kingly prerogative still, in theory,

survived. The Duke of Northumberland spoken of, as intending to forego the compensation about to be provided for the disbanded portion of the Body Guard, was the friend of our Mohawk Chief, Joseph Brant, whose acquaintance the Duke formed while serving as Lord Percy* in the Revolutionary War. An interesting letter from the Duke to Brant, in which the latter is addressed as "My dear Joseph," may be read in Stone's Life of the Chief, ii., 237. The letter is signed, "Your affectionate friend and brother, NORTHUMBERLAND, *Tho-rih-we-gt-ri*" (Mohawk for "The Evergreen Thicket").

I likewise give a specimen of a kind of communication with which, no doubt, Sir George Yonge was familiar in his capacity as Secretary at War. It will be of some special interest to us, as it comes from the hand of Lord Dorchester, at the time Governor-General of Canada, and it is dated at Quebec in 1790. It relates to an application which, it appears, Lord Dorchester had made for a commission for his son in the Guards, which application, it was thought, had been too long overlooked, while in the meantime the young man was rapidly growing, and exceeding the prescribed age for entering the army. Consequently Lord Dorchester asks for a cornetcy, temporarily, in some other regiment. Thus the letter reads (I transcribe from the autograph original): "SIR,—As I apprehend that many importunities have retarded the success of my application, about four years since, for an Ensigny in the Guards for my eldest son, Guy; and fearing lest the same reasons may still continue, while he is advancing considerably beyond the age judged necessary for entering into the military profession, I am to request you will take a proper opportunity of laying my petition before the King, that He would be graciously pleased (till such time as it may suit His Majesty's convenience and good pleasure to honour him with a commission in His Guards) to give him a Cornetcy in any of His Regiments in Great Britain. I am, Sir, with regard, your most obedient and most humble servant, DORCHESTER. Sir George Yonge, &c., &c., &c."

It may be that the intended reduction in the Household Troops, to which Sir George's speech referred in 1787, had something to do with the apparent neglect of Lord Dorchester's petition. The letter just given is, as I have said, dated in 1790, and the delay had been continuing for nearly four years. Guy, in fact, never obtained even the

* Portraits of Earl Percy may be seen in Andrews' History of the War, i., 239; and Lessing's Fieldbook, ii. 613.

cornetcy. He died in 1793, aged 20. Neither did his next brother, Thomas, who died in the following year at exactly the same age. But Christopher, the third son, born in 1775, was a lieutenant-colonel in the army, and was father of Arthur Henry, the second Baron. A memorial, I believe, of Guy Carleton, first Lord Dorchester, exists in Toronto in the name of one of its streets—Carleton Street.

Besides being a statesman and skilled in the theory of war, Sir George Yonge was what our grandfathers would style an "ingenious" person, a man of letters, and fond of science and archæology. The initials appended to his name under his portrait indicate that he was a Fellow of the Royal Society and of the Society of Antiquaries of London. In volume nine of the *Archæologia*, or Transactions of the Society of Antiquaries of London, I find a letter addressed by him to the secretary of the Society, on the subject of Roman Roads and Camps. Major Hayman Rooke, a Fellow of the Society, had discovered some Roman remains near Mansfield, in the county of Nottingham, and Sir George had suggested the probability of a Roman road or camp somewhere near by. The conjecture turned out to be correct, although before the search which was instituted the existence of such works there had not been suspected. In a letter to Sir George, Hayman Rooke justly observes that "the discovery proves your superior judgment in these matters." Sir George introduces Major Rooke's discoveries to the Society of Antiquaries thus (the document is addressed to the secretary of the Society): "SIR,—I transmit to you, at the request of my respectable and ingenious friend, Major Rooke, of Woodhouse, a small treatise which he has drawn up on some Roman Roads, Tunals, Stations and Camps, which he has lately traced in the neighbourhood of Mansfield, and which have not hitherto been noticed." I cannot comply with his request that it might be transmitted to the Society, without explaining some particulars which gave rise to this treatise. When I first saw the account which he sent to the Society, of a Roman villa which he had discovered near Mansfield, I communicated to him some few sentiments of mine, on which I grounded an opinion, though I was quite unacquainted with the country, that this villa was probably the residence of some military Roman commander, and that there was probably some Roman camp or station, or some military Roman road, running near it. This did not by any means appear by his answer to be the case. And yet it still seemed to me to be improbable that it should be otherwise.

Having had an opportunity last year of waiting on Major Rooke and viewing this Roman villa, I was first struck with the appearance that Mansfield was probably a Roman station, from whence the villa was not above a mile distant, and indeed was in sight of it; and I thought I saw traces of some Roman roads running near it. On viewing the villa itself (which I found well worth the view), I saw a post still nearer it which had all the appearance of a Roman camp, from its form and other circumstances; but on inquiry from Major Rooke, he assured me there was no such thing there, nor Roman road in the neighbourhood. However, having communicated to him my sentiments grounded on observations which I had occasionally made on Roman roads, stations and camps, from whence I had formed a decided opinion that there was a uniform system of such roads, camps and stations throughout the kingdom, and all connected with each other as *diverticula*, I entreated Major Rooke to look a little more narrowly into this point; and ventured to prophesy that, on searching further into this particular spot, which wore the name of Pleasley Wood, he would not only find *that* to be a Roman station, but would probably from thence be able to trace a connected chain of them through the country. The time and the season not allowing of it *then*, he promised to do so as he had leisure and opportunity; and the result of his labours is contained in the treatise herewith enclosed. I hope I shall be forgiven if I take this opportunity, fortified by this experiment of the truth of my ideas on the subject, humbly to submit it to the Society whether they would not think it advisable to direct some encouragement should be given to an investigation of all the Roman roads, camps and stations throughout the kingdom, county by county, for the purpose of ascertaining the connected military system and principles on which they were formed, which may lead to a curious discovery of the extent and situation of the many Roman towns, camps and villas which must have existed in this country during the period of four hundred years for which Britain was a very distinguished member of the great Roman Empire. Such investigation, gradually but regularly pursued, would neither be expensive nor laborious, there being very little doubt but that there are ingenious persons in every county, who, on such a wish being properly communicated to them by the Society, would readily second those wishes, and, with very little assistance in having plans or drawings made by

order of the Society, where the accounts transmitted might appear to justify it, produce in time a very complete account and system of these military Roman remains, as well as of other *municipia*, and perhaps *baths* and other vestiges of Roman magnificence. I beg pardon for the liberty I have taken of suggesting thus much, and for detaining you so long upon this subject; but I thought the explanation necessary to elucidate the occasion of the treatise transmitted from Major Rooke, and I also thought the subject not unworthy of the attention of the Society. It will give both Major Rooke and me great pleasure if they should be of the same opinion, or if they should think what has been offered in any degree deserving their notice. I am, with regard, Sir, your most obedient and humble servant, GEO. YONGE."

This communication to the Society of Antiquaries is dated "Stratford Place, May 7, 1788." After reading it, we can readily understand why the first organizer and Governor of Upper Canada, General Simcoe, should have attached the name of Sir George Yonge to the great military road cast up and hewn out by him, in 1793, through the primitive woods from Lake Ontario to Lake Huron. It was not simply as a compliment to the Secretary at War of the day, but it was also something to give special gratification to a Fellow of the Society of Antiquaries who had made himself, by his observation and research, an authority on Roman roads. The application, too, of the term "Street" to the two great original highways opened up within the new province, and intersecting each other at right angles in the heart of its capital town, is thus explained. It was to follow the example of the old Roman colonizers, who wisely made it an essential part of their system to establish at once, throughout the length and breadth of each region occupied, a public way, well constructed, and usually paved with blocks of stone—hence called a *via strata*—vernacularized into *Street* by our Saxon forefathers. Thus we have Watling Street, a Roman road leading from Richborough to Canterbury and London; Ickneild Street, a Roman road leading from Tynemouth through York, Derby, and Birmingham to St. David's; Ermin Street, leading from Southampton, also to St. David's. Whilst Ardwick-le-Street in Yorkshire, Chester-le-Street in Durham, Stretton, Stratton, Streatham, and several places called Stretford and Stratford, all imply that they were each of them situated on the line of some old Roman street or road.

I observe among the "Traditions and Recollections" of Polwhele, the historian of Cornwall, a reference to the literary tastes of Sir George Yonge. Polwhele had communicated to him, for his judgment, a certain composition, intended apparently to compete for some distinction at the University of Oxford. Sir George replies as follows: "I very much like your poetical ideas, and think they will do for Oxford very well. The ode might be spoken (Sir George suggests) by a bard from the top of the Promontory of Hercules," [i.e., Hartland Point, North Devon, jutting out into the Bristol Channel.] And in another place in the same work of Polwhele's we meet with an allusion to Sir George Yonge as an encourager of the author in his labours in relation to the History of Cornwall, notwithstanding the adverse criticism of a few. Thus:

- "Though Acland, scowling midst his scatter'd plans,
 May spots innumerable in my book espy;
 Though Inledon each fact severely scans,
- In pedigrees, perhaps, more sage than I;
 Yet whilst a Downman wishes to peruse
 (His mind the seat of candour!) all I write;
 Whilst YONGE still prompts me to enlarge my views,
 And bids me soar with no ignoble flight;
 Whilst Whitaker approves my various scheme,
 And wakes my ardour in each bold essay;
 With friendly light illumining the theme
 Of Roman relics sunk in dim decay;
 Shall not the Spirit of Research proceed,
 And, spurning Envy, grasp the historic meed?"

(Downman was a literary contemporary of note, a clerical M.D. Whitaker was the Rev. John Whitaker, author of the History of Manchester, of the Life of St. Neot, the eldest brother of King Alfred, and other works.)

Sir George Yonge died, as I have already mentioned, in 1812. Sir W. Courthope observes, in his "Synopsis of the Extinct Baronetage of England," that he died *sine prole*, so that the baronetcy became extinct, after existing since 1661, the time of the Restoration. It is to be regretted that we have to state that towards the close of his life Sir George became involved in difficulties from having invested largely in wool-mills, in the neighbourhood of Honiton, the borough which he, as his father before him, had represented in Parliament for many years. And Mr. George Roberts, of Lymo Regis, in his

"Introduction to the Diary of Walter Yonge, Esq.," published in 1848 by the Camden Society, says of Sir George that he was once heard to say that he began life with £80,000 of family property, that he received £80,000 with his wife, and that he had been paid £80,000 by the Government for his public services, but that Honiton had swallowed it all. All had been sunk in the "wool-mills" at or near Honiton. (The Walter Yonge just mentioned was an ancestor of Sir George's, who likewise represented the Borough of Honiton in Parliament.) Sir George Yonge was buried at Colyton in Devon, where his coffin-plate is preserved. But it appears that no tablet to his memory has been erected. Doubtless a great error of judgment was committed when Sir George ventured to meddle with "wool-mills;" ventured to engage in speculations connected with the manufacture by machinery of serges and broad-cloths. Actuated, it may be, by public spirit in entering on such undertakings, and also by a desire, perhaps, to become rapidly rich, yet wholly without practical experience in the conduct of such enterprises, he became, it is likely, the dupe of sharpers. The broad pleasant acres of Devon, to which he and his fathers had been wont to trust for comfortable revenue, slipped away out of his hands, and like Antæus when lifted off from the earth, the country gentleman, uprooted from the land, soon found his power and influence gone. Although many bearing his family name, more or less nearly connected with him by blood, have since become distinguished in the world of letters and scholarship, we do not, after him, observe any one of his name going up to the House of Commons from Devon, and serving the State as Minister of the Crown.

Besides Yonge Street, we have in Ontario another memorial of Sir George Yonge, in the name of the township of Puslinch, in the county of Wellington, that being the name of a well-known family seat of the Yonges near Ycalmton, in Devonshire; for although the subdivision of the wide-spread sept of the Yonges to which Sir George Yonge belonged, was known strictly as the Yonges of Colyton, yet it is to be observed that Burke, in his *Landed Gentry*, gives his notice of the Yonges of Colyton under the more comprehensive head of the Yonges of PUSLINCH.

I now proceed with my memoir of the other personage whose life and career I desire to recall, viz., Henry Dundas.



HENRY DUNDAS, FIRST VISCOUNT MELVILLE. (1740—1811).

AFTER WHOM DUNDAS STREET, PROVINCE OF ONTARIO, WAS NAMED.

II.—HENRY DUNDAS, FIRST VISCOUNT MELVILLE.

The engraved portrait which I have of the Right Hon. Henry Dundas, is from a painting by the distinguished Scottish artist, Sir Henry Raeburn, R.A. It represents him in his ermined robes as a member of the House of Peers; for our Henry Dundas became finally a Viscount—Viscount Melville. He is standing at a table and speaking. His left hand rests lightly on papers before him. His right arm is sharply bent. The hand, planted on the hip, rather awkwardly draws back a portion of the robe, displaying its interior silken lining. He wears a curled and powdered wig of the time of George III. The oval, smooth-shaven countenance is not very remarkable; but some dignity is thrown into it by Raeburn's art, which, nevertheless, has failed to divest it of an expression of self-consciousness. The brows are slightly knitted; the eyes look out over the head of the spectator, and the lips are compressed. The nose is good. Below is a *fac simile* autograph signature, "MELVILLE."

Henry Dundas was, as it were, an hereditary Scottish juris-consult. His father and grandfather had been judges of the Scottish bench. His father was Lord President of the Court of Session, sitting by the title of Lord Arniston. His brother Robert also held the same high legal office, and assumed the same title, which was derived from an estate named Arniston. The Dundasses of Arniston were descended from George Dundas of Dundas, sixteenth in descent from the Dunbars, Earls of March. Henry Dundas was bred to the bar, and became a member of the faculty of advocates in 1763. Though of high Scottish rank, the family fortune by no means rendered him affluent. It is said "that when the young Henry established himself in his chambers in the Fleshmarket Close, in Edinburgh, he had, after paying his fees and other expenses connected with admission to the bar, exactly £60 remaining in his purse as capital, so far as cash was concerned, wherewith to make a start in the world. But his solid and well-trained abilities stood him in excellent stead. They soon began to tell. He was appointed successively assessor of the magistrates of Edinburgh, depute-advocate, *i.e.* deputy to the Lord Advocate of Scotland, for public prosecutions, and Solicitor-General for Scotland. Boswell, in his Life of Johnson, thus speaks of the pleading of Dundas in the case of Joseph Knight, a negro slave from the West Indies, who claimed his freedom in Scotland: "I cannot too highly praise the

speech which Mr. Henry Dundas contributed to the cause of the sooty stranger. On this occasion he impressed me, and I believe all his audience, with such feelings as were produced by some of the most eminent orators of antiquity." Boswell, quite gratuitously, indulges in a reference to the accent of his fellow-countryman. "Mr. Dundas's Scottish accent, which," he observes, "has been so often in vain obtruded as an objection to his powerful abilities in Parliament, was no disadvantage to him in his own country." And again, in another place, Boswell goes out of his way to allude in coarser terms to the same quite natural accident of Dundas's oratory. The truth was, Boswell had been trying to school his own tongue in southern ways, and piqued himself on his supposed superior success in that regard. "A small intermixture," he says, "of provincial peculiarities may, perhaps, have an agreeable effect, as the notes of different birds concur in the harmony of the grove, and please more than if they were all exactly alike. I could name some gentlemen of Ireland," he continues, "to whom a slight proportion of the accent and recitative of that country is an advantage. The same observation will apply to the gentlemen of Scotland. I do not mean," he then adds, "that we should speak as broad as a certain prosperous member of Parliament from that country; though it has been well observed that it has been of no small use to him, as it rouses the attention of the House by its uncommonness, and is equal to tropes and figures in a good English speaker."

The "prosperous member of Parliament" was Dundas, who was returned member for Edinburgh in 1774. He at once took a leading part in the proceedings of the House. "As a public speaker," we are told, "he was clear, acute and argumentative, with the manner of one thoroughly master of his subject, and desirous to convince the understanding without the aid of the ornamental parts of oratory, which he seemed in some sort to despise." He supported the administration of Lord North, and voted for the prosecution of the war against the American colonies. In 1775 he was appointed Lord Advocate for Scotland and Keeper of the King's Signet for Scotland. The Lord Advocate of Scotland, we should observe by the way, holds the highest political office in Scotland, and he is always expected to have a seat in Parliament, where he discharges something resembling the duties of Secretary of State for that quarter of the kingdom. In those days, all the patronage of the crown in Scotland was in his hands.

