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# THE CANADIAN JOURNAL.

NEW SERIES.

No. LXXII.—AUGUST, 1870.

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## THE NATIVE TRIBES OF POLYNESIA.

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*Paper read before the Canadian Institute, Toronto, March 12th, 1870.*

BY RICHARD LEE, F.A.S.L.

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The following remarks must necessarily fall far short of any thing like a comprehensive summary of the leading features observable among the natives of Polynesia. The most that I can hope to accomplish in the brief space of a paper of this kind, is to note some of the most prominent matters that have fallen under my own observation, and to set forth some of the conclusions to which I have been led as to the future of the tribes under consideration.

Under the term Polynesia or Oceanica I would include all the islands that lie between the 100th degree of west and the 125th degree of east longitude, and between the 40th degree of south latitude and the 30th degree of north latitude. We have here a large area occupied by various tribes of the Malay race, differing much from each other, but all retaining very marked evidence of a common origin. My personal knowledge of them is chiefly limited—though not entirely—to the islands of Tasmania, Australia, New Zealand, the Figis and the Navigator groups; and it is to these, and especially to the first named, that I shall ask your attention.

I need not remind members of this society that the Tasmanians are now extinct, the last of the tribes having died in 1869. I first met with them in 1853, and when I saw them last, in 1855, they numbered only sixteen. The time had passed then for making inquiries which could be of much value from an anthropological point of view. They

were living in an artificial state, and, although retaining many of their physical characteristics—not all—a part of their language, and all the recollection of their recent history, their distinctive character had become very materially modified. For many years, the history of the Tasmanian has been a dark blot upon British civilization. In 1815, their number was estimated at 5,000, which was probably far below the truth. Five years later there were only 340. This enormous loss was not due to disease, nor to military outrages—such as have recently disgraced American arms among the Indians of the West—but solely to the murderous propensities of the early settlers. The natives were always harmless, and have not unjustly been regarded as among the lowest or least advanced members of the human family. But their weakness was no protection against the barbarities of the white population, who were in the habit of poisoning them as vermin, or shooting them as legitimate game. The daughter of an army officer—one of those who went to the colonies with a grant of land, after the close of the war with Napoleon—has described to me her recollections of the time when the neighbouring settlers, meeting in the morning at her father's house and taking an early luncheon on the lawn, would go forth into the bush to shoot blackfellows. This lady was a well-read and accomplished woman, but she never regarded this kind of recreation as any thing more than a perfectly legitimate sport, and she could tell even with enthusiasm of the interest with which the female portion of such parties used to sit over their evening meal and listen to the sportsmen's narrative of a successful excursion.

Under such circumstances it is no wonder that the tribes rapidly diminished, or that, in 1831, when the local government, ashamed of the conduct of the settlers, undertook to protect the aborigines, they were reduced to 196. Being removed to Flinder's Island, they remained there till 1847, but—and I think this important—their number was then reduced to 47, of whom 13 were men. They were then assigned to an old convict station at a beautiful spot on the shores of D'Entrecarteaux's Channel; but here again they died away so rapidly that, as I have said, in 1855 there were only 16 left.

When the late Sir John Franklin was Governor of Van Dieman's Land, he and Lady Franklin took a particular interest in the aborigines, and, on Lady Franklin's nomination, a gentleman named Milligan was appointed "Protector," with special instructions to devote himself to the preparation of a complete history, philological and general, of the

fast fading race. But these conditions were never fulfilled. Mr. Milligan's favor with Lady Franklin was great, but his competency as an ethnologist was infinitesimally small. Perhaps too his salary was too liberal, for he lived at his ease in Hobarton and never honored the aborigines with more than an annual visit. He compiled a so-called vocabulary of native words, which I have no hesitation in saying is perfectly worthless to the philologist as well as to the ethnologist, and the very brief notes which he occasionally produced with reference to the general characteristics of the tribes are not one whit more reliable. Thus was lost a splendid opportunity of giving to anthropology a complete history of this now extinct race, and, as a result, we really know very little about it.

It has been supposed that while Australia was peopled direct from the north through the islands of Timor and Rotti, Van Dieman's Land derived its population from the islands of the Pacific. This was Dr. Latham's opinion; but I have not been able to discover sufficient reason for the supposition. I am more disposed to think that the people originally came across Bass's Strait from the eastern portion of Australia, now known as Gipp's Land, through that chain of islands which connects the line of the Blue Mountains and Australian Alps with the mountains of Tasmania. In my intercourse with the natives of both places, I have found nothing which militates against this view; neither have I been able to detect any thing which seems to call for the theory that has received the powerful support of Dr. Latham.

When attention was first given to the natives of Van Dieman's Land, it was found that the tribes on the east differed in some respects from those on the west. They spoke the same language, but in dialects differing so much that the two people could with difficulty understand each other. Their customs were also different in some details. These points do not however indicate any difference of origin. The interior of Tasmania is of such a character that it would hardly have been possible—at any rate it was highly improbable—that the tribes on the east coast should have had any intercourse with those of the west. They were separated by an almost impassable barrier of mountain and forest, with an impenetrable undergrowth of scrub; so that it would have been very remarkable if some distinctive marks had not grown up in a series of generations. These distinctions however were completely lost when the whole aboriginal population was sent to Flinder's Island, and, except by their pedigree, it was impossible to ascertain with

which tribe the natives whom I knew in D'Entrecarteaux's Channel were connected.

In color the Tasmanians were not as dark as the Australians generally are, but in the Malay race it does not do to place too much stress upon the color of the skin or the character of the hair. I have met with many Australians who were of a lighter complexion than were the last of the Tasmanians. These people were indolent and dirty in their habits, and never made much advance towards the boundary of civilization; but I am not disposed to place these facts entirely to their own credit. They were badly treated, and neglected even to the last, and never had any opportunity of displaying any capabilities which in my opinion they certainly possessed. A question has been raised whether the Tasmanians knew the use of fire before it was introduced to them by Europeans. Some have answered this question in the negative; others have told us that the tribes in the south knew it, but not those in the north; and Mr. Milligan says that they knew the use of fire, but could not produce it. The belief of the natives themselves was almost similar to that of the Maories and other Polynesiens, who profess to have been familiar with the use of fire since the early days of the world's history, when Mani took some from Mahuita, an old woman who lived far down in the inner regions of the earth. From the direct evidence of the natives themselves, which of course may be taken as of more or less value, I am satisfied that the use of fire was known to the Tasmanians before the island was visited by Europeans.

We cannot regard the extinction of the Tasmanians as of so much scientific importance as if those people had met with different treatment from the colonists; but when we cross Bass's Strait we are met with the remarkable fact that within 20 years many tribes in that part of the island, which now constitutes Victoria, have entirely disappeared; even though they have at no time experienced ill usage from the settlers. In the east some tribes are still to be found, but throughout the greater part of Victoria the natives have mostly gone. It is necessary that I should here explain the sense in which the word "tribe" must be received. It has a different meaning from that which it would have when used in reference to the American Indians. I have heard it sometimes asked whether the tribes of Australia are not smaller and more numerous—other things being the same—than are the tribes of this country. In one aspect they are, but in reality they are not. The whole of Australia is deficient in water and animals, consequently the

means of living are precarious and difficult to attain. Nor is there any thing in the country with which the natives could trade. Their life therefore is a mere existence, and oftentimes they are on the verge of starvation. This scarcity of food naturally tends to the subdivision of the people. They live chiefly on roots, seeds, insects, and fish, and to obtain these in sufficient quantities they travel in small parties. These are *distinct communities*. They do not habitually intermix, but they have no objection to do so if the general interests render it expedient, or if circumstances render it possible. They may be on friendly terms or not with other similar sets, but as a rule feuds are rare among them. They have enough to do to get their living without fighting, although it is also highly probable that their very scanty fare has a general tendency to mollify their disposition. When then we speak of the Yarra Yarra tribes, the tribes of the Goolwa, or of the Murrumbidgee, as we usually do, the word tribe must be understood as applying to the various subdivisions of the people I have described. There are some very marked differences between the natives of the extreme north of Australia and those of the extreme south, but there are no distinct nations, or tribes, as there were and to some extent still are among the North American Indians. I have found different customs prevailing among different tribes, different dialects of language may also be detected between distant tribes, but still no decided line can be drawn between neighbouring parties. It would be less difficult to do this, perhaps, in the north than in the south; but even there I doubt the practicability. We ought rather, I think—in our present state of knowledge—to regard the Australian aborigines as one nation, divided, it is true, into many sections, which for convenience we call tribes, but which present no greater difference of an ethnological character than are to be found in the several counties of England at the present time.

Australia possesses a magnificent climate; equalled in no place in the northern hemisphere with which I am acquainted, and surpassed only on some of the smaller islands of the Pacific. The natives therefore have no great need of clothing, and accordingly they wear none. The trees are evergreen, and, although they do not possess a dense foliage, a few boughs always suffice to give shade and shelter to the aborigines. If clothing were a necessity, I do not know where it could be procured. Wild animals are scarce, and the natives, unlike the Maories and many other of the Polynesians, have no knowledge of textile fabrics of any kind. The only tools with which they are acquainted



are the spear, the boomerang, and the waddy; and their skill in using these has been greatly exaggerated. Some of them are dexterous in spearing fish; but I have frequently put up a mark at five and twenty paces and set four or five natives to work at it with their spears, but I have no recollection of them ever having hit it. When fighting takes place too, it is not an uncommon thing to hear of a battle lasting several hours, and ending without any body being much the worse. They dislike coming to close quarters, so that the waddy, as a weapon of war, is very harmless when compared with the tomahawk of the Indian. It is used especially for killing small animals, and it is also a legitimate instrument for keeping the women in order. That a people of so primitive a character as the Australian should be familiar with such an instrument as the boomerang is a point which to my thinking demands careful investigation at the hands of the anthropologist. But this instrument is not in such general use as is frequently supposed. I have more than once met with tribes who could not muster a boomerang among them. It may therefore readily be supposed that skill in the use of that weapon varies much. To throw it accurately towards a mark and to make it return to within a few feet of the thrower, requires considerable practice. I have met with natives who could do this with unerring certainty, but they are not the majority. I have seen a parrot brought down from the top of a high tree, and in a second or two afterwards the boomerang lying at the feet of the thrower; but it must not be supposed that this sort of thing is done every day, or by all the natives. The man who did it had no rival within my experience among his countrymen, and perhaps if I had never met him and witnessed his skill on many occasions I should never have credited the boomerang with so much value as, in good hands, I know it to possess.

It is right I should mention that these remarks, so far as they refer to the incapacity of the Australians, are more applicable to the tribes of the south than to those of the north. Independently of any physical differences, the latter are more warlike than the southerners. Although living in a warmer climate, they are more active and energetic, yet, with this exception, I am not aware that we ought justly to credit them with any higher or more civilized endowments.

My old friend Burke, who, with his companions, Wells and King, was the first white man to cross the Australian continent, and who perished on his return to Cooper Creek through the culpable blundering of one of his own party, found the natives exceedingly troublesome

as he approached the Gulf of Carpentaria; and Leichardt and his followers fell victims to the spears of the same tribes a little more to the eastward. But as a contrast to this, when Burke and his two companions were left to starve at Cooper's Creek, they were sustained for many days by the generous kindness of the natives whom they found in that locality. I do not attribute these differences of character to differences of origin. In the north the natives are better supplied with food, and their ranks are frequently receiving accessions from the wild tribes of the archipelago, and probably from the Malagar peninsular itself; in the same manner, though in a less degree, as the Philippine Islands receive reinforcements from China and the other Asiatic coasts.

The character of the average Australian is noted rather for its negative than for its positive features; by which I do not mean that these people are incapable of improvement. As a rule they are indolent and apathetic. They dislike any thing that gives them trouble, and still they are patient and persevering. They will pass two or three days without food rather than exert themselves to find a daily supply, unless at least it is close at hand and can be had without much effort. If they are in want of fire, they will often prefer to travel for another day or two, in the hope of getting some from their neighbours, than take the trouble to "make" it for themselves. Yet they will plod along over many long miles under a burning sun, without food, to change their location; or they will spend weeks diligently carving out a boomerang or a waddy, with a few rough stones. I have always found these people faithful and trustworthy companions. I have travelled among them through a wide area of country, and almost always alone. I have associated with many tribes and met with them at different times under very varied circumstances, and I have always found them uniformly friendly and kind, ever ready to render me a service even at their own personal inconvenience. They have a keen sense of honour. They will enter upon undertakings of hardship or danger for a master or one whom they regard as a friend, and they will not hesitate to risk their lives in his service. They are submissive and ever ready to do a kindness to a friend, if they find him in need or distress. But while this is the result of my experience among them, I must add that in all my intercourse with aborigines tribes in any part of the world, I have ever made it an invariable rule to treat them with kindness and *confidence*. I believe that to trust in their right intentions will go farther to win their friendship than a very large amount of bribery, and the effect is

assuredly more profound and lasting. I can say now, with the most complete satisfaction, that during the several years in which I have been brought into communication with native races—men and women whom the world calls savages—I have never experienced from them one act of enmity or ill-will, nor any display of feeling which would prevent me from going again among any of the Polynesian tribes with a sense of the most perfect security.

It is quite true that we hear from time to time of horrible massacres and cruelties perpetrated by Australian natives upon the families of settlers in the far interior. These reports are perfectly correct. But I have had favorable opportunities many times of enquiring into them, and I am quite confident that native attacks upon European settlements have never been made without provocation first offered by the colonists. The ill-treatment which the natives are called upon to submit to is oftentimes simply horrible. In Queensland, at this moment, they are being slaughtered indiscriminately and with the most disgraceful cruelty under the sanction of the government. And although the Australians will endure a great deal and are not easily roused, yet it is unreasonable to suppose that they will bear all kind of oppression with impunity. When they take the resolve, they resent an injury with all the unsparing cruelty of a barbarous race—heedless of age, sex, or innocence—every thing but color. It suffices them to know that a white man is their mortal enemy; not he alone pays the penalty, but his family, his household, his property, all suffer for the offence.

It has been supposed by many that no tribes of mankind have been found who were without religion of some kind. But a German missionary who went among the Australians many years ago, said that they had no idea whatever of a supreme being. Mr. Parkes, a member of the New South Wales Legislature, who is also a good authority, draws attention to the fact that there is no word in their language for either justice or sin; and Dr. Lang, than whom no one perhaps has had better opportunities for arriving at the truth, although it must be added that his judgments are sometimes prejudiced, said that not only had they no idea of a supreme divinity, "but they had no object of worship, no idols, nor temples, nor sacrifices; nothing whatever in the shape of religion to distinguish them from the beasts." I have examined this question with some care and I must say with the same result. I have not succeeded in meeting with any Australian who had a religion, in the strict meaning of the word. They have no belief in

or knowledge of a good spirit. Still less can it be said that they have ever conceived the idea of a supreme ruler or creator. But they are not without a belief in the supernatural. The South Australians, for example, have faith in the existence of a spirit or fiend, whom they call Moorundun. In Van Dieman's Land he was known as Namma. But they do not worship this ideal. I never could learn that the Australians had any conception of prayer, propitiation, worship, or sacrifice. Yet Moorundun is held in extreme awe. He is an evil spirit, ever working mischief, but especially dangerous at night. Hence the reason why the Australians will never move about, if they can help it, after dark; an objection by the way which is equally shared in by many other of the Polynesians, and especially by the Maories. Moorundun is supposed to be a "black fellow" of huge size who lives in the bush, and is accompanied and aided by myriads of small imps who live in the scrub and on the boughs of the trees. The air and water are also supposed to be peopled by similar creatures, whose whole purpose is to annoy and injure mankind and to aid their master in his diabolical propensities. Moorundun is a notorious liar, the truth is unknown to him. His great object is to steal women and children. The latter he devours; the former he devotes to the gratification of his own pleasures, and then either restores them to their tribe or eats them. He is a consummate thief, sly and revengeful, ever uttering obscene and abusive language, imprecations, and lies.

The belief in a future existence varies among the natives. Some entertain the idea that after death they go to a happy country, where there is an abundance of fish and kangaroo to be had without trouble; others think that they are destined to be changed into white men; a creed which contrasts strangely with that of some African tribes; and many of them have no belief at all. In like manner, I should mention that the belief in Moorundun or his equivalent is by no means universal, and it is worthy of note that where his existence is not acknowledged the character of the natives is the more favorable. His disciples are apt for instance to imitate that spirit in untruthfulness, although I do not know whether we are to regard this as an indication of propitiary intentions.

Among the good traits in the Australian character there is one that needs special notice at my hands, because it has been referred to very prominently by some of the female philosophers of this present day. The rapid disappearance of many aboriginal tribes, which seems to be

almost peculiar to Anglo-Saxon colonization, has deservedly attracted a great deal of attention, though not as much as it deserves; and it is no easy matter to discover the causes of the phenomenon. But Miss Nightingale, who in this matter had no experience whatever to justify her opinion, declared before a meeting of the Social Science Congress, a few years ago, that the chief cause of the disappearance of aboriginal tribes is to be found in their unchastity. As a theory this is manifestly worthless; but as a question of fact it is utterly untrue. I do not mean to affirm that absolute moral purity prevails among the Australians, but there is no such thing as that indiscriminate intercourse between the sexes which some persons like to imagine. Even polygamy is not an established institution; and although marriage can have no relation to religion where no religion exists, it is much more highly esteemed by most of the Australian natives than it is in many so-called Christian communities which I might name. It is no uncommon occurrence to find old people who have lived together as man and wife from their youth, with a constancy which would shame very many couples who have solemnly pledged themselves at the altar of the Church. Such charges as those made by Miss Nightingale, and which have been repeated by other female reformers of society, are therefore not only gratuitous but unjust.

The Australians have few traditions, or if they have any it is extremely difficult to get at them. But it is worthy of note that among many of them there is a tradition of a time when the world was under water, very much resembling that which was found by Humboldt to exist among the South Americans, and not materially differing from the Mosaic account of the deluge. I am compelled by want of time to omit the notice which I should like to have given of the language of the Australians, which has many beauties and is not difficult to acquire; but I may be allowed to point out the wide field which opens out before the Anthropologist who would devote himself to the philology and thence to the traditional history of these people. I cannot but think that such an enquiry would be rewarded with interesting and valuable fruits.

There is a custom prevalent among many tribes to which hard names have sometimes been applied, although it is one very partially known. An incident which once happened to myself will illustrate it. On a bright summer day, it may be sixteen years ago, I was wandering far in the interior of Australia. After the morning meal, usually taken at

sunrise, I had rested perhaps two or three hours on a shady knoll, revelling in that wondrous feeling which can be enjoyed only under a luxurious atmosphere and in the midst of an absolute solitude. At last, mounting my horse, I travelled some eight or ten miles, when I fancied I heard distant sounds which I at once recognized as coming from a band of natives. My curiosity was aroused, and turning aside through a low dense scrub that skirted a piece of elevated land, then crossing the brow of a hill, I saw before me one of those beautiful tracts of country which so often surprise the traveller amid the arid plains of Australia. Far away extended the landscape, studded with trees, and here and there darkened with a piece of denser vegetation. Immediately beneath me lay a little valley, covered with luxuriant herbage and bordered with a fringe of eucalypti. In the midst was a small group of natives, by whom I soon found that my presence had been already recognized. I rode towards them and was met by two of their number, who, after the interchange of a few civilities, led me on to their companions. They numbered between thirty and forty, the majority being females. All were entirely naked, and exhibited physically a much higher type of the race than I had seen farther south. As I approached them, the noise which at first attracted my attention ceased, and the whole party gathered round me. But having given them to understand that I intended to pass a few hours in their company, they proceeded with their ceremony, not heeding my presence. At the foot of a large tree, sat or rather lay, supported against a log, an old man. His face, chest, arms and hands, had been burnt. The flesh still unhealed lay bare and festering under the glaring sun and the unceasing irritation of innumerable flies. In addition to this he was suffering from disease of the lungs, and it was with evident pain and difficulty that he breathed. Two women bathed the old man with pipe clay water, and the rest of the party assembled round him and indulged in the wildest gesticulations, which were accompanied at intervals with a strange monotonous cry that occasionally changed into a weird almost unearthly tumult of shouts. I at once divined what was to be the end of all this, and, after watching the proceeding for some time, I rode away again into the bush. Here, at a distance of two or three miles, I rested till evening. When the sun had set, and the full moon was well above the horizon, I once more mounted my horse and retraced my steps. I had at first some difficulty in finding the exact spot where I had left my friends. All was perfectly still and

silent. But after looking about for some time, a huge "black fellow" suddenly stood at my side, his dark proportions seeming magnified in the shadowy light of the moon. The whole tribe was close at hand, but my companion, whose instinct seemed to tell him the object of my visit, took me aside to a recess among the trees, where lay the body of the old man. His eldest son had knelt upon his chest, while two women had strangled him with a strip of bark.

This custom of killing the old and helpless is not universal, but it prevails very generally. Age is respected, but as soon as a native becomes a burden to himself and to his tribe he gladly and not without a degree of pride submits to being put to death. When we remember the mode of life of these people, there is more real kindness than cruelty in this custom. It arises certainly from no savage tendency to violence; and although at a superficial glance there may be something horrible about the idea, we ought to take all the circumstances into consideration before we pass a decree of condemnation upon it. The tribes live by travelling from place to place. They have certain favorite haunts, but they cannot remain long upon one location. They have no means of carrying with them those of their companions who are permanently disabled, and so they have established an institution which saves such from starvation.

The principal tribes of the other parts of Polynesia are of a higher type than the Australians or the Tasmanians. This remark applies especially to those portions of the population which have sometimes been described by the term Polynesian, as distinct from the Melanorian. The latter merge into the former at about the longitude of the Figis, where we find a people possessing the characteristics more or less of both divisions. Time however will not permit me to dwell as I would wish upon many of the details of character, custom and language, of these interesting people. I must content myself with only such general observations as are suggested upon a consideration of their probable future. I ask to be allowed to make only one exception, for the purpose of expressing my conviction upon the subject of cannibalism, for which the Figians and Maories especially are rated in many books and in missionary records. I do not believe in cannibalism. I did believe in it once; but that was before I had lived among the so-called cannibals. As my knowledge of these increased, my belief in the custom diminished; till now there is none left. By cannibalism I understand the use of human flesh as an article of food; made so,

not of course by necessity, but through choice and custom. I do not deny that many of the Polynesians eat human flesh, but they do it rather as a conscientious duty than as a social habit. When they kill an enemy there are certain portions of his body which they eat. They do this to dishonor their foe and to quiet their own consciences. They have accomplished all that duty and the ethics of war require, when they have tasted a mouthful of the fat that is near the kidneys; and if they go farther and make a feast upon the greater part of the body it is because they are over-elated with victory, or because they are giving way to a more than ordinary hatred of the man whom they have overcome. Perhaps too they may sometimes go upon much the same principle that a white man adopts, when, having drunk one glass of whisky punch, he goes on drinking other glasses of whisky punch, until he gets much more than either does him good or improves his reputation. If this be cannibalism then the Polynesians are cannibals; but it is not the sense in which the word is constantly being applied, and in which I claim that it has no existence in many places where it has been said to prevail. My opinion therefore is that if any one becomes food for a Polynesian it is his own fault, and not merely a consequence of his going among these people.

Let me now more particularly but still very briefly advert to a subject which in many of its bearings is of the greatest interest to anthropologists, I wish I could say to society generally. I allude to the future of the Polynesian race. I need not here dwell upon or even pause to illustrate the fact, which is so prominent in the history of Anglo-Saxon colonization, that aboriginal tribes seem destined to disappear before a higher civilization, when that is presented by our own people. Numerous evidences of this will occur to the minds of all present, of which perhaps not the least important, although the most recent, is the rapid diminution of the Negro, which is now and has been since the civil war going on in the United States. I think however we must acknowledge as a law in this matter, that the disappearance takes place in the direct ratio of the lower mental and physical development of the aborigines, and it is upon this that I am inclined in a great measure to shape my conclusions. In this country for example we see a fusion of the Indian with European blood, and at present we have no data upon which we can determine whether the mixed race will be perpetuated. But among the aborigines of Australia we see no such tendency. I have met with the offspring of black



women and white men, but they are very rare in Australia, and I am not aware that any members of a second generation exist. In my belief the Australian aboriginal is destined to disappear as completely as have the tribes of Tasmania; although in holding this view I do not wish it to be understood that I regard him as a being so low in the scale of humanity as to be incapable of improvement. Different individuals among them present different degrees of capacity for mental culture, but many of them are open to considerable elevation. I cannot say that in their natural state they are wanting in tenacity of purpose. They will track a foe with the most untiring diligence, and in many other things display a remarkable perseverance and singleness of end. But when civilization attempts to deal with them they show an equally great deficiency in the power of application. They are often good and intelligent farm servants, and, if properly managed, they seldom fail to acquire in a short time some rudiments of religion and general education. They are remarkably susceptible to religious impressions, and submissive and trusting to their teachers. Their memories are retentive. The schoolmaster has no difficulty in getting them to recollect what they have once grasped, but he finds it a very difficult task to fix their attention. Their faculty of observation is great, but all the good qualities which they possess seem to fade away directly we seek to apply them to the teachings of civilized life. Their precarious mode of subsistence militates of course very strongly against any great physical development, but when well fed they evince considerable powers of endurance. They become clever stockmen and daring riders. I knew a member of the Murrumbidgee tribe who was one of the best jockeys in New South Wales. It will also be remembered that England was recently visited by a company of aboriginal cricketers; and these men worked out a by no means discreditable record, both with some of the best English clubs in Australia, and with many clubs in England.

The government of Victoria has always exhibited a marked desire to protect and utilize the native tribes. They have also been generally well treated by the settlers of that colony. A few years ago, an effort was made to give as many of them as would avail themselves of the offer some knowledge of agriculture and the art of earning a living. For this purpose a large tract of fine land on the banks of the Goulburn was set apart for them. Tools, seeds and instructors, were provided, and many natives came to the spot and proved themselves exceedingly handy with the various implements placed at their dis-

posal. But they showed no steady application. Fixture in one locality did not accord with their ideas of freedom, and after they had remained on the land a short time they all disappeared and went back to their primitive mode of existence. In South Australia, a different plan was adopted. The missionaries who went among the aborigines had successively failed to accomplish any thing. They were at first listened to with attention, because the natives regarded them as members of their own tribes risen from the dead, and they listened as to men of authority. But they soon discovered that the practice of the white men did not accord with their precepts, and in this way they lost confidence. Then failing to see any immediate benefit to be derived from an adherence to the teaching they received, they soon learned to treat it with a feeling little removed from contempt. But, in 1859, the "Aboriginal Friends' Association" appointed a resident agent in one district, who hit upon a different expedient. He kept religion in the background at first, and, selecting three of the most intelligent tribes—those of Corong, Goolwa and Point Malcolm—he devoted himself to learning their habits. They lived chiefly by fishing, and he at once set to work to teach them improved means of taking fish. In this and by similar ways he succeeded very quietly in making himself necessary to them. They valued him, for they lived better now than ever they had lived before, and with far less labour. At last, when by these means he had completely won their confidence, he began to instil into them moral precepts, and they listened to him and profited. They had had their feeling of gratitude—always strong in the native breast—aroused, and thus the way was cleared for the fair reception of other culture.

I must however add, that all experience seems to indicate that we cannot eradicate from the Australian mind a longing to return to the aboriginal state. I have known natives who have been steadily employed for years upon one station, suddenly and without any apparent reason, strip off their clothes and go to rejoin their tribe. I am prepared to give due weight to the consideration that where the Australians have proved quite intractable in the hands of their teachers, there has been as much want of tact on one side as want of capacity on the other; but we possess absolutely no reason for thinking that the natives are capable of any, even moderately great, mental effort, still less of any high degree of intellectual culture. At the same time, however, I wish it to be distinctly understood that I cannot endorse the opinion that they are incapable of considerable advance in civilization.

*The natives of New Zealand, the Figis, and the Navigators' Islands,* must be very differently regarded. An unfair prejudice has grown up against the Maories, in consequence of the wars which have so long agitated New Zealand, but I say most emphatically that that war would never have occurred but for the disgraceful conduct of the New Zealand colonists. Language too strong cannot be used in condemnation of the treatment which the Maories have received at the hands of our people, who have deceived, misled, plundered, butchered them, with unmitigated atrocity, and then asked the world to sympathize with them when the Maori turned upon his oppressor. I know not one redeeming feature in the policy of the New Zealand colonists towards the natives, though if any palpable proof were needed to show that the Maori is worthy of a better destiny than extermination, it is the manner in which he has sustained the contest against his European tyrants. Implicit faith may be put in the honor of a Maori. His word is irrevocable. I confidently believe that no amount of injustice inflicted upon him by one whom he has promised to protect would induce him to swerve from his pledge. But the whole treatment of the colonists towards him has been a systematic course of trickery and deception, and even under that he never offered violent resistance until he had received an amount of provocation which was far beyond what would have sufficed to drive any civilized community to arms. The prejudice against him is therefore unjust. The Maori is capable of a high degree of mental culture, probably as capable as any aboriginal in the world, and many Europeans. He is a successful agriculturist, a shrewd diplomatist, and oftentimes a successful merchant, an honest (that is to say a trustworthy) lawyer, and an eloquent politician.

Of the Figians we know less. They have not had the same advantages, and disadvantages I fear I must say, of intercourse with Europeans; but I am strongly inclined to the conviction that the talent they undoubtedly possess as traders, and in the development of the resources of their rich and beautiful island, may be taken as some evidence that they are capable of holding a much higher position than they now possess in the scale of humanity, I might say in the scale of nations. They are easily taught. They are endowed with many qualities which render them fully capable of social and political organization, upon our own basis, as well as of self-government. And I think that a series of independent nationalities throughout the Pacific, composed of now existing materials, should be the object sought to be attained

by those nations which claim to be civilized. If England should colonize these islands, extermination, with perhaps some interfusion, would certainly follow sooner or later; and a similar result would be as sure and more rapid if America were to succeed in her schemes of annexation. But left to themselves there is character, intelligence, capability, in the natives of Fiji or Samoa which fully qualify them for an independent position in the world and an honorable status among the nations.

But I have already exceeded my legitimate limits, and extended my remarks beyond the time which I had a right to claim from this society. To convey a general insight into the character of the people I have been considering, I fear I have laid myself open to the charge of discursiveness, and perhaps failed to satisfy those who looked for the technical details of racial distinctions. These however I preferred to omit, rather than to treat them imperfectly; and hence I must ask the society to regard the observations I have made, not as an attempt at a complete review of the Polynesian tribes, so much as the preface to a more elaborate notice of the character of these people, which may be worthily considered by some more competent anthropologist than myself.

## ON LATIN PRONUNCIATION.

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Among the questions which have agitated the learned world since the revival of classical studies there is one still remaining, unsolved and perhaps insoluble, the correct pronunciation of the Latin language. With the scanty materials which have descended to our time, it becomes us to be cautious rather than confident; and yet there is perhaps no subject upon which scholars express themselves with greater temerity than this concerning which we know so little. The glory of ancient Rome has long been dimmed. Her pomp and state—her invincible arms—her haughty spirit, have passed away; her very language is numbered with the departed dialects to be spoken no more amongst the nations of the earth. Had some prophetic voice foretold to the senate that, in the progress of ages, the time was approaching when all these things should be accomplished, we may imagine the scorn and contempt which would have overwhelmed the seer. On that memorable occasion when the doom of conspirators was the subject of debate, when Cicero vehemently demanded their execution, and when Cæsar and Cato denied or jeered at the immortality of the soul, the fate which awaited Rome could not have found a place in their wildest dreams. That fate overtook her in its appointed course, levelling her pride with the dust, and reminding nations of the truth which Edmund Burke applied to individuals—"what shadows they are and what shadows they pursue." I have said that the Latin language is no longer a living tongue. Prouder, however, than the memory of ten conquests, nobler than her works of art, the monuments of Roman intellect remain, the delight and admiration of a distant age. Being dead Rome yet speaketh, to the eye, if not to the ear. She became the fruitful mother of a family of nations, but her language has fared ill with posterity. Ecclesiastics adopted it, literary men employed it as "the language of the learned." In it were composed the prayers of the Western Church, and the writings of the fathers and divines of that communion. But it was not the Latin of the ancient Republic or the early Empire. Its vocabulary was extended without being enriched; the strictness of

grammatical structure, and the purity of style concerning which the old Roman was so sensitive, fell a prey to the barbarism of the times. The best known work of the mediæval period, the celebrated treatise, "De Imitatione Christi," can hardly be said to have been written in the same language as that in which Cicero, or Horace, or Tacitus expressed their thoughts. The use of Latin as a spoken language, by those who knew nothing of the principles of pronunciation, has tended further to debase it. A certain moribund vitality has indeed been secured for it, but only at the expense of elegance in diction and correctness in expression. One of the consequences has been, that a number of theories of pronunciation have been devised, none of which will stand the test of intelligent scrutiny.

In the following paper it is proposed to examine those theories of pronunciation in which the attempt is made to indicate the quantities of syllables by means of accents and vowel sounds. It seems certain that when the Latin language was spoken with classic purity—when Roman arms and Roman literature were achieving their claims to imperishable renown—sound, accent and quantity, all had their share in the pronunciation of every word. Before entering upon the main question, it seems advisable to consider the nature of each of these three elements. From the explanation I propose to give, it will appear that quantity is not to be confounded with sound; but, on the contrary, is entirely independent of it. In order to guard against misunderstanding, it will be understood that by the term "quantity" is here meant duration of time—those syllables having the same quantity which are pronounced in the same time. In every language the sounds of words depend upon and are limited by (1) the capabilities of the human voice. These evidently vary in different races. For an Englishman of our day it is perhaps impossible to attain a correct pronunciation of the French *u*, the German or Gaelic guttural *ch*, or the Spanish *j*. It may be that the organs of speech have undergone considerable modification in the progress of time, and that here we might encounter a difficulty in acquiring a correct pronunciation of Latin, even if our knowledge of it were otherwise accurate. (2) The sounds of the letters which form the alphabet of the language. (3) Variations of these sounds and the formation of other sounds by diphthongal or consonant combinations. These may be roughly stated as representing all the articulate sounds which the vocal organs of the particular race or nation are able to utter; although in all languages, several sounds are expressed by one

letter, and, on the other hand, some of the sounds have redundant or, at any rate, equivalent representatives. It would be beside the purpose of the present paper, even if it were possible, to attempt an exposition of the nature and range of the sounds employed by the Romans. The vowels, their most important letters, we know had, each of them, a variety of sounds. These variations, however, did not arise from any connection between sound and quantity. They were regulated rather by the manner in which the letters were combined, and further by the custom of the time. We may reasonably infer the latter to have been the case from the fact that similar changes have been undergone, and are even now in progress, in modern languages—a conclusion which is confirmed by the early Grammarians. In treating of the sounds of letters these writers are invariably silent as to any distinction between long and short vowels, so far as sound is concerned. Indeed there are passages in which it is expressly stated that there is no such distinction. Probus, for example, says, “*A autem et E naturam suæ vocalitatis, sive correptæ, sive productæ, custodiunt.*” Moreover many instances are cited of words changing their accent or their quantity, but no mention is made of any corresponding alteration in the vocal character of the syllable. Does it not, in fact, seem extremely improbable that all words which include syllables of doubtful quantity, or syllables whose quantity depends on position, should have two pronunciations almost totally distinct? There are, it is true, some statements in the writings of the Grammarians which, at first sight, appear to conflict with this conclusion; but the apparent discrepancy will, I think, disappear upon a closer examination of the various passages. One example may suffice. Capella says: “*E vocalis duarum Græcarum vim possidet. Nam cum corripitur ε Græcum est ut hoste; cum producitur η est ut ab hac die.*” The meaning of this quotation depends entirely upon the significance of the word *vim*; that it refers here only to quantity may be gathered from the use which Victorinus makes of the corresponding word *potestas*:—“*Potestas est quæ in ratione metrica valet cum aut producta aut correpta est.*” In fact Capella could not have meant by *vim* any distinction in sound, for in his time η and ε had become identical in that respect, as Sextus Empiricus informs us:—“*Correptum Eta (ait) fieri Epsilon, productum contra Epsilon fieri Eta.*” On the whole it is fair to conclude that sound and quantity have no necessary connection whatever; but are in their nature distinct, the one from the other; and further that the vowel sounds depended upon

their combination with other letters, and changed with the varying custom of the times. The principal or alphabetical sound of each of the vowels cannot now be ascertained; but, following those who have most deeply investigated the subject, we may assume as extremely probable that *a* was pronounced like the *a* in *papa*, *e* like the circumflexed *e* in the French *bête*, *i* as the *i* in *might*, *o* like the *o* in *note* and *not*, and *u* like the *oo* in *boot*. With respect to the consonants, there is not so much room for doubt; for the most part they have a well established pronunciation in all languages, which is only modified by position. It is clearly established that *c* and *g* were never soft as they are sometimes made before vowels, and that *j* had the sound of *y* in youth, as it still retains in the Italian.

With reference to the second element—accent—the Grammarians are more explicit. They have left us a complete set of rules according to which the proper syllables may be correctly accentuated. These rules form part, as far as they go, of a system of elocution. They indicate those changes in the pitch of the voice which give force and effect to spoken language. The following are some of the rules relating to the use of the acute and circumflex accents:—

- (1) A monosyllable takes the acute or circumflex according as its vowel is long or short by nature.
- (2) In dissyllabic words, the accent is on the penult.
- (3) In words of more than two syllables, the accent is put on the penult if it is long either by nature or position; the acute is put on the ante-penult, if the penult is short.

To these rules there are many exceptions which it is unnecessary to mention here. To these principles of accentuation two German critics, Lipsius and Vossius, have taken exception, but the reasonableness of the rules is apparent, and the fact that they were formally acknowledged as early as the days of Quintilian may serve as a sufficient vindication of the Grammarians.

The third element, that of quantity, depends upon the length of time occupied in the utterance of a syllable. Originally some long vowels appear to have been distinguished from short vowels either by duplication as *aa*, *ee*, or by capital letters as *I*. When these rude expedients were abandoned, they were replaced by the ordinary marks — *˘*, by doubling the following consonant, as in *classis*, *summus*, etc, or a similar result was secured by other means. In all cases, however,



whether these marks of quantity were present or not, a long syllable occupied twice the time of a short one in enunciation. So sensitive were the ears even of the common people to this element of speech that, as Cicero tell us (*De Orat. c. 50*): "If the smallest offence be given by an actor so that any sound is made too short by contraction or too long by extension whole theatres burst into exclamations."

To enable us to pronounce a word as the Latins did, therefore, it will be necessary for us to discover the proper mode of expressing in its enunciation the sound, accent and quantity of every syllable—a problem we cannot hope to solve with any approach to exactness. It is obviously impossible to construct a set of rules for the guidance of future generations in the pronunciation of any language. Such a system of Orthoëpy would require a language invariable for all time; for its canons, to be available, must be illustrated by examples taken from the language it is framed to teach—a condition of stability which can no more be fulfilled in language, than its opposite quality, perpetual motion, can be devised in the department of mechanics. How signally such a set of rules must fail of its object will be evident if we consider that the proper application of the directions of the early Grammarians is involved in the greatest mystery. The only possible means, it seems to me, of devising approximately intelligible rules for the pronunciation of any language would be found in some mechanical method of expressing the element of speech—an expedient only practicable when man succeeds in inventing an adequate instrument. It would be useless now for the most acute theorist to strive to pronounce the Latin tongue as it flowed from the lips of Cicero. The most we can hope to accomplish is to frame, for our own times, a system by which one or more of the elements of pronunciation may be, in some degree, expressed or inferred. The rules in any such system would of course vary with the object proposed and the conventions on which the means for effecting that object are founded. The mode of indicating the first element should find clear and unambiguous expression in every system. The precise meaning of any Latin we may have occasion to use can be adequately conveyed to others in speech only by a consistent and established set of sounds. The most important element to us is quantity; but any attempt to express it intelligibly in speech is extremely difficult, inasmuch as it finds no place in the vocalization of any modern language. Moreover this difficulty is further complicated by the attempt to confound sound with quantity, and to present them to the

student as dependent, the one upon the other. It will be found, I think, upon careful examination that the methods employed in England and America to express quantity necessarily fail to effect that object, because they are the fruit of incorrect generalization from a few of the rules laid down by the Grammarians to govern a totally different element—that of accent.

So far as regards the representation of the first element in the same country, it is immaterial for all practical purposes whether it be attempted to reproduce the ancient Latin sounds or not. In fact each country now reads Latin according to the analogy of its own language and the fruitless attempt to discover the original sounds is wisely abandoned. There is, however, no reason why natives speaking the same language should not have one uniform system, each word being pronounced in a fixed way, just as educated men pronounce their native tongue. As it is, the number of systems in vogue in America and England is a source of great perplexity, which is not by any means relieved when we consider that there are many who employ no system at all. To secure uniformity it would be necessary to frame laws for the sounds of vowels and diphthongs—a matter of considerable difficulty in consequence of the variety in the pronunciation of the same vowels and diphthongs in different words. Take for instance the sounds possessed by *o* as exemplified in *note, rod, how, move, dove*, or by the diphthong *ei* in *height, freight, receipt, their*. Similar variations in the case of other vowels and vowel combinations will readily occur to the mind; it is unnecessary therefore to adduce them. Of the entire number of these variations in English vowel sounds, it will be found that there are two sounds of each vowel occurring more frequently than the rest. These may be denominated the prevailing sounds of the vowel, and are usually known to us as the open and close vowel sounds. In attempting to arrange a complete set of vowel sounds for the Latin, several courses are open to us. In the first place, we may adopt for the purpose the prevailing vowel sounds as they are employed in English, selecting, in any particular case, the one we should be most likely to use if the word were English. Or secondly, we may rigidly adhere to one uniform set of sounds in all cases. Finally, we may adopt the system prevailing in some foreign country. Of these three plans I am inclined to prefer the second, provided the sounds chosen were such as to assimilate our pronunciation to the systems in vogue on the continent of Europe, a step which would tend in some degree to the adoption of

an uniform system throughout the educated world. Obviously the sounds best suited to such an object (with one exception, that of *i*) would be those already mentioned as being perhaps the nearest approximations to the ancient Latin, *i* being pronounced like the English *e*. The consonants and diphthongs present like difficulty; the sounds of the latter being indicated either by the prevailing sounds in English, or, better still perhaps, by enunciating their component vowels very quickly one after the other. In a system constructed in this way to express the first element alone, no regard being had to the other two, the syllables would be pronounced in monotones of the same length.

It has been assumed that the laws of accents as given by the Grammarians are valid, but there still remains an obstacle in the way of a proper understanding of this element, because the variation in the pitch of the voice in pronouncing differently accented syllables is unknown. If, however, we suppose that it was not materially different from that which takes place in speaking the modern languages, we can, at any rate, mark the presence of the acute accent in words of two or more syllables by accenting the syllable on which it occurs, in the same manner as syllables are accented in English. When, for instance, we place the accent on the first syllable of *into*, *over*, *under*, etc., the pitch of the voice is higher than in articulating the unaccented syllables; so also when we pronounce the words *arrest*, *detect*, *excellent*, *arbitrary*, *illicit*; and generally it may be shewn that the voice is higher in pronouncing syllables, accented according to the English method, than it is in the utterance of the unaccented syllables. It is not intended here to assert that elevation of the pitch is the essential element in English accent. Loudness or stress is much more evident, although the nature of its connection with the former it does not seem easy to explain. It is only necessary for the present purpose to establish that in English accent we have an element, though a subordinate one, substantially identical with that which, we are told, was the essential characteristic of accent in Latin. If now, sound and accent being considered as independent elements, syllables be pronounced according to a system embracing only these, they will no longer be uttered in monotones, yet the time of each will be the same; in other words quantity is still wanting. There are examples in English which are apt to mislead us on this point, inasmuch as the times of the accented syllables are longer than in the unaccented ones. It will be observed, however, that in such cases, although a change in time takes place

along with the acute accent, it is not a necessary concomitant. The concurrence is merely accidental, and the accent is usually expressed in all the modern languages without any accompanying change of time. In Latin, on the contrary, the enunciation of syllables occupied times materially different, but the longer syllables were not necessarily those marked with the acute, as they sometimes are in English

Since the versification of the Latins depended entirely upon the *quantity* of the syllables—in other words, upon the relative time occupied in their utterance—it is of the utmost importance that this element should be well understood, and, as far as possible, clearly defined in any modern system of pronunciation. There is, however, a great and perhaps insuperable difficulty in the way of any fitting expression of it. Quantity in the ancient sense of the term, has ceased to be essential to what may be styled the mechanical department of poetry; in the rhythm of the modern languages it is absolutely wanting. So completely has this element disappeared, in the progress of time, that in music, living and fresh as that “divine art” is and must ever be, most people are unable to judge with accuracy of duration, even after considerable training. Whether, therefore, the attempt in our day to discriminate quantities be futile, or the systems framed to accomplish the object fail from ignorance of the true principles of pronunciation, it is certain that our methods afford no assistance in expressing this chief element in Latin pronunciation. It seems probable that the idea of pronouncing according to accent owes its origin to the manner in which the liturgy of the Church of Rome is read or intoned, and that, by a mis-conception of the system, people have been led to confound accent and quantity. That some error of this description lies at the bottom of modern mistakes regarding pronunciation seems clear when we find that according to prevailing systems it is proposed to indicate quantity, (1) by accent, (2) by giving the vowels different sounds according to their length. From the clear and easily defined distinction already pointed out between quantity and accent, the success of any method of this kind is antecedently improbable. It would not be more unreasonable to assert that time in music can be represented by variations in the pitch. Taking the first of these schemes, it is plain from an examination of the laws of accents, even supposing them to be invariably true (and they are not), that it is only possible to infer the quantity of the penults in words containing at least three syllables. Such a system is evidently worthless as an exposition of quantity, but

it seems unobjectionable, if designed merely to explain accentuation, and if it be conceded that the quantity of *one* syllable only can be inferred in certain cases with tolerable accuracy. The faulty application of the laws of accents has led modern theorists far astray on the subject of Latin pronunciation. Their mistakes have resulted in the penult being considered the only syllable whose quantity they care to express, whereas it has not been observed that in such cases they are really expressing the accent and inferring the quantity. It is to be lamented that the *odium philologicum* has so completely blinded educated men as to induce them to sneer at the ideas of quantity entertained by those whose patient erudition and honest investigation of the truth are at least equal to their own.