Lord Cockburn, in the "Memorials of His Times," writing from the Whig point of view, speaks of Dundas as absolute Dictator of Scotland, as Proconsul, as Harry the Ninth. "The suppression of independent talent and of ambition," he says, "was the tendency of the times. Every Tory principle being absorbed in the horror of innovation, and that party casting all its cares upon Henry Dundas, no one could, without renouncing all his hopes, commit the treason of dreaming an independent thought. There was little genuine attraction for real talent, knowledge or eloquence on that side, because these qualities can seldom exist in combination with abject submission. And indeed," he then candidly adds, "there was not much attraction for them among the senior and dominant Whigs, among whom there was a corresponding loyalty to the Earl of Lauderdale." And again, Lord Cockburn writes: "In addition to all the ordinary sources of government influence, Henry Dundas, an Edinburgh man, and well calculated by talent and manners to make despotism popular, was the absolute dictator of Scotland, and had the means of rewarding submission, and of suppressing opposition, beyond what was ever exercised in modern times by one person in any portion of the empire." "A country gentleman," he says, "with any public principle except devotion to Henry Dundas, was viewed as a wonder, or rather as a monster. This was the creed also of all our merchants, all our removable office holders, and all our public corporations."

When Lord North's administration at length fell, and that of Lord Rockingham came into power, Henry Dundas still retained the office of Lord Advocate of Scotland; and when Lord Rockingham died, and Lord Shelburne succeeded, he was appointed Secretary of the Navy; but on the formation of the Coalition Ministry very soon after, he resigned, and became Pitt's right-hand man in the Opposition. Lord North, the head of the Coalition, resigned on the rejection of his India Bill by the Lords; when Pitt became premier, with Dundas as Treasurer of the Navy. Dundas materially assisted Pitt in the elaboration of the new India Bill, which passed, and under the arrangements of which he became President of the Board of Control; and he fully believed, as he expressed himself to the House, that the new measure would be a means of prodigiously lightening, if it did not finally extinguish, the national debt, so large would be the surplus revenue accruing in future from India.

As Treasurer of the Navy, Dundas was the originator of many beneficial reforms in the navy. For several special benefits accruing from his enactments to the common sailors, he was long spoken of amongst them as "the sailors' friend."

By a kind of irony of events, a regulation introduced by him in the Navy Department was made use of, at a subsequent date, to set up a series of charges against himself. The salary of the Treasurer of the Navy had hitherto been £2,000; but perquisites and the command of the public money set apart for navy purposes, added greatly to the emoluments. To prevent the risk, profusion and irregularity inseparable from such a system, Dundas' bill fixed the salary at £4,000, and prohibited the treasurer from making any private or individual use of the public money. How this salutary provision was brought to bear against himself by his political opponents at a subsequent period, will be presently seen. Dundas became also, under Pitt, Secretary of the Home Department and Secretary at War. He was likewise sworn of the Privy Council. As Secretary of the Home Department, in view of the expected invasion from France, he promoted the formation of the fencible regiments, the supplementary militia, the volunteer corps, and the provisional cavalry. Due to him was the whole of that domestic force which, during the war consequent on the French Revolution, was raised and kept in readiness, as a defence at once against foreign invasion and internal disturbance.

I am enabled to give a specimen-dispatch of Mr. Dundas's, as Secretary at War, transcribing from the original, wholly in his own handwriting. It is addressed to the Governor of the Island of Jersey, General Hall, during the troublous times of the Revolution in France. The island, it seems, had been made a convenience of by the French Royalists and by some scoundrels engaged in the manufacture and circulation of forged assignats—French paper currency of the day. The Secretary at War thus addresses General Hall on the subject, leaving us under the impression that due vigilance had not been used by the Governor, who, it appears, is about to be relieved. It is dated "Horse Guards, 26th October, 1794," and marked "secret:" "SIR,—Some unpleasant occurrences which have lately happened on that part of the coast of Brittany on which persons sent from Jersey have been landed, with a view of establishing a communication with the Royalists in the interior of France, render it absolutely necessary that you should not permit or authorize any person whatever to

embark from Jersey with a design of proceeding to France, and particularly to that part of the coast which I have described, unless you shall hereafter receive from me directions contrary to those of this dispatch, to which, in the present state of affairs, I must request you will pay immediate and particular attention. One reason in particular which induces me to urge this precaution is that I have reason to believe an intercourse has lately been established between Jersey and the coast for the sale and distribution of forged assignats. The parties concerned in this speculation will of course make every exertion to prevent its failure, and it will therefore be necessary that any person supposed to have taken a share in it should be carefully watched, and it is of the greatest importance, particularly at the present moment, that no communication should be permitted with the coast, except by the boats which Capt. D'Auvergne may think proper to detach with such persons as he may select for the service, which requires the greatest secrecy and caution. It is principally with a view of securing these points—absolutely necessary in a communication of this nature—that I have entrusted the management of it to Capt. D'Auvergne exclusively, who, by his situation on board a ship, can execute my directions without incurring any risk of their being divulged, which, whatever precaution may be taken, they would frequently be if the same measures were carried on from the Island. I understand that you have received permission to return to England as soon as you can be relieved in the command of His Majesty's Forces in Jersey. In the meantime, I rely with the fullest confidence in your zeal and attention in the discharge of this important trust, and I can assure you that you will find Capt. D'Auvergne ready to concert with you, whatever measures may be thought most expedient for the safety and defence of the Island, inasmuch as it depends on the naval force under his command. I am, Sir, your obedient humble servant, HENRY DUNDAS. Major-General Hall, &c."

In the debates on the Bill for the division of the Province of Quebec into Upper and Lower Canada, Mr. Dundas's name appears several times; and in the Simcoe correspondence preserved at Ottawa are several official communications addressed to and received from him. I transcribe a sentence or two from those in which the project of a street or military road is spoken of, viz., that to which by way of compliment the Governor attached the name of Dundas. In 1793, he writes: "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." And in 1794, he reports: "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 the settlements at Niagara. It is intended to be extended northerly to York by the troops, and in process of time by the respective settlers to Kingston and Montreal."

At the present time, I believe, the practice has become somewhat obsolete of applying the name *Dundas Street* to the whole of the long highway originally so called, extending from Detroit to the Point au Baudet. A portion of it immediately west of Toronto, may be spoken of as the Dundas road; and the prevalent impression may be that the name denotes simply the route which leads to the town of Dundas. But this, of course, would be quite a mistaken idea to adopt. On the old manuscript maps, contemporary with the first organization of the country, long before the town of Dundas existed, the route from the Western to the Eastern limit of Upper Canada was marked *Dundas Street* throughout its whole length. And thus we have it still laid down in the excellent and interesting map of Canada given in the handsome, large General Atlas published in Edinburgh, by John Thomson, in 1817, constructed from authentic sources, and dedicated to Alexander Keith, of Dunottar and Ravelston. And at the end of the first Gazetteer of Upper Canada, published in London in 1799, we have the following postscript which, while serving to shew that the whole of the highway from the west to the east was denominated *Dundas Street*, will also help us to realize the stern conditions in respect of means of inter-communication and locomotion under which our patient fathers first began to shape out and mould for us the pleasant rural scenes, the amenities and comforts of civilized life, everywhere now to be beheld and enjoyed amongst us. This postscript, dated 1799, reads thus: "Since the foregoing notes have come from the press, the editor is informed that the Dundas Street has been considerably improved between the head of Lake Ontario and York; and that the Government has contracted for the opening of it from that city to the head of the Bay of Quinté, a distance of 120 miles, as well as for causewaying of the swamps and erecting the necessary bridges, so that it is hoped, in a short time, there will be a tolerable road from Quebec

to the capital of the Upper Province." It may excite a smile to find York styled a "city" in 1799: but the terms of the passage shew, as I have said, that the whole of the highway from the west to the east, passing through York, was regarded as Dundas Street. *That*, in fact, was the name long borne by our present Queen Street here in Toronto; and Queen Street, as everyone knows, is in a right line with the "Kingston road," which was, as we see, simply the prolongation of Dundas Street, the great provincial highway, or Grand Trunk, as it were, of the day, leading to Montreal and Quebec. It is scarcely necessary to observe that the distinction and celebrity of both Dundas Street and Yonge Street, taken in the original extended meaning of their names, have been eclipsed in these days by the greater glory and the greater convenience of the Grand Trunk, Great Western, and Northern Railways of Canada. Highways, like men, have their vicissitudes.

Hinc, apicem, rapax

Fortuna, cum stridore acuto,

Sustulit; hic possuisse gaudet.

Travel and traffic having been in this way largely turned aside from our two primitive historic "streets," they have both of them dropped, in some measure, out of the knowledge of tourists, and even out of the knowledge of many among the younger portion of our settled inhabitants.

Besides Dundas Street, another permanent memorial of Henry Dundas was established in Canada, in the name of a county toward the eastern limit of the present Province of Ontario. The County of Dundas is united with the Counties of Stormont and Glengarry, with the well-known borough of Cornwall for county-town conjointly.*

But to return:—In 1801 Pitt resigned the premiership, not being able to induce the King to assent to the enfranchisement of the Roman Catholics, a measure which had been virtually promised when the legislative union of Ireland and Great Britain was effected. Dundas retired with him, but was raised to the peerage in the following year, by the Addington Ministry, as Viscount Melville, of Melville Castle, in the County of Edinburgh, and Baron Dunira, of

* For this portion of Canada a local historian has happily appeared. Mr. James Croill, of Archerfield, in 1861, published an elaborate and interesting volume of 350 pages, bearing the following title: "Dundas, or a Sketch of Canadian History, and more particularly of the County of Dundas, one of the earliest settled counties in Upper Canada." It is dedicated to "the descendants of the United Empire Loyalists residing in the United Counties of Stormont, Dundas and Glengarry, formerly the Old Eastern District."

Dundas, in the County of Perth. In these titles the name of "Dundas," in which we are chiefly concerned, henceforward merges and is lost. On his elevation to the peerage, the Lord Provost and Town Council of Edinburgh presented him with an address, in which they expressed their attachment to him and his family, their admiration of his talents, and their gratitude for the many services he had rendered to the country, and in particular to the City of Edinburgh. The new lord appeared in person before the Council and delivered a speech in reply, in which, among other topics, he dwelt on the practical blessings of the British Constitution, of which his own career, he said, afforded a striking example. "While we therefore continue to resist the fanatic principles of ideal equality, incompatible with the government of the world and the just order of human society, let us, he exhorted his hearers, rejoice in those substantial blessings, the results of real freedom and equal laws, which open to the fair ambition of every British subject the means of pursuing with success those objects of honour, and those situations of power—the attainment of which, in other countries, rests solely upon a partial participation of personal favour, and the enjoyment of which rests upon the precarious tenure of arbitrary power." While the civic authorities of Edinburgh, in the presence of Viscount Melville, are yet before our mind's eye, it will perhaps be of some interest to hear what Lord Cockburn, a contemporary, says of them, and their place of meeting, in the "Memorials of His Times." We must of course make allowance for the Whiggish bias of his pen. "In this Pandemonium," he says [namely, in what he had just before described as "a low, dark, blackguard-looking room, entering from a covered passage which connected the north-west corner of the Parliament Square with the Lawnmarket"], "sat the Town Council of Edinburgh, omnipotent, corrupt, impenetrable. Nothing was beyond its grasp; no variety of opinion disturbed its unanimity, for the pleasure of Dundas was the sole rule for every one of them. Reporters, the fruit of free discussion, did not exist; and though they had existed, would not have dared to disclose the proceedings. Silent, powerful, submissive, mysterious and irresponsible, they might have been sitting in Venice. Certain of the support of the Proconsul, whom they no more thought of thwarting than of thwarting Providence, timidity was not one of their vices." A curious picture, surely; of which, let us be thankful, no exact counterpart can be found in any city or town in the Empire at the present day.

In 1804, when, on the resignation of the Addington Ministry, Pitt returned to power, Viscount Melville became First Lord of the Admiralty; and now it was that the tide of his good fortune began to ebb. He was, all of a sudden, called to account by the House of Commons for certain malpractices indulged in some twenty years previously by one Alexander Trotter, the Paymaster of the Navy when Melville was Treasurer of the Navy in 1786. The charge came up indirectly in connection with another inquiry, and the occasion was greedily seized by the Whig Opposition as one that might perhaps bring on the downfall of Pitt's administration. On the motion of Mr. Whitbread, a resolution was carried, only, however, by the casting vote of the Speaker, in a house of 433, asserting that "large sums of money had been, under pretence of naval services, drawn from the bank by Alexander Trotter, Paymaster of the Navy, and by him invested in exchequer and navy bills, lent upon the security of stock, employed in discounting private bills, and used in various ways for the purposes of private emolument; and that in so doing he acted with the knowledge and consent of Lord Melville, to whom he was at the same time private agent; and therefore that Lord Melville has been guilty of gross violation of the law, and a high breach of duty." Before the resolution was put, Pitt and Canning had both spoken eloquently and powerfully in defence of their colleague. On the day after the condemnatory vote, Pitt announced to the House that Lord Melville had resigned his office of First Lord of the Admiralty; and three weeks later Pitt intimated that, in deference to the prevailing sense of the House, the King had been advised by his ministers to erase Lord Melville's name from the list of Privy Councillors, and that accordingly it would be done. Four weeks later, Melville asked to be heard before the House of Commons, where he appeared in person, and offered reasonable explanation of his conduct as Treasurer of the Navy twenty years before. The Opposition was implacable, however, and, at the instigation of Whitbread, a vote was carried to institute formal impeachment; and in due time, Westminster Hall witnessed a scene somewhat similar to that which had been enacted within about twenty years before, at the trial of the other great Proconsul, Warren Hastings.

The process lasted from April 29 to June 12 (1806), when the accused peer was acquitted of malversation personally, but judged guilty of negligence of duty in respect of his agent. There can be no question but that Melville's alleged offence was greatly magnified

by political rancour and sectional prejudice, and that every nerve was strained by the party out of power at the time to make it appear that he had clearly transgressed the law of purity imposed by himself on the Navy Department in 1785. "The charges against Lord Melville were groundless," Lord Cockburn says in his "Memorials," "and were at last reduced to insignificancy. To those who knew the pecuniary indifference of the man, and who think of the comparative facility of peculation in those irregular days, the mere smallness of the sums which he was said to have improperly touched, is of itself almost sufficient evidence of his innocence. If he had been disposed to peculate, it would not have been for farthings."

Lord Cockburn then goes on to remark on the benefits which accrued, especially in Scotland, to the Whigs, by the impeachment, notwithstanding its failure. "It did more," he says, "to emancipate Scotland than even the exclusion of Melville's party from power. His political omnipotence, which without any illiberality on his part, implied, at that time, the suppression of all opposition, had lasted so long and so steadily, that in despair the discontented concurred in the general impression that, happen what might, Harry the Ninth would always be uppermost. When he was not only deprived of power, but subjected to trial, people could scarcely believe their senses. The triumphant anticipations of his enemies, many of whom exulted with premature and disgusting joy over the ruin of the man, were as absurd as the rage of his friends, who railed, with vain malignity, at his accusers and the Constitution. Between the two, the progress of independence was materially advanced. A blow had been struck which, notwithstanding his acquittal, relaxed our local fetters. Our little great men felt the precariousness of their power; and even the mildest friends of improvement—those who, though opposed to him, deplored the fall of a distinguished countryman more than they valued any political benefit involved in his misfortune, were relieved by seeing that the mainspring of the Scotch pro-consular system was weakened."

A satirical poem of the day which I possess, entitled, "All the Talents," by Polypus, expresses the Tory feeling in regard to Melville and his chief accuser, Whitbread. It thus speaks:

"Could Whitbread catch a spark of Windham's fire,
To deeds more dang'rous Whitbread might aspire;
But as it stands, our brewer has not *voûc*
To lead the mob or to mislead the House.

See how the happy soul himself admires!
 A hazy vapour thro' his head expires;
 His curls ambrosial, hop and poppy shade,
 Fit emblems of his talent and his trade.
 Slow yet not cautious; cunning yet not wise;
 We hate him first, then pity, then despise.