The second proposal which is the complement of the first is open to the still stronger objection, that it rests upon an arbitrary assumption, neither appropriate nor effective, and for which, it may be added, there is no semblance of authority. If we take the sounds representing the long vowels which I have ventured to mark ( $a_1, e_1, i_1, o_1, u_1$ ), there seems no sufficient reason why they should be regarded as differing in point of time from the so-called short vowels ( $a_2, e_2, i_2, o_2, u_2$ ), which can be equally prolonged. There is no difference so far as the expression of quantity is concerned by the mere change of vowel sounds in such words as the following:—*mōret*, *mōvit*; *fructūs*, *fructus*; *bōne*, *bēta*; *bībo*, *bimus*; *lābor*, *lābor*. According to this theory we ought to say—*frigidus*, *maritimus*, *homo*, *domus*, *cogito*, *colonus*, *quīs*, *quīs*, and so on. Even were this system capable of perfect and universal application it could only enable us to infer with probability instead of expressing with accuracy what the Latins meant when they spoke of the quantity of a syllable. At any rate, it could only be serviceable as a supplement to the fallacious method of indicating quantity by accent. In addition to the objection that systems like these are purely factitious—conclusions drawn from suppositions and arbitrary premises—it is only necessary to point out that the sounds of short vowels are generally the same as those which become long by position or diphthongs. The *i* for instance has the same sound in *marītūmus* and *littera*; the *e* in *bēne* and *pseudo* is, so far as sound is concerned, identical. This objection might, of course, be removed by ascribing to the vowels long by position the sounds of the long vowels, but the insuperable difficulty would still remain. that such a contrivance would fail

because it is not universally applicable. The practice of those who advocate the theory is the most effective argument against it. How, for example, would they pronounce such words as these:—*spēi, rōi, fīeri, vis, fīs, sīs, die, hīemis, Iliadis, Hamadrjades, lūgeo, lūceo, stūpeo, rūbeo, fūerat, cōemo, cōalesco?* Moreover, how do they propose to distinguish words of doubtful or variable quantity, *e.g. Cŷelopes and Cŷelopes; prōpago and prōpagine; mōvet and mōvit; fūgit and fūgit; hic amōr, hoc studium, etc.*, and *Omnia vincit amōr, et*. . . . Until they are able to adapt their rules to every case which may arise in the language of a people so ardently attached to rhythm and so morbidly sensitive of false elocution as the Romans, they can lay no claim to the possession of a perfect system.

In conclusion let me briefly state the positions I have attempted to establish:—

- (1) That the quantity cannot now be expressed with any approach to accuracy in modern speech, and that if discerned at all, it can only be by inference from the other elements.
- (2) That conclusions drawn from accent can only be valid when applied to the penultimate of words of more than two syllables. In all other cases the quantity must remain wholly indeterminate so far as pronunciation is concerned.
- (3) That in attempting to construct a system of pronunciation adapted to our wants, the scanty knowledge we possess only warrants us to require (*a*) that the acute accent shall be expressed in accordance with the law as laid down by the Grammarians, and (*b*) that one of the two sets of sounds previously suggested shall be fixed as the uniform standard of enunciation wherever the Latin language is read or spoken.

The practical results of these desultory observations may appear to be of little value; but when we consider the dogmatic positiveness with which untenable views upon this subject have been asserted, it will not appear an idle work to sweep away the rubbish even at the cost of exposing the poverty of the knowledge we possess. In a department where it is now impossible to extend the limits of the information at our command, it is no small task to distinguish certainty from fanciful invention. The chaff may add to the mass, but it is only the wheat which can be sifted with profit, and treasured, be it much or little, in the garner of the world.

## ON THE CLIMATOLOGY OF STRATFORD, ONTARIO

BY C. J. MACGREGOR, M.A.,  
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Stratford, where the observations which form the groundwork of the following papers were made, is situated in  $43^{\circ} 25' N$  lat., and long.  $80^{\circ} 58' W.$ , at an (approximate) elevation of 1182 feet above the sea level. The surface of the adjacent country is generally level or slightly undulating; and as the water-shed of the western section of the Province of Ontario passes within a few miles of the town, its position gives a more than ordinary interest to the meteorological observations taken there. The instruments (supplied by the Chief Superintendent of Education) are fixed in position in a shed attached to the north side of the Grammar School building, and are properly protected from being unduly influenced by radiation. The hours of observation are 7 A.M. and 1 and 9 P.M., which are probably not the best (meteorologically) that might have been chosen, but which were, I believe, selected to suit the convenience of the Grammar Schools, in connection with which a system of meteorological observations has for some years been in operation.

In this paper I propose to show the principal steps employed in computing the normal temperatures, together with some of the more important results. The materials employed in the construction of the formulæ for computing the normal temperatures, are derived from observations made by me during the years 1861-'69, inclusive, and are given in the following tables:

## MONTHLY MEANS OF TEMPERATURE AT STRATFORD

7 A. M.

YEAR.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR
1861	16.48	21.85	22.89	38.00	41.65	55.37	62.56	60.18	52.69	44.56	33.56	28.65	40.20
1862	17.51	16.86	23.08	36.96	48.34	57.12	62.06	61.85	54.35	41.44	32.54	25.27	40.11
1863	25.30	18.54	21.53	37.25	50.83	55.91	62.68	59.51	49.21	39.45	34.72	21.66	39.70
1864	16.93	19.84	23.52	36.80	50.58	56.25	62.19	62.57	51.52	40.11	33.62	22.42	39.67
1865	13.06	17.00	29.23	40.55	48.78	62.75	61.13	59.54	58.22	39.48	34.61	24.20	40.71
1866	16.19	16.42	22.81	39.48	42.65	57.93	65.80	51.15	49.53	44.19	33.84	20.93	38.74
1867	11.37	24.85	21.60	36.50	41.91	61.83	61.47	59.77	52.85	42.48	34.04	18.29	39.17
1868	14.68	11.48	26.52	34.94	49.06	58.31	69.25	60.67	51.13	37.72	32.41	18.86	38.76
1869	24.32	21.02	16.68	35.37	47.17	54.15	60.94	59.76	53.24	37.25	28.49	25.04	38.62
Means	17.68	18.65	23.09	37.32	47.00	58.07	63.06	59.96	52.53	41.08	32.92	22.92	39.62

## 1 P. M.

YEAR.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR
1841	22.19	20.86	30.67	46.96	51.53	68.76	71.72	70.27	62.09	51.42	37.76	31.75	48.16
1862	22.87	22.92	31.35	44.46	59.61	68.05	71.13	71.91	64.43	51.80	36.89	29.32	47.90
1863	29.43	24.58	29.25	48.11	61.71	65.71	71.41	70.58	61.32	48.45	40.90	27.79	48.27
1864	22.04	25.10	39.45	44.94	60.97	69.71	75.14	74.40	61.04	47.87	37.49	24.45	47.80
1865	18.20	24.93	37.28	48.70	59.50	72.93	70.21	71.23	69.92	47.41	39.88	27.68	44.99
1866	21.42	23.22	28.46	51.11	53.68	67.54	75.55	64.99	59.13	47.33	39.67	25.14	46.94
1867	18.71	30.46	28.85	44.88	49.84	72.05	72.04	73.28	63.56	44.93	39.70	23.55	47.65
1868	19.75	18.66	36.31	43.89	57.50	68.22	83.01	73.54	59.59	45.67	36.78	22.86	47.15
1869	28.75	26.57	25.37	44.11	55.86	62.89	68.91	69.29	65.15	44.48	33.98	28.62	46.16
Means	22.60	24.81	30.89	46.35	56.69	68.43	73.24	71.06	62.92	49.82	38.12	27.12	47.67

## 9 P. M.

YEAR.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR
1861	17.03	24.95	28.76	41.10	44.59	59.85	63.54	61.61	54.71	43.21	32.78	31.57	42.23
1862	19.80	19.81	27.01	38.68	51.58	58.59	63.51	63.39	55.35	46.95	33.23	27.32	42.06
1863	26.86	21.98	23.90	40.76	53.42	56.65	63.62	61.52	52.21	42.68	37.38	24.18	42.10
1864	19.53	22.30	26.63	39.28	54.74	59.58	64.08	65.32	54.12	42.41	34.46	23.25	42.19
1865	15.75	21.17	33.68	43.89	51.21	64.09	62.82	62.78	61.80	42.00	36.05	23.51	43.23
1866	17.66	20.55	25.27	43.07	46.87	59.98	67.68	57.34	52.10	46.26	36.75	21.87	41.27
1867	17.07	28.30	24.47	39.48	45.61	63.74	63.81	63.54	54.04	46.63	36.24	20.89	41.73
1868	16.37	14.19	31.10	36.18	51.80	60.17	72.69	63.96	52.93	39.70	33.53	20.01	41.04
1869	25.55	23.50	20.37	38.95	40.91	56.94	63.62	61.87	57.25	38.57	29.87	26.33	41.06
Means	19.46	21.86	26.58	40.15	40.75	59.05	65.09	62.37	54.95	43.71	34.87	24.33	41.88

## 7 A. M., 1 P. M., AND 9 P. M., COMBINED.

YEAR.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR
1861	18.57	24.55	26.77	42.04	46.59	62.33	65.94	64.02	56.47	49.06	34.37	31.66	43.53
1862	19.99	19.87	27.15	40.03	53.18	61.25	65.57	65.73	58.06	47.73	34.22	27.64	43.37
1863	27.20	21.76	24.89	42.04	55.32	59.42	65.70	63.97	54.28	43.53	37.67	24.54	43.35
1864	19.50	22.42	26.87	40.34	55.43	61.85	67.34	67.53	55.56	43.46	34.99	23.37	43.22
1865	15.67	1.04	33.40	44.37	53.16	66.59	64.72	64.53	63.31	42.97	36.85	25.13	44.31
1866	18.42	20.06	25.51	44.55	47.73	61.82	69.64	59.16	53.59	47.93	36.75	22.66	42.32
1867	16.72	27.87	24.97	40.29	45.12	65.87	65.77	65.53	56.83	48.01	36.33	20.91	42.85
1868	16.93	14.78	31.31	38.34	52.79	62.23	74.99	66.06	54.55	41.03	34.24	20.58	42.32
1869	26.21	23.70	20.81	39.48	50.98	57.99	64.49	63.61	58.55	40.10	30.78	26.66	41.95
Means	19.91	21.78	26.85	41.28	51.14	62.15	67.13	64.46	56.80	44.87	35.13	24.79	43.02

I may state that no observations were made in July, 1863 and 1864, in consequence of my absence from home; but I have been able to obtain approximate values for these months from a comparison with the records of the Observatory at Toronto, furnished to me by Prof. Kingston. The mode adopted is explained in the following investigation:

Let  $T$  be the mean temperature of eleven months (omitting July) at Toronto for a given hour;  $\Delta$  the excess of the July temperature



above  $T$ ;  $T_1$  and  $\Delta_1$ , analogous quantities for Stratford. Then approximately  $\frac{\Delta_1}{T_1} = \frac{\Delta}{T}$  and therefore  $\Delta_1 = \frac{\Delta}{T} \times T_1$ .  $\Delta$  and  $T$  are known from the Toronto records,  $T_1$  from Stratford, and therefore  $\Delta_1$  is known approximately; consequently the July temperature for the specified hour =  $T_1 + \Delta_1$ , nearly. The observation hours at Toronto not being the same as at Stratford, the mean of 6 and 8 A.M. was used for 7 A.M., 2 P.M. for 1 P.M., and 10 for 9 P.M.

It is not strictly correct to assume that the above plan will give the true mean temperatures at Stratford for July, 1863-'64; but as the error in the nine-year mean will be probably small, the advantage of utilising the observations taken during the remaining months of these years will overbalance any slight departure from strict accuracy in the July temperatures.

From the nine years' mean for each hour, and for the three hours combined, the following formulæ are derived, in which  $t$  represents the temperature for that hour on any proposed day, and  $x$  an angle proportional to the number of days from January 15th :

7 A.M.

$$t = 39^{\circ}.52 + 22^{\circ}.46 \sin (x + 261^{\circ} 25') + 1^{\circ}.22 \sin (2x + 142^{\circ} 0') \\ + 0^{\circ}.51 \sin (3x + 217^{\circ} 47') + 0^{\circ}.37 \sin (4x + 43^{\circ} 55') \\ + 1^{\circ}.08 \sin (5x + 350^{\circ} 53') - 0^{\circ}.14 \cos 6x.$$

1 P.M.

$$t = 17^{\circ}.67 + 25^{\circ}.45 \sin (x + 263^{\circ} 23') + 0^{\circ}.21 \sin (2x + 119^{\circ} 3') \\ + 0^{\circ}.25 \sin (3x + 182^{\circ} 18') + 0^{\circ}.38 \sin (4x + 60^{\circ} 4') \\ + 0^{\circ}.95 \sin (5x + 357^{\circ} 35') - 0^{\circ}.26 \cos 6x$$

9 P.M.

$$t = 41^{\circ}.88 + 22^{\circ}.41 \sin (x + 262^{\circ} 38') + 0^{\circ}.52 \sin (2x + 137^{\circ} 21') \\ + 0^{\circ}.38 \sin (3x + 234^{\circ} 38') + 0^{\circ}.43 \sin (4x + 30^{\circ} 44') \\ + 0^{\circ}.91 \sin (5x + 342^{\circ} 45') - 0^{\circ}.18 \cos 6x.$$

THREE-HOUR MEANS

$$t = 43^{\circ} 02 + 23^{\circ}.44 \sin (x + 262^{\circ} 31') + 0^{\circ}.64 \sin (2x + 138^{\circ} 49') \\ + 0^{\circ}.36 \sin (3x + 215^{\circ} 55') + 0^{\circ}.39 \sin (4x + 43^{\circ} 57') \\ + 0^{\circ}.97 \sin (5x + 350^{\circ} 32') - 0^{\circ}.19 \cos 6x.$$

From these formulæ, tables have been constructed of the normal temperatures at the hours 7 A.M., 1 P.M., and 9 P.M., and of the normal means for the three hours combined. Of the four tables constructed, the latter only is here shown.

The following are the days when the maximum and minimum of each hour occurred :

	MAXIMUM		MINIMUM	
	Day	Temp	Day	Temp
7 A.M. . . . .	July 12	65.1	Jan 15	17.7
1 P.M. . . . .	14	73.2	19	22.6
9 P.M. . . . .	15	65.1	12	19.5
Mean of three hours	15	67.1	15	19.9

NORMAL DAILY MEANS OF TEMPERATURE AT STRATFORD, FROM OBSERVATIONS AT 7 A.M., 1 P.M., AND 9 P.M., IN THE YEARS 1861-70

DAY	JAN.	FEB.	MARCH	APRIL	MAY.	JUNE.	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	20.7	21.0	23.1	31.3	47.1	57.0	65.2	69.1	61.0	50.4	39.2	29.7
2	20.6	21.1	23.2	31.8	47.4	57.3	65.4	69.0	60.8	50.0	39.0	29.1
3	20.5	21.1	23.4	35.3	47.7	57.7	65.5	68.9	60.6	49.6	38.7	29.0
4	20.4	21.2	23.6	35.9	48.0	58.0	65.8	69.4	60.4	49.2	38.4	28.7
5	20.3	21.3	23.8	36.4	48.3	58.3	65.7	69.1	60.1	48.8	38.2	28.3
6	20.2	21.3	23.9	36.9	48.5	58.7	65.8	68.6	59.8	48.4	37.9	28.0
7	20.2	21.4	24.2	37.4	48.8	59.1	65.9	68.5	59.5	48.0	37.6	27.6
8	20.1	21.4	24.4	37.9	49.1	59.5	65.9	68.4	59.2	47.6	37.3	27.2
9	20.0	21.5	24.7	38.4	49.4	59.9	65.9	68.2	58.9	47.2	37.0	26.9
10	20.0	21.6	24.9	38.9	49.7	60.3	67.1	68.1	58.5	46.8	36.7	26.5
11	19.9	21.6	25.2	39.4	50.0	60.6	67.1	68.0	58.2	46.4	36.4	26.2
12	19.9	21.7	25.5	39.9	50.3	61.0	67.1	64.9	57.8	46.0	36.1	25.8
13	19.9	21.7	25.9	40.3	50.6	61.4	67.1	64.7	57.5	45.6	35.7	25.5
14	19.9	21.8	26.2	40.8	50.8	61.7	67.1	64.6	57.1	45.2	35.4	25.2
15	19.9	21.9	26.5	41.1	51.1	62.1	67.1	64.4	56.8	44.9	35.1	24.8
16	20.0	21.9	26.9	41.7	51.5	62.4	67.1	64.3	56.4	44.5	34.8	24.5
17	20.0	22.0	27.3	42.1	51.8	62.8	67.1	64.1	56.0	44.1	34.5	24.2
18	20.0	22.0	27.7	42.5	52.1	63.1	67.0	64.0	55.7	43.8	34.2	23.9
19	20.1	22.1	28.1	42.9	52.4	63.4	67.0	63.8	55.3	43.4	33.9	23.6
20	20.1	22.2	28.5	43.3	52.7	63.7	67.0	63.6	54.9	43.0	33.5	23.3
21	20.2	22.2	28.9	43.7	53.1	64.0	66.9	63.4	54.5	42.7	33.2	23.0
22	20.2	22.3	29.4	44.1	53.4	64.3	66.8	63.2	54.1	42.4	32.9	22.8
23	20.3	22.4	29.8	44.4	53.8	64.6	66.8	63.0	53.7	42.0	32.5	22.5
24	20.4	22.5	30.3	44.8	54.1	64.8	66.7	62.8	53.3	41.7	32.2	22.2
25	20.4	22.6	30.8	45.2	54.5	65.1	66.6	62.6	52.9	41.3	31.8	22.0
26	20.5	22.7	31.2	45.5	54.9	65.3	66.6	62.4	52.5	41.0	31.5	21.8
27	20.6	22.8	31.8	45.8	55.2	65.5	66.5	62.2	52.1	40.7	31.2	21.6
28	20.7	22.9	32.3	46.1	55.6	65.7	66.4	62.0	51.6	40.4	30.8	21.4
29	20.8	22.9	32.8	46.5	56.0	65.9	66.3	61.7	51.2	40.1	30.5	21.2
30	20.8	23.3	33.3	46.8	56.4	66.1	66.2	61.5	50.8	39.7	30.1	21.0
31	20.9	23.8	33.8		56.7		66.1	61.3		39.5		20.8

(To be continued.)

## ON THE ANNUAL DISTRIBUTION OF TEMPERATURE AT TORONTO, IN THE YEARS 1859-'68.

BY G. T. KINGSTON, M A.,

DIRECTOR OF THE MAGNETIC OBSERVATORY

The normal temperatures employed as standards of reference in the Toronto tables to the end of 1868, and published in the *Canadian Journal*, were derived from the well known paper on the "Periodic and Non-periodic Variations of Temperature" published by General Sabine in the *Philosophical Transactions* for 1853. During and prior to the time when the observations were made on which Gen. Sabine based his conclusions (1841-'52), the mean temperature of January exceeded very decidedly the mean of February in other parts of North America as well as at Toronto. Testimony to this effect is given by Dove, in the remarks that accompany his isothermal charts, where he describes the isothermal lines as moving southwards from January to February.

Observations of later years, however, show a preponderance in the temperature of February.

At Isle Jesus (near Montreal), 1853-'62, Feb. was warmer than Jan. by..	3·4
Quebec. .... 1860-'67, .....	3·6
St. John, New Brunswick .... 1861-'68, .....	3·6
Halifax..... 1867-'69, .....	2·3
Stratford, Ontario ..... 1861-'69, .....	1·9
Toronto ..... 1859-'68, .....	1·8

That the change in the time when the greatest cold occurs in Toronto has been a progressive change, is shown by comparing the means of January and February in groups of five years :

1841-'45, Jan. warmer than Feb. by 2·6	1856-'60, Jan. colder than Feb. by 0·3
1846-'50, " " " " " 2·6	1861-'65, " " " " " 1·5
1851-'55, " " " " " 0·9	1866-'69, " " " " " 2·1

Again, in addition to the change that has been noticed in the epoch of greatest cold, it appears further, as far as concerns Toronto, that the winters and springs have become to some extent colder, and the summers

and autumns warmer. Thus, comparing two sets of quarterly groups, separated by an interval of ten years, we have as follows :

	WINTER	SPRING	SUMMER	AUTUMN.
1841-'50...	25.1	41.0	64.7	46.4
1861-'68.....	23.4	40.3	65.6	47.4
Change ..	-1.7	-0.7	+0.9	+1.0

The old tables of normals being thus manifestly inapplicable to the observations of recent years, I decided to construct new tables, and employed for the purpose the observations of the ten years 1859-'68, collected into monthly means for each of the six ordinary hours of observation, as shown in Table I.

TABLE I

Monthly Mean Temperatures at Toronto, at each of the six ordinary hours of observation, derived from the ten years 1859 to 1868, inclusive.

Hour.	JAN	FEB	MAR.	APR	MAY	JUNE	JULY	AUG	SEP.	OCT	NOV	DEC	YEAR
2 P. M.	21.75	26.68	34.11	45.70	57.28	67.75	74.35	72.78	63.67	51.62	41.14	28.10	48.99
4 P. M.	21.30	26.63	34.05	45.55	57.10	67.52	74.17	72.42	63.07	50.77	40.09	27.22	48.57
10 P. M.	21.36	23.25	29.51	39.32	49.56	58.72	64.85	63.23	55.41	44.96	36.76	24.55	42.63
Midt.	26.74	22.67	28.46	38.33	48.66	57.16	63.40	61.72	54.02	44.03	36.16	23.86	41.55
6 A. M.	19.60	20.69	26.14	36.31	47.45	57.38	63.01	60.31	52.25	42.42	35.19	23.26	40.34
8 A. M.	19.66	21.15	28.00	39.05	51.62	61.90	68.00	65.85	56.93	45.03	35.99	23.23	43.08
Mean	21.74	23.51	30.05	40.81	51.84	61.74	67.96	66.06	57.56	46.47	37.56	25.04	44.19

Taking each hour separately, and adopting in the first instance the ordinary hypothesis that the monthly means represent the temperatures proper to the middle days of the respective months, six formulæ were constructed of the form :

$T_n = T_0 + T_1 \sin(n \times 30^\circ + C_1) + T_2 \sin(2n \times 30^\circ + C_2) + \&c. \&c. T_6 \cos 6n \times 30^\circ$ ;  
the January mean being the temperature corresponding to the 15th of January, regarded as the origin or zero of time;  $T_n$  the temperature at the time ( $n$ ), the unit of time being the twelfth part of a year; and  $T_0, T_1, \dots, T_6; C_1, C_2, \dots, C_6$  constants derived from the twelve monthly means.

The value of these constants are as follows :

	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$	$T_6$	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$
2 P. M.	48.99	24.70	0.48	0.66	0.62	0.51	0.22	261.57'	27.18'	262.17'	10.16'	36.0'
4 P. M.	38.57	24.76	0.69	0.64	0.65	0.49	0.22	262.54'	27.19'	265.59'	11.36'	34.40'
10 P. M.	42.63	21.43	0.33	0.80	0.66	0.52	0.29	261.7'	36.33'	267.59'	359.8'	26.13'
Midt.	41.55	20.95	0.30	0.87	0.74	0.58	0.26	260.40'	38.30'	269.28'	5.25'	21.9'
6 A. M.	10.34	21.36	0.89	0.85	0.67	0.56	0.27	260.38'	12.21'	276.35'	359.9'	22.56'
8 A. M.	43.08	24.03	0.48	0.6'	0.66	0.55	0.28	262.4'	104.11'	160.16'	0'	26.34'

The accuracy of the computation of each formula being tested by the reproduction of the twelve monthly means on the substitution of 0, 1, 2, &c., 11, for ( $n$ ); the differences (disregarding sign,) between the actual

means and those given by the formulæ having an average value of .01, and in no instance exceeding .02, the coefficients  $T_1, T_2, \&c.$ , were then modified by applying corrections made necessary by the erroneous assumption that the means of each month are the temperatures proper to their middle days.

The modified coefficients are given below :

	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$
2 P. M.	21.98	0.50	0.73	0.75	0.69
4 P. M.	25.01	0.72	0.71	0.79	0.65
10 P. M.	21.68	0.35	0.89	0.80	0.70
Midt	21.19	0.31	0.97	0.89	0.79
6 A. M.	21.61	0.93	0.94	0.81	0.76
8 A. M.	21.31	0.50	0.71	0.80	0.79

The temperatures for every day in the year, computed from the six modified formulæ, have been employed as normals or standards, with which to compare the observations at the ordinary hours since January 1869 inclusive, the averages of the six normals on each day being taken as the normal daily means referred to in the monthly tables in the *Canadian Journal*. The normal daily means are given to tenths in Table II.

TABLE II.

Normal Daily Means of Temperature at Toronto, from six daily observations in the ten years 1859 to 1868, inclusive

DAY.	JAN	FEB.	MAR.	APRIL	MAY	JUN.	JULY.	AUG.	SEPT	OCT.	NOV	DEC.	DAY
1	21.3	22.6	25.6	35.6	46.8	57.5	66.3	68.1	62.5	51.0	42.2	30.5	1
2	21.3	22.6	25.8	36.0	47.2	57.8	66.5	68.0	62.2	50.6	41.9	30.0	2
3	21.3	22.7	26.0	36.4	47.6	58.1	66.7	67.9	62.0	50.2	41.7	29.6	3
4	21.2	22.7	26.3	36.7	47.9	58.1	66.9	67.9	61.7	49.9	41.4	29.1	4
5	21.2	22.8	26.5	37.1	48.3	58.8	67.1	67.8	61.4	49.5	41.2	28.6	5
6	21.2	22.8	26.8	37.5	48.6	59.1	67.2	67.7	61.1	49.2	40.9	28.2	6
7	21.2	22.9	27.0	37.9	49.0	59.4	67.4	67.6	60.7	48.3	40.6	27.7	7
8	21.2	23.0	27.3	38.3	49.3	59.7	67.5	67.4	60.4	48.5	40.3	27.3	8
9	21.2	23.0	27.6	38.7	49.7	60.0	67.7	67.3	60.0	48.1	40.0	26.9	9
10	21.3	23.1	27.9	39.0	50.0	60.4	67.8	67.2	59.6	47.8	39.7	26.4	10
11	21.3	23.2	28.2	39.4	50.4	60.7	67.9	67.0	59.2	47.5	39.3	26.0	11
12	21.4	23.2	28.5	39.8	50.7	61.0	68.0	66.9	58.8	47.2	39.0	25.6	12
13	21.4	23.3	28.8	40.2	51.1	61.3	68.1	66.7	58.4	46.9	38.6	25.3	13
14	21.4	23.4	29.1	40.6	51.4	61.7	68.2	66.6	58.0	46.6	38.2	24.9	14
15	21.5	23.5	29.4	40.9	51.8	62.0	68.2	66.1	57.6	46.3	37.8	24.6	15
16	21.6	23.6	29.7	41.3	52.1	62.3	68.3	66.3	57.2	46.1	37.4	24.2	16
17	21.6	23.7	30.1	41.7	52.5	62.6	68.3	66.1	56.8	45.8	37.0	23.9	17
18	21.7	23.8	30.4	42.1	52.8	62.9	68.4	65.9	56.4	45.5	36.6	23.6	18
19	21.7	23.9	30.8	42.4	53.2	63.2	68.4	65.7	56.0	45.3	36.2	23.3	19
20	21.8	24.0	31.1	42.8	53.5	63.5	68.4	65.5	55.5	45.0	35.7	23.1	20
21	21.9	24.2	31.5	43.2	53.9	63.8	68.4	65.3	55.1	44.8	35.3	22.8	21
22	21.9	24.3	31.8	43.6	54.2	64.1	68.5	65.1	54.7	44.5	34.8	22.6	22
23	22.0	24.5	32.2	43.9	54.6	64.4	68.4	64.8	54.3	44.3	34.4	22.4	23
24	22.1	24.6	32.6	44.3	54.9	64.6	68.4	64.6	53.8	44.0	33.9	22.2	24
25	22.1	24.8	32.9	44.7	55.2	64.9	68.4	64.4	53.4	43.8	33.4	22.0	25
26	22.2	25.0	33.3	45.0	55.6	65.2	68.4	64.1	53.0	43.6	32.9	21.9	26
27	22.2	25.2	33.7	45.4	55.9	65.4	68.3	63.8	52.6	43.3	32.5	21.7	27
28	22.3	25.4	34.1	45.7	56.2	65.6	68.3	63.6	52.2	43.1	32.0	21.6	28
29	22.4		34.4	46.1	56.5	65.9	68.2	63.3	51.8	42.9	31.5	21.5	29
30	22.4		34.8	46.5	56.9	66.1	68.2	63.1	51.4	42.6	31.0	21.4	30
31	22.5		35.2		57.2		68.1	62.8		42.4		21.4	31

The days when the temperature attains its extreme and mean values for each hour, and the values of the maxima and minima are shown in the following table :

	MINIMA		SPRING MEAN	MAXIMA		AUTUMN MEAN
	Day	Temp	Day	Day	Temp	Day
2 P. M.	Jan 7	21.3	April 23	July 25.	75.0	Oct 23.
4 P. M.	5	23.7	22	24.	74.8	22.
10 P. M.	6	20.8	21.	21.	65.4	25
Midn. . . .	5	20.1	21.	22.	63.9	26
6 A. M.	8.	19.2	26	18.	63.3	25.
8 A. M. . .	7.	19.2	23.	21.	68.4	22
Six hours	6.	21.2	24.	22	68.5	23

In order to show better the position of the principal epochs in the annual period in former and in later years, I have drawn up in tabular form a comparative view of the times of occurrence of the extreme and mean values of the normal daily means, and of the maximum and minimum values of the normal daily means at Toronto in the years 1841-'52, and in 1859-'68, and at Stratford in the years 1861-'69.\*

	MINIMA.		SPRING MEAN	MAXIMA.		AUTUMN MEAN.
	Day.	Temp	Day	Day.	Temp	Day.
Toronto, 1841-'52 ..	Feb 14	23.4	April 19	July 28.	66.9	Oct. 15.
Toronto, 1859-'68....	Jan. 6.	21.2	24.	22.	68.5	23
Stratford, 1861-'69 ..	15	19.9	19.	15.	67.1	20.

I propose next to enquire as to the extent to which any modification has occurred in the probable *variability* of the daily and monthly means of temperature, and also in the times when a departure of the actual from the normal daily means is found systematically to prevail.

These points will be considered in another paper.

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\* NOTE.—I am indebted to Mr. C. J. Macgregor for the particulars relating to Stratford.

## A TABLE,

## FOR CALCULATING THE WEIGHT AND YIELD, PER RUNNING FATHOM, OF MINERAL VEINS.

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The weight in tons and average richness of mineral veins are usually given per running fathom: that is, per parallelogram measuring six feet in length, and six feet in depth, by the mean width of the vein, whatever the latter may be. The following table will enable these results to be calculated very rapidly, provided the specific gravity of the vein matter (mixed ore and gangue), and the average per-centage of metal or mineral carried by the vein, be previously ascertained. The table has been calculated on the supposition that the sp. gr. equals unity, and that the average yield in metal is equivalent to one per cent. The values given in columns III. and IV. must thus be multiplied by the sp. gr. of the vein matter; and those given in column V. must be multiplied also by this quantity, and the resulting product must finally be multiplied by the average per-centage of metal or mineral as ascertained by estimate or by actual assay. The values in column V. correspond to both the British ton of 2,240 lbs., and the American ton (chiefly used in Canada) of 2,000 lbs. Where the width of the vein is in feet and inches, the values of the two, as given in the table, must of course be added together.

EXAMPLE.—A vein averages 3 feet in width, with sp. gr. equal to 3.8, and per-centage of metal equal to 2.6. Required the weight in British and American tons, and the yield (exclusive of loss in mechanical and furnace treatment) per running fathom.

3 tons (see the Table)  $\times$  3.8 = 11½ British tons (nearly).

3.36 tons (see the Table)  $\times$  3.8 = 12¾ American tons.

67.30 lbs. (see the Table)  $\times$  3.8  $\times$  2.6 = 665 lbs.

Each fathom, therefore, of a vein of this strength, will contain 108

cubic feet; will weigh  $11\frac{1}{2}$  British, and  $12\frac{3}{4}$  American tons; and will carry 665 lbs. of metal.

I.		II.	III.	IV.	V.
Width of Vein.		Contents in Cubic Feet per Fathom	Weight in English Tons (2,240 lbs ) per Fathom.	Weight in American Tons (2,000 lbs ) per Fathom	Amount of Metal in lbs av per Fathom.
Feet	Inches				
	1	3	0.0833	0.0933	1.87
	2	6	0.1666	0.1866	3.74
	3	9	0.2500	0.2800	5.61
	4	12	0.3333	0.3723	7.48
	5	15	0.4166	0.4666	9.35
	6	18	0.5000	0.5600	11.22
	7	21	0.5833	0.6533	13.09
	8	24	0.6666	0.7466	14.95
	9	27	0.7500	0.8400	16.83
	10	30	0.8333	0.9333	18.70
	11	33	0.9166	1.0266	20.57
1	..	36	1 ton.	1.12	22.43
2	..	32	2 "	2.24	44.87
3	..	108	3 "	3.36	67.30
4	..	144	4 "	4.48	89.74
5	..	180	5 "	5.60	112.17
6	..	216	6 "	6.73	134.61
7	..	252	7 "	7.84	157.04
8	..	288	8 "	8.96	179.48
9	..	324	9 "	10.08	201.92
10	..	360	10 "	11.20	224.35



## REVIEWS.

ALASKA AND ITS RESOURCES. By WILLIAM H. DALL, Director of the Scientific Corps of the late Western Union Telegraph Expedition. Boston: Lee & Shepard, 1870.

There lies on the extreme north-western region of the North American continent an isolated tract of country, bounded on three of its sides by the Arctic and North Pacific Oceans and Behring Straits, and on its fourth by an imaginary geographical parallel separating it from British North America. Until little more than three years ago this region figured on our atlases—as on all but the very newest it still does,—as Russian America. But it attracted no attention; and the details of its geographical features or physical characteristics were, for the most part, little better defined than those around Baffin's Bay or Barrow Straits.

The progress of modern science, stimulated to fresh enterprise by international rivalry, has had its share in bringing this *terra incognita* under survey, and reducing to some trustworthy extent of detail the facts pertaining to its physical geography and aboriginal inhabitants. In 1858 the first submarine Atlantic Telegraph was successfully laid; and though the rejoicings at its accomplishment were speedily arrested, and the derangement of its continuity rendered necessary the reconstruction of the whole costly work: nevertheless the practicability of the enterprise was demonstrated beyond all doubt, and the success which has since so triumphantly crowned this noble enterprise was anticipated as only a question of time. Meanwhile, in remote San Francisco, relations had been established with Russian America, chiefly with a view to secure a monopoly of its ice trade: when, in 1864, the idea was started of constructing a telegraph line from San Francisco to Behring Strait, crossing that Arctic channel by a submarine cable, and thence by overland line to meet the Russian government telegraph, already carried to the mouth of the Amoor River. The Western Union Telegraph Expedition was accordingly inaugurated in the following year on a creditable scale; and indeed with a complement of semi-military commissions, uniforms, flags, and badges, very unusual in any peaceful scientific exploration. Happily those showy adornments, incident to the recent military experiences of the United States, were

compatible with the intelligent liberality, which added to the expedition an astronomer, naturalist, artistic draftsman, &c. Major R. Kennicott, an experienced Arctic explorer and naturalist, undertook the exploration of the Yukon region; and on his death, in 1866, in consequence of excessive privations and hardships incident to his labours, the author of the volume now under review assumed the vacant post of director of the scientific corps, and prosecuted the work, so far, to a successful issue.

Mr. William Healey Dall is even now only entering on his career though he has already achieved such substantial results. We remember him not many years ago, as an intelligent boy, quiet and thoughtful in his ways, already manifesting a taste for natural history, and a love for reading of all sorts. He was then resident in Toronto. His education has since been completed at Boston, and the special scientific studies which fitted him for the work he has recently brought to a termination, were carried on chiefly under the direction of Professor Agassiz, at Harvard. The Western Telegraph Company, in the service of which his labours were undertaken, proved a failure, and after expending nearly three millions of dollars, the telegraphic project had to be abandoned. The route for the proposed line was ill chosen, and in spite of remonstrances on the part of Mr. Kennicott, was persistently adhered to. Mr. Dall remarks, "Had it been over the well trodden paths from St. Paul, Minnesota, through the Hudson Bay Territory, to Fort Yukon, there is reason to believe that the line might have been built at a less cost than the amount wasted on the west coast, in the mountainous regions and dense forests of British Columbia." But while as a commercial speculation the enterprise led to total failure, the liberal policy of the Directors in the organization of the expedition has prevented its proving barren of results. Much geographical and scientific information has been procured by its means, and the observations thus made in this novel field of research are accurately recorded in the large and handsome volume now referred to.

No doubt the project helped, with other causes then in operation, to draw attention to the hitherto unheeded region. In the same year in which Major Kennicott died, negotiations were entered into for the purchase of Russian America. Mr. Dall states, without vouching for the truth of the story, that a company of American citizens applied to Mr. Seward to assist them in purchasing the country to carry on a fish, fur, and timber trade, and that he, finding Russia willing to sell,

secured the territory, not for the private company, but for the nation. If the country was to pass from the possession of Russia it must needs be transferred to some other recognized government, unless it were to be organized into an independent state. The idea of an American trading company holding it as a possession foreign to the United States of which they were citizens, would have developed novel relations, requiring an entirely new chapter in international law. If such an idea was ever entertained, the projected company no doubt discovered that they could exercise no more absolute lordship than that which the fur traders of the neighbouring Hudson Bay territory have so long done under the supremacy of the British crown. Hence the necessity of applying to the American Secretary of State, whose official correspondence relative to the transfer of Alaska from "His Majesty the Emperor of all the Russias," is printed here in amplest detail. The acquisition was regarded for a time by the American press as one of Mr. Seward's most sagacious feats of statesmanship; and when, after a little, this had been dwelt upon with characteristic laudation, American writers ran to an opposite extreme; and the worthlessness of "Walrussia," as it was jestingly styled, with its boundless ice-fields, sea-lions, walruses, and polar bears, became a favourite theme for the satirists of the political press. Mr. Dall discusses the value of Alaska to the United States as a territorial acquisition, and does his best to demolish such unpatriotic satirists. He will no doubt find no lack of sympathy with vaticinations so much more accordant with the wonted tone of American writers, when aiming at forecasting their national future.

"I have seen," says Mr. Dall, "with surprise and regret, that men whose forefathers wielded the axe in the forests of Maine, or gathered scanty crops on the granite hill-sides of Massachusetts, have seen fit to throw contempt and derision on the acquisition of a great territory, naturally far richer than that in which they themselves originated, principally on the ground that it is a *cold* country." To this complaint he makes indignant response, and then proceeds; "Two hundred and fifty years hence there may be a New England where there is now a trackless forest. The time may come when we shall call on our Pacific fishermen to man our fleets; on the lumbermen of Alaska and our hardy northern trappers to don the blue, and strike another blow for unity and freedom." With all the bloody horrors of Saarbruck and Woerth, Wiesenburg, Gravelotte, Forbach, and Sedan, fresh in our

minds, we would fain hope that the next two hundred and fifty years have something better in store for that coming time than chassepots and mitrailleurs; that the fleets of the future will really be manned by "pacific fishermen," and its armies marshalled to contend only with the unhewn forests and the unmined wealth of regions that invite to such peaceful conquests. The visions of science, at any rate, more readily accord with such aspirations; and its devotees—though enlisted for a time in the service of war,—flatter themselves that the very perfection of its destructive implements which science is now achieving is accelerating the time when men shall leave war to the savage and the brute. Not in our time assuredly is that happy day to dawn; but science is even now helping

"To drill the raw world for the march of mind,  
Till crowds at length be sane and crowns be just!"

Meanwhile his mind must be cast in a narrow mould who cannot sympathise with the youthful ardour of our author; as he tips his pencil with rainbow hues, and pictures the brightest future for a region he has made so peculiarly his own. We may leave to the men of two and a half centuries hence to judge of its truthfulness, while we content ourselves in the belief that the world at large can scarcely fail to be benefited by the transfer of this great storehouse of fish, timber and fur, undoubtedly of ice, probably also of mineral wealth, to an enterprising people favourably situated for turning its resources to the best account.

Mr. Dall's volume is less a narrative of travel through scenes rich with strange revelations of wild tribes and a still wilder region, than a *journal of personal experiences, and a careful accumulation of all that could be gleaned relating to the geography, history, natural products, and fauna, of this new country, alike from his own observation and from old maps, journals, voyages, books of travel, and all other accessible sources.* A journey pursued under the restraints necessarily pertaining to the commission entrusted to this exploring party, precluded much of the adventure which gives a popular charm to the ordinary traveller or hunter's story. Nevertheless there is material enough in this volume to have been wrought up into a sufficiently attractive narrative for the shelves of the lending library had such been the author's aim. He has preferred a different course; and if his columns of statistics, lists of natural history, comparative vocabularies,

or pages of chronological annals and official correspondence, repel some of the ordinary class of readers, they will tempt others to study his volume long after works of more immediate popularity have been forgotten. It embodies the fruits of labour and research, the amount of which can only be fully appreciated by those who have themselves undertaken to gather, classify, and present in an accessible shape, like comprehensive data about a region hitherto visited chiefly by the rude trapper or seal-hunter.

The account of the Eskimo and Indian tribes of Alaska supplies many curious details; and this, as well as other departments, is illustrated by careful drawings. Here, for example, we have the subterranean dwelling, or *topek*, of the Unaleets, a tribe of the great Inuit family inhabiting the coasts. These topeks are built almost entirely underground, "with the entrance more or less so, and the roof furnished with a square opening in the centre for the escape of smoke and admission of light. They are built of spruce logs, without nails or pins, and are usually about twelve or fifteen feet square. The entrance is a small hole, through which one must enter on hands and knees, and is usually furnished with a bear or deer skin, or a piece of matting to exclude the air. Outside of this entrance is a passage-way, hardly larger, which opens under a small shed at the surface of the ground, to protect it from the weather." This timber underground dwelling of the Unaleets presents a striking analogy to the more durable Weeu of the prehistoric savage of North Britain. They belong to a people in the very same primitive stage; for the accumulated midden heaps of the latter disclose the bones of the whale, along with the edible molusks of the neighbouring coast, and implements of flint and bone not less rude than any which Mr. Dall depicts in illustration of the infantile native arts of Alaska.

Mr. Dall draws attention to other interesting illustrations of the close analogies between primitive and modern savage arts. He remarks, for example, on page 237, "The Inuit have a custom of making, on flat pieces of bone, rude drawings of animals, hunting parties, and similar things. These drawings are analogous to those discovered in France in the caves of Dordogne, and the preceding sketch of the drawings on either side of two bone knives, illustrates their general character." The illustrations referred to exhibit a native in his *kyak* spearing a goose; a deer hunt; wolves in pursuit of deer; and apparently a native dance. But while these examples are highly curious as illustrations of

the imitative faculty so characteristic of the natives of the new world, they present in their rudeness a very marked contrast to the artistic skill of the prehistoric cave dwellers of the Dordogne valley and other similar French sites of primeval art. The famous etching on a plate of ivory of the mammoth, for example, found by M. Lartet, when in company with M. Verneuil and the late Dr. Falconer, in the Perigord caverns, is characterised by a graphic vigour and freedom of touch that would do no discredit to the pencil of Rosa Bonheur.

Mr. Dall further adds, "I have seen an ivory bow, used in connection with a drill, and made of an entire walrus tusk, which had depicted on each of the four sides every pursuit followed by the Inuit from birth to interment. These facts have a peculiar interest, as showing some similarity between the customs of the present Orarian tribes and those of the ancient European cave-dwellers. Similar drawings are common everywhere among the Inuit, while I have never seen among the Tinnch tribes of the northwest any similar specimens of art." The term "Orarian" here used, we may as well explain, is a new generic term designed to embrace in one group all the tribes of Eskimo stock, and thus distinguish the Inuit, Aleutians, Asiatic Eskimo, as well as those of Greenland and Davis Straits, from the Red Indian stock. They are the coastmen (*l. ora*) of the Arctic world.

The skin-canoes of diverse forms, so characteristic of the Arctic fisherman, are illustrated by careful drawings; and exhibit the practical ingenuity of the native boat-builders in some of its most striking aspects. They are of three kinds, including one adapted by the Russians from the Aleutian Kyak. "One is a large open boat, flat-bottomed, and consisting of a wooden frame tied with sealskin thongs, or *rémni*, and with the skins of the seal properly prepared, oiled, and sewed together, stretched over this frame and held in place by Walrus-skin line, or *máhout*. This kind of boat is known among all the Inuit by the name *oómiak*, and is called a *bidarrá* by the Russians. Another, a smaller boat, for one man, is made essentially in the same way, but covered completely over, except a hole in which the occupant sits, and around the projecting rim of which, when at sea, he ties the edge of a water-proof shirt, called a *kamláyka* by the Russians. This is securely tied around the wrists and face also, the head being covered by a hood, so that no water can by any means penetrate to the interior of the boat." This *kyak*, as it is called by the natives of the western coast, has long been familiar to us by its use among the Greenland Esqui-

maux, and attracted the attention of Dr. Pickering, when in use by the Aleutian Islanders, as so perfectly adapted to the requirements of the Arctic fisherman, that "it seemed almost to enable man to take a place among the proper inhabitants of the deep."

It is altogether beyond the compass of our limited space to follow the author in his elaborate geographical, chronological, geological, and natural history details, extending in all to 628 closely printed pages. But a few characteristic extracts may serve to show our readers the value of this repertory of novel facts in these varied departments of research. Whilst in the Yukon territory he remarks (page 19), "our attention was attracted by the numerous graves. These are well worth the careful attention of the ethnologist; many of them are very old. The usual fashion is to place the body, doubled up, on its side, in a box of plank hewed out of spruce logs and about four feet long; this is elevated several feet above the ground on four posts, which project above the coffin or box. The sides are often painted with red chalk, in figures of fur-animals, birds and fishes. According to the wealth of the dead man, a number of articles which belonged to him are attached to the coffin or strewn around it. Some of them have kyaks, bows and arrows, hunting implements, snow-shoes, or even kettles, around the grave or fastened to it; and almost invariably the wooden dish or *kantag*, from which the deceased was accustomed to eat, is hung on one of the posts. There are many more graves than present inhabitants of the village, and the story is that the whole coast was once much more densely populated." The same evidences of a decreasing Eskimo population have been recorded by Kane and other explorers as still more noticeable on the eastern coast, and these, along with the decline and ultimate destruction of the ancient Scandinavian colonies of Greenland, have been supposed by some writers to point to a gradually increasing severity of climate throughout the whole Arctic circle.

Inhospitable, however, as the whole Yukon region is, it has its charms for its own children, as that "land, of every land, the pride," not less keenly appreciated by them than by those of earth's most favored spots. They call themselves, in proud pre-eminence, the *men of Yuhen*; and as for the Yukon boys, they would appear, according to Mr. Dall's account, to enjoy a more enviable lot even than the children of that republican Paradise where, according to some authorities, the repeal of the fifth commandment has been enacted by juvenile acclamation. Writing up his journal on the 29th of April, he says: "The weather

has become exceedingly warm, and the little children enjoyed themselves on the broad river-beach, building houses with pebbles and making mud pies, much as their brothers and sisters do all over the world when a vacation or a holiday releases them from restraint and the mother's watchful eye. I never saw a young child punished in Russian America, except the well-grown boys of the Russian *bidárshik*. They behave quite as well as civilized children, and grow up with quite as much respect for their parents. An Indian baby, unless sick, never cries, and why should it? It has no one to rub soap in its eyes, and never feels the weight of the parental hand. The mother makes it a doll, if a girl, out of bits of squirrel skin and fur. If a boy the father builds for him a little sable trap, a miniature cache, in which to put his shining pebbles and other childish treasures, or a tiny fishtrap in which the mother takes care that a choice bit of ukali, a rabbit's head, or a piece of reindeer fat, shall be caught in some mysterious way. As soon as they can toddle about they are instructed in the mysteries of setting snares, and the pride with which the boys or girls bring home their first grouse, or even by great good luck an unfortunate rabbit, is fully shared by the parents. Their dresses are ornamented with the choicest beads; the sweet marrow or tongue of the fallen reindeer is reserved for them by the father successful in the chase. They travel hundreds of miles with the dog-sleds, and from these little children I have often obtained dozens of mice or small birds, caught near some solitary lodge far away among the mountains, which rumor had informed them I would purchase with beads or trinkets. They carried these proudly home again as their own earnings and the prize of their own industry. I always paid something for such specimens, even if quite worthless, to encourage them to perseverance, and in this way I obtained many invaluable specimens."