Pufft with the Pride that loves her name in print,
 And knock-kneed Vanity with inward squint.
 Laborious, heavy, slow to catch a cause,
 Bills at long sight upon his wits he draws,
 And with a solemn smartness in his mien,
 Lights up his eyes and offers to look keen.
 But oh! how dullness fell on all his face,
 When he saw Melville rescued from disgrace!
 Not more agape the stupid audience stared,
 When Kemble spoke of *Aitches* and a *Baird*.
 Cold from his cheek the crimson courage fled;
 With jaw ajar, he looked as he were dead,
 As from the anatomist he just had run,
 Or was bound 'prentice to a skeleton.
 Then, seeing thro' the matter in a minute,
 Wished to high Heav'n he ne'er had meddled in it.
 Rough as his porter, bitter as his barm,
 He sacrificed his fame to Melville's harm,
 And gave more deep disgust, than if his vat
 Had curst our vision with a swimming rat.

The same satirist thus comments on the fact, that before proceeding to the impeachment in Westminster Hall, Melville's accusers had succeeded in having him pronounced guilty of the charges, and unworthy of being on the roll of the Privy Council:

"Justice, turned scholar, changed her vulgar plan,
 And, just like Hebrew, from the end began;
 First found the culprit guilty, tried him next,
 And from *Amen* preached backwards to the text.
 So crabs advance by retrograde degrees,
 And salmon drift, tail foremost, to the seas!
 To vex the Scotchman answered every end:
 Unhappy in his servant and his friend."

"To vex the Scotchman answered every end:" this line glances at a narrow and unworthy anti-Scottish prejudice which had been prevalent, more or less in England, ever since the days of the Scottish favourite, Lord Bute. A caricature of the day, by Sayer, represents a figure, made up of barrels and tubs, aiming a flail at a large thistle.

The thistle, of course, is Melville, and the figure, Whitbread, who, as we have had already intimated to us, was a brewer, a wealthy London brewer. Underneath are the following lines, to understand which we must be informed that Sansterre, the commandant of the National Guard who had presided at the recent execution of Louis XVI. in Paris, happened also to be a brewer. "Sansterre," we are told—

"Sansterre forsook his malt and grains,
To mash and batter nobles' brains,
By levelling rancour led:
Our Brewer quits brown stout and washy,
His malt, his mash-tub, and his quashea,
To mash a Thistle's head."

In Lockhart's Life of Scott is given a song, written by Sir Walter on the occasion of Lord Melville's acquittal. It was sung with great applause at a public dinner in Edinburgh, by Mr. James Ballantyne. Scott regarded the impeachment of his friend as a mere act of vindictiveness on the part of the Whigs. Of the eight stanzas of which this production consists, I quote one, wherein Pitt and Melville are named together, and an allusion occurs to the recent death of Pitt, who, it must be added, did not long survive the trouble which had befallen his faithful supporter, Melville. In fact, he died before the trial in Westminster Hall came on. The name Despard, which occurs near the close of the stanza, is that of an ex-Lieutenant-Colonel Despard, who endeavoured to create sedition among the soldiers and others in England in 1803. And the Arthur O'Connor mentioned just before, was a coadjutor of Lord Edward Fitz-Gerald, Napper Tandy, Addis Emmet, and other conspirators in Ireland, known as the United Irishmen, whose aim was to make Ireland a Republic like France in 1793. The word "reform," it should be observed, is used in an invidious sense. Thus the stanza reads:

"What were the Whigs doing, when, boldly pursuing,
PITT banished Rebellion, gave Treason a string?
Why they swore on their honour, for ARTHUR O'CONNOR,
And fought hard for DESPARD against country and king.
Well then we knew, boys,
PITT and MELVILLE were true boys,
And the tempest was raised by the sons of Reform.
Ah, woe!
Weep to his memory;
Low lies the pilot that weathered the storm."

"The Pilot that weathered the storm" is the echo of a phrase of Canning's, used by him as the title of some verses on Pitt, written in 1802.

Lockhart does not applaud the animus of Scott's song; and Sir Walter himself subsequently allowed the unwisdom of much of it.

In this song, too, occurred the expression—"Tally-ho! to the Fox!" which was interpreted by some to be an allusion to Fox, the great Whig rival of Pitt, who was known at the time to be prostrated by sickness—sickness likely to prove mortal, and which did prove mortal on the 6th of the following September. "If," says Lord Cockburn, "Scott really intended this as a shout of triumph over the expiring orator, it was an indecency which no fair license of party-zeal can palliate. But I am inclined to believe," Lord Cockburn continues, "that nothing was meant beyond one of the jocular and not unnatural exultations over the defeated leaders of the impeachment, of which the song is composed. There were some important persons, however," it is added, "whose good opinion, by this indiscretion, was lost to Scott forever."

On the death of Pitt, the coalition-ministry, known as "All the Talents," was formed, consisting of Grenville, Fox, Lord Howick, Erskine; which was speedily followed by the Duke of Portland's ministry, comprising Canning, Castlereagh, Percival, Lord Eldon. Melville's name was replaced on the list of the Privy Council; and it was suspected by some that this was preparatory to acceptance of office. We have the Whig feeling on this point expressed in some stanzas which I quote from a satire, styled Melville's Mantle, put forth in reply to Canning's Elijah's Mantle, a piece in which Elijah rather strangely adumbrates the lately deceased Pitt:

"When by th' Almighty's dread command
Old Bute had left this injured land,
He long had set in flame,
His mantle crafty Jenky caught—
Dundas, with equal spirit fraught,
The Tories' hope became.

In these were qualities combined
Just suited to the royal mind—
The supple spirits here:
What sad reverse! that spirit left,
No confidence, no hope was left—
The Whigs impeached the Peer!

Is there (since gone is that great band
 Who ruled with Freedom's liberal hand)
 'Mong those who power resume,
 One on whom public faith can rest—
 One fit to wear a Chatham's vest
 And cheer a nation's gloom?

Melville! to aid thy batter'd fame,
 Thy monarch's secret favour claim,
 His pulse at Windsor feel!
 A Privy Councillor you soar;
 God grant you may be nothing more,
 Or, farewell public weal!

Young Jenky, you've no cause to mourn
 Tho' Whigs your servile conduct scorn,
 Your Cinque Ports cannot fail:
 You thank your stars that Pitt's a corse,
 Nor care, tho' patriots till they're hoarse
 At you and Melville rail."

Some appended notes explain that the "Crafty Jenky," of the first stanza, meant Sir Charles Jenkinson, the first Lord Liverpool, "Lord Bute's scrub," as the annotator speaks; whilst the "Young Jenky" of the last stanza is his son, who, on the death of Pitt, became his successor as Warden of the Cinque Ports, thus following his father in the road of place and preferment—"plus passibus æquis," the annotator observes. Another title of the Earls of Liverpool was Baron Hawkesbury; whence our Hawkesbury on the Ottawa.

But after the death of Pitt, Melville was little inclined to enter again on public life. He henceforward remained chiefly in retirement, taking part only occasionally in the debates of the House of Lords.

Lockhart informs us that Lord Melville, after his fall, used to be a constant visitor at Sir Walter's house, in Castle Street, in Edinburgh, and that "the old statesman entered with such simple-heartedness into all the ways of the happy circle, that it came to be an established rule for the children to sit up to supper whenever Lord Melville dined there." "In private life," we are told by Robert Chambers, "his manner was winning, agreeable and friendly, with great frankness and ease. He was convivial in his habits, and, in the intercourse of private life, he never permitted party distinctions to interfere with the cordiality and kindness of his disposition; hence it has been truly said," Robert Chambers remarks, "that Whig and Tory agreed in

loving him; and that he was always happy to oblige those in common with whom he had any recollections of good-humoured festivity."

I have said that the tide of Lord Melville's good fortune began to ebb when he received the appointment of First Lord of the Admiralty, in 1804. But previous to that date, his bed had not always been one of roses. "Uneasy lies the head that wears a crown;" and the sovereign's lot in this respect is often shared by his servant, the statesman. To this effect we have in Sir John Sinclair's Memoirs a remark of Lord Melville's noted. Sir John had waited on him on the new year's morn of 1796, to wish him a happy new year. Melville's reply was: "I hope this year will be happier than the last; for I can scarcely recollect spending one happy day in the whole of it." This confession, coming from one whose whole life had hitherto been a series of triumphs, and who appeared to stand secure on the pinnacle of political ambition, Sir John Sinclair used often to dwell upon as exemplifying the vanity of human wishes.

Lord Melville's death was a sudden one. He had come into Edinburgh from his country residence, to attend the funeral of President Blair, an old friend, when a fit of apoplexy seized him. He had retired to rest in his usual health, but was found dead in his bed next morning. These two early-attached, illustrious friends were thus lying, both suddenly dead, with but a wall between them. Their houses on the north-east side of George Square, Edinburgh, were next each other.

That Lord Melville's end was quite unexpected by himself at the moment, is shewn by a curious circumstance. A letter was discovered lying on the writing table in the room where he was found dead, containing, by anticipation, an account of his emotions at the funeral of President Blair. It was addressed, ready to be sent off, to a member of the Government, with a view to obtain some public provision for Blair's family; and the writer had not reckoned on the possibility of his own demise before his friend's funeral took place. "Such things are always awkward when detected," Lord Cockburn observes, "especially when done by a skilful politician. Nevertheless, an honest and true man might do this," Lord Cockburn observes; "it is easy to anticipate one's feelings at a friend's burial, and putting the description into the form of having returned from it, is mere rhetoric."

Sir Walter Scott speaks with great feeling of the decease of Lord Melville. Thus he writes in a letter to Mr. Morritt: "Poor dear

Lord Melville! "Tis vain to name him whom we mourn in vain! Almost the last time I saw him he was talking of you in the highest terms of regard, and expressing great hopes of again seeing you at Dunira this summer, where I proposed to attend you. 'Hei mihi! Quid *hei mihi?* Humana perpassi sumus!' His loss will be long and severely felt here; and envy is already paying her cold tribute of applause to the worth which it maligned while it walked upon earth."

Lord Melville was buried without pomp at Lasswade, near Edinburgh, in which parish Melville Castle is situated.

Deriving from his parents a solid understanding and a sound constitution, he, as we have seen, learned early, as is the custom of Scotland, to put them both to their proper use. Starting, as narrated, with little other capital but these endowments and this training, he laid the foundation of his house with wisdom, and the superstructure upreared thereupon by him has accordingly endured. The title of Lord Melville, of which he was the originator, has come down with distinction to the present time; and his family, immediate and collateral, continues to send forth from time to time men able and willing to do good service, civil and military, to the commonwealth. A column and a statue preserve the memory of the first Lord Melville in Edinburgh. The former, begun during his lifetime, stands in St. Andrew's Square. Its proportions are those of the column of Trajan, in Rome; but instead of being covered with a spiral series of sculptures, like Trajan's pillar, it is fluted. It cost £8,000. The height is 136 feet; the figure at the top, added at a later period, is 14 feet: the altitude of the whole is thus 150 feet.

His statue in white marble stands at the north end of the Great Hall of the Parliament House in Edinburgh. It is by Chantry; and Lord Cockburn's caustic remark is: "It is, perhaps, Chantry's worst. The column," he adds, "has received and deserves praise."

It is a curious circumstance to take note of, that on the column in St. Andrew's Square, to this day, there is no inscription. Pope's couplet on the so-called Monument in London, everyone remembers:

"Where London's column, pointing at the skies,³
Like a tall bully, lifts the head and lies."

Some such biting satire as this, it is certain, would quickly have shaped itself in men's mouths, had the exaggerated language appeared on the Edinburgh pillar, which the worshippers of Melville would

inevitably have desired to see placed there at the moment of their party's triumph, when such a conspicuous trophy was suggested. Wiser men may have counselled phrases more modest, which the stubborn extremists would not away with; and thus, between the two, it may have happened that no inscription at all was carved. Better, perhaps, this—than that at an after-period an erasure should be demanded, and procured, on the plea of untruth, as has actually come to pass in the case of the Monument in London, since the days when Pope wrote.

Here I close my memoirs of the two eminent men, whose respective careers I have desired to recall to your recollection.

Whenever next we cross and re-cross the route of our now classic and even ancient Yonge Street, as we travel to Orillia or Gravenhurst, by the Northern Railway of Canada; or whenever, borne swiftly along on the track of the Great Western, we look down from the cars upon the thriving town and picturesque valley of Dundas, it will, in both cases, invest the scene with fitting associations, and add interest to the journey, if we recall to our minds, as we proceed on our way, the fates and fortunes of the two personages from whom the localities on which we gaze derive their names—the frank, genial-looking, many-sided Devonshire man, Sir George Yonge, Secretary at War in 1782; and the cool, shrewd-featured, able and dextrous Scot, Henry Dundas, Viscount Melville, First Lord of the Admiralty in 1805.



NOTE ON THE DISTRIBUTION OF XANTHIUM
SPINOSUM: LINNÆUS.

BY GEORGE JENNINGS HINDE, F.G.S.

(Read before the Canadian Institute, November 3rd, 1877.)

This plant, though generally affecting a more southerly climate, appears to have established itself in the sheltered valley of Dundas, at the western extremity of Lake Ontario; the only spot in Western Canada in which it is known to occur. Though it has been noticed here for at least seven or eight years past, it does not appear to have extended its area of growth to any adjoining locality; and if the facility with which the seeds attach themselves to passing objects and are thus transported, be taken into account, the restriction of its growth to this one place seems owing to the unsuitability of the climate in places less sheltered than the Dundas valley.

In common with a host of other plants now thoroughly naturalized on this continent, this species has been introduced from Europe, but whether it has been brought to this northern continent directly, or by the circuitous way of South America, is open to question. Linnæus gives its habitat as France and Portugal; it has come under my own notice in Italy; and in Loudon's *Encyclopædia of Botany*, it is noted as growing in the South of Europe generally. In Buenos Ayres, and some other Provinces of the Argentine Republic in South America, the soil and climate are very favourable to its growth, and by means of the numerous cattle and sheep which pasture on the fenceless pampas, the seeds are readily distributed. The great extension of sheep-farming in these countries within the last few years has been the means of very widely spreading this troublesome weed, for not only do the sheep transport the burrs in the wool, but they feed down closely the native flora, and thus afford a better opportunity for this intruder to gain a root-hold. Thus districts in the pampas previously free from this weed, become, very soon after the introduction of sheep, infested with it. There is every probability that the

seeds were first carried to these countries from Europe, attached to the coats of the sheep and cattle which the Spanish colonists brought with them from their native land, where the plant is indigenous.

On this northern continent, according to Dr. Gray, the *Xanthium spinosum* grows in waste places on the sea board and along rivers southward, and he quotes it doubtfully as naturalized from Tropical America. Whilst it is possible that the plant may have thus reached the United States, there is yet another way by which the seeds are constantly being introduced into that country, viz., in the wool which is very extensively imported thither from South America, and more particularly from Buenos Ayres. Rarely could a fleece of wool from this latter place be met with, without some of the *Xanthium* burrs sticking to it, and in the preparation of this wool for use, every woollen mill becomes a centre for the dispersion of the seeds. Probably, by this means, the sporadic appearance of this plant in Canada may be explained, as a woollen mill formerly stood at Dundas, near the place in which the plants are now found.

Although the climate of Western Canada may prove sufficiently rigorous to prevent the growth of this noxious weed, save in sheltered localities, yet it would be a wise step to endeavour to eradicate it whilst it is yet confined to a limited district, and before it becomes thoroughly acclimatized.



NOTE ON THE OCCURRENCE, NEAR TORONTO,
OF BOULDERS BELONGING TO THE CALCIFEROUS
FORMATION.

BY GEORGE JENNINGS HINDE, F.G.S.

(Read before the Canadian Institute, December 16th, 1877.)