In addition to numerous interesting notes of personal observation, such as those produced here, scattered through Mr. Dall's journal of travels on the Yukon, and in the Yukon territory, to which the six chapters of Part I. are devoted: he takes up, in Part II. the geography, history, inhabitants, and resources of Alaska, resorting for information on those subjects to all available sources, of which a numerous list of works, including those of Russian and other early explorers, is furnished in the appendix. To every one, therefore, interested in any branch of the subject this volume furnishes a ready digest of nearly all available information.



Some of the brief extracts given above suffice to show the attractive glimpses of ingenuity and artistic skill which it discloses among the rude tribes of Alaska. Of these the Thlinkets comprise various tribes, such as the Ahimsyans, the Haidahs, the Koloshes, and the Yakutats: all noted by earlier explorers for their talent as carvers in wood and bone. They also work in native copper, and covet silver and other white metals, preferring them to brass or gold. The following account of their religious ideas will illustrate still more curiously the mental and moral characteristics of the native tribes of the northwest. "The Thlinkets do not believe in a Supreme Being, for good or evil. Their feeble polytheism presents no features worthy of the name of religious belief. Yehl, or Yayhl, is the maker of woods and waters. He put the sun, moon and stars in their places. He lives in the east, near the head waters of the Nasse River, whence the Thlinkets say they originally came." The Thlinket narrative of the creation, or the mundane revelation of the heavenly bodies, is embodied in the following myth: "There was a time when men groped in the dark in search of the world. At that time a Thlinket lived who had a wife and sister. He loved the former so much that he did not permit her to work. She sat the whole day doing nothing. Eight little red birds, called *kun* by the Thlinkets, were always around her. One day she spoke to a stranger. The little birds flew and told the jealous husband. So when he went into the woods to build a canoe he shut her up in a box. He killed all his sister's children because they looked at his wife. Weeping, the mother went to the sea shore. A whale saw her and asked the cause of her grief, and when informed, told her to swallow a small stone from the beach and drink some sea-water. In eight months she had a son, whom she hid from her brother. This son was really Yehl. As he grew he became a great expert in shooting with a bow and arrow. It is said the mother made herself a mantle out of the skins of humming-birds which he had brought down. He killed birds of large size, and dressing himself in their skins, flew about to different places, having many adventures.

"The only one worth relating is the most glorious of his deeds, that of putting the light in its place. At that time the sun, moon and stars were kept by a rich chief in separate boxes, which he allowed no one to touch. Yehl heard of it and desired to have them. This chief had an only daughter, whom he loved and spoiled to such a degree, that he examined everything she ate and drank before he would allow

her to partake. Yehl saw that only a grandson of the old chief could obtain the light, and in the form of a blade of grass he was swallowed, and made his next appearance in that character, and was soon beloved even more than his mother. Once Yehl commenced weeping and nothing would appease him but the boxes in which the luminaries were kept. After a long siege of crying the grandfather gave him one of the boxes to pacify him, and he went out of the house playing with it. Seeing he was not observed, he opened the box, and lo! there were stars in the sky. Great were the lamentations of the old man over the loss of his treasure, but he loved his grandson too well to scold him, and actually permitted himself to be cheated out of the moon in the same way. But with the box containing the sun he was more careful, and only after refusing food, and making himself sick, did Yehl succeed in imposing on the affectionate old man. That was finally given to him, with the strict injunction not to open it. But, turning himself into a raven, he flew away with it, and on opening the box light shone on the earth as it does now. But the people astonished by the unwonted glare, ran off into the mountains, woods, and even into the water, becoming animals or fish."

To this same creative power, Yehl, is ascribed the great gift of fire, which he is said to have brought from an island in the Ocean. But we have produced enough to show the value of the volume as a contribution to ethnology. The comparative philologist will find fresh materials for study in the classified vocabularies of various tribes; and the naturalist is furnished with copious lists of mammalia, marine and fresh-water fishes, birds, insects, and plants, many of them new to science. Last of all, the practical reader will find attractions suited to his tastes in its details of the geology and mineral resources of the region; of its fishery and fur trade; its hides, oil, and walrus ivory, with other marketable materials, such as the whiskers of the sea-lion—as large as a quill, and sometimes fifteen inches long,—which are transported to China, and there find a ready sale: the Chinese paying a high price for them to use as toothpicks.

But we have said enough to commend the book to all readers capable of appreciating its additions to our knowledge in various departments of the wide field thrown open to the well-trained eye of a competent observer entrusted with the scientific exploration of new regions. Its author is now engaged as one of the staff of the Smithsonian Institution at Washington, and will no doubt invite our attention hereafter by other contributions in his favourite branches of study.

D. W.

THE PROPHECY OF MERLIN, and other Poems. By JOHN READE.  
Montreal: Dawson Brothers, 1870.

In every age characterised by special literary vigour, the leaders of thought are seen to find a school of followers to whom their productions give law. So was it when Pope was the ruling power; when Scott's lays revived the romantic epic of Spenser; or when Byron for a time won all ears to his musical verse. Now the Poet Laureate rules supreme wherever poetry commands an appreciative audience, and the echos of his rich music are readily traced in the notes of our minor poets. It is no slight, however, on a poet to rank him as pertaining to the school of which the living master of song is the recognised head; and it is with no purpose of disparagement that we trace, not merely in the theme of the chief piece in the volume of poems, the title of which heads this article, but also in its forms of versification and modes of thought: evidences of training in the school of Tennyson. As such, were the volume issued from the English press, it would present no special claims on the attention of a Canadian literary journal; but as a poet issuing his work from the Canadian press, Mr. Reade may claim some critical notice at our hands.

Literature as yet is necessarily one of the rarer products of our young country; but we are not on that account prepared to welcome any commonplace production of a provincial versifier, as though mediocrity acquired a higher value in the colonial dependency than in the mother land. We are, indeed, perhaps prone to under-estimate our native literary productions, as presumably inferior to those begot in the great centres of intellectual vitality.

Governed by old-world principles and canons of taste, we are as speedily nauseated here, as persons of discernment are in any other region of the world, by volumes issuing from the press, presenting to the eye page after page of fair typography duly arranged and subdivided, indicating here long stretches of epic narrative, and there cantos, strophes, and fragmentary stanzas in every variety of prosodial metre; but all of which, when tested as vehicles of ideas intended to delight the human fancy or intellect, are found to be mere shapes and forms; like Gratiano's talk, amounting to "an infinite deal of nothing"—hiding, it may be, in whole bushels of chaff, a few grains of wheat, not worth the search when you have found them.

It is because the little volume whose title appears above is decidedly

not of the disappointing class to which so much that offers to the eye the semblance of poetry belongs, that we have taken the trouble to select a few specimens of its contents. We have referred to a clear recognition of Tennysonian models both in subject and forms of versification. As to the former, it is impossible to read of Sir Bedivere and Arthur, of Avalon, and—

“ Camelot, and the sweet fellowship  
Of noble knights and true, and beauteous dames  
Who have no peers in all the living world;”

and make no comparison with the “ Idyls ” which have recalled to our generation “ the blameless king ” and the knights of his hall. But also we have the most characteristic of Tennyson’s favourite metres. Here, for example, in the piece entitled “ Shaksperc, April 23rd, 1864,” is the peculiar arrangement of quatrains so familiar to every reader of “ In Memoriam,” but missing to a great extent the special beauty of that verse as handled by Tennyson. Mr. Reade thus writes for the anniversary of the birthday of England’s great dramat.

“ And singing thus, he passed his days—  
Not without honour, it is true—  
Yet hardly understood by few;  
And these were slow in giving praise.  
And men had lived in mist so long,  
Some could not bear his blaze of light,  
But shut their eyes, and said ’twas night,  
When it was just the noon of song.  
But when his soul shook off its clay,  
And hied, its labour done, to God,  
Throughout the land that he had trod  
’Twas felt: ‘ A king has died to-day ! ’ ”

The idea is not inexpressively set, but the fine characteristic of this quatrain arrangement, in the Laureate’s verse, is that it does not develop into a series of four-line stanzas, but flows over and interlinks in continuous music, partaking rather of some characteristics of the Terza Rima.

We are led, in passing, to ask what tempts our Canadian poet to adopt the whim of an English antiquary and critic in his spelling of Shakespeare’s name? Mr. Charles Knight discovered, or fancied he discovered, in the deciphering of one of his autographs, the form of *Shaksperc*, adopted by him in his edition of the poet’s works; and Sir

Frederick Madden has maintained the same orthography in a letter printed in the "Archæologia." But what gain is there in the change? Every one acquainted, not only with MSS. but with the printed literature of the 16th and 17th centuries, knows how unfixed was the orthography of all proper names.

Turn we, however, to the poet's name as printed during his own life time; and probably under his own supervision, and there we are left in no doubt as to what he and his contemporaries made of it. We have in 1599, "The Passionate Pilgrim, by W. Shakespeare," in 1609, "Shakespeare's Sonnets," and in 1616—the year of his death—"The Rape of Lucrece, by Mr. William Shakespeare." So also his friends and posthumous editors, Heminge and Condell, when aiming, as they say, "without ambition either of self-profit or fame: onely to keepe the memory of so worthy a friend, and fellow alive, as was our Shakespeare." Or, best authority of all, let us turn to Ben Jonson's graphic pun:

"Look how the father's face  
Lives in his issue: even so, the race  
Of Shakespeare's mind and manners brightly shines  
In his well-turned and true-filed lines:  
In each of which he seems to shake a lance,  
As brandished at the age of ignorance."

But this is a digression. Let us now invite the reader's attention to a few specimens culled from the pages of our Canadian poet, in illustration of his style and mode of treatment of the subjects he has selected for his verse.

In the "Prophecy of Merlin," the piece from which Mr. Reade's volume takes its designation, the familiar poetic artifice is adopted of putting in the mouth of an ancient seer, by supposed anticipation, an account of recent events and present times. Sir Bedivere, sole survivor of the Knights of the Table Round, mourning for the departure of his adored King, is favoured by Merlin with a prophecy of the fortunes that will befall Britain while yet Arthur should be slumbering on unseen in Avalon.

It is necessary first to glance at what Merlin declares in regard to himself. He says—

"Mine is the blazonry of prophet souls  
Whose lineage finds in God its kingly head.  
To me, what was, and that which is to come,  
Are ever present, and I grow not old  
With time, but have the gift of endless youth."

Out of Britain, after enduring much from the "great white Dragon of the stormy North," the "Tigers of the Sea," and other ravagers,—Merlin foretells that a nation by a happy amalgamation of friend and foe, was destined to arise:—

"Like a strong oak amid the forest trees,  
Which, growing slowly, ceases not to grow,  
But fastens firmly, as it aims aloft  
And spreads its branches far on every side,  
A shelter to the stranger of all lands"

In every king that should reign over the people, thus originating from such a complex union, some reflection, as it were, of Arthur would be recognized:—

"And if there be a king of soul impure—  
Or if there be a king of hand unjust—  
Or if there be a king who weighs himself  
Against the nation's weal (such kings there are,  
And ever shall be, until Arthur wake),—  
It is the *real* king the people serve,  
The Blameless Prince that never can do wrong,  
And not the false usurper of his name."

In the series of British rulers there were to be queens; and when the third of these had "slept for many years," a fourth was to arise, "heir to the ripe fruit of long centuries." She was to be "fair, good and wise," and to be loved "by all the land of Britain, and by many lands on every sea." In her day the nation was to enter on an era of increased light, and to enjoy the benefit of extraordinary discoveries and inventions.

— "The earth and air  
Shall yield strange secrets for the use of men,—  
The planets in their courses shall draw near,  
And men shall see their marvels, as the flowers  
That grace the meads of Summer,—time and space  
Shall know new laws, and history shall walk  
Abreast with fact o'er all the peopled world.—  
For words shall flash like light from shore to shore.  
And light itself shall chronicle men's deeds.  
Great ships shall plough the ocean without sail,  
And steedless chariots shoot with arrowy speed  
O'er hill, and dale, and river, and beneath  
The solid floor we tread,—the silent rocks  
Shall tell the story of an infant world,—

The falling leaf shall shew the cause of things  
 Sages have sought in vain—and the whole vast  
 Of sight and sound shall be to man a school  
 Where they may learn strange lessons; and great truths,  
 That long have slept in the deep heart of God  
 Shall waken and come forth and dwell with men,  
 As in the elder days the tented lord  
 Of countless herds was taught by angel-guests."

A Prince "of goodly mien and face, from o'er the sea" shall wed this queen, and "loving her, be loved by all the world." Sir Bedivere at once adopts the idea that this is the Blameless Prince himself, returning, according to general expectation, from his long sleep in Avalon, "to crown the glories of the latter world." Merlin admits that, if not Arthur himself, he would be one whose aims in respect to Britain would be like those of the British hero-king. The coming Prince in after time was to take "the purpose" of Arthur—

—"From the dim shrine where it had lain  
 Scarce touched by dreamy reverence, many an age,  
 And hold it in the daylight of his life."

What "the purpose" of the ancient King had been is fully told :

—"In deeds of war,—  
 The rage of battle, and the clangorous charge  
 Of mailed knights, and flash of hostile swords,  
 And flying spears, and din of meeting shields,  
 And all the use of man-ennobling might,  
 For Christ and for his Cross, to wrest the land  
 From heathen foes—did Arthur win his fame.  
 For this, by marvels, was he chosen King;  
 For this he sent his heralds to all parts  
 Of the divided realm, to summon forth  
 All bravest, truest knights of Christendom,  
 From rude and selfish war to Camelot,  
 That they might be one heart around himself,  
 To send new life-blood through the sickly land,  
 And purge it of the plague of heathenness.  
 And had not the foul falsehood of his house  
 Broken athwart the true aim of his life,  
 And set the Table Round against itself,  
 Ere now the heathen Dragon had been crushed,  
 Never again to raise its hideous head  
 O'er the fair land that Christ's Apostle blessed."

The predestined impersonation of the "Blameless Prince" is not to work alone in the fulfilment of his high aims :

"She whom his heart had won,  
 With loving aid, shall ever at his side  
 (Till death them part) sustain him in his thought.  
 And these two, nobly mated, each to each  
 The sweet and ripe completion, shall be named  
 With loyal love and tenderest respect  
 By knight and lady, poet, sage and priest,  
 In mart and camp, in palace and in cot,  
 By babbling grey beard and by lisping child,  
 Wherever British banner is unfurled."

Success is to crown the joint efforts of queen and prince :

"So shall the land grow strong with bonds of peace,  
 Till men believe that wars have ceased to drench  
 The earth with bloody rain; and Art shall smile  
 On myriad shapes of beauty and of use,  
 And Wisdom shall have freer scope, and push  
 The boulders of old Folly from her field;  
 And men shall walk with larger minds across  
 The limits of the superstitious past,  
 And cull the gold out of the dross of things,  
 Flinging the dross aside; and then shall be  
 New hopes of better changes yet to be,  
 When harmony shall reign through all the world,  
 And interchange of good for common weal  
 Be only law."

Our space forbids more specimens of the quality of the "Prophecy of Merlin." It must suffice to say that in the vision of supposed future events, the memorable Exposition of 1852, the wars that speedily followed, and the death that subsequently spread such gloom over the Empire, are all sketched with gracefulness and skill; though the reader can scarcely fail to recall, and perhaps to contrast in dangerous parallel with the latter, the exquisite dedication of "The Idyls" to our widowed Queen.

"Her, over all whose realms, to their last isle,  
 Commingled with the gloom of imminent war,  
 The shadow of his loss moved like eclipse,  
 Darkening the world."



Our Canadian share in such world-wide sympathies is thus happily introduced, in answer to Sir Bedivere's inquiry :

" ' If, in the far-off after-time, shall come  
A prince who shall be known by Arthur's name,  
And bear it blamelessly as he did his ?'  
Then Merlin, with a wise smile on his face,  
Such as a mother wears who gently tries  
To answer the hard question of the child,"

thus predicts the visit to our Western hemisphere of the royal youth who recently won from the Canadian people so many golden opinions. Here are some of the words of the seer on this subject :

" In a far land, beneath the setting sun,  
Now and long hence undreamed of (save by me,  
Who, in my soul's eye, see the great round world  
Whirled by the lightning touches of the sun  
Through time and space), a land of stately woods,  
Of swift broad rivers, and of ocean lakes,  
The name of Arthur—him that is to be,—  
(Son of the Good Queen and the Blameless Prince)  
Shall shed new glories upon him we loved."

This may possibly seem a little too much in the vein of the old courtly Laureate's expected return for his butt of sack; but though ephemeral in its theme, the subject is pleasantly and gracefully treated.

Some other pieces of a minor character may fitly class with this in their slighter themes and mere momentary interest. We have, for example, little poems, which we may fancy have already figured in the columns of some local magazine or broadsheet, such as the "Departure of the Prince of Wales from Portland in 1860," and the "Marriage of the Prince of Wales in 1863." Pieces of special Canadian interest, all characterised by delicacy of sentiment and poetical feeling, are the following: "The Fenian Raid of 1866;" "Dominion Day, 1867;" "Hastings" (also commemorative of Canadian Confederation); and "In Memoriam"—T. D. McGee. Of a different and higher character are "Balaam," "Rizpah," "Sisera," "Jephthah," "Jubal," "Vashti," and the "Prodigal's Return;" all renderings of Scripture narratives characterised by freshness, naturalness and dignity. The visions of "Balaam" are imagined with especial grandeur: nor can we hesitate to trace some of its beautiful imagery to the writer's familiarity with the splendours of our Canadian auroras :

—“Gazing on the western sky, he saw  
 A picture, all whose forms were quick with life,  
 Where all was discord, hurrying to and fro,  
 As when two armies strive to gain the field;  
 For, from the outer realms of space there came  
 Gigantic spearmen, over whom there waved  
 Gay, many-colored banners; and these flew  
 Hither and thither o'er the starry plain,  
 Pursuing and retreating: others came,  
 And others, till it seemed all Sabaoth  
 Had joined in conflict with the wicked one.  
 And then there was a charge; banners and spears  
 Faded away, as fades away the reek  
 Above a hamlet on a frosty morn;  
 And none can tell when he sees last of it.  
 And in a little while there grew an arch,  
 Whose keystone was the zenith of the sky,  
 Like to a rainbow, joining east and west,  
 Beautiful, quivering, fearful, ominous,  
 Drawing the heart of Balaam after it.  
 And this too vanished, vapor-like, away;  
 And Balaam, though he wanted its return,  
 Waited in vain; for warriors and spears,  
 And banners, and the fiery flash of hosts  
 Embattled, and the mystic arch, were gone,  
 And came no more.”

“Christus Salvator” is a pleasant Latin acrostic, in short mediæval hymn measure. “Columba Sibylla” embodies in fourteen Latin hexameters an epigrammatic play on the name of Christopher Columbus: like Noah’s dove, a happy discoverer of land amid a waste of waters. The fourteen concluding pieces, translated from the Greek, Latin and French, are all acceptable in their well-turned lines, as pleasant evidence of scholarship already taking root in our young country.

The formal restraints of the Sonnet have also been successfully dealt with in “Kings of Men,” “Winter Sunshine,” “Winter,” &c. We select one of these with which to close our illustrations of Mr. Reade’s verse. It is, if not in part an unconscious echo, at least suggestive of ideas crystallised into sonnet-form by the master-hand of him who for the first time made this little poem the vehicle of “soul-animating strains;” wherein he asks:

“Doth God exact day-labour, light denied?”

It is pleasant to find lofty sentiments and earnest devoutness claiming to mate together thus in our poet's lines—

" What can I do that others have not done ?  
 What can I think that others have not thought ?  
 What can I teach that others have not taught ?  
 What can I win that others have not won ?  
 What is there left for me beneath the sun ?  
 My labour seems so useless, all I try  
 I weary of, before 'tis well begun ;  
 I scorn to grovel, and I cannot fly.  
 Hush ! hush ! repining heart ! there's One whose eye  
 Esteems each honest thought, and act, and word,  
 Noble as poet's songs or patriot's sword.  
 Be true to Him : He will not pass thee by.  
 He may not ask thee 'mid His stars to shine,  
 And yet He needeth thee : His work is thine."

E.

## CANADIAN INSTITUE.

DONATIONS OF BOOKS, &amp;c., RECEIVED SINCE LAST ANNUAL REPORT

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*From the College.*

Annual Calendar McGill College, Montreal, Session 1869-70 .....	1
<i>From University of Christiania, per Smithsonian Institution, Washington.</i>	
Sitzungs-Berichte der Naturwissenschaftlichen Gesellschaft isis in Dres- den, Jahrgang, 1868, Nr. 4; 6 April, Mai, Juni. ....	1

*From C. Ed. Müller, Bremen, per Smithsonian Institution.*

Abhandlungen herausgegeben vom, &c., Zu Bremen, 2 Bd. 1 Heft. 1869. ....	1
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*From the University of Christiania.*

Mémoires Pour Servir à la connaissance des Crainoides Vivants par Michael Sars, 1868.....	1
Selje Klosterleoning, &c., of O. Kreofting Kaptejn, 1866-1867.....	1
Det Kongelige Norjite, &c., 1867 .....	1
Beretning on Den International Boulogne Sur mer, 1866 .....	1
Tre akademiske Taler Univ. Aarsfest, 2nd Sept. af M. J. Moncad, 1863. ....	1
Les Péches de la Norwege par Herman Baars, Boulogne Sur Mer, 1866. ....	1
Beretning om, &c, Juni, 1865, til Juli, 1868, ditto Juni, 1862, til Juni, 1865, Christiania .....	2
Dept. Det Indre, 1867.....	1
Traite Élémentaire des Fonctions Elliptiques par Dr. O. J. Broch, 1867. ....	1
Index Scholarum Univers. Fredericianæ, 1868.....	2
Baalushens Fisferier 1st Sept. 1868, of Oskar Andersen, 1868.....	1
Nyt Magazin for Naturvedenskaburne, &c., Vid. M. Sars og Th. Kjerulf, &c	1
Foreningen til, &c., 1867.....	1
Beritning om, &c., aarit, 1867.....	1
Generalberetning, &c., aarit 1867 .....	1
Forhandling i Videnskabs-Selskabet Aar. 1867.....	1
Registre til Christiania Viden., 1858-1867.....	1
Meteorologiske Jagttagelser Christiania Obs., 1867.....	1
Norsk Meteorologisk Aarvog for 1867 .....	1



*From F. Müller, Amsterdam, per Smithsonian Institute.*

Nederlandsch Meteorologisch Jaarboek, Voor 1869, 1; ditto, 1868, 1...	2
Royal Inst. (Meteorological) of the Netherlands, 1853 .....	1
Meteorological Observations, Madrid, 1869 .....	1

*From the Society, through the Smithsonian Institution*

Proceedings of the Literary and Philosophical Society of Liverpool, 1865-66, No. XX., 1; 1866-67, No. XXI., 1; 1867-68, No. XXII., 1	3
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*From the Academy, Salem, U. S.*

First Annual Report of the Trustees of the Peabody Acad. of Sci., 1869	1
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*From the Literary and Historical Society, Quebec.*

Transactions, Session 1867-68, and 1868-69, N. S., Part 6 .....	1
Manuscripts relating to the early History of Canada, &c. ....	1

*By the Author.*

Notes on the Principles of Population, Montreal compared with London, Glasgow, Manchester, &c., by Andrew A. Watt .....	1
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*From the Society.*

Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1868 .....	1
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*From the Institute.*

Transactions of the Nova Scotia Institute of Natural Sciences .....	1
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*Donations to the Museum.*

Collected by Prof. C. F. Hartt, at the "Fern Ledges," near St. John, New Brunswick, and described in the Journal of the Geological Society of London, Vols. XVIII. and XIX.; and in Dawson's *Acadian Geology*, 2nd edition.