Amongst the numerous erratic boulders scattered on the surface of the country to the north and west of Toronto, there are, not unfrequently, some of a very hard bluish-gray rock, composed of rounded grains of quartz-sand imbedded in a calcareous cement. Through weathering, the calcareous portion of the exterior of these boulders is dissolved away, leaving a crust, of an inch or so in thickness, of a reddish-brown friable sandstone. As a rule, the boulders are rounded in figure and from eight inches to two feet in diameter. No traces of glacial striæ are present, and even had such been formed, they would most probably have been obliterated through the decay of the outer surface. The majority of these boulders are destitute of organic remains, but I have lately found some filled with the casts of *Ophileta compacta*: Salter. This shell is characteristic of the Calciferous formation, and as the material of the boulders is also identical in character with the rocks of that formation, and very distinct from any other known rock in this portion of Canada, it may be concluded that the non-fossiliferous, as well as the fossiliferous, boulders have been derived from the same source. The calciferous formation prevails in a very extensive area between the St. Lawrence and Ottawa Rivers in the eastern portion of this Province of Ontario, but it is not known with certainty to occur on the western side of the Laurentian spur crossing the St. Lawrence at the Thousand Isles. Thus the nearest localities from which the boulders in question could have been derived are about 200 miles distant, in a direction between the angles of N. 55 E. and N. 71 E. from Toronto. The boulders are found at levels of 350 to 450 feet above the sea, which is, if anything, slightly higher than the present general level of the rock-beds from which they have been brought.

NOTES ON VENTILATION.

1. In designing a combined system of heating and ventilation for public buildings, one of the main difficulties is to get a uniform draught in all the ventilation flues leading from the different rooms. Where, as frequently happens, some of the ventilation flues act and others do not, the equable distribution of heat is interfered with, and therefore it is all the more necessary when a building is to be well heated and ventilated to see that both sets of flues, hot-air and foul-air, shall act properly. The following plan, it appears to me, will be attended with success when the building is heated by steam on the indirect system, and there is an attic available. When the hot-air flues are in the inner walls, the ventilation flues should be in the opposite or outside walls, and *vice versa*. In the former case, all should be extended directly up until they connect with a large tin-lined box running around the exterior of the attic and leading into a ventilation shaft or chimney. On the bottom of this box and along its whole length a large steam pipe should be laid so as to cross the openings provided for the ventilation pipes. All joints and connections should be made tight, and the dimensions of the flues adjusted in due proportions. When the ventilation flues are in the inner walls a corresponding treatment can be adopted.

2. It has also appeared to me that, to a limited extent at any rate, the ventilation of railway cars would be improved by taking the supply of fresh air, so as to avoid dust and smoke, from a point in front of the locomotive. A pipe could be extended from this point to any part of the train by means of rubber connections between the cars, and any excess of draft at the point of delivery of the fresh air could be reduced by means of check plates. Were it not for the admirable system of heating cars by means of hot water pipes, it might be worth while considering if the fresh air so supplied could not be first warmed by passing it over heated pipes in a special car near the locomotive.

THE "HADES" OF HOMER AND THE "HADES" OF VIRGIL.

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

(Read before the Canadian Institute, Dec. 15, 1877.)

In the eleventh book of the *Odyssey* there is given a description of the visit which Ulysses made to Hades. Virgil devotes the sixth book of the *Æneid* to the narration of the descent of Æneas to the *abodes of the dead*. The object of this paper is simply to examine and compare the descriptions which Homer and Virgil give of Hades. Even a casual examination of the account which the poets in question respectively give of the peculiar experiences of the two renowned heroes who visited the realm of Pluto, will suffice to convince any one that the ideas of Homer regarding the dead are vague, indefinite, and to a large extent removed from what is material; while the conceptions of Virgil indicate a very large advancement, and are characterized by a large admixture of what is material, elaborate, and well defined. The many ages that intervened between the respective poets afforded scope enough for the development of minuter details and more diversified views regarding Hades, as well as for enlarging and embellishing the mythological beliefs of a primitive age. It were merely to be expected, therefore, that in Virgil's time the Greeks and Romans would be in possession of more refined and elaborate theories regarding the dead, and Hades, the abode of the dead.

The word Hades, or certain forms of it, occurs very frequently in the poems of Homer. Though it is maintained that the term *Hades* is employed by Homer to designate the god who rules over the infernal regions, it is possible that a double signification ought to be attached to the term. When we consider that such phrases as this are of frequent occurrence, *Ψυχὴ δ' Ἀϊδοσθ' ἀπὸ κατὰ ἄσπερον*, we may suppose that Homer

employed the word *Hades*, or certain forms of it, not merely to designate the god or ruler of the infernal regions, but also the place to which the souls of men are supposed to go at death. It is to the house of Hades and of dread Persephone that Ulysses is admonished to go, εἰς Ἄϊδαν ὀπυδὺς καὶ ἐταυρῆς Περσεφόνης. These phrases or epithets, and *Erebus*, are the only words which Homer employs to designate the *abodes of the dead* in connection with the visit of Ulysses to Hades. It is to *Erebus* that Ulysses is requested to turn when he is sacrificing the sheep which he conveyed in his ship to Hades. It is out from *Erebus* that the souls of the dead are said to assemble. In the description which Ulysses himself gives of his descent to Hades, there is no mention made either of *Tartarus* or *Elysium*. Homer elsewhere employs the term *Tartarus*. In *Iliad* VIII. Jupiter is represented as threatening the gods on Olympus in this manner: "Whomsoever of the gods I shall discover, having gone apart from [the rest], wishing to aid either the Trojans or the Greeks, disgracefully smitten shall he return to Olympus; or, seizing, I will hurl him into *gloomy Tartarus*, very far hence; where there is a very deep gulf beneath the earth, and iron portals, and a brazen threshold, as far below Hades as heaven is from earth." In *Iliad* XVIII. Juno is represented as swearing "by all the gods who dwell under Tartarus (τῶν ἐπὶ οὐρανῶν), that are called Titans." In his *Theogony* (vv. 719, 720), Hesiod thus alludes to Tartarus: "As far under earth as heaven is from the earth; for equal is the space from beneath earth to murky Tartarus." In *Æneid* VI. Virgil thus describes Tartarus:

"Tum Tartarus ipse

Bis patet in præceps tantum, tenditque sub umbras,
Quantus ad ætherium cæli suspectus Olympum."

It is reasonable to maintain that, in the description which he gives of Tartarus, Hesiod followed Homer very closely; and that Virgil is indebted to both of the Greek poets for the view which he entertained respecting the locality of Tartarus, and those who were imprisoned in it:

"Hic genus antiquum Terræ, Titania pubes,
Fulmino dejecti, fundo volvuntur in imo."

Though no mention is made of *Elysium* in connection with the descent of Ulysses to Hades, it is clear that Homer was acquainted with the term, for in *Odyssey* IV. (vv. 563-568), Proteus, the old man

of the sea (*γέρων ἄλιος*), says to Menelaus: "But for thee it is not decreed to die . . . in horse-pasturing Argos, but the immortals will send thee to the Elysian plain (*Ἠλύσιον πεδῖον*) and the boundaries of the earth, where is the auburn-haired Rhadamanthus."

1. With regard to the reason which induced Ulysses to descend to Hades, it may be observed that, after detailing at great length to Alcinoüs, the King of the Phæacians, the many hardships and strange experiences which he and his companions had on their return from Troy, and in their eagerness to reach their much-loved Ithaca, Ulysses proceeds to inform his Phæacian hearers how he and his companions came to *Æëa*, the home of Circe, "a goddess, possessing human speech;" how those of his companions who went to her dwelling were metamorphosed by her into swine; how he, enraged in consequence of the dismal fate of his companions, hastened to the house of Circe, and met Mercury, by whom he was instructed how to resist the goddess, and from whom he received (*μῶλον*) a potent remedy; how he successfully opposed the command of the goddess, *Ἐρχεο νῦν σὺ φέρονός μετ' ἄλλων λείσο ἐταίρων*; how he and his companions, after their restoration, remained with Circe "all the days for a full year, feasting upon abundance of flesh and sweet wine," until, impelled by his companions, he asked her to send him home to Ithaca, and received this reply: "You must first perform another voyage, and come to the house of Hades and awful Persephone, to consult the soul of Tiresias the Theban, a blind prophet, whose mind is firm, to whom, even when dead, Persephone has given understanding alone to be prudent, but the rest flit about as shades." Tiresias was one of the most renowned soothsayers of ancient times. The belief was current that he, as Circe herself avers, was the only one who retained in Hades the power of perception. It was accordingly with the object of consulting Tiresias as to how he and his companions could return to Ithaca that Ulysses went to Hades at the suggestion of Circe. Virgil narrates that *Æneas*, while sailing from Carthage to Italy, was compelled by a severe storm to land in Sicily; and that he there, by various games and feats of arms, celebrated the anniversary of his father's death. As he is bewildered, owing to the burning of his fleet by the Trojan matrons, the form of Anchises (*facies Anchisæ*) appears to him, and urges him to follow the advice of Nates, and "to carry with him to Italy the choice of

the youth, the stoutest hearts." He receives this additional command from the *form* of Anchises :

"Ditis tamen ante
 Infernas accede domos, et Averna per alta
 Congressus pete, nate, meos : non me impia namque
 Tartara habent : tristesve umbræ, sed amœna piorum
 Concilia Elysiumque colo : Huc casta Sibylla
 Nigrarum multo pecudum te sanguine ducet.
 Tum genus omne tuum, et quæ dentur mœnia, disces."

Æneas accordingly descended to Hades that he might consult the *form* of his father in Elysium ; that he might ascertain what the future had in store for him, and that he might learn to what glory and greatness his descendants were to come, and with what success they were to be favoured.

2. As to the course which Ulysses and Æneas were to adopt, in order to come to Hades, it has to be remarked concerning the former, that perplexed, in consequence of the communication which Circe made to him, he asks the question : "Who will conduct me on this voyage? No one has yet come to Hades in a black ship." He is informed that he is to have no guide, but that he is to erect his mast and to spread his white sails, and "to let the blast of the north wind (*πνοὴν βορέαιο*) carry him." "He reached the extreme boundaries of the deep-flowing ocean, where are the people and the city of the Cimmerians." It is impossible to ascertain with accuracy where the island of Æœa, the home of Circe, was situated. It seems to be necessary to suppose that it was in the neighbourhood of Sicily, in order that anything like coherence may be observed in the topography of the *Odyssey*. The opinion of Gladstone cannot be correct when he affirms, in an article in the *Contemporary Review*, June, 1874, that "the dwelling of Kirkè and the *ἀπολαὶ Ἠελίοιο* are evidently in the Euxine." The ship of Ulysses must have sailed in a southerly direction, seeing that the blast of the north wind bore it along. A large portion of a day was consumed in reaching the extreme boundaries of the ocean.

According to Homer, the ocean is a vast river, flowing entirely round the earth, and the source of all other streams. In *Iliad XXI* these words occur : "Nor the mighty strength of deep-flowing ocean, from which flow all rivers, and every sea, and all fountains and deep wells." In *Iliad XVIII.* and *Odyssey XX.*, the epithet *ἀΐφροος*,

or back-flowing, is applied to Oceanus. It is to the land of the Cimmerians that Ulysses came—a land “covered with shadows and vapour.” Various theories have been advanced with the view of determining who the Cimmerians, to whom Homer refers, were, and where their residence in all probability was. It was sought, among other places, to assign to them a habitation in Italy, near Lake Avernus.

In all likelihood this is the theory which Virgil accepted, inasmuch as, imitating Homer very closely as he does in other respects, he affirms that at or near Lake Avernus, Æneas descended into Hades. Ulysses then, alone, with his companions, sailed from Æva in a southerly direction, and came to the extreme boundaries of ocean; where, according to the ideas which Homer had, Hades was.

Æneas, following the instructions of his father, proceeded, whenever he arrived in Italy, to find out the Sibyl who was to guide him to Hades. The derivation which is commonly assigned to the word *Σίβυλλα*, is seemingly correct: *Διὸς βουλή*, Dor. *Σιδὸς βύλλα*, i.e., She that tells the will of Jove. There is a legend that, in the early days of Rome, one of the kings purchased what was subsequently designated *Sibyllini Libri*, from a Sibyl, or prophetic woman, who offered them for sale. Regarding the Sibyls, Grote thus writes: “From the Teukrian region of Gergis, and from the Gergithites, near Kymè, sprang the original Sibylline prophecies, and the legendary Sibyl, who plays so important a part in the tale of Æneas. The myths of the Sibyl whose prophecies are supposed to be heard in the hollow blast, bursting out from obscure caverns and apertures in the rocks, was indigenous among the Gergithian Teukrians, and passed from the Kymæans in Æolis along with the other circumstances of the tale of Æneas, to their brethren, the inhabitants of Cumæ, in Italy. The date of the Gergithian Sibyl, or rather of the circulation of her supposed prophecies, is placed during the reign of Cræsus—a period when Gergis was thoroughly Teukrian. Her prophecies, though embodied in Greek verses, had their root in a Teukrian soil and feelings; and the promises of future empire which they so liberally made to the fugitive hero escaping from the flames of Troy into Italy, become interesting from the remarkable way in which they were realized by Rome.”* Æneas was directed by the Sibyl to make very elaborate preparations for his descent to Hades. He was to search

* History of Greece. Vol. I., p. 323.

for the golden bough which Proserpine had ordered to be presented to her as her peculiar gift. The entrance to Hades was through the cave of the Sibyl, who, after Æneas had secured the golden bough, went as his guide to the lower regions.

3. When Ulysses had reached "the extreme boundaries of the deep-flowing ocean," he, carrying out the instructions of Circe, "dug a trench the width of a cubit each way. He and his companions poured around it libations to all the dead, first with mixed honey, then with sweet wine; and again, a third time, with water. He entreated the powerless heads of the dead much, and promised that if he would return to Ithaca, he would offer in his palace a barren heifer, whichever was the best, and fill a pyre with excellent things; and that he would sacrifice to Tiresias alone a sheep all black, which excelled among his sheep." He killed the male sheep and the black female which Circe gave him; and their blood flowed into the trench the width of a cubit each way.

Æneas made vows and offered prayers. Apart from the sheep whose blood flowed into the trench, Ulysses contented himself by making promises that, in the event of his returning to Ithaca, he would offer certain sacrifices. Before Æneas and the Sibyl began their arduous journey, they offered many sacrifices. The Sibyl sacrificed in honour of Hecate, who is unknown to Homer. Æneas offered sacrifices "to the mother of the Furies, and her great sister, and to Proserpine and the Stygian King." Ulysses neither offered nor promised to offer sacrifices to any of the gods. Not only did Æneas offer sacrifices before Hades was approached, but many more sacrifices were offered by him and by the Sibyl than Ulysses contemplated, were it ever to be his good fortune to return to Ithaca. No sooner had Ulysses completed the sacrifices which he was instructed to offer, than the souls of the dead were assembled out from Erebus. Another and a more difficult experience had to be encountered by Æneas and his guide before they entered Hades.

The same rivers are mentioned by Homer and Virgil. Homer knows nothing of Charon, whom Virgil thus describes:

"Portitor has horrendus aquas et flumina servat
Terribili squalore Charon."

It was Charon who ferried over the souls of those whose bodies had been interred.

Nor is there any reference in Homer to Cerberus, so far as the descent to Hades is concerned. This is the description of Virgil :

“Cerberus hæc ingens latrata regna trifauci
Personat.”

Among those whom Ulysses encountered in Hades was Hercules, an image (*εἰδωλον*), who adverted to his having been sent to bring Cerberus to the upper regions, “because it was thought that there was no contest more difficult than this.” Hesiod in his Theogony refers to Cerberus as “a fierce dog, that keeps guard in front of the mansions of the infernal god; a ruthless dog, the irresistible and ineffable flesh-devourer; Cerberus, dog of hell, with brazen voice and with fifty heads.”

4. A difference is easily observable in the manner of conversing with the souls of the dead, so far as regard is had to the narrative of Homer and of Virgil. Achilles (*Iliad* XXIII. 103) employed this language respecting the dead :

Καὶ εἰν Ἀΐδαο δόμοισιν
ψυχὴ καὶ εἰδωλον, ἀτὰρ φρένες οὐκ εἰν πάμπαν.