*From the Natural History Society of St. John.*

1 & 1a. Asterophyllites latifolia, Dawson.	
2 & 2a. Asterophyllites acicularis, "	
3. Neuropteris polymorpha, "	
4 & 4a. Alithopteris discrepans, " (and broad variety)	
5. Psilophyton elegans, "	
6. Psilophyton glabrum, " (fragment)	
7. Sphenopteris Horninghausi, Brougt.	
8. Sphenopteris Hitchcockiana, Dawson.	
9. Sphenopteris marginata, "	
10. Sphenopteris piosa, "	
11. Hymenophyllites subfurcatus, "	
12. Cardiocarpus Crampii, Hartt.	

13. *Cardiocarpum acutum*, Dawson
14. *Cardiocarpum cornutum*, "
15. *Pecopteris serrulata*, Hartt.
16. *Cylopteris obtusa*, Goepfert
17. *Annularia acuminata*, Dawson
18. *Pinnularia Dispalaus*, "
19. *Cordaites Robbii*, "
20. *Neuropteris Dawsoni*, Martt.
21. *Calamites transitionis*, Goepfert.
22. *Calamites cannaeformis*, Brought
23. *Calamites*.
24. Slabs, with various species.

*From H. R. Fletcher.*

1. Gold quartz—Indian Path, Nova Scotia.
  2. " Tangier, "
  3. " Tangier, "
  1. Native copper from Michipiceton, Lake Superior.
- \* \*. No. 2 gives from 10 to 12 dwt. No. 3 gives from 1 to 2 oz

*In exchange for Journal.*

Journal of the Society of Arts . . . . .	2 Copies.
Journal of Education, Upper Canada . . . . .	1 "
Journal of the Franklin Institute . . . . .	1 "
The Citizen, London. . . . .	1 "
Silliman's Journal, New Haven. . . . .	1 "
Canadian Naturalist . . . . .	1 "
Proceedings Antiquarian Society, Boston . . . . .	1 "
Proceedings Academy of Sciences, Philadelphia . . . . .	1 "
Historical Recollections of the Essex Institute . . . . .	1 "
Annales des Mines . . . . .	1 "
Bulletin de la Societe Geologique de France . . . . .	1 "
Proceedings of the Royal Physical Society of Edinburgh. . . . .	1 "
Proceedings Boston Natural History Society . . . . .	1 "
Annals of the Lyceum of Natural History, N. Y . . . . .	1 "
Anthropological Review. . . . .	1 "
Transactions of the Royal Society of Edinburgh . . . . .	1 "
Report, Polytechnic Society of West Riding Yorkshire . . . . .	1 "
Annual Report of Leeds Philharmonic and Literary Society . . . . .	1 "
Transactions of the Nova Scotia Institute Natural Science . . . . .	1 "
Nature . . . . .	1 "

## CANADIAN LOCAL HISTORY.

## TORONTO OF OLD:

## A SERIES OF COLLECTIONS AND RECOLLECTIONS

*(Continued from page 428)*

BY THE REV. DR. SCADDING

## XXVII — QUEEN STREET, FROM THE DON BRIDGE TO PARLIAMENT STREET.

We return once more to the Don bridge; and from that point commence a journey westward along the thoroughfare now known as Queen Street, but which at the period at present occupying our attention, was non-existent. The region through which we at first pass was long known as the Park. It was a portion of Government property not divided into lots and sold until recent times. Originally a great space extending from the first Parliament houses, bounded southward and eastward by the water of the bay and Don, and northward by the Castle Frank lot, was set apart as a "Reserve for Government Buildings," to be, it may be, according to the idea of the day, a small domain of woods and forest in connection with them; or else to be converted in the course of time into a source of ways and means for their erection and maintenance. The latter appears to have been the view taken of this property in 1811. We have seen a plan of that date, signed "T. Ridout, S. G." shewing this reserve divided into a number of moderate sized lots, each marked with "the estimated yearly rent, in dollars, as reported by the Deputy Surveyor [Samuel S. Wilmot]." The survey is therein stated to have been made "by order of His Excellency Francis Gore, Esq., Lieutenant-Governor." The number of the lots is eighty-three. None of them bear a larger figure than twenty dollars. Some of them, consisting of minute bits of marsh, were expected to yield not more than one dollar. The revenue from the whole it realised would have been Eleven hundred and thirty-three dollars. In this plan, what is now Queen Street is duly laid down, in direct continuation of the Kingston Road westward, without regard to the engineering difficulties, presented by ravines; but it is entitled, in large letters, "Dundas Street." On its north side lie forty-six, and on its south, thirty-seven of the small lots into which the whole reserve is divided. The scheme was never carried into effect. The Park, as we remember it, was a tract of land in a state of nature, densely covered, towards the north, with massive pines, and towards the south, with a thick secondary growth of the same forest tree. Through these woods ran a devious and rather obscure track, originating in the bridle-road cut out, before the close of the preceding century, to Castle Frank; one branch led off from it to the Playter-estate, passing down and up two very steep and difficult precipices; and another, trending to the west and north, conducted the wayfarer to a point on Yonge Street about where Yorkville is now to be seen. To the youthful imagination, the Park, thus clothed with veritable forest—

The nodding horror of whose shady brows

Awed the forlorn and wandering passenger—

and traversed by irregular, ill defined and very solitary paths, leading to widely-separated localities, seemed a vast and rather mysterious region, the place that immediately flashed on the mind, whenever in poem or fairy tale, a wild or wold or wilderness was named. As time rolled on, too, it became actually the haunt and hiding place of lawless characters.

After passing, on our left, the burial-plot attached to the first R. C. Church of York, and arriving where Parliament Street, at the present day, intersects, we reached the limit, in that direction, of the "Reserve for Government Buildings." Stretching from the point indicated, there was on the right side of the way, a range of "park lots," extending some two miles to the west, all bounded on the south by what at the present time is Queen Street, but which, from being the great thoroughfare along the front of this very range, was long known as "Lot Street." (In the plan above spoken of, it is marked, as already stated, "Dundas Street," it being a section of the great military way, bearing that name, projected by the first Governor of

Upper Canada to traverse the whole province from west to east, as we shall have occasion hereafter to narrate )

In the early plan of this part of York, the names of the first locatees of the range of park-lots are given. On the first or easternmost lot we read that of John Small. On the next, that of J. White. In this collocation of names there is something touching, when we recall an event in which the first owners of these two contiguous lots were tragically concerned. Friends, and associates in the Public Service, the one as Clerk of the Crown, the other as Attorney General for Upper Canada, from 1792—1800, their dream doubtless was to pass the evening of their days in pleasant suburban villas placed here side by side in the outskirts of the young capital. But there arose between them a difficulty, trivial enough probably at the beginning, but which, according to the barbaric conventionality of the hour, could only be finally settled by a "meeting," as the phrase was, in the field, where chance was to decide between them, for life or death, as between two armies—only now two armies reduced to the absurdity of each consisting of only one man. The encounter took place in a pleasant grove at the back of the Parliament Building, immediately to the east of it, between what is now King Street and the water's edge. Mr White was mortally wounded and soon expired. By his own direction his remains were deposited in his garden or the park-lot, beneath a bower to which he had been accustomed to retire for purposes of study.

The *Oracle* of Saturday, Jan. 4, 1800, records the duel in the following words: "Yesterday morning a duel was fought back of the Government Buildings by John White, Esq, His Majesty's Attorney General, and John Small, Esq, Clerk of the Executive Council, wherein the former received a wound above the right hip, which it is feared will prove mortal." In the issue of the following Saturday, Jan 11th, the announcement appears: "It is with much regret that we express to the public, the death of John White, Esq." It is added: "His remains were on Tuesday evening interred in a small octagon building, erected on the rear of his Park lot." "The procession," the *Oracle* observes, "was solemn and pensive; and shewed that though death, 'all eloquent,' had seized upon him as his victim, yet it could not take from the public mind the lively sense of his virtues. *Vixit post funera virtus.*"

The *Constellation* at Niagara, of the date January 11th, 1800, also records the event, and enjoying a greater liberty of expression than the Government organ at York, indulges in some just and sensible remarks on the irrational practice of duelling in general, and on the sadness of the special case that had just occurred. We give the *Constellation* article:

"Died at York, on the 3rd instant, John White, Esq., Attorney General of this Province. His death was occasioned by a wound he received in a duel fought the day before with John Small, Esq, Clerk of the Executive Council, by whom he was challenged. We have not been able to obtain the particulars of the cause of the dispute; but be the origin what it may, we have to lament the toleration and prevalency of a custom falsely deemed honorable, or the criterion of true courage, innocency or guilt, a custom to gratify the passion of revenge in a single person, to the privation of the country and a family, of an ornament of society, and support: an outrage on humanity that is too often procured by the meanly malicious, who have preferment in office or friendship in view, without merit to gain it, and stupidly lacquey from family to family, or from person to person, some wonderful suspicion, the suggestions of a soft head and evil heart; and it is truly unfortunate for Society that the evil they bring on others should pass by their heads to light on those the world could ill spare. We are unwilling to attribute to either the Attorney General or Mr. Small any improprieties of their own or to say on whom the blame lies; but of this we feel assured, that an explanation might easily have been brought about by persons near to them, and a valuable life preserved to us. The loss is great; as a professional gentleman, the Attorney General was eminent, as a friend, sincere; and in whatever relation he stood was highly esteemed; an honest and upright man, a friend to the poor; and dies universally lamented; and we here cannot refuse to mention, at the particular request of some who have experienced his goodness, that he has refused taking fees, and discharged suits—law, by recommending to the parties, and assisting them with friendly advice, to an amicable adjustment of their differences; and thus is the man whom we have lost!"

For his share in the duel Mr. Small was, on the 20th January, 1800, indicted and tried before Judge Alcock and a jury, of which Mr. Win. Jarvis was the foreman. The verdict rendered was

"Not Guilty" The seconds were—Mr. Sheriff McDonell for Mr. Small, and the Baron DeHayne for Mr. White

Mr. White's park-lot became afterwards the property of Mr. Samuel Ridout, sometime Sheriff of the County, of whom we have had occasion to speak, several times, already. Mr. Small's lot was occupied and built on by Mr. Edward McMahon, an Irish gentleman, long well-known and greatly respected as Chief Clerk in the Attorney General's office. His name is preserved in that of the street which now runs north and south through the property that had been Mr. Small's

#### XXVIII.—QUEEN STREET, FROM PARLIAMENT TO GEORGE STREET

Sherburn Street which at present divides the White park lot from Moss Park commemorates happily the name of the old Dorsetshire home of the main stem of the Canadian Ridouts. The original stock of this family still flourishes in the very ancient and most interesting town of Sherburn, famous as having been in the Saxon days the see of a bishop; and possessing still a spacious and beautiful minster, familiarly known to arcliteacts as a fine study. Like some other English names, transplanted to the American continent, that of this Dorsetshire family has assumed here a pronunciation slightly different from that given to it by its ancient owners. What in Canada is Ri-dout, at Sherburn and its neighbourhood, is Rid-out.

On the park-lot that constituted the Moss-Park Estate, the name of D. W. Smith appears in the original plan. Mr. D. W. Smith was acting Surveyor General in 1794. He was the author of "A Short Topographical Description of His Majesty's Province of Upper Canada in North America, to which is annexed a Provincial Gazetteer:"—a work of considerable antiquarian interest now, preserving as it does, the early names, native, French and English, of many places now known by different appellations. A second edition was published in London in 1813, and was designed to accompany the new map published in that year by W. Faden. Geographer to the King and Prince Regent. The original work was compiled at the desire of Governor Simcoe, to illustrate an earlier map of Upper Canada.

We have spoken already in our progress through Front Street of the subsequent possessor of Mr. Smith's lot, Col. Allan. The residence at Moss Park was put up by him in comparatively recent times. The homestead previously had been, as we have already seen, at the foot of Frederic Street, on the south-east corner. To the articles of capitulation on the 27th April, 1813, surrendering the town of York to Dearborn and Chauncey, the commanders of the United States force, the name of Col. Allan, at the time Major Allan, is appended, following that of Lieut. Col. Chewett.

Besides the many capacities in which Col. Allan did good service to the community, as detailed during our survey of Front Street, he was also we find in 1801, Returning Officer on the occasion of a public election. In the *Oracle* of the 20th of June, 1801, we have an advertisement signed by him as Returning Officer for the "County of Durham, the East Riding of the County of York, and the County of Simcoe"—which territories are to conjointly elect one member. Mr. Allan announces that he will be in attendance "on Thursday the 2nd day of July next at 10 o'clock in the forenoon, at the Hastings under the Colonnade of the Government Buildings in the town of York—and proceed to the election of one Knight to represent the said county, riding and county in the House of Assembly, whereof all freeholders of the said county, riding and county are to take notice and attend accordingly." The writ, issuing from "His Excellency, Peter Hunter, Esq.," directs the returning officer "to cause one Knight, girt with a sword, the most fit and discreet, to be freely and indifferently chosen to represent the aforesaid county, riding and county, in Assembly, by those who shall be present on the day of election."

Two candidates presented themselves, Mr. A. Macdonell and Mr. J. Small. Mr. Macdonell was duly elected, "there appearing for him," we are briefly informed in a subsequent number of the *Oracle*, "112 unquestionable votes; and for J. Small, Esq., 32: majority, 80."

In 1804 there was another election, when the candidates were Mr. A. Macdonell again, Mr. D. W. Smith, of whom we spoke above, and Mr. Weekes. The address of the last-named gentleman is in the *Oracle* of May 21st. It is addressed to the Free and Independent Electors of the East Riding of York. He says: "I stand unconnected with any party, unsupported by

any influence, and unambitious of any patronage, other than the suffrages of those who consider the impartial enjoyment of their rights, and the free exercise of their privileges as objects not only worthy of the vigilance of the legislator, but also essential to their political security and to their local prosperity. The opportunity of addressing myself to men who may be inclined to think with freedom, and to act with independency, is to me truly desirable; and the receiving of the countenance and support of those characters, must ever bear in my mind impressions more than gratifying. It will not accord with my sentiments," the address proceeds to say, "to express myself in the usual terms of zeal and fidelity of an election candidate; inasmuch as that the principle of previous assurances has frequently, in the exercise of the functions of a representative, been either forgotten, or occasionally abandoned; but I hope it will not be considered vaunting in me to assert that that zeal and the fidelity which have manifested themselves in the discharge of my duty to my clients, will not be abated in supporting a more important trust—the cause of the public!"

In the *Oracle* of April 7th is an address put forth by friends on the part of Mr. D. W. Smith, who is at the moment absent. It is "to the free and independent electors of the County of Durham, the East Riding of the County of York, and the County of Simcoe." It runs as follows. "The friends of the Hon. D. W. Smith beg leave to offer that gentleman to represent you in the ensuing Parliament. His honor, integrity and ability, and the essential services which, in different capacities, he hath rendered to the Province, are so well known and felt that his friends consider the mentioning of his name only to be the most powerful solicitation which they can use on the present occasion, to obtain for him your favour and suffrage." To this address the following paragraph is added on May the 5th: "The friends of Mr. Smith consider it as their duty further to intimate, that from late accounts received from him in England, it was his determination to set out from that country so as to arrive here early in the summer of this present year."

On the 2nd of May Mr. Macdonnell's address came out. He speaks like a practical orator, accustomed to the outside as well as the interior of the House. He delivers himself in the following vigorous style:—

"To the Worthy Inhabitants of the East Riding of the County of York, and Counties of Durham and Simcoe: Friends and Fellow Subjects. In addressing you by appellations unusual, I believe, on similar occasions, no affectation of singularity has dictated the innovation. My terms flow from a more dignified principle, a purer source of ideas, from a sentiment of liberal and extensive affection, which embraces and contemplates not only such of you as by law are qualified to vote, but also such as a contracted and short-sighted policy has restrained from the immediate enjoyment of that privilege. Your interests inseparably the same, and alike dear and interesting to me, have always been equally my care; and your good will shall indiscriminately be gratifying, whether accompanied with the ability of advancing my present pursuit, or confined to the wishes of my succeeding in it. The anxious anticipation of events, which have engaged so many persons unto such early struggles to supplant me, forces me also to anticipate the dissolution of parliament, in declaring my disposition to continue (if supported by my friends at the next general election) in that situation which I have now the honour of filling in parliament; a situation, which the majority of suffrages which placed me in it, justifies the honest pride of supposing, was not obtained without merit, and inspires the natural confidence of presuming, will not be lost without a fault. I stoop with reluctance, gentlemen, to animadvert upon some puny fabrications circulated to mislead your judgment, and alienate your favor. It has been said that I am canvassing for a seat elsewhere. No! gentlemen: the satisfaction, the pride, of representing that division of this province, which, comprehending the capital, is consequently the political head, is to me, too captivating an object of political ambition to suffer the view of it to be intercepted in my imagination for a moment, by the prospect of any inferior representation. Be assured therefore, gentlemen, that I shall not forsake my present post, until you or life shall have forsaken me. Another calumny of a darker hue has been fabricated. I have been represented as inimical to the provincial statute which restrains many worthy persons migrating into this province from voting at elections, under a residence of seven years. A more insidious, a more barefaced falsehood, never issued from the lips of malice; for during every session of my sitting in parliament, I have been the warmest, and loudest advocate for repealing that statute and for rendering taxation and representation

reciprocal. I shall notice a third expedient, in attempting which, detraction (by resorting to an imposture so gross as to carry its own refutation upon the very face of it) has effectually avowed its own impotency:—It has been whispered that I have endeavoured to increase the general rate of assessments within the Home District Wretched misrepresentation! I should have been my own enemy indeed, if I had lent myself to such a measure. On the contrary; my maxim has been, and shall ever continue to be, that so much of the public burden as possible should be shifted from the shoulders of the industrious farmers and mechanics, upon those of the more opulent classes of the community; persons with large salaries and lucrative employments: the shallow artifice of these exploded fibs suggests this natural reflection, that slander could find no real foundation to build upon, when reduced to the necessity of rearing its fabrics upon visions To conclude, gentlemen, I have no interests separate from yours, no country but that which we inhabit in common. In all situations, under all circumstances, I have been the friend of the people and the votary of their rights. I have never changed with the times, nor shifted sides with the occasion; and you may therefore reasonably confide that I shall always be, gentlemen, your most devoted and most attached servant

“York, 2nd May, 1804

A. MACDONELL.

An attempt had also been made to induce Mr R. Henderson to become a candidate at this election He explained the reason why he declined to come forward in the following card:—“The subscriber thinks it a duty incumbent on him thus publicly to notify his friends who wished him to stand as a candidate at the ensuing election for York and its adjacent counties; that he declines standing, having special business that causes his absence at the time of the election He hopes that his friends will be pleased to accept of his grateful acknowledgments for the honour they wished to confer on him. But as there are several candidates who solicit the suffrages of the Public, they cannot be at a loss He leaves you, gentlemen, to the freedom of your own will He has only to observe that were he present on the day of election, he would give his vote to the Honorable David William Smith. I am, Gentlemen, your obedient and obliged servant, R. HENDERSON, York, 26th May, 1804”

Mr Henderson's occupation was afterwards that of a local army contractor, &c, as may be gathered from an advertisement which is to be observed in the *Oracle* of September 6, 1806:—“Notice. The subscriber having got the contract for supplying His Majesty's troops at the garrison with fresh beef, takes the liberty of informing the public that he has engaged a person to superintend the butchering business, and that good fresh beef may be had three times a week Fresh pork and mutton will be always ready on a day's notice; poultry, &c. Those gentlemen who may be pleased to become customers, may rely on being well served, and regularly supplied. If constant customers, &c, a note of the weight will be sent along with the article Families becoming constant customers, will please to send a book by their servant, to have it entered, to prevent any mistakes The business will commence on Monday, the 1st of September next. R Henderson, York, Aug 23, 1806.”—The grazing ground of Mr Henderson's fat cattle was extensive. In the same paper we have a notice bearing his signature, announcing that “the subscriber has a considerable number of fat cattle running at large between the town and the Humber. They are all branded on the horns with R H.” The notice continues: “If any of said cattle should be offered for sale to butchers or others, it is hoped no one will purchase them, as they may suppose them to be stolen A number of fat cattle is still wanted, for which cash will be paid.”

The result of the election at York in 1804 is announced in the *Oracle* of June 16. As was probably to be expected, Mr Macdonell was the man returned Thus runs the paragraph: “On Monday last the 11th instant, the election of a Knight to represent the counties of Durham and Swincoe and the East Riding of the County of York, took place at the Government Buildings in this town At the close of the poll, Angus Macdonell was declared to be duly elected to represent the said counties and riding We have not yet been able to collect any further returns,” the Editor adds, “but as soon as practicable they will be laid before the public.” On the 4th of the following August, accordingly the following complete list was given of members returned at the election of 1804 Alexander Macdonell and W B Wilkinson, Esqrs., Glengarry and Prescott Robert Isaac DeGrey, Esq, Stormont and Russell John Chrysler, Dundas Samuel Sherwood, Esq, Grenville. Peter Howard, Esq., Leeds. Allan McLean, Esq., Frontenac. Thomas Dorland, Esq, Lennox and Addington. Ebenezer Washburn, Esq., Prince Edward. David

McGregor Rogers, Esq., Hastings and Northumberland Angus Macdonell, Esq., Durham, Simcoe and East Riding of York Solomon Hill and Robert Nelles, Esqrs., West Riding of York, First Lincoln, and Haldmand. Isaac Swayzey and Ralph Clench, Esqrs., 2nd, 3rd and 4th Ridings of Lincoln. Benaiah Mallory, Esq. Norfolk, Oxford and Middlesex John McGregor, Esq., Kent. Matthew Elliott and David Cowan, Esqrs., Essex

The Mr. Weekes who, as we have seen, was an unsuccessful candidate for a seat in parliament in 1804 was nevertheless a member of the House in 1806, representing the constituencies to which he had previously offered himself. In 1806 he was killed in a duel with Mr. Dixon at Niagara, another victim to the barbarian social code of the day, which obliged gentlemen on certain occasions of difference to fire pistols at each other. In the *Oracle* of the 11th of October, 1806, we read the announcement: "Died on Friday the 10th instant at night, in consequence of a wound received that morning in a duel, William Weekes, Esq., Barrister-at-law, and a Member of the House of Assembly for the counties of York, Durham and Simcoe." In the next issue of the paper, dated October 25, 1806, we have a second record of the event in the following terms, with a eulogy on Mr. Weekes' character: "It is with sentiments of the deepest regret that we announce to the public the death of William Weekes, Esq., Barrister-at-law in this Province; not only from the melancholy circumstances attendant on his untimely death, but also from a view of the many virtues this Province is deprived of by that death. In him the orphan has lost a father, the widow a friend, the injured a protector, society a pleasing and safe companion, and the Bar one of its ablest advocates. Mr. Weekes was honest without the show of ostentation. Wealth and splendor held no lure for him; nor could any pecuniary motives induce him to swerve in the smallest degree from that which he conceived to be strictly honorable. His last moments were marked with that fortitude which was the characteristic of his life, convinced of the purity of which, he met death with pleasure."