By *φρένες*, we may understand the power of reason and judgment. Achilles, accordingly, affirmed that in the dwellings of Hades, “the dead are a spirit and an image,” but that they have no power of reason and judgment. Others, with seemingly little reason, regard *φρένες* as the body, or perhaps the vitals. Circe said respecting Tiresias: *τοῦτε φρένες ἐμπεδοί εἰσιν*. Brown thus writes: “Homer evidently entertained some vague notion of the impossibility of the soul existing in a state of activity unless united to some immortal body. The blood of the slaughtered victim is the device resorted to in order to supply that bodily vigour which is necessary to the activity of the spiritual principle.”* An American editor of the *Odyssey* says: “In the time of Homer, the two main causes of life were considered to be the breath (*ψυχὴ*) and the blood. As the shades in Hades were destitute of blood, their existence was only a kind of half-life; but when the corporeal element was added (*i.e.*, when they drank blood), sense and the power of reflection returned.”† Even though it is said of Tiresias that his power of reason and

* Greek Classical Literature, p. 95.

† Owen's *Odyssey*, p. 412.

judgment (*φρόνησις*) were entire or steadfast, still, while recognizing Ulysses, he asked to be allowed to drink the blood, that he might tell what is unerring (*καὶ τοὶ νημερτέα εἴπω*). It plainly appears that it was because his body had not then been interred that Elpenor was able to converse with Ulysses. The opinion was evidently held by Homer and Virgil that, until the body was buried, the soul could not rest in peace. Though Ulysses easily recognized his mother Anticlea, he could not obtain any recognition from her. He, consequently, thus addressed Tiresias: "I behold this, the soul of my deceased mother. She sits near the blood in silence; neither does she dare to look openly at her son, nor to speak to him." Tiresias replied: "Whomsoever of the dead thou sufferest to come near the blood, he will tell thee the truth; but to whomsoever thou grudgest it, he will go back again." When Anticlea drank of the blood in the trench, she entered into conversation with her son. It was in reference to her that Ulysses used the affecting words which Virgil translated with very great faithfulness:

*“ τρις μὲν ἰφωρμήθην ἔλκειν τέ με θυμὸς ἀνώγει,
τρις δὲ μοι ἐκ χειρῶν σκιῇ εἰκελον ἦ καὶ δούριφ
ἔπτει.”*

*“ Ter conatus ibi collo dare brachia circum;
Ter frustra comprehensa manus effugit imago,
Par levibus ventis, volucrique simillima somno.”*

It does not appear that Ulysses conversed with any of the dead until they had first drunk of the blood. An exception has to be made in the case of Hercules. With regard to him, however, it is said that it was an image (*εἰδωλον*) of him that was in Hades. Homer distinctly states that the souls of the dead came to Ulysses after he had prepared the trench. No mention whatever is made of any divisions of Hades. It is said that Ulysses beheld Minos, Orion, Tityus, Tantalus and Sisyphus. Inasmuch as the poet distinctly states that Tityus, Tantalus and Sisyphus were suffering punishment which must have confined them to a definite locality, it must be admitted that Ulysses changed his position. Hence it has been sought, with the aim of preserving the poet's consistency, to regard as spurious that portion of the narrative which details the names and fortunes of the heroes in question.

If we now turn to Æneas, we shall find an entirely different state of things. The conception which Virgil had of Hades was alto-

gether vaster and more elaborate than that of Homer. There is in the conception of the Latin poet a much nearer approximation to earthly and material ideas. As soon as Æneas and his guide passed Cerberus, they speedily wended their way onward. Æneas addressed the souls of the dead and received an immediate answer :

“Circumstant animæ dextra lævaque frequentes,
Nec vidisse semel satis est : juvat usque morari,
Et conferre gradum, et veniendi discere causas.”

Æneas and the Sibyl came to a place where the path hitherto pursued by them divided itself into two ways. “The right is what leads beneath great Pluto’s walls. By this our way to Elysium lies. But the left carries on the punishment of the wicked, and conveys to Tartarus.” They reached the gates where they are to deposit the golden bough—an offering peculiar to Proserpine. “Aurumque adverso in limine figit.” They afterwards entered Elysium. When the form of Anchises appeared to Æneas in Sicily, he thus alluded to his own place in Hades :

“Non me impia namque
Tartara habent ; tristesve umbra, sed amœna piorum
Concilia Elysiumque colo.”

As well in the case of Ulysses as in the case of Æneas, it was found that the souls of the dead remembered the varied occurrences of their lives on the earth. Nor were the animosities of the past forgotten ; Ajax, the son of Telamon, refused to heed the kindly words of Ulysses, because he still retained the anger which he felt when the arms of Achilles were gained in the contest by Ulysses. Dido disdained the passionate entreaty of Æneas. The souls of the Grecian chiefs whom he was wont to terrify in the strife of arms, hurried away as soon as they recognized who he was. The souls of the dead still felt a deep interest in the welfare of relatives who were alive. The soul of Achilles made minute inquiries about the fortunes of his son and of his father, and was delighted when favourable intelligence was given to him.

5. From the conversation which Ulysses had with the souls of the dead, the inference is easy that they regarded their existence in Hades as gloomy and cheerless in the extreme. Tiresias spoke of Hades as a joyless region. Anticlea informed her son “that the

nerves of the dead no longer have flesh and bones, but the strong force of burning fire subdues them, when first the mind leaves the white bones. But the soul, like a dream flitting, flies away." These were the mournful words of Achilles: "I would rather be a serf on the land of a poor, portionless man, who is not well to do, than rule over all the dead who have come to nought." Plato, in his Republic, thus censured the opinion of Achilles: "And we must beg Homer and the other poets not to be angry if we strike out these and similar passages; not because they are unpoetical or unattractive to the popular ear, but because the greater the charm of them as poetry, the less are they meet for the ears of boys and men who are to be sons of freedom, and are to fear slavery more than death."* Homer had no divisions in Hades. According to him, the condition of the dead was sorrowful in the extreme. The divisions which Virgil introduced into Hades did away with the unbroken gloominess of Homer. Anchises is made to affirm "that he inhabits the delightful seats of the blest, and Elysium." His opinion is thus further expressed:

"Quisque suos patimur Manes ; exinde per amplum
Mittimur Elysium, et pauci lata arva tenemus."

That sorrows and sufferings and wailings manifold abounded in Hades may be easily inferred from the language of the Sibyl:

"Non mihi si linguæ centum sint oraque centum,
Ferreæ vox, omnes scelerum comprehendere formas,
Omnia pœnarum percurrere nomina, possim."

6. Regarding the information which Ulysses and Æneas obtained in Hades, it has to be borne in mind that it was in order to consult Tiresias respecting his homeward journey to Ithaca, that Ulysses went to the lower regions. It must be regarded as a weakness on the part of Homer, that he represents Circe, a goddess, as advising Ulysses to go on such an expedition for a purpose in itself so comparatively unimportant.

The epithet *δία θεάων* is applied to Circe. When Ulysses and his companions were about to sail for Hades, unperceived by them, she went to the black ship and put the sheep on board. In connection with the deed to which reference has just been made, Ulysses remarked: "For who could see with his eyes a god who was unwill-

ling, going either here or there." The question at once arises, Why could not Circe herself, goddess as she was, give Ulysses all the information which he required; and especially, as she is represented in *Odyssey XII.* as furnishing him, after his return from Hades, with much ampler details regarding his homeward voyage than Tiresias gave. It does not seem, therefore, that Homer has assigned a purpose sufficiently grand and awful for the descent of Ulysses into Hades.

It was in order to ascertain the future history of his descendants that Æneas was asked to visit the lower regions :

"*Tum genus omne tuum, et quæ dentur mœnia, disces.*"

The manifest design of Virgil was to shed all the honour that was possible on the family of Caesar, and to trace back, through successive stages of brilliant renown, the Roman race to Æneas and his immediate followers. Well versed as the poet was in the history of Rome, he, with a grandeur of conception which is bold and graphic, represents Anchises in Elysium as busily engaged among those souls "for whom other bodies are destined by fate," and by whom the Roman heroes that are to be animated. Expression is given to pantheistic views respecting the spirit which "nourishes the heavens, the earth and watery plains, and mingles with the vast body of the universe." Recourse is had to the doctrine of metempsychosis, in order to shew how the souls with whom Anchises is actively engaged are, after a sufficient and satisfactory process of purification, to revisit the earth, and to animate those who are to shed immortal honour on the Roman name in the ages that are yet to be. Before the vivid and fertile imagination of the poet, there pass in rapid succession those who were worthiest and bravest and most patriotic among the Romans. This noble advice was given for the guidance of coming generations :

"*Tu regere imperio populos, Romane, memento ;
Hæ tibi erunt artes ; pacisque imponere morem,
Parcere subjectis, et debellare superbos.*"

The enumeration of the great and good and heroic who were to appear on the scene of Roman life and action as the ages rolled away, terminates with the affecting and memorable allusion to Marcellus, the son of Octavia, the sister of Augustus. It must be granted that

Virgil succeeded in surrounding the descent of Æneas to Hades with a solemnity and a grandeur befitting so peculiar an expedition.

7. As to the time which the descent of Ulysses and Æneas occupied, we may conclude respecting the former that the day must have advanced somewhat before he and his companions sailed. "The sails of the ship passing over the sea were stretched out the whole day: and the sun set and all the ways were overshadowed." The inference, therefore, is plain, that Ulysses arrived at the extreme boundaries of ocean on the evening of the day on which he sailed from Ææa. From *Odyssey* XII. it appears that when he and his companions returned to the island of Circe, they drew up their ships on the sands, and they themselves disembarked upon the shore of the sea. Lying down to sleep, they awaited the divine morning. As they occupied a day in going to the boundaries of ocean, and as they returned to Ææa when it was dark; that the poet's story may be consistent, it has to be conceded that the voyage to and from Hades occupied two days.

Ulysses must have returned to Ææa on the evening of the second day, when it was too late to inter or burn the body of Elpenor. Early on the morning of the next day the promise which was made to the ghost of Elpenor was faithfully carried out.

It was early in the morning that Æneas and the Sibyl began their journey (*primum sub lumine solis et ortus*). While Æneas was conversing with Deiphobus, the Sibyl admonished him not to make unnecessary or long delays, because a certain time was granted for their journey.

"Hæc vice sermonum, roseis Aurora quadrigis
Jam medium ætherio cursu trajecerat axem,
Et fors omne datum traherent per talia tempus;
Sed comes admonuit, breviterque affata Sibylla est,
Nox ruit, Ænea, nos fiendo ducimus horas."

An entire day, therefore, was assigned to the descent of Æneas into Hades. He and his companion spent an entire day in their visit to the abodes of the dead.

8. There is a manifest naturalness in the manner of the departure of Ulysses from Hades. Whatever coherence or importance or plausibility belongs to his visit to Hades, is in no way weakened or lessened

by the manner in which his departure is related by the poet. Sudden and strong fear seized him. He hurried to his ships and to his companions, who could not have been far from him, according to the representation of the poet himself. "They quickly embarked, and sat down on the benches. And the wave of the stream carried the ship through the ocean river, first the rowing and afterwards a fair wind."

There is an absence of naturalness in the description which Virgil gives of the departure of Æneas and the Sibyl from Hades. It must be admitted, that the verisimilitude which the poet has hitherto presented with comparative faithfulness and success, is weakened by the manner in which he allows Æneas and the Sibyl to return to the upper regions. In *Odyssey XIX.*, Penelope, before she recognized Ulysses, who had at last arrived at his much-loved Ithaca, informed him, "that there are two portals of unsubstantial dreams: these are made of horn, and those of ivory. Whichever of them comes through the sawn ivory, they deceive, bringing promises which will never be fulfilled; but those which come out of doors through the polished horn accomplish what is true, when any one of mortals sees them." There can be little doubt that Virgil reproduces the words of Penelope, which have just been quoted, when he thus describes the departure of Æneas and the Sibyl:

"Sunt geminæ Somni portæ; quarum altera fertur
 Cornea, quæ veris facilis datur exitus Umbris;
 Altera, candenti perfecta nitens elephanto;
 Sed falsa ad cælum mittunt insomnia Manes.
 His ubi tum natum Anchises, unaque Sibyllam,
 Prosequitur dictis, portaque emittit eburna:
 Ille viam secat ad naves, sociosque revisit."

Any one can discern an incongruity in the opinion of the poet, that gates, the object of which is to allow dreams to pass through, can have the texture and capacity which are presupposed by the passing through them of Æneas and the Sibyl. The impression undoubtedly remains, that Virgil either sought to destroy the verisimilitude of his entire story, by the manner in which he describes the return of Æneas and the Sibyl to the earth; or, that he was anxious that his readers should regard the story as purely imaginary—the fiction of his own brain.

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MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—SEPTEMBER, 1877.
 Latitude—43° 31' 4" North. Longitude—83° 17' m. 83. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.				Excess of Mean above			Tension of Vapour.			Humidity of Air.			Direction of Wind.				Velocity of Wind.				Rain Inches.	Snow Inches.					
	O.A.M.	2 P.M.	10 P.M.	MEAN.	O.A.M.	2 P.M.	10 P.M.	MEAN.	BYER'S	U	M	P.M.	M	P.M.	M	P.M.	M	N	E	S	W	0	2	10			MEAN.	U	M	P.M.	M
1	29.409	29.470	29.464	29.472	67.3	65.4	65.0	65.9	0.2	3.98	270	303	310	65	44	70	65	NW	NW	NW	NW	0	2	10	6.59	9.25	0.10				
2	410	410	410	410	61.0	61.0	61.0	61.0	0.0	265	280	407	323	85	63	89	74	NW	NW	NW	NW	0	2	10	0.35	7.39	0.10				
3	469	469	469	469	60.1	60.1	60.1	60.1	0.0	348	391	414	393	88	61	79	82	SW	SW	SW	SW	0	2	10	0.59	10.10	0.23				
4	629	629	629	629	62.4	62.4	62.4	62.4	0.0	402	360	398	386	84	72	91	80	SW	SW	SW	SW	0	2	10	0.04	0.30	0.30				
5	621	621	621	621	61.8	61.8	61.8	61.8	0.0	418	323	367	376	60	65	63	65	SW	SW	SW	SW	0	2	10	0.31	3.40	0.30				
6	621	621	621	621	63.6	63.6	63.6	63.6	0.0	325	452	428	399	70	85	91	82	SW	SW	SW	SW	0	2	10	0.77	8.25	0.30				
7	831	831	831	831	60.7	60.7	60.7	60.7	0.0	344	414	369	370	84	67	93	70	SW	SW	SW	SW	0	2	10	0.41	6.25	0.30				
8	814	814	814	814	63.0	63.0	63.0	63.0	0.0	411	406	612	473	91	61	89	80	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
9	700	700	700	700	49.0	49.0	49.0	49.0	0.0	422	411	406	612	473	91	61	89	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
10	665	665	665	665	62.0	62.0	62.0	62.0	0.0	621	555	566	557	91	71	81	82	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
11	667	667	667	667	62.9	62.9	62.9	62.9	0.0	509	596	581	564	96	73	93	80	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
12	656	656	656	656	73.0	73.0	73.0	73.0	0.0	470	634	543	570	94	60	82	70	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
13	711	711	711	711	68.0	68.0	68.0	68.0	0.0	480	643	551	537	93	65	82	76	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
14	729	729	729	729	70.1	70.1	70.1	70.1	0.0	580	603	601	609	95	68	92	81	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
15	671	671	671	671	80.0	80.0	80.0	80.0	0.0	465	389	332	398	92	63	87	62	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
16	640	640	640	640	65.0	65.0	65.0	65.0	0.0	347	165	304	213	78	35	50	62	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
17	623	623	623	623	60.2	60.2	60.2	60.2	0.0	225	230	270	268	82	62	68	63	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
18	637	637	637	637	70.1	70.1	70.1	70.1	0.0	269	391	313	303	78	61	74	68	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
19	639	639	639	639	65.8	65.8	65.8	65.8	0.0	252	167	269	225	88	31	74	68	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
20	676	676	676	676	60.4	60.4	60.4	60.4	0.0	213	303	341	301	90	52	90	77	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
21	733	733	733	733	64.0	64.0	64.0	64.0	0.0	311	559	611	479	90	68	90	80	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
22	863	863	863	863	71.0	71.0	71.0	71.0	0.0	486	574	560	542	93	60	60	60	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
23	820	820	820	820	49.6	49.6	49.6	49.6	0.0	488	516	319	436	93	60	61	69	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
24	770	770	770	770	62.4	62.4	62.4	62.4	0.0	286	376	465	373	76	70	63	70	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
25	715	715	715	715	60.7	60.7	60.7	60.7	0.0	413	290	399	405	92	70	61	71	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
26	660	660	660	660	61.3	61.3	61.3	61.3	0.0	357	416	426	418	84	64	81	79	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
27	831	831	831	831	74.6	74.6	74.6	74.6	0.0	370	422	412	405	87	60	81	74	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
28	675	675	675	675	60.8	60.8	60.8	60.8	0.0	370	422	412	405	87	60	81	74	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
29	893	893	893	893	65.0	65.0	65.0	65.0	0.0	370	422	412	405	87	60	81	74	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				
30	719	719	719	719	65.0	65.0	65.0	65.0	0.0	370	422	412	405	87	60	81	74	SW	SW	SW	SW	0	2	10	0.51	4.40	0.30				

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR SEPTEMBER, 1877.

COMPARATIVE TABLE FOR SEPTEMBER.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations, namely, at 8 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..... 29.933 at 8 a.m. on 22nd. } Monthly range =
 Lowest Barometer..... 29.410 at 2 p.m. on 2nd. } 0.522.
 { Maximum temperature..... 81.7 on 18th. } Monthly range =
 { Minimum temperature..... 33.3 on 22nd. } 48.4.
 Mean maximum temperature..... 71.19 }
 Mean minimum temperature..... 62.18 } Mean Daily range =
 Greatest daily range..... 31.2 from 8 a.m. to 1 p.m. of 10th. } 10.00.
 Least daily range..... 7.0 from a.m. to p.m. of 7th. }
 Warmest day..... 16th; mean temperature..... 71.63 } Difference = 18.88
 Coldest day..... 18th; mean temperature..... 62.45 }
 Maximum Solar..... 136.0 on 15th. } Monthly range =
 Radiation { Terrestrial..... 31.4 on 22nd. } 104.0

Aurora observed on 1 night, viz., 18th.
 Possible to see Aurora on 21 nights; impossible on 9 nights.
 Raining on 8 days; depth, 0.415 inches; duration of fall, 8.4 hours.
 Mean of cloudiness, 0.47.

WIND.

Resultant direction, N. 13° W.; resultant velocity, 0.66 miles.
 Mean velocity, 0.17 miles per hour.
 Maximum velocity, 21.0 miles per hour, from 2 to 3 p.m. on 3rd.
 Most windy day, 3rd; mean velocity, 10.10 miles per hour.
 Least windy day, 13th; mean velocity, 3.42 miles per hour.
 Most windy hour, 1 p.m.; mean velocity, 10.60 miles per hour.
 Least windy hour, 6 a.m.; mean velocity, 3.97 miles per hour.

Fog on 12th, 13th, 15th, 22nd, 24th and 25th.
 Dew on 10 mornings.
 First frost of season on 18th.
 Lightning on 1st, 4th, 12th, 24th and 27th.
 Solar halo on 5th.

YEAR.	TEMPERATURE.				RAINF.			SNOW.			WIND.	
	Moath.	Excess above Average.	Maxi.imum.	Mini.imum.	Range.	% of days.	Inches.	No. of days.	Inches.	Resultant direction.	Mean Velocity.	
1840	68.2	+ 0.1	80.1	32.7	47.4	9	1.480	...	...	N 78 W 0.09	4.23
1850	59.5	- 1.0	70.0	29.5	40.5	11	1.735	...	...	S 65 W 1.02	4.78
1851	59.0	+ 1.9	84.3	32.0	54.3	17	2.063	...	...	N 14 E 1.03	6.45
1852	57.6	- 0.0	81.8	35.8	46.0	10	3.630	...	...	N 77 W 0.68	4.33
1853	58.0	- 0.1	85.6	33.0	51.0	12	5.140	...	...	N 22 W 1.35	4.60
1854	61.0	+ 2.9	93.0	35.8	57.8	14	6.376	...	...	N 22 W 1.29	7.61
1855	59.6	+ 1.4	82.0	33.0	49.0	12	5.585	...	...	S 79 W 1.09	6.53
1856	57.1	- 1.0	78.4	35.0	43.4	13	4.105	...	...	N 68 W 1.01	6.55
1857	58.0	+ 0.6	82.0	34.1	47.0	11	2.610	...	...	S 74 W 1.53	6.39
1859	59.1	+ 1.0	81.4	35.0	45.8	8	0.733	...	...	N 44 W 1.60	6.39
1859	55.2	- 2.9	75.4	35.7	39.7	16	3.525	...	...	N 71 W 2.63	5.79
1860	55.3	- 2.8	76.8	28.7	47.1	14	1.955	...	...	N 11 W 1.39	4.81
1861	59.1	+ 1.0	78.8	37.1	41.7	17	3.907	...	...	N 59 W 1.07	5.11
1862	59.0	+ 1.5	79.4	39.0	40.4	0	2.344	...	...	N 10 W 0.07	6.46
1863	55.0	- 2.2	80.0	31.4	48.0	8	1.222	...	...	N 33 W 1.36	7.00
1864	59.4	- 1.7	73.0	37.8	35.2	11	2.508	...	...	S 60 E 0.41	4.12
1865	51.5	+ 6.4	90.6	42.0	48.5	12	2.450	...	...	N 33 W 1.45	5.43
1866	56.2	- 2.9	80.0	34.4	45.8	15	5.657	...	...	N 37 W 1.48	4.63
1867	57.0	- 0.2	87.0	31.8	55.2	9	1.224	...	...	N 10 W 0.69	4.68
1868	59.0	+ 1.6	76.5	36.0	39.5	10	4.229	...	...	N 63 W 1.16	6.59
1869	57.7	+ 2.0	81.0	34.4	46.0	8	1.077	...	...	N 29 E 2.26	6.04
1870	57.8	+ 3.7	78.0	45.8	32.2	11	0.704	...	...	N 74 W 1.72	6.50
1871	54.8	- 3.3	81.8	34.0	47.3	11	1.230	...	...	N 79 W 1.47	5.24
1872	59.1	+ 1.0	94.4	38.2	40.2	16	2.624	...	...	N 81 W 2.92	7.39
1873	57.3	- 0.8	79.0	33.5	45.5	14	3.020	...	...	N 14 E 0.09	6.30
1874	53.3	+ 5.2	88.0	39.5	49.1	11	1.654	...	...	S 88 W 1.89	8.09
1875	55.5	- 2.0	81.6	32.0	52.5	13	2.820	...	...	N 6 W 2.97	9.22
1876	57.5	- 0.0	77.8	38.6	39.3	16	2.452	...	...	N 13 N 0.66	6.17
1877	61.2	+ 3.1	81.7	38.3	43.4	8	0.415	...	...	N 55 W 1.17	6.76
Resultant direction for 1878	68.10	.....	81.30	35.20	46.10	11.40	3.541	...	...	.....	.....
Excess for 1877	+ 3.10	.....	+ 0.84	3.04	2.70	3.46	3.120	...	...	.....	+ 0.42

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—OCTOBER, 1877.
Latitude—43° 59'4 North. Longitude—81° 17m. 38s. West. Elevation above Lake Ontario, 108 feet.

Table with 17 main columns: Barom. at temp. of 32°, Temp. of the Air, Excess of Mean above Average, Tension of Vapour, Humidity of Air, Direction of Wind, Velocity of Wind, Rain, and Snow. It contains 31 rows of data for the month of October 1877.

METEOROLOGICAL REGISTER.

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR OCTOBER, 1877. COMPARATIVE TABLE FOR OCTOBER.

NOTE.—The monthly means of the Barometer and Temperature 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 30.040 at 6 a.m. on 7th } Monthly range =
 Lowest barometer 29.091 at 8 a.m. on 4th } 0.949.
 { Maximum temperature 79° 0' at 6.50 p.m. on 1st } Monthly range =
 { Minimum temperature 31° 3' a.m. on 22nd } 48° 3.
 { Mean maximum temperature 56° 7' } Mean daily range =
 { Mean minimum temperature 32° 5' } 14° 08.
 { Greatest daily range 25° 7' from a.m. to p.m. of 23rd.
 { Least daily range 6° 6' from a.m. to p.m. of 19th.
 Warmest day 1st; mean temperature 69° 10' } Difference = 32° 30.
 Coldest day 26th; mean temperature 37° 10' }
 Maximum { Solar 138° 5' on 1st } Monthly Range =
 Radiation { Terrestrial 24° 8' on 22nd } 109° 7.
 Aurora observed on 1 night, viz., 11th.
 Possible to see Aurora on 14 nights; impossible on 17 nights.
 Raining on 14 days; depth, 2.630 inches; duration of fall, 76.6 hours.
 Mean of cloudiness, 0.70.

WIND.

Resultant direction, N. 70° W.; resultant velocity, 0.65 miles.
 Mean velocity, 8.23 miles per hour.
 Maximum velocity, 31.0 miles from 10 to 11 a.m. of 29th.
 Most windy day, 15th; mean velocity, 16.67 miles per hour.
 Least windy day, 18th; mean velocity, 2.85 miles per hour.
 Most windy hour, 1 p.m.; mean velocity, 10.91 miles per hour.
 Least windy hour, 1 a.m.; mean velocity, 0.60 miles per hour.

Fog on 15th and 25th.

Solar halo on 24th. Lunar halo on 20th.
 Lightning on 1st, 5th, and 13th.
 Thunder on 13th.
 Hail on 25th.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.	
	Excess above average	Maxi. num.	Mini. num.	Rango.	No. of days	Inches	No. of days	Inches	Resultant Direction.	Resultant Velocity.
1849	42.8	68.0	24.2	31.7	13	5.065	1	Inap	N 12 W	1.27
1850	46.4	66.7	22.4	41.3	10	2.085	0	0.0	N 65 W	1.10
1851	47.4	66.2	26.2	41.0	10	1.686	2	0.3	S 72 W	1.09
1852	48.0	64.7	23.6	40.3	12	3.230	0	0.0	N 5 E	1.19
1853	44.4	64.7	23.4	41.3	10	0.819	0	0.0	N 88 W	1.74
1854	49.3	66.4	26.4	49.0	16	1.493	5	0.8	N 45 W	1.52
1855	45.4	68.0	22.6	45.4	14	2.482	6	0.8	N 82 W	4.21
1856	45.3	64.0	23.0	48.4	10	0.875	2	0.1	N 70 W	2.15
1857	45.4	64.0	26.6	37.5	10	1.040	2	0.2	N 19 W	2.93
1858	48.8	67.3	31.5	41.8	17	1.797	1	Inap	N 31 W	0.36
1859	43.0	69.8	22.3	47.3	11	0.910	1	Inap	N 68 W	0.34
1860	47.3	68.0	23.4	39.2	15	1.618	1	Inap	N 9 W	2.00
1861	48.7	71.0	29.0	42.0	16	1.993	1	Inap	N 61 W	1.06
1862	48.7	70.6	26.2	50.4	19	2.681	2	0.5	N 78 W	2.89
1863	45.0	66.4	30.5	35.9	16	2.627	0	0.0	N 71 W	0.48
1864	45.2	67.0	28.0	39.0	22	3.321	0	0.0	N 60 W	3.17
1865	49.1	71.4	31.6	49.5	17	2.705	1	4.5	N 36 W	3.15
1866	49.1	71.0	31.8	39.2	11	2.470	1	Inap	N 30 W	0.84
1867	49.9	75.4	31.0	41.4	11	1.870	0	0.0	N 45 W	1.51
1868	42.4	67.8	24.0	43.6	10	1.365	2	2.0	N 89 W	1.27
1869	42.3	69.8	18.7	51.1	8	0.962	7	2.3	N 89 W	3.72
1870	50.0	69.5	30.2	38.3	16	2.690	0	0.0	N 85 W	1.86
1871	48.3	72.2	28.0	43.0	13	1.185	0	0.0	N 60 W	3.75
1872	45.0	70.0	25.2	44.6	14	3.255	0	0.2	N 18 W	2.22
1873	45.7	69.2	24.2	45.0	19	2.155	3	0.2	N 18 W	1.77
1874	47.5	67.0	24.8	42.2	11	1.416	2	Inap	N 70 W	2.75
1875	43.2	63.0	27.0	33.4	15	2.416	2	3.8	N 88 W	2.72
1876	42.8	61.6	23.0	38.6	12	1.435	6	0.1	N 81 W	4.63
1877	49.8	79.0	31.3	48.3	14	2.630	0	0.0	N 70 W	0.95
1878	45.74	63.85	25.86	42.99	12.57	2.355	1.92	0.86	N 60 W	1.92
1879	44.02	10.75	6.44	5.31	1.43	0.281	1.92	0.86	...	...
Excess for 77.	4.02	10.75	6.44	5.31	1.43	0.281	1.92	0.86	...	1.82

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—NOVEMBER, 1877.
 Latitude—43° 39' 4" 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 Average.			Tension of Vapour.			Humidity of Air.			Direction of Wind.			Velocity of the Wind.			Rain In Inches.	Snow In Inches.	
	O A.M.	2 P.M.	10 P.M.	Mean.	0 A.M.	2 P.M.	10 P.M.	Mean.	0	2	10	A.M.	P.M.	M.M.	0 A.M.	2 P.M.	10 P.M.	Heav. tant.	0	2	10	Heav. tant.			Mean.
1	29.600	29.620	29.483	29.550	34.7	40.3	45.0	42.0	+0.70	187	105	105	194	93	02	63	71	W	8	11 E	8.5	4.0	19.0	1.72	0.83
2	29.860	29.814	29.097	29.942	44.6	47.0	41.8	44.16	+2.21	286	223	150	230	98	68	67	78	W	8	11 E	21.0	20.5	20.5	10.31	18.77
3	29.488	29.488	29.097	29.097	30.3	41.2	34.0	37.63	+4.05	180	164	141	166	77	68	72	69	W	8	11 E	10.5	10.5	18.24	18.40	0.80
4	29.800	29.800	29.730	29.765	30.0	42.0	39.0	39.50	+4.93	—	—	—	—	—	—	—	—	W	8	11 E	2.0	15.0	17.0	—	—
5	29.630	29.630	29.630	29.630	35.0	37.3	25.4	31.15	+8.98	230	180	111	174	90	05	81	91	W	8	11 E	3.5	18.5	6.0	7.62	9.12
6	29.643	29.643	29.643	29.643	31.4	37.1	29.7	35.33	+11.67	104	130	130	127	90	81	83	79	W	8	11 E	3.0	8.5	6.0	1.30	5.08
7	29.643	29.643	29.643	29.643	25.4	39.8	36.0	34.03	+6.65	118	170	200	171	86	73	91	83	W	8	11 E	8.73	8.0	9.4	6.0	5.49
8	29.670	29.670	29.670	29.670	42.3	43.4	45.2	44.05	+3.73	211	275	238	256	78	98	98	82	W	8	11 E	16.0	15.5	20.0	14.81	15.44
9	29.653	29.653	29.653	29.653	40.2	32.0	25.4	31.55	+8.42	212	135	694	141	55	70	69	76	W	8	11 E	13.5	5.0	4.0	2.97	5.60
10	29.698	29.698	29.698	29.698	18.0	28.0	20.1	24.17	+16.66	693	138	110	112	90	87	83	85	W	8	11 E	8.85	3.0	2.1	1.68	3.17
11	29.690	29.690	29.690	29.690	21.0	39.0	20.0	29.83	+9.49	—	—	—	—	—	—	—	—	W	8	11 E	8.85	3.5	7.8	5.5	4.53
12	29.680	29.680	29.680	29.680	32.0	42.0	36.2	36.70	+2.27	172	212	170	183	95	77	82	85	W	8	11 E	8.85	7.0	3.4	5.91	6.85
13	29.688	29.688	29.688	29.688	33.3	38.7	30.9	36.30	+2.30	170	203	200	191	89	80	91	89	W	8	11 E	8.85	11.0	2.7	11.0	2.5
14	29.684	29.684	29.684	29.684	30.6	40.6	45.2	43.20	+4.07	157	257	287	259	92	64	95	82	W	8	11 E	8.85	8.0	10.5	8.0	8.38
15	29.653	29.653	29.653	29.653	47.8	40.6	43.4	46.33	+8.85	300	253	231	263	57	69	80	81	W	8	11 E	8.85	7.0	6.0	5.84	6.63
16	29.657	29.657	29.657	29.657	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
17	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
18	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
19	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
20	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
21	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
22	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
23	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
24	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
25	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
26	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
27	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
28	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
29	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63
30	29.647	29.647	29.647	29.647	43.2	49.7	42.3	44.33	+7.32	297	317	197	252	90	89	73	83	W	8	11 E	8.85	2.5	6.0	5.84	6.63

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR NOVEMBER, 1877.
COMPARATIVE TABLE FOR NOVEMBER.