"His funeral was delayed longer than could have been wished, a form of law being necessary previous to that ceremony. He was interred on Tuesday, the fourteenth. His funeral," it is added, "was attended by a respectable assemblage of people, from the house of John MacKay, Esq., in the following order: mourners, John MacKay, Esq., Three Members of the House of Assembly, of which he was a member; viz., Ralph Clench, J. Swayzey, Robert Nelles: Dr. West, Surgeon of the American Garrison, Dr. Thomas, 41st Regt., Dr. Murhead, Niagara; the Gentlemen of the Bar; the Magistrates of the place; and a numerous concourse of people from Town and Country."

This duel, as we have been informed, was fought on the United States side of the river, near the French Fort.

Mr. Weekes, we believe, was an unmarried man. He was fond of solitary rambles in the woods in search of game. Once he was so long missing that foul play was suspected; and some human remains having been found under a heap of logs on the property of Peter Ernest, Peter Ernest was arrested; and just as the evidence was all going strongly against him, Mr. Weekes appeared on the scene alive and well.

One more of these inhuman and unchristian encounters, with fatal result, memorable in the early annals of York, we shall have occasion to speak of hereafter when, in our intended progress up Yonge Street, we pass the spot where the tragedy was enacted.

Mr. Weekes was greatly regretted by his constituents. "Overwhelmed with grief," they say in their address dated the 20th September, 1806, to the gentleman whom they desire to succeed him "at the unexpected death of our late able and upright Representative, we, freeholders of these Counties of York, Durham and Simcoe, feel that we have neglected our interests in the season of sorrow. Now awake, it is to you we turn; notwithstanding the great portion of consolation which we draw from the dawning of our impartial and energetic administration (The allusion is to Gov. Gore). Fully persuaded that the great object of your heart is the advancement of public prosperity, the observance of the laws, and the practice of religion and morality, we hasten with assurances of our warmest support, to invite you from your retreat to represent us in Parliament. Permit us, however, to impress upon you, that as subjects of a generous and beloved King; as a part of that great nation which has for so long a time stood the bulwark of Europe, and is now the solitary and inaccessible asylum of liberty; as the children of Englishmen, guarded, protected and restrained by English laws; in fine, as members of their community, as fathers and sons we are induced to place this confidence in your virtue,



from the firm hope that, equally insensible to the impulse of popular feeling and the impulse of power, you will pursue what is right. This has been the body of your decisions: may it be the spirit of your counsels! (Signed by fifty-two persons, residing in the Town and Township of York.) The names not given. These words were addressed to Mr Justice Thorpe. His reply was couched in the following terms. "Gentlemen, with pleasure I accede to your desire. If you make me your representative I will faithfully discharge my duty. Your confidence is not misplaced. May the first moment of dereliction be the last of my existence. Your late worthy representative I lament from my heart. In private he was a warm friend; at the Bar an able advocate, and in Parliament a firm patriot. It is but just to draw consolation from our Governor, when the first act of his administration granted to those in the U. E. list and their children, what your late most valuable member so strenuously laboured to obtain. Surely from this we have every reason to expect that the liberal interests of our beloved sovereign, whose chief glory is to reign triumphantly enthroned on the hearts of a free people, will be fulfilled, honoring those who give and those who receive, enriching the Province and strengthening the Empire. Let us cherish this hope in the blossom: may it not be blasted in the ripening." A post-script is subjoined: "P. S. If influence, threat, coercion or oppression should be attempted to be exercised over any individual, for the purpose of controlling the freedom of election, let me be informed.—R. T."

We now proceed on our prescribed course. So late as 1833 Walton in his "York Commercial Directory, Street Guide, and Register," when naming the residents on Lot Street, as he still designates Queen Street, makes a note on arriving two park lots to the westward of the spot where we have been pausing, to the effect, that "here this street is intercepted by the grounds of Capt McGill, S. P. Jarvis, Esq., and Hon. W. Allan: past here it is open to the Roman Catholic Church, and intended to be carried through to the Don Bridge."

The process of levelling up, now become so common in Toronto, has effectually disposed of the difficulty temporarily presented by the ravine or ancient water-course, yet partially to be seen either in front of or upon the park lots occupied by the old inhabitants just named; and Queen Street, at the present hour, is an uninterrupted thoroughfare in a right line, and almost on a level the whole way, from the Don in the east to the Lunatic Asylum in the west, and beyond on to the gracefully curving margin of Humber Bay. The unfrequented and rather tortuous Britain Street is a relic of the deviation occasioned by the ravine, although the actual route followed in making the detour of old was Duchess Street.

#### XXVIII — QUEEN STREET — DIGRESSION AT CAROLINE STREET — HISTORY OF THE EARLY PRESS

A little to the south of Britain Street, between it and Duchess Street, near the spot where Caroline Street, slightly diverging from the right line, passes northward to Queen Street, there stood in the early day a long, low wooden structure, memorable to ourselves, as being, in our school-boy days, the Government Printing Office. Here the *Upper Canada Gazette* was issued, by "R. C. Horne, Printer to the King's Most Excellent Majesty." We shall have occasion hereafter to notice among our early inhabitants some curious instances of change of profession. In the present case, His Majesty's Printer, was in reality an Army Surgeon, once attached to the Glengarry Light Infantry. And again, afterwards, the same gentleman was for many years the Chief Teller in the Bank of Upper Canada. An incident in the troubles of 1837 was "the burning of Dr. Horne's house," by a party of the malcontents who were making a shew of assault upon the town. The site of this building, a conspicuous square two-story frame family residence, was close to the toll-bar on Yonge Street, in what is now Yorkville. On that occasion, we are informed, Dr. Horne "berated the Lieutenant Governor for treating with allowed rebels, and insisted that they were not in sufficient force to give any ground of alarm."

The *Upper Canada Gazette* was the first newspaper published in Upper Canada. Its first number appeared at Newark or Niagara on Thursday, the 18th of April, 1793. As it was apparently expected to combine with a record of the acts of the new government some account

of events happening on the continent at large, it was made to bear the double title of *Upper Canada Gazette, or American Oracle*. Louis Roy was its first printer, a skilled artizan engaged probably from Lower Canada, where printing had been introduced about thirty years previously, soon after the English occupation of the country.

Louis Roy's name appears on the face of No. 1, Vol. 1. The type is of the shape used in contemporaneous printing, and the execution is very good. The size of the sheet which retained the folio form, was  $15 \times 9\frac{1}{2}$  inches. The quality of the paper was rather coarse, but stout and durable.

The address to the public in the first number is as follows. "The Editor of this paper respectfully informs the public that the flattering prospect which he has of an extensive sale for his new undertaking has enabled him to augment the size originally proposed from a Demy Quarto to a Folio.

"The encouragement he has met will call forth every exertion in his master's way, so as to render the paper useful, entertaining and instructive. He will be very happy in being favored with such communications as may contribute to the information of the public, from those who shall be disposed to assist him, and in particular shall be highly flattered in becoming the vehicle of intelligence in this growing Province of whatever may tend to its internal benefit and common advantage. In order to preserve the veracity of his paper, which will be the first object of his attention, it will be requisite that all transactions of a domestic nature, such as deaths, marriages, &c., be communicated under real signatures.

"The price of this *Gazette* will be three dollars per annum. All advertisements inserted in it and not exceeding twelve lines will pay 4s. Quebec currency, and for every additional length a proportionable price. Orders for letter-press printing will be executed with neatness, dispatch and attention, and on the most reasonable terms."

An advertisement in the first number informs the public that a brewery is about to be established under the sanction of the Lieutenant Governor. "Notice is hereby given, that there will be a brewery erected here this summer under the sanction of his Excellency the Lieutenant Governor, and encouraged by some of the principal gentlemen of this place; and whosoever will sow barley and cultivate their land so that it will produce grain of a good quality, they may be certain of a market in the fall at one dollar a bushel on delivery. "W. HURD.

"Niagara, 18th April, 1793."

The No. dated Niagara, May 2, 1793, "hath" the following advertisement.

"Sampson Jutes begs leave to inform all persons who propose to build houses, &c., in the course of this summer, that he hath laths, planks and scantlings of all kinds to sell on reasonable terms. Any person may be supplied with any of the above articles on the shortest notice Applications to be made to him at his Mill near Mr. Peter Secord's."

In the No. for May 30, 1793, we have ten guineas reward offered for the recovery of a Government grindstone:

"Ten Guineas Reward is offered to any person that will make discovery and prosecute to conviction, the Thief or Thieves that have stolen a Grindstone from the King's Wharf at Navy Hall, between the 30th of April and the 6th instant. "JOHN MCGILL,

"Com. of Stores, &c. &c., for the Province of Upper Canada.

"Queenstown, 16th May, 1793."

The Anniversary of the King's Birth-day was celebrated at Niagara in 1793 in the following manner:

"Niagara, June 6. On Tuesday last, being the Anniversary of His Majesty's birthday, His Excellency the Lieutenant Governor had a Levée at Navy Hall. At one o'clock the troops in garrison and at Queenston fired three volleys; the field-pieces above Navy Hall, under the direction of the Royal Artillery, and the guns of the Garrison, fired a Royal Salute. His Majesty's schooner, the *Onondago*, at anchor in the river, likewise fired a Royal Salute. In the evening his Excellency gave a Ball and elegant Supper at the Council Chamber, which was most numerously attended."

In the second volume (1794) of the *Gazette and Oracle* Louis Roy's name disappears. G. Tiffany becomes the printer. In 1793 it has assumed the Quarto form, and is dated "West Niagara," a name that Newark was beginning to acquire.

In 1799, the *Gazette* being about to be removed across permanently to York, the new capital, whither also all the government offices were departing, Messrs. S and G. Tiffany decide on starting a newspaper on their own account for Niagara. It is called "*The Canada Constellation*," and its terms are four dollars per annum. It is announced to appear weekly "opposite the Lion Tavern." The date of the first number is July 20. In the introductory address to the public the Messrs. Tiffany make use of the following rather involved language: "It is a truth long acknowledged that no men hold situations more influential of the minds and conduct of men than do printers; political printers are sucked from, nursed and directed by the press; and when they are just, the community is in unity and prosperity; but when vicious, every evil ensues; and it is lamentable that many printers, either vile, remiss in, or ignorant of, their duty, produce the latter or no effect, and to which of these classes we belong, time will unfold."

The public means of maintaining a regular correspondence with the outer world being insufficient the enterprising spirit of the Messrs. Tiffany led them to think of establishing a postal system of their own. In the *Constellation* for August 23 we have the announcement: "The printers of the *Constellation* are desirous of establishing a post on the road from their office to Ancaster and the Grand River, as well as another to Fort Erie; and for this purpose they propose to hire men to perform the routes as soon as the subscriptions will allow of the expense. In order to establish the business, the printers on their part will subscribe generously, and to put the design into execution, but little remains for the people to do." We can detect in the *Constellation* a natural local feeling against the upstart town of York which had now drawn away almost every thing from the old Newark. Thus in the number for November the 14th, 1799, a communication from York, signed *Amicus*, is admitted, written plainly by one who was no great lover of the place. It affords a glimpse of the state of its thoroughfares, and of the habits of some of its inhabitants. *Amicus* proposes a "*Stump Act*" for York; i. e., a compulsory eradication of the stumps in the streets so that "the people of York in the space of a few months may" as he speaks "relapse into intoxication with impunity; and stagger home at any hour of the night without encountering the dreadful apprehension of broken necks." The same animus gives colour to remarks on some legal verbiage recently employed at York. Under the heading "Interesting Discovery" we read: "It has been lately found at York that in England laws are made; and that a law made in England is the law of England, and is enforced by another law: that many laws are made in Lower Canada and follow up, that is, follow after, or in other words are made since, other laws; and that these laws may be repealed. It is seldom," continues the writer in the *Constellation* "that so few as one discovery slips into existence at one birth. Genus is sterile, and justly said to be like a breeding cat, as is verified in York, where by some unaccountable fortuity of events all genius centers; at the same time with the above, its twin kitten came forth, that an atheist does not believe as a Christian." In another number we have some chaffing about the use of the word *capital*. In an address on the arrival of Governor Hunter, the expression, "We, the inhabitants of the Capital" had occurred. "This fretted my pate," the critic pretends to complain. "What can this be? Surely it is some great place in a great country was my conclusion; but where the Capital is, was a little beyond my geographical acquaintance. I had recourse to the books," he continues: "all the gazettes and magazines from the year One I carefully turned over, and not one case among all the addresses they contained afforded me any instruction: 'We, the inhabitants of the cities of London and Westminster, of Edinburgh, Dublin, Paris, &c.,' only proved to me that neither of these is the Capital. But as these are only little towns in young countries, and cannot be so forward as to take upon themselves the pompous title of *capital*, it must be in America." He then professes to have consulted the *Encyclopædia Eboracica*, or "*A Vindication in support of the great Utility of New Words*," lately printed in Upper Canada, and to have discovered therein that the Capital in question "was, in plain English, York." He concludes therefore that whenever in future the expression "We, the inhabitants of the Capital" is met with, it is to be translated into the vernacular tongue, "We, the inhabitants of York, assembled at McDougals, &c." The *Constellation* does not appear to have succeeded. Early in 1801 a new paper comes out, entitled the *Niagara Herald*. In it, it is announced that the *Constellation* "after existing one year, expired some months since of starvation, its publishers departing too much from its constitution (advance pay)." The printer is now Silvester Tiffany, the senior proprietor of the *Constellation*. It is very well printed with good type; but on blue wrapping

paper In little more than two years, viz, on the 4th June, 1802, it is announced that the publication of the *Herald* is suspended; that it will appear only "on particular occasions;" but Mr Tiffany hopes it "will by and by receive a revival." Other early papers published at the town of Niagara were the *Gleaner*, by Mr Heron; the *Spectator*; and the *Mail*. The last named still exists

In 1800, the *Upper Canada Gazette or American Oracle* is issued at York, weekly, from the office of William Waters and T G Simons In the number for Saturday May the 17th in that year, we read that on the Thursday evening previous, "His Excellency Peter Hunter, Esq. Lieutenant Governor and Commander-in-Chief of the Province arrived in our harbour on board the *Toronto*; and on Friday morning about nine o'clock landed at the Garrison where he is at present to reside "

We are thus enabled to add two items to the table of dates usually given, shewing the introduction of Printing at different points on this Continent: viz, the dates 1793 and 1800 for Niagara and York respectively The table will now stand as follows :

- 1639. Cambridge, Massachusetts, Stephen Day and Samuel Green
- 1674 Boston, John Foster
- 1684 Philadelphia, Wm. Bradford
- 1693 New York, Wm. Bradford, (removed from Philadelphia)
- 1730. Charleston, Eleazer Phillips
- 1730 Bridgetown, Barbadoes, David Harry and Samuel Keimer
- 1751. Halifax, Nova Scotia, Bartholomew Green jun and John Bushell
- 1764. Quebec, Wm. Brown and Thos. H. Gilmore.
- 1771. Albany, Alex and Jas Robertson
- 1775. Montreal, Chas Berger and Fleury Mesplet
- 1784. St Georges, Bermuda, J Stockdale
- 1793. Newark (Niagara), Louis Roy.
- 1795. Cincinnati, S. Freeman
- 1800. York (Toronto), Wm. Waters and T G Simons

As at York and Niagara, the first printers in most of the places named were publishers of newspapers

It may be added that a press was in operation in the City of Mexico in 1569; and in the City of Lima in 1621. The original of all the many colonial government *Gazettes* was the famous royal or exclusively court news-sheet published first at Oxford in November, 1665, entitled the *Oxford Gazette*, and in the following year, at London, and entitled then and ever afterwards to this day, the *London Gazette*.

In 1801 J. Bennett succeeds Messrs Waters and Simons, and becomes the printer and publisher of the *Gazette or Oracle*. In that year the printing-office is removed to "the house of Mr. A Cameron, King Street," and it is added "subscriptions will be received there and at the Toronto Coffee House, York" From March 21st in this year and onward for six weeks, the paper appears printed on blue sheets of the kind of material that used formerly to be seen on the outsides of pamphlets and magazines and Government "Blue-books." Messrs Printers make no allusion to the circumstance which, as we suppose, was occasioned by the non-arrival of the spring supplies of stationery. The *Herald*, at Niagara, of the same period, appeared, as we have already noticed, in the like guise.

On Saturday, December 26th, 1801, is this statement, the whole of the editorial matter: "It is much to be lamented that communication between Niagara and this town is so irregular and infrequent, opportunities now do not often occur of receiving the American papers from our correspondents; and thereby prevents us for the present from laying before our readers the state of politics in Europe." In the number for June 13th, the editorial "leader" reads as follows: "The *Oracle*, York, Saturday, June 12th Last Monday was a day of universal rejoicing in this town, occasioned by the arrival of the news of the splendid victory gained by Lord Nelson over the Danes in Copenhagen roads on the 2nd of April last: in the morning the great guns at the Garrison were fired: at night there was a general illumination, and bonfires blazed in almost every direction." The writer ventures on no further comments

It would have been gratifying to posterity had the printers of the *Gazette and Oracle* endeavored to furnish a connected record of "the short and simple annals" of their own immediate neighborhood. But these unfortunately were deemed undeserving of much notice. We have announcements of meetings, and projects, and subscriptions for particular purposes, unfollowed up by an account of what was subsequently said, done and effected; and when a local incident is mentioned, the detail is generally very meagre. An advertisement in the number for the 27th August, 1801, reminds us that in the early history of Canada it was imagined that a great source of wealth to the inhabitants of the country in all future time would be the ginseng that was found growing naturally in the swamps. The market for ginseng was principally China, where it was worth its weight in silver. The word is said to be Chinese for "all-heal." In 1801 we find that Mr. Jacob Herchmer, of York, was speculating in ginseng. In his advertisement in the *Gazette and Oracle* he "begs leave to inform the inhabitants of York and its vicinity that he will purchase any quantity of ginseng between this and the first of November next, and that he will give two shillings, New York currency, per pound well dried, and one shilling for green." At a later period, it will be remembered, the cultivation of hemp was expected to be the mainstay of the country's prosperity. The whole of the editorial matter of the *Gazette and Oracle* on the 2nd of January, 1802, is the following: "The *Oracle*, York, Saturday, January 2, 1802. The Printer presents his congratulatory compliments to his customers on the New Year." The dignified title of Editor was yet but sparingly assumed. That term is used once by Tiffany at Newark, in the second volume. After the death of Governor Hunter in September 1805, J. Bennett writes himself down "Printer to the King's Most Excellent Majesty." Previously the colophon of the publication had been: "York, printed by John Bennett, by the authority of His Excellency Peter Hunter, Esq., Lieut.-Governor."

Happening to have at hand a bill of Bennett's against the Government we give it here. The modern reader will be able to form from this specimen an idea of the extent of the government requirements in 1805 in regard to printing and the cost thereof. We give also the various attestations appended to the account:

York, Upper Canada, 24th June, 1805.

The Government of Upper Canada,

To JOHN BENNETT, Government Printer.

Jan. 11.	300 copies Still Licenses, $\frac{1}{2}$ sheet foolscap, pica type.....	0 16 6
March 30.	Printing 20 copies of an Act for altering the time of issuing Licenses for keeping of a House of Public Entertainment, $\frac{1}{2}$ sheet demy, pica type,	0 3 4
April 5.	Inserting a Notice to persons taking out Shop, Still or Tavern Licenses, 6 weeks in the <i>Gazette</i> , equal to $4\frac{1}{2}$ advertisements.....	1 16 0
April 16.	1,000 copies of Proclamation, warning persons that possess and occupy Lands in this Province, without due titles having been obtained for such Lands, forthwith to quit and remove from the same, $\frac{1}{2}$ sheet demy, double pica type.....	4 18 4
April 22	100 copies of an Act to afford relief to persons entitled to claim Land in this Province as heirs or devisees of the nominees of the Crown, one sheet demy, pica type.....	3 6 3
	Printing Marginal Notes to do.....	0 5 0
May 14.	Printing 1,500 copies of the Acts of the First Session of the Fourth Parliament, 3 sheets demy, pica type.....	45 0 0
	Marginal Notes to do at 5s. per sheet.....	0 15 0
	Folding, Stitching and Covering in Blue Paper, at 1d.....	6 5 0

Halifax Currency..... £63 5 9

Amounting to sixty-three pounds five shillings and nine pence Halifax currency. Errors excepted.

(Signed) JOHN BENNETT.

John Bennett, of the Town of York, in the Home District, maketh oath and saith, that the

aforegoing account amounting to sixty-three pounds five shillings and nine pence Halifax currency, is just and true in all its particulars to the best of his knowledge and belief.

(Signed) JOHN BENNETT

Sworn before me at York, this 29th day of July, 1805.

(Signed)

W<sup>m</sup> DUMMER POWELL, J

Audited and approved in Council 6th August, 1805.

(Signed)

PETER RUSSELL,  
Presiding Councillor

(Examined)

(Signed)

JOHN MCGILL,

Inspector Genl. P. P. Accts.

[A true copy.]

JOHN MCGILL,

Inspector Gen. P. P. Accts.

Bennett published "The Upper Canada Almanac," containing with the matter usually found in such productions the Civil and Military Lists and the Duties, Imperial and Provincial. This work was admirably printed in fine Elzevir type, and in aspect, as well as arrangement, was an exact copy of the almanacs of the day published in London. A rival Calendar continued to be issued at Niagara entitled "Tilley's Upper Canada Almanac." This was a roughly printed little tract, and contained popular matter in addition to the official lists. It gave in a separate and very conspicuous column in each month "the moon's place" on each day in respect to a distinct portion of the human body with prognostications accordingly. And in the "Advertisement to the reader" it was set forth, that "in the calculation of the weather the most unweaned pains have been taken; and the calculator prays, for his honor's sake, that he may have not failed in the least point; but as all calculation may sometime fail in small matters, the writer continues, "no wonder is it that in this, the most important, should be at times erroneous. And when this shall unfortunately have been the case with the Upper Canada Almanac, let careful observers throw over the error the excess of that charity of which their generous souls are composed, and the all-importance of the subject requires; let them remember that the task, in all the variety and changes of climates and seasons, is arduous beyond that of reforming a vicious world, and not less than that of making a middle-sized new one."

In the number of the *Oracle* for September 29th, 1805, which is in mourning, we have the following notice of the character of Governor Hunter, who had deceased on the 23rd of the preceding August at Quebec.—"As an officer his character was high and unsullied; and at this present moment his death may be considered a great public loss. As Lieut. Governor of Upper Canada, his loss will be severely felt; for by his unremitting attention and exertions he has, in the course of a very few years, brought that infant colony to an unparalleled state of prosperity." An account is then given of the procession at the funeral. The 49th and 6th Regiments were present: also Lieut. Col Brack, Commanding. At the grave one round was fired slowly and distinctly by eleven field pieces, followed by one round of small arms, by regiments; then a second round of artillery, followed in like manner by the small arms, and, lastly, a third round of artillery, and a third round of small arms. The mourners were, the Hon. Thomas Duma, President of the Province (Lower Canada), Col Bowes, Major Curry, Hon. Mr. Craigie, Col Green, Major Robt, Capt Gomm, Mr William Green.