Note.—The monthly means of the Barometer and Temperature 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 retentions for the wind are from hourly observations.

Highest Barometer.....30.175 at 8 a.m. on 20th } Monthly range=
Lowest Barometer28.712 at 10 a.m. on 2nd } 1.463.
{ Maximum temperature65° on 2nd } Monthly range=
{ Minimum temperature17° on 10th } 37°8
{ Mean maximum temperature49°12 } Mean daily range=
{ Mean minimum temperature31°46 } 17°07
{ Greatest daily range.....28°59 from a.m. to p.m. of 14th.
{ Least daily range.....2°7 from a.m. to p.m. of 24th and 25th.
Warmest day 15th; mean temperature 41°55 } Difference=24°38.
Coldest day 10th; mean temperature 24°91 }
Radiation { Terrestrial..... 400 on 10th } Monthly range=
Aurora observed on 1 night, viz, 2nd.
Possible to see Aurora on 11 nights; impossible on 10 nights.
Raining on 16 days; depth, 5.450 inches; duration of fall, 112.0 hours.
Snowing on 6 days; depth, 1.6 inches; duration of fall, 13.5 hours.
Mean of Cloudiness, 0.75.

WIND.

Resultant direction, S. 77° W.; Resultant Velocity, 1.37 miles.
Mean Velocity, 0.76 miles per hour.
Maximum Velocity, 30.0 miles, from 4 to 6 a.m. of 18th.
Least Windy day, 18th; Mean Velocity, 20.00 miles per hour.
Least Windy day, 11th; Mean Velocity, 3.17 miles per hour.
Most Windy hour, 1 p.m.; Mean Velocity, 12.15 miles per hour.
Least Windy hour, 9 p.m.; Mean Velocity, 5.04 miles per hour.

Fog on 5th, 8th, 13th, 14th a.m.th.
Thunder, with Lightning, on 17th.
Solar halos on 14th, 19th and 21st.
Lunar halos on 13th, 16th, 19th, 20th and 21st.
The amount of rain this month is the heaviest in any November except 1840, when 6.505 fell.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.	
	Max. above Average	Max. num.	Min. num.	Range	No. of days	Inches.	No. of days	Inches	Resultant direction.	Mean Velocity.
1840	42.8	66.4	28.6	29.0	10	2.815	2	1.0	N 39 W 1.55	4.78
1850	38.8	62.8	11.0	61.8	7	2.955	1	0.8	N 42 W 1.43	6.27
1861	32.0	60.2	13.6	30.4	6	3.855	0	0.7	N 60 W 1.25	4.70
1852	30.0	60.4	18.2	32.2	7	1.775	3	2.0	N 50 W 1.53	6.50
1863	38.7	65.6	12.5	42.8	15	2.425	0	2.7	N 9 W 0.55	6.62
1864	36.8	65.4	13.8	41.0	13	1.115	4	1.3	W 81 S 3.41	7.54
1865	37.4	69.2	15.8	43.7	8	4.590	0	3.0	N 60 W 3.18	10.81
1850	37.4	66.4	18.8	37.6	10	1.372	0	0.5	N 8 W 2.92	8.75
1857	33.5	68.2	—	—	14	3.235	0	0.9	N 61 W 3.45	9.25
1858	34.2	63.0	15.3	37.7	12	3.875	13	4.0	N 25 W 3.14	8.87
1859	38.0	62.6	21.8	40.8	12	5.193	0	0.6	N 81 W 3.29	9.65
1860	37.0	64.5	13.2	51.3	12	2.569	8	1.9	N 59 W 4.91	11.02
1861	37.1	62.4	23.0	29.4	14	4.294	8	3.2	N 46 W 1.94	7.44
1862	35.6	68.0	16.2	41.8	11	2.263	11	5.3	N 46 W 3.00	6.60
1863	39.1	67.0	17.8	49.2	13	3.656	6	0.1	N 48 W 3.50	7.86
1864	36.9	60.2	21.0	39.2	11	3.765	8	4.5	N 72 W 3.82	7.64
1865	38.6	63.2	23.6	39.6	6	0.975	7	1.1	N 79 W 2.95	7.90
1866	38.4	64.2	21.8	32.4	13	2.923	4	2.2	N 55 W 3.06	6.96
1867	36.0	60.4	9.6	60.8	8	1.635	0	0.9	N 87 W 4.62	7.78
1868	36.2	60.6	20.1	30.4	9	5.150	10	4.3	N 35 W 2.10	8.12
1869	32.7	68.0	13.0	45.0	14	2.540	18	10.2	N 76 W 3.69	8.16
1870	36.6	67.2	19.4	37.8	6	6.594	5	3.1	N 80 W 4.36	8.74
1871	30.6	64.1	0.0	47.1	10	2.655	12	4.5	N 45 W 4.01	10.35
1872	32.0	62.0	8.2	43.8	7	0.420	9	1.3	N 85 W 2.02	7.48
1873	27.0	61.4	0.8	50.6	6	0.510	18	19.0	N 50 W 3.08	6.67
1874	34.6	61.0	3.6	67.6	7	0.935	11	11.7	N 87 W 3.07	7.70
1875	31.7	61.0	—	60.0	0	1.000	9	7.8	N 63 W 3.63	9.73
1876	37.3	68.8	6.4	63.4	13	1.748	7	9.1	N 20 W 0.32	7.44
1877	37.5	65.0	17.2	37.8	16	5.450	5	1.6	N 77 W 1.37	9.75
1878 to 1876	30.03	60.68	13.41	43.27	9.70	2.652	7.38	4.23	N 77 W 2.70	7.72
Excess for 1877	1.44	1.08	3.70	6.47	0.30	2.808	2.88	2.66	...	+ 2.03

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—DECEMBER, 1877.
 Latitude—49° 30' North. Longitude—83° 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Excess of Mean above Average.			Tension of Vapour.			Humidity of Air.			Direction of Wind.			Velocity of the Wind.			Rain in inches.	Snow in inches.
	U.A.M.	2 P.M.	10 P.M.	U.A.M.	2 P.M.	10 P.M.	U.A.M.	2 P.M.	10 P.M.	U.A.M.	2 P.M.	10 P.M.	U.A.M.	2 P.M.	10 P.M.	U.A.M.	2 P.M.	10 P.M.	U.A.M.	2 P.M.	10 P.M.			Rest.	MEAN
1	29.658	29.754	29.895	26.6	26.6	19.2	2.98	0.65	119	119	097	110	83	83	86	86	W	W	6.4	8.5	8.0	6.71	6.67
2	29.660	29.702	29.800	15.0	30.0	33.0	20.00	4.04	165	117	132	138	02	49	77	77	N	N	6.5	10.0	19.0	4.27	10.17
3	29.801	29.732	29.834	38.2	37.2	41.2	32.27	2.72	153	185	253	201	91	70	88	88	W	W	20.0	11.0	0.8	11.23	11.62
4	29.760	29.690	29.790	30.4	30.4	27.2	37.38	8.25	209	292	152	230	08	100	73	74	E	E	4.0	5.5	4.0	3.23	6.15
5	29.818	29.748	29.848	42.7	41.4	35.5	41.17	12.62	173	122	166	128	85	73	74	W	W	15.0	22.0	12.0	5.90	8.03	
6	29.818	29.748	29.848	43.7	42.7	36.6	30.63	2.47	181	148	156	144	80	86	84	W	W	10.5	6.6	12.5	6.53	10.06	
7	29.822	29.752	29.852	27.2	30.8	31.4	30.65	3.98	110	113	114	127	93	56	73	72	W	W	0.5	13.5	10.5	9.81	10.76
8	29.858	29.788	29.888	34.2	34.2	28.2	28.83	1.98	140	140	186	168	80	60	81	78	N	N	4.5	10.5	8.5	5.68	7.63
9	29.910	29.840	29.940	33.3	33.3	38.0	36.55	10.16	170	173	176	182	88	57	82	70	W	W	13.5	9.5	8.0	9.28	10.54
10	29.918	29.848	29.948	41.0	41.0	36.2	39.32	13.27	146	197	194	181	94	82	80	87	W	W	10.6	21.0	4.4	11.11	11.70
11	29.910	29.840	29.940	28.4	30.1	39.8	35.63	9.08	140	197	194	181	94	82	80	87	W	W	3.5	6.0	6.5	1.11	4.41
12	29.910	29.840	29.940	43.4	43.0	39.1	37.82	12.82	261	194	127	176	92	69	70	75	W	W	9.5	30.0	28.0	11.72	19.53
13	29.922	29.852	29.952	44.8	43.4	35.6	32.12	7.25	097	104	142	116	82	46	69	65	N	N	4.0	10.0	10.0	8.62	9.77
14	29.922	29.852	29.952	44.8	43.4	35.6	32.12	7.25	097	104	142	116	82	46	69	65	N	N	4.4	0.8	4.2	2.90	3.75
15	29.922	29.852	29.952	45.6	45.6	41.6	41.75	11.20	148	199	228	189	70	65	78	71	W	W	8.0	15.0	12.5	6.70	8.04
16	29.922	29.852	29.952	45.6	45.6	41.6	41.75	11.20	148	199	228	189	70	65	78	71	W	W	10.5	10.0	5.0	8.04	8.63
17	29.922	29.852	29.952	47.2	47.2	42.2	42.12	13.22	202	197	166	161	67	60	67	71	N	N	10.5	10.0	5.0	8.04	8.63
18	29.922	29.852	29.952	47.2	47.2	42.2	42.12	13.22	202	197	166	161	67	60	67	71	N	N	4.0	5.0	4.0	1.69	4.02
19	29.922	29.852	29.952	47.2	47.2	42.2	42.12	13.22	202	197	166	161	67	60	67	71	N	N	12.0	6.5	12.5	4.25	8.15
20	29.922	29.852	29.952	44.3	42.5	37.1	41.00	11.04	280	210	181	222	93	82	81	85	N	N	8.0	5.4	4.6	5.95	6.29
21	29.922	29.852	29.952	37.8	37.8	36.0	37.05	14.25	184	214	213	205	83	95	98	98	N	N	3.4	4.0	5.5	3.95	4.00
22	29.922	29.852	29.952	37.8	37.8	36.0	37.05	14.25	184	214	213	205	83	95	98	98	N	N	10.5	9.6	8.8	8.82	8.94
23	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	7.0	7.5	5.0	6.71	6.80
24	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	8.1	8.0	5.5	6.51	6.60
25	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	3.6	3.8	4.6	3.56	3.65
26	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	5.0	3.5	3.2	4.23	4.61
27	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	3.5	4.8	3.0	3.21	3.42
28	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	7.0	6.0	9.5	7.19	7.29
29	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	8.6	10.0	10.0	8.10	8.62
30	29.922	29.852	29.952	32.9	32.9	34.0	33.33	12.93	186	172	165	174	99	92	88	03	N	N	17.0	15.0	1.7	11.47	11.53
31	29.732	29.718	29.741	32.65	32.65	33.60	34.23	0.37	174	171	167	170	88	73	82	81	...	...	7.88	9.77	8.21	...	9.90

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR DECEMBER, 1877. COMPARATIVE TABLE FOR DECEMBER.

Note.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting the barometric to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 10 P.M., 10 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer..... 30.188 at 8 a.m. on 18th. } Monthly range = 1.034.
 Lowest Barometer..... 29.154 at 4 p.m. on 6th.

{ Maximum temperature 49.4 on 17th. } Monthly range = 34.98.
 { Minimum temperature 14.6 on 2nd. }
 { Mean maximum temperature 39.90. } Mean daily range = 11.908.
 { Mean minimum temperature 28.961. }
 { Mean subminimum temperature 18.98 from a.m. to p.m. of 21st.
 { Greatest daily range..... 38.98 from a.m. to p.m. of 21st.
 { Least daily range..... 3.83 from a.m. to p.m. of 21st.

Warmest day 10th; mean temperature 44.965 } Difference = 23.43.
 Coldest day 31st; mean temperature 21.922 }
 Maximum Solar 101.90 on 28th. } Monthly range = 92.50.
 Radiation { Terrestrial 930 on 2nd.

No Aurora observed.

Possible to see Aurora on 10 nights; impossible on 21 nights.

Raining on 11 days; depth, 0.600 inches; duration of fall, 49.0 hours.

Snowing on 7 days; depth, 0.3 inches; duration of fall, 6.7 hours.

Mean of cloudiness, 0.76.

WIND.

Resultant direction N. 76° W.; resultant velocity 1.78 miles.

Mean velocity 8.30 miles per hour.

Maximum velocity 35.0 miles, from 5 to 6 a.m. of 13th.

Most windy day 13th; mean velocity 19.63 miles per hour.

Least windy day 23th; mean velocity 3.42 miles per hour.

Most windy hour noon; mean velocity 10.44 miles per hour.

Least windy hour 1 a.m.; mean velocity 7.16 miles per hour.

Fog on 6th, 16th, 17th, 21st, 22nd, 23rd and 24th.

Solar halo, 12; lunar halo, 15th.

YEAR.	TEMPERATURE.			RAIN.			WIND.			
	Mean	Excess above average.	Range.	No. of days.	Inches.	No. of days.	Inches.	Direction.	Resultant Velocity.	Mean Velocity Miles.
1840	20.6	+ 0.0	0.8	5	0.840	12	9.6	N 82 W	2.66	6.23
1850	21.7	+ 3.9	48.8	2	0.190	18	29.6	N 41 W	2.83	7.40
1851	21.6	+ 4.1	41.0	7	3.963	15	10.7	N 89 W	4.00	7.37
1852	31.9	+ 6.3	61.0	7	0.622	10	23.1	N 35 W	1.03	6.64
1853	25.3	+ 3.7	41.8	6	0.596	12	22.3	N 44 W	2.39	4.98
1854	29.8	+ 1.2	47.0	6	1.845	10	29.2	N 88 W	4.30	8.66
1855	22.9	+ 2.7	42.2	6	1.746	20	16.3	N 87 W	5.29	11.33
1856	31.0	+ 6.3	46.0	7	3.206	14	9.0	N 80 W	2.60	6.81
1857	27.4	+ 1.8	45.4	11	1.657	18	10.4	N 78 W	1.60	9.20
1858	17.9	+ 7.7	64.8	3	1.035	23	37.4	N 63 W	4.29	10.77
1859	24.0	+ 1.6	39.0	3	1.362	21	13.5	N 62 W	4.66	10.14
1861	31.1	+ 3.2	60.1	6	1.915	8	10.1	N 73 W	3.17	7.53
1862	27.0	+ 1.4	63.4	10	2.045	17	7.1	N 41 W	1.61	9.40
1863	24.7	+ 0.9	59.4	9	1.121	18	6.2	N 82 W	4.94	9.98
1864	21.7	+ 2.1	64.2	9	2.790	11	6.2	N 81 W	3.07	7.33
1865	25.1	+ 0.6	61.0	7	2.790	13	15.6	N 88 W	4.26	9.91
1866	21.6	+ 3.1	40.5	7	1.405	21	13.0	N 81 W	4.82	10.32
1867	22.5	+ 4.0	44.2	6	0.005	18	15.5	N 71 W	4.69	9.80
1868	23.7	+ 3.1	45.0	6	2.590	9	7.1	N 80 W	2.31	8.44
1869	29.6	+ 0.9	45.2	6	2.430	16	15.9	N 89 W	5.06	11.46
1870	19.0	+ 6.7	48.2	4	0.940	20	14.2	N 70 W	6.91	11.62
1871	18.7	+ 0.9	40.0	3	0.399	24	33.0	N 87 W	5.51	6.06
1872	24.8	+ 4.2	48.2	6	0.995	12	19.2	West.	2.93	6.93
1873	25.7	+ 1.6	61.0	6	0.650	15	11.1	N 84 W	5.69	8.72
1874	27.2	+ 8.4	40.1	0	0.000	23	30.5	N 68 W	5.08	11.83
1875	31.2	+ 8.6	49.4	11	0.600	7	0.3	N 76 W	1.78	8.30
1876	25.60	...	47.60	6.08	1.609	14.11	16.76	N 77 W	3.60	8.80
1877	25.60	...	47.60	6.08	1.609	14.11	16.76	N 77 W	3.60	8.80
Resultants to beic.	25.60	...	47.60	6.08	1.609	14.11	16.76	N 77 W	3.60	8.80
Excess for 17.	8.68	...	1.9	1.009	17.60	7.11	16.4	...	...	0.56

GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1877.

GENERAL METEOROLOGICAL

MAGNETICAL OBSERVATORY,

Latitude 43° 30' 4" North. Longitude 5h. 17m. 33s. West. Elevation above

	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.
Mean Temperature.....	17.55	28.81	25.59	43.26	53.94	62.36	69.91
Difference from average (37 years)...	- 5.39	+ 6.23	- 3.46	+ 2.63	+ 2.26	+ 0.52	+ 2.48
Thermic anomaly (lat. 43° 40').....	-16.25	- 5.89	-14.61	- 6.94	- 4.16	- 2.24	+ 1.21
Highest temperature.....	40.8	44.0	45.1	67.2	83.9	85.9	88.7
Lowest temperature.....	-13.9	4.9	- 0.6	18.7	29.7	41.1	50.3
Monthly and Annual Ranges.....	54.7	40.0	45.7	48.5	54.2	44.8	38.4
Mean maximum temperature.....	24.32	36.01	32.99	61.63	63.55	71.73	80.15
Mean minimum temperature.....	9.99	20.94	17.91	35.15	43.21	52.23	59.56
Mean daily range.....	14.33	15.08	15.08	18.63	20.34	19.50	20.59
Greatest daily range.....	26.9	28.9	29.6	29.2	31.4	28.6	33.2
Mean height of the Barometer.....	29.6894	29.6977	29.5866	29.6308	29.7428	29.5571	29.5598
Difference from average (36 years)...	+ .0414	+ .0723	- .0123	+ .0411	+ .0719	- .0162	- .0330
Highest barometer.....	30.144	30.352	29.960	30.053	30.010	29.867	29.907
Lowest barometer.....	29.020	29.252	29.728	29.155	29.196	29.104	29.126
Monthly and Annual Ranges.....	1.124	1.070	1.232	0.903	0.814	0.761	0.781
Mean humidity of the air.....	84	74	78	62	64	71	67
Mean elasticity of aqueous vapour ...	0.057	0.122	0.188	0.170	0.276	0.404	0.478
Mean of cloudiness.....	0.69	0.60	0.72	0.45	0.50	0.51	0.43
Difference from average (23 years)...	+ 0.05	- 0.10	+ 0.09	- 0.15	- 0.05	+ 0.01	- 3.07
Resultant direction of the wind.....	8 87 w	6 64 w	6 49 w	6 29 E	6 40 w	6 33 w	6 63 w
velocity of the wind.....	5.20	4.62	5.26	4.37	2.26	0.37	0.89
Mean velocity (miles per hour).....	9.50	8.91	11.79	10.25	7.29	7.11	6.66
Difference from average (29 years)...	+ 0.96	+ 0.06	+ 2.55	+ 1.87	+ 0.25	+ 1.75	+ 1.52
Total amount of rain.....	0.030	0.000	2.450	2.271	1.348	0.900	2.720
Difference from average (37 years)...	-1.197	-0.889	+0.890	-0.140	-1.788	-1.920	-0.432
Number of days rain.....	2	0	7	9	10	14	11
Total amount of snow.....	13.4	2.9	19.1	...	...	...	...
Difference from average (34 years)...	- 3.67	-15.51	+ 6.26	- 2.44	- 0.15	...	...
Number of days snow.....	16	6	21	0	0	...	...
Number of fair days.....	14	24	8	21	21	13	20
Number of Auroras observed.....	0	0	1	2	3	3	0
Possible to see Aurora (No. of nights)...	13	14	15	19	21	17	24
Number of Thunderstorms.....	0	0	0	2	2	8	9

REGISTER FOR THE YEAR 1877.

TORONTO, ONTARIO.

Lake Ontario, 103 feet. Approximate Elevation above the Sea, 350 feet.

Aug.	Sept.	Oct.	Nov.	Dec.	1877.	1876.	1875.	1874.	1873.	1872.	1871.
69.16	61.20	49.76	37.47	34.23	46.16	43.98	40.77	44.30	42.09	42.92	45.93
+ 2.84	+ 3.10	+ 4.02	+ 1.44	+ 8.64	+ 2.11	- 0.01	- 3.22	+ 0.31	- 1.00	- 1.67	+ 1.94
+ 0.66	- 0.30	- 4.04	- 5.73	- 1.77	- 4.90	- 7.02	- 10.23	- 6.70	- 8.01	- 5.05	- 5.01
83.1	81.7	79.6	65.0	49.4	53.7	92.9	88.0	95.0	89.5	96.0	89.5
53.5	38.3	31.3	17.2	14.6	- 13.9	- 9.5	- 16.0	- 7.5	- 13.4	- 13.8	- 21.0
29.6	43.4	48.3	37.8	34.8	102.6	102.4	104.6	102.5	107.9	109.8	110.5
77.92	71.19	58.73	43.12	39.86	...	...	...	...	...	...	...
81.04	52.19	42.65	31.45	25.61	...	...	...	...	...	...	...
16.88	19.01	14.08	11.67	11.05	16.19	16.68	17.38	17.43	16.93	17.59	16.46
23.6	81.2	25.7	23.9	18.8	33.2	42.1	46.0	40.5	37.9	37.8	34.6
29.5507	29.6682	29.6337	29.6600	29.7354	29.6348	29.6017	29.6151	29.6452	29.5964	29.6079	29.6068
-0.744	+0.0045	-0.0075	+0.0457	+0.0894	+0.0157	-0.0132	-0.0008	+0.0293	-0.0195	-0.0080	-0.0693
29.837	29.932	30.040	30.175	30.168	30.352	30.350	30.271	30.416	30.246	30.231	30.358
29.298	29.410	29.091	28.712	29.154	28.712	28.703	28.751	28.538	28.795	28.759	28.673
0.639	0.522	0.949	1.463	1.034	1.640	1.647	1.520	1.878	1.442	1.412	1.715
77	74	77	83	81	74	76	76	74	78	75	73
0.647	0.405	0.239	0.197	0.170	0.272	0.283	0.236	0.255	0.237	0.239	0.242
0.56	0.47	0.76	0.75	0.76	0.60	0.66	0.62	0.63	0.60	0.59	0.64
+ 0.08	- 0.04	+ 0.14	0.00	0.00	- 0.01	+ 0.05	+ 0.01	+ 0.02	0.00	- 0.01	+ 0.03
85 w	83 w	70 w	77 w	76 w	62 w	51 w	70 w	61 w	55 w	72 w	72 w
0.69	0.66	0.92	1.37	1.78	1.86	1.93	2.31	2.67	1.93	2.91	2.49
6.00	6.17	8.23	9.75	8.30	8.33	9.29	8.96	8.03	7.96	6.76	8.24
+ 0.64	+ 0.42	+ 1.82	+ 2.03	- 0.59	+ 1.11	+ 2.07	+ 1.74	+ 0.81	+ 0.74	- 0.44	+ 1.02
8.165	0.415	2.636	5.450	0.500	21.885	21.063	18.986	17.574	20.232	18.585	22.771
+0.381	-3.129	+0.281	+2.898	-1.009	-6.032	-6.874	-8.957	-10.363	-7.705	-9.549	-3.166
14	8	14	16	11	116	117	103	103	110	115	110
...	...	...	1.6	0.3	37.3	113.4	107.5	67.7	113.5	67.5	99.6
...	...	-0.86	-2.65	-15.40	-35.45	+40.32	+34.72	-5.05	+41.02	-5.25	+26.82
...	...	0	5	7	54	76	70	75	79	77	84
17	22	17	10	14	204	168	201	197	170	165	157
1	1	1	1	0	13	13	17	28	60	67	55
24	21	17	11	10	206	171	212	197	203	236	209
10	0	1	1	0	33	19	26	23	22	23	22

TEMPERATURE.

	1877.	Average of 37 years.	Extremes.	
Mean temperature of the year	48.10	43.99	46.36 in '46.	40.77 in '73.
Warmest month	July.	July.	July, 1863.	Aug., 1860.
Mean temperature of the warmest month	69.91	67.43	73.80	64.46
Coldest month	January.	February.	Feb., 1875.	Feb., 1848.
Mean temperature of the coldest month	17.65	22.58	10.16	26.60
Difference between the temperature of the warmest and coldest months	52.36	44.85	...	...
Means of the deviation of monthly means from their respective averages of 36 years, signs of deviation being disregarded	3.59	2.48	3.59 in 1877.	...
Months of greatest deviation, without regard to sign	December.	January.	Feb., 1875.	...
Corresponding magnitude of deviation	8.68	3.81	12.4	...
Warmest day	July 25.	...	July 14, '68.	July 31, '44.
Mean temperature of the warmest day	76.90	77.77	84.50	72.75
Coldest day	Jan. 12.	...	Feb. 6, 1855.	Dec. 22, '42.
Mean temperature of the coldest day	-6.12	-1.52	Jan. 22, 1857.	...
Date of the highest temperature	July 16.	...	-11.39	9.57
Highest temperature	83.7	90.99	Aug. 24, '54.	Aug. 19, '40.
Date of the lowest temperature	Jan. 12.	...	99.2	82.4
Lowest temperature	-13.9	-12.26	Jan. 10, '59.	Jan. 2, '42.
Range of the year	102.6	103.25	-26.5	1.9
			118.2	87.0

BAROMETER.

	1877.	Average of 36 years.	Extremes.	
Mean Pressure of the year	29.6346	29.6159	29.6770 in 1849.	29.5602 in 1864.
Month of the highest mean pressure	December.	Sept.	Jan. 1849.	June, 1864.
Highest monthly mean pressure	29.7354	29.6637	29.8046	29.6325
Month of the lowest mean pressure	August.	May.	March, 1859.	Nov., 1849.
Lowest monthly mean pressure	29.5507	29.6719	29.4143	29.5886
Date of the highest pressure in the year	Feb. 13.	...	Jan. 8, 1868.	Jan. 14, '70.
Highest pressure	30.352	30.364	30.940	30.212
Date of the lowest pressure in the year	Nov. 2.	...	Jan. 2, 1870.	Mar. 17, '45.
Lowest pressure	28.712	28.635	28.166	28.939
Range of the year	1.640	1.679	2.133 in 1868.	1.303 in 1845.

RELATIVE HUMIDITY.

	1877.	Average of 35 years.	Extremes.	
Mean humidity of the air	74	77	82 in 1851	73 in 1858
Month of greatest humidity	January.	Jan. 7.	Jan., 1837.	Dec., 1858.
Greatest mean monthly humidity	84	83	89	81
Month of least humidity	April.	May.	Feb., 1843.	April, 1849.
Least mean monthly humidity	62	71	53	76

EXTENT OF SKY CLOUDED.

	1877.	Average of 24 years.	Extremes.	
Mean cloudiness of the year	0.60	0.61	0.60 in '09 '76	0.57 in 1856.
Most cloudy month	Oct., Dec.	December.	...	...
Greatest monthly mean of cloudiness	0.76	0.76	0.83	0.73
Least cloudy month	July.	August.	...	...
Least monthly mean of cloudiness	0.43	0.48	0.29	0.50

WIND.

	1877.	Result of 29 years.	Extremes.	
Resultant direction	N 62° W	N 61° W	...	...
Resultant velocity in miles	1.86	2.00	...	...
Mean velocity without regard to direction	8.33	7.22	9.29 in '76.	5.10 in '53.
Month of greatest mean velocity	March.	March.	March, 1874.	Jan., 1843.
Greatest monthly mean velocity	11.79	9.24	13.24	5.82
Month of least mean velocity	August.	July.	Aug., 1852.	Sept., 1860.
Least monthly mean velocity	6.00	6.14	3.20	3.79
Day of greatest mean velocity	Mar. 28.	...	Nov. 15, '71.	Dec. 2, 1848.
Greatest daily mean velocity	34.21	24.16	32.16	15.20
Day of least mean velocity	May 17.	...	...	...
Least daily mean velocity	2.42	...	...	...
Hour of greatest absolute velocity	{ Mar. 28, 2 to 3 p.m.	...	Dec. 27, '61. 9.10 a.m.	Mar. 14, '53. 11 a.m. to Noon
Greatest velocity	43.0	40.00	46.00	23.6

RAIN.

	1877.	Average of 37 years.	Extremes.	
Total depth of rain in inches	21.885	27.937	43.535 in '43.	17.574 in '74.
Number of days on which rain fell	116	109	120 in 1861.	80 in 1841.
Month in which the greatest depth of rain fell	Nov.	September	Sept., 1843.	Sept., 1848.
Greatest depth of rain in one month	6.450	3.544	9.760	3.115
Month in which the days of rain were most frequent	Nov.	October.	{ June, 1860, Oct. 1864.	May, 1841
Greatest number of rainy days in one month	16	13	22	11
Day in which the greatest amount of rain fell	Nov. 8.	...	Sept. 14, '43.	Sept. 14, '48.
Greatest amount of rain in one day	1.360	1.967	3.455	1.000

SNOW.

	1877.	Average of 34 years.	Extremes.	
Total depth of snow in inches	37.3	72.8	122.9 in '70.	39.4 in 1831.
Number of days in which snow fell	54	65	87 in 1859	33 in 1849.
Month in which the greatest depth of snow fell	March.	February.	March, 1870.	Dec., 1851.
Greatest depth of snow in one month	19.1	18.4	62.4	10.7
Month in which the days of snow were most frequent	March.	Dec., Jan.	Dec., 1872.	Feb., 1849.
Greatest number of days of snow in one month	21	14	24	8
Day in which the greatest amount of snow fell.	March 21.	...	Mar. 28, '76.	Jan. 10, '57.
Greatest fall of snow in one day	7	10.2	16.2	5.5

DIFFERENCE OF CERTAIN METEOROLOGICAL ELEMENTS FROM THE NORMAL VALUES FOR EACH QUARTER, AND THE YEAR.

Quarter.	Barom.	Temper.	Rain.	Days Rain.	Snow.	Days Snow.	Velocity of Wind.	Clouded Sky.
	Inches.	°	Inches.		Inches.		miles.	
Winter	+ .0338	- 0.87	- 1.198	- 6.05	- 13.93	+ 5.11	+ 1.17	- 0.02
Spring	+ .0323	+ 1.80	- 3.846	- 0.46	- 2.59	- 4.21	+ 1.29	- 0.06
Summer	- .0343	+ 2.81	- 3.189	+ 0.08	...	...	+ 0.86	- 0.01
Autumn	+ .0432	+ 4.71	+ 2.170	+ 13.05	- 18.91	- 11.41	+ 1.10	+ 0.05
Year	+ .0157	+ 2.11	- 6.052	+ 6.62	- 35.43	- 10.51	+ 1.11	- 0.01

PERIODICAL OR OCCASIONAL EVENTS, 1877.

- February 11. First lightning of year.
 March 1. Little or no frost in ground. First schooner arrived.
 " 25. Ice broke up in Bay.
 " 27. Wild geese flying north.
 " 31. Robins seen.
 " 31. Last snow of season.
 April 12. Butterflies numerous.
 " 21. Frogs croaking.
 " 24. First thunderstorm of year.
 " 30. Swallows seen.
 " 30. Marked absence of blue birds this spring.
 May 1. First trip of *City of Toronto*.
 " 5. Maples in flower.
 " 13. Plum trees in flower.
 " 16. Baltimore birds, Humming birds.
 " 20. Apple trees in flower.
 " 22. Wild strawberries in flower.
 " 24. Last frost and ice of season.
 " 25. Lilacs in flower.
 " 26. Chestnut trees in flower.
 August 10. Humming birds numerous.
 " 20. Some blue birds seen.
 September 5. Swallows last seen.
 " 18. First frost and ice of season.
 October 20. Last trip of season of *City of Toronto*.
 November 5. First snow of season.
 " 17. Last thunderstorm of season.
 " 27. Large number of robins.
 December 31. Bay open still.