In 1813, during the war with the United States, Cameron is the printer of the official paper, which now for a time assumed the title of *The York Gazette*. Mr. John Cameron also published "The Upper Canada Almanac," from which we have already had occasion to quote, but it put in no claim to an official character. It did not contain the Civil Lists, but, as stated in the title page, "some Chinese sayings and Elegant Aphorisms." It bore as a motto the following lines:

"Ye who would mend these wicked times  
And morals of the age,  
Come buy a book half full of rhymes,  
At three-pence York per page.  
It would be money well outlaid,  
So plenty money is;  
Paper for paper is fair trade:  
So said "Poor Richard." Qui:

Among the aphorisms given is this one: "Issuers of paper-change, are entitled to thank's from the Public for the great accommodation such change affords. They might render the accommodation more extensive were they to emit a proportionate number of half-penny bills." At one place the query is put, "When will the beard be worn, and man allowed to appear with it in native dignity? And if so, how long before it will become fashionable to have it greased and powdered?" In the almanac for 1815, towards the end, the following paragraph appears: "York supernatural prices current: Turneps 1 dollar per bushel: Potatoes long at 2 ditto. Salt 20 ditto: Butter per lb. 1 ditto: Indifferent bread 1 shilling N. Y. cy. per lb.: Conscience a contraband article."

In Bennett's time the Government press was, as we have seen, set up in Mr. Cameron's house on King Street. But at the period of the war in 1812 Mr. Cameron's printing office was in a building which still exists, viz., the residence of Mr. A. Mercer on Bay Street. During the occupancy of York by the United States force, the press was broken up and the type dispersed. In the possession of Mr. Mercer may still be seen a portion of the press which on that occasion was made useless. For a short period Mr. Mercer himself had charge of the publication of the *York Gazette*.

In 1817 Dr. Horne became the editor and publisher. On coming into his hands the paper resumed the name of *Upper Canada Gazette*, but the old secondary title of *American Oracle* was dropped. To the official portion of the paper, there was nevertheless still appended abstracts of news from the United States and Europe, summaries of the proceedings in the Parliaments of Upper and Lower Canada, and much well-selected miscellaneous matter. The shape continued to be that of a small folio, and the terms were four dollars per annum in advance; and if sent by mail, four dollars and a half.

#### XXIX.—QUEEN STREET, DIGRESSION AT CAROLINE STREET. HISTORY OF THE EARLY PRESS CONTINUED

In 1821 Mr. Charles Fothergill (of whom we have already spoken) became the Editor and Publisher of the *Gazette*. Mr. Fothergill revived the practice of having a secondary title, which was now *The Weekly Register*; a singular choice, by the way, that being very nearly the name of Cobbett's celebrated democratic publication in London. After Mr. Fothergill came Mr. Robert Stanton, who changed the name of the private portion of the *Gazette sheet*, styling it "*The U. E. Loyalist*."

About the year 1820 Mr. John Carey established the *Observer*, a folio of a very rustic, unkempt aspect, the paper and typography and matter being all somewhat inferior. It gave in its adherence to the government of the day, generally: at a later period it wavered. Mr. Carey was a tall, portly personage who, from his bearing and costume might readily have been mistaken for a non-conformist minister of local importance. The *Observer* existed down to about the year 1830. Between the *Weekly Register* and the *Observer* the usual journalistic feud made its appearance, which so often renders rival village newspapers ridiculous. With the *Register* a favorite sobriquet for the *Observer* is "Mother C—y." Once a correspondent is permitted to style it "*The Political Weathercock and Slang Gazetteer*." Mr. Carey ended his days in Springfield on the River Credit, where he possessed property.

The *Canadian Freeman*, established in 1825 by Mr. Francis Collins was a sheet remarkable for the neatness of its arrangement and execution, and also for the talent exhibited in its editorials. The type was evidently new and carefully handled. Mr. Collins was his own principal compositor. He is said to have transferred to type many of his editorials without the intervention of pen and paper, composing directly from copy mentally furnished. Mr. Collins was a man of pronounced Celtic features, roughish in outline, and plentifully garnished with hair of a sandy or reddish hue. Notwithstanding the colorless character of the motto at the head of its columns "*Est natura hominum novitatis avida*"—"Human nature is food of news," the *Freeman* was a strong party paper. The hard measure dealt out to him in 1828 at the hands of the legal authorities, according to the prevailing spirit of the day, with the revenge that he was moved to take—and to take successfully—we shall not here detail. Mr. Collins died of cholera in the year 1834. We have understood that he was once employed in the office of the *Gazette*; and that when Dr. Horne resigned, he was an applicant for the position of

Government Printer. *The Canadian Freeman* joined for a time in the general opposition clamour against Dr Strachan,—against the influence, real or supposed, exercised by him over successive lieutenant-governors. But on discovering the good-humoured way in which its fulminations were received by their object, the *Freeman* dropped its strictures. It happened that Mr Collins had a brother in business in the town with whom Dr Strachan had dealings. This brother on some occasion thought it becoming to make some faint apology for the *Freeman's* diatribes. "O don't let them trouble you," the Doctor replied, "they do not trouble me; but, by the way, tell your brother," he laughingly continued, "I shall claim a share in the proceeds." This, when reported to the Editor, was considered a good joke, and the diatribes ceased, a proceeding that was tantamount to Peter Pindar's confession, when some one charged him with being too hard on the King. "I confess there exists a difference between the King and me," said Peter; "the King has been a good subject to me; and I have been a bad subject to his Majesty." During the period of Mr Collins' imprisonment in 1828 for the application of the afterwards famous expression "native malignity" to the Attorney General of the day, the *Freeman* still continued to appear weekly, the editorials, set up in type in the manner spoken of above, being supplied to the office from his room in the gaol.

During the period of the early development of society in Upper Canada the Government authorities appear not only to have possessed but to have exercised the power of handling political writers pretty sharply. In the *Kingston Chronicle* of December 10th, 1820, we have recorded the sentence pronounced on Barnabas Ferguson, Editor of the *Niagara Spectator*, for "a libel on the Government." Mr Ferguson was condemned to be imprisoned eighteen months; to stand in the pillory once during his confinement; to pay a fine of £50, and remain in prison till paid; and on his liberation to find security for seven years, himself in £500, and two sureties in £250 each. No comment is made by the *Chronicle* on the sentence, and the libel is not described. The local government took its cue in this matter from its superiors of the day in the old country. What Sir Henry Lytton Bulwer says in his sketch of the life of Cobbett helps to explain the action of the early Upper Canada authorities in respect to the press. "Let us not forget," says the writer just named, "the blind and uncalculating intolerance with which the law struggled against opinion from 1809 to 1822. Writers during this period were transported, imprisoned, and fined, without limit or conscience; and just when government became more gentle to legitimate newspapers, it engaged in a new conflict with unstamped ones. No less than 500 vendors of these were unprisoned within six years. The contest was one of life and death."

So early as 1807 there was an "opposition" paper—the *Upper Canada Guardian*. Willcocks, the editor, had been Sheriff of the Home District, and had lost his office for giving a vote contrary to the policy of the lieutenant-governor for the time being. He was returned as a member of parliament; and after having been imprisoned for breach of privilege, he was returned again, and continued to lead the reforming party. When the war of 1812 broke out the *Guardian* came to an end; its editor at first loyally bore arms on the Canadian side, but at length deserted to the enemy, taking with him some of the Canadian Militia. He was afterwards killed at the siege of Fort Erie.

The newspaper that occupies the largest space in the early annals of the press at York is the *Colonial Advocate*. Issuing first at Queenston in May 1824, it was removed in the following November, to York. Its shape varied from time to time: now it was a folio: now a quarto. On all its pages the matter was densely packed; but printed in a very mixed manner: it abounded with sentences in italics, in small capitals, in large capitals; with names distinguished in like decided manner: with paragraphs made conspicuous by rows of index hands, and other typographical symbols at top, bottom and sides. It was editorial, not in any one particular column, but throughout; and the opinions delivered were expressed for the most part in the first person. The *Weekly Register* fell foul of the *Advocate* at once. It appears that the new audacious nondescript periodical, though at the time it bore on its face the name of Queenston, was nevertheless for convenience sake printed at Lewiston on the New York side of the river. Hence it was denounced by the *Weekly Register* in language that now astonishes us, as a United States production; and as in the United States interest. "This paper of motley, unconnected, shake-bag periods" cried the Editor of the *Weekly Register*, "this unblushing, brazen-faced *Advocate*, affects to be a Queenston and Upper Canadian paper; whereas it is to all intents



and purposes, and radically, a Lewiston and gent-wine Yankee paper. How can this man of truth, this pure and holy reformer and regenerator of the unhappy and prostrate Canada reconcile such barefaced and impudent deception? Nothing could more promote the success of the *Colonial Advocate* than a welcome like this. To account for the *Register's* extraordinary warmth, it is to be said that the *Advocate* in its first number had happened to quote a passage from an address of its Editor to the electors of the County of Durham, which seemed in some degree to compromise him as a servant of the Government. Mr. Fothergill had ventured to say "I know some of the deep and latent causes why this fine country has so long languished in a state of comparative stupor and inactivity, while our more enterprising neighbours are laughing us to scorn. All I desire is an opportunity of attempting the cure of some of the evils we labour under." This was interpreted in the *Advocate* to mean a censure upon the Executive. But the *Register* replied that these words simply expressed the belief that the evils complained of were remediable only by the action of the House of Assembly, on the well-known axiom "that all law is for the people, and from the people, and when inefficient, must be remedied or rectified by the people; and that therefore Mr. Fothergill was desirous of assisting in the great work." The end in fact was that the Editor of the *Register*, after his return to parliament for the County of Durham, did not long retain the post of King's Printer. After several independent votes in the House he was dismissed by Sir Peregrine Maitland in 1826, after which date the awkwardness of uniting with a Government Gazette a general newspaper whose editor, as a member of the House of Assembly, might claim the privilege of acting with His Majesty's opposition, came to an end. In 1826 we have Mr. Fothergill in his place in the House supporting a motion for remuneration to the publisher of the *Advocate* on the ground that the wide and even gratuitous circulation of that paper throughout Canada and among members of the British House of Commons, "would help to draw attention in the proper quarter to the country."

Here is an account of McKenzie's method in the collection of matter for his various publications, the curious multifariousness of which matter used to astonish while it amused. The description is by Mr. Kent, editor of a religious journal, entitled *The Church*, published at Cobourg in 1838. Lord Clarendon's style has been exactly caught, it will be observed: "Possessed of a taste for general and discursive reading," says Mr. Kent, "he (McK.) made even his very pleasures contribute to the serious business of his life, and, year after year, accumulated a mass of materials, which he pressed into his service at some fitting opportunity. Whenever anything transpired that at all reflected on a political opponent, or whenever, in his reading, he met with a passage that favored his views, he not only turned it to a present purpose, but laid it by, to bring it forward at some future period, long after it might have been supposed to be buried in oblivion."

The Editor of the *Advocate*, after his flight from Canada in 1837, published for a short time at New York a paper named *McKenzies Gazette*, which afterwards was removed to Rochester: its term of existence there was also brief. In the number for June, 1839, we have the following intelligence contributed by a correspondent at Toronto: A certain animus in relation to the military in Canada, and in relation to the existing Banks of the country, is apparent. "Toronto, May 24th: The 93rd Regiment is still in quarters here. The men 660 strong, all Scotchmen, enlisted in the range of country from Aberdeen to Ayrshire: a highland regiment without highlanders: few or none of Englishmen or Irishmen among them. They are a fine-looking body of men. I never saw a finer. I wished to go into the garrison, but was not permitted to do so. Few of the townspeople have that privilege. — has made the fullest enquiries, and tells me that a majority of the men would be glad to get away if they could: they would willingly leave the service and the country. He says they are well-informed, civil and well-behaved, and that for such time as England may be compelled to retain possession of the Canadas by military force, against the wishes of the settled population he would like to have this regiment remain in Toronto. — tells me that a few soups have been kept at Queenston during the winter, because if they desert it is no matter: the regulars are all at Drummondville, near the Falls, and a couple of hundred blacks at Chippewa watching them. The Ferry below the Falls is guarded by old men whose term of service is nearly out, and who look for a pension. It is the same at Malden, and in Lower Canada. The regiments Lord Durham brought were fine fellows, the flower of the English army. — The Banks here tax the people heavily, but

they are so stupid they don't see it. All the specie goes into the Banks. I am told that the U C Bank had at one time £300,000 in England in Commissariat bills of Exchange: their notes in circulation are a million and a quarter of paper dollars, for all of which they draw interest from the people, although not obliged to keep six cents in their money-till to redeem them. All the troops were paid in the depreciated paper of these fraudulent bankrupt concerns, the directors of which deserve the Penitentiary: the contracts of the commissariat are paid in the same paper as a 10 per cent. shave: and the troops up at Brantford were also paid in Bank! notes which the Bank did not pretend to redeem; and it would have offended Sir George (Arthur), who has a share in such speculations (as he had when in VanDieman's Land), had any one asked the dollars. Sir Allan McNab, who has risen from poverty to be president *de facto*, solicitor, directors and company of the Gore Bank, ever since its creation, is said to be terribly embarrassed for want of money. He is not the alpha and omega of the Bank now. He has quarrelled with his brother villains. The money paid to Canada from England to uphold troops to coerce the people helps the Banks." In the same number of the *Gazette* published at Rochester we have an extract from a production by Robert Gourlay himself, who in his old age paid a final visit of inspection to Canada. In allusion to a portion of Gourlay's famous work published in 1822, the extract is headed in *McKenzie's Gazette* "Robert Gourlay's 'Last Sketch' of Upper Canada." It is dated at Toronto, May 25th. Having just presented one gloomy view, we will venture to lower the reader's spirits a particle more, by giving another. Let allowance be made for the morbid mental condition of the writer, the contrast offered by the Canada of to-day will afterwards proportionably exhilarate. "What did Upper Canada gain," Gourlay asks "by my banishment; and what good is now to be seen in it? Cast an eye over the length and breadth of the land" he cries, "from Malton to Point Fortune, and from the Falls to Lake Simcoe: then say if a single public work is creditable, or a single institution as it should be. The Rideau Canal!—what is it but a monument of England's folly and waste; which can never return a farthing of interest; or, for a single day stay the conquest of the province. The Welland Canal!—Has it not been from beginning till now a mere struggle of misery and mismanagement; and from now onward, promising to become a putrid ditch. The only railway, of ten miles: with half completed; and half which cannot be completed for want of funds! The macadamised roads, all in mud; only causing an increase of wear and tear. The province deeply in debt; confidence uprooted; and banks beleaguered!—Schools and Colleges, what are they?—Few yet painted, though lectures on natural philosophy are now abundant. The Cobourg seminary outstaring all that is sanctimonious: so airy and lank that learning cannot take root in it. A college at Sandwich built before the war, but now a pig sty; and one at Toronto indicated only by an approach. The edifices of the Church!—how few worthy of the Divine presence—how many unfinished—how many fallen to decay. The Church itself, wholly militant: Episcopahans maintaining what can never be established; Presbyterians more sour than ever, contending for rights where they have none whatever: Methodists so disunited that they cannot even join in a respectable groan; and Catholic priests wandering about in poverty because their scattered and starving flocks yield not sufficient wool for the shears. One institution only have I seen praiseworthy and progressing—The Penitentiary; but that is a concentrated essence, seeing the whole province is one: and which of you, resident landholders, having sense or regard for your family, would remain in it a day, could you sell your property and be off?"

Some popular Almanacs of a remarkable character also emanated from McKenzie's press. Whilst in the United States he put forth the *Caroline Almanac*, a designation intended to keep alive the memory of the cutting out of the *Caroline* steamer from Fort Schlosser in 1837, and her precipitation over the Falls of Niagara, an act sought to be held up as a great outrage on the part of the Canadian authorities. In the *Canadian Almanacs*, published by him, intended for circulation especially among the country population, the object kept in view was the same as that so industriously aimed at by the *Advocate* itself, viz., the exposure of the shortcomings and vices of the government of the day. At the same time a large amount of practically useful matter and information was supplied. The earlier almanac was entitled "Poor Richard, or the Yorkshire Almanac," and the compiler professed to be one "Patrick Swift, late of Belfast, in the Kingdom of Ireland, Esq., F.R.I., Grand-nephew of the celebrated Doctor Jonathan Swift, Dean of St. Patrick's, Dublin, etc. etc. etc." This same personage was a contributor also of

many pungent and humorous things in prose and verse in the columns of the *Advocate* itself. In 1834 the Almanac assumed the following title: "A new Almanac for the Canadian True Blues; with which is incorporated The Constitutional Reformer's Text Book, for the Millennial and Prophetic Year of the Grand General Election for Upper Canada, and total and everlasting Downfall of Toryism in the British Empire, 1834." It was still supposed to be edited by Patrick Swift, Esq., who is now dubbed M.P.P., and Professor of Astrology, York.

In the extract given above from what was styled Gourlay's "Last Sketch" of Upper Canada, the query and rejoinder, "Schools and Colleges, what are they? Few yet painted, though lectures on Natural Philosophy are now abundant" are now unintelligible, without remark. The allusion was to an advertisement in the *Upper Canada Gazette* of Feb. 5, 1818, which Gourlay at the time of its appearance thought proper to annuladvert upon and to satirize in the *Niagara Spectator*. It ran as follows: "NATURAL PHILOSOPHY.—The subscriber intends to deliver a course of Popular Lectures on Natural Philosophy, to commence on Tuesday the 17th inst., at 7 o'clock p.m., should a number of auditors come forward to form a class. Tickets of admission for the Course (price Two Guineas) may be had of William Allan, Esq., Dr. Horne, or at the School House. The surplus, if any, after defraying the current expenses, to be laid out in painting the District School. JOHN STRACHAN, York, 3rd Feb., 1818."

As was to be expected, Dr. Strachan was a standing subject of invective in all the publications of Gourlay, as well as subsequently in all those of McKenzie. Collins, Editor of the *Freeman*, became, as we have seen, reticent in relation to him; but, more or less, a fusillade was maintained upon him, in McKenzie's periodicals, as long as they issued. In McKenzie's opposition to Dr. Strachan there was possibly a certain degree of national animus springing from the contemplation of a Scottish compatriot who, after rising to position in the young colony, was disposed, from temperament, to bear himself cavalierly towards all who did not agree with him in opinion. In addition, we have been told that at an early period in an interview between the two parties, Dr. Strachan once chanced to express himself with considerable heat to McKenzie, and proceeded to the length of shewing him the door. The latter had called, as our information runs, to deprecate prejudice in regard to a brother-in-law of his, Mr. Baxter, who was a candidate for some post under the Educational Board, of which Dr. S. was chairman; when great offence was taken at the idea being for a moment entertained that a personal motive would in the slightest degree bias him when in the execution of public duty. At a late period in the history of both the now memorable Scots-Canadians, we happened ourselves to be present at a scene in the course of which the two were brought curiously face to face with each other, once more, for a few moments. It will be remembered that after the subsidence of the political troubles and the union of Upper and Lower Canada, McKenzie came back and was returned member of Parliament for Haldimand. While he was in the occupancy of this post, it came to pass that Dr. Strachan, now Bishop of Toronto, had occasion to present a petition to the united House on the subject of the Clergy Reserves. To give greater weight and solemnity to the act he decided to attend in person at the bar of the House, at the head of his clergy, all in canonicals. McKenzie seeing the procession approaching, hurried into the House and took his seat; and contrived at the moment the Bishop and his retinue reached the bar to have possession of the floor. Affecting to put a question to the Speaker before the Order of the Day was proceeded with, he launched out with great volubility and in excited strain on the interruptions to which the House was exposed in its deliberations: he then quickly came round to an attack in particular on prelates and clergy for their meddling and turbulence, frequenting, as he averred, the lobbies of the Legislature when they should be employed on higher matters, filling with tumultuous mobs the halls and passages of the House, thronging (with an indignant glance in that direction) the very space below the bar set apart for the accommodation of peaceably disposed spectators. The House had only just assembled, and had not had time to settle down into perfect quiet: members were still dropping in, and it was a mystery to many, for a time, what could, at such an early stage of the day's proceedings, have excited the ire of the member for Haldimand. The courteous speaker, Mr. Scotte, was plainly taken aback at the sudden outburst of patriotic fervour; and, not being as familiar with the old Upper Canadian past as many old Upper Canadians present were, he could not enter into the pleasantry of the thing, for, after all, it was humorously and not maliciously intended. The orator in possession of the floor had his old antagonist at a momentary disadvantage, and he chose to compel him while

standing there conspicuously at the bar to listen for a while to a stream of *Colonial Advocate* in the purest vein. After speaking against time, with an immense shew of heat for a considerable while—a thing at which he was an adept—the scene was brought to a close by a general hubbub of impatience at the outrageous irrelevancy of the harangue arising throughout the House, and obliging the orator to take his seat. The petition of the Bishop was then in due form received, and he, with his numerous retinue of robed clergy, withdrew.

We now proceed with our memoranda of the early press. When Fothergill was deprived of his office of King's Printer in 1825, he published for a time a quarto paper of his own, entitled the *Palladium*, composed of scientific, literary, and general matter. Mr. Robert Stanton, King's Printer after Fothergill, issued on his own account for a few years, a newspaper called *The U. E. Loyalist*, the name, as we have seen, borne by the portion of the *Gazette* devoted to general intelligence while Mr Stanton was King's Printer. *The U. E. Loyalist* was a quarto sheet, well printed, with an engraved ornamental heading resembling that which surmounted the *New York Albion*. The *Loyalist* was conservative, as also was a local contemporary after 1831, the *Courier*, edited and printed by Mr. George Gurnett, subsequently Clerk of the Peace, and Police Magistrate for the City of Toronto. The *Christian Guardian*, a local religious paper which still survives, began in 1825. The *Patriot* appeared at York in 1833. It had previously been issued at Kingston; its whole title was "*The Patriot and Farmer's Monitor*," with the motto, "*Common Sense*," below. It was of the folio form, and its Editor, Mr. Thos. Dalton, was a writer of much force, liveliness and originality. The *Loyalist*, *Courier*, and *Patriot* were antagonists politically of the *Advocate* while the latter flourished; but, fighting on the side whose star throughout the civilized world was on the decline, they were unequal to the achievement of what they undertook to do.

Notwithstanding its conservatism, it was in the *Courier* that the memorable revolutionary sentiments appeared, so frequently quoted afterwards in the *Advocate* publications: "the minds of the well-affected begin to be unhunged; they already begin to cast about in their mind's eye for some new state of political existence, which shall effectually put the colony without the pale of British connexion;" words written under the irritation occasioned by the dismissal by the Crown of the Attorney and Solicitor General for Upper Canada in 1833. For a short time prior to 1837, McKenzie's paper assumed the name of *The Constitution*. A faithful portrait of McKenzie's will be seen at the beginning of the first volume of his "*Life and Times*," by Mr. Charles Lindsay, a work that will be carefully and profitably studied by future investigators in the field of Upper Canadian history. Excellent portraits of Mr. Gurnett and of Mr. Dalton are likewise extant in Toronto.

We have spoken once, we believe, of the *Canadian Freeman's* motto, "*Est natura hominum novitatis avida*;" and of the *Patriot's*, just above, "*Common Sense*." Fothergill's "*Weekly Register*" was headed by a brief cento from Shakspeare: "Our endeavour will be to stamp the very body of the time—its form and pressure—: we shall extenuate nothing, nor shall we set down aught in malice." Other early Canadian newspaper mottoes which pleased the boyish fancy years ago, and which may still be pleasantly read on the face of the same long-lived and yet flourishing publications, were the "*Mores et studia et populos et prœlia dicam*," of the *Quebec Mercury*, and the "*Animos novitate tenebo*" of the *Montreal Herald*. The *Mercury* and *Herald* likewise retain to this day their respective early devices: the former, Hermes, all proper as the heralds would say, descending from the sky, with the motto from Virgil, *Mores et Studia et Populos et Prælia dicam*. the latter the Genus of Fame, bearing in one hand the British crown, and sounding as she speeds through the air her trump, from which issues the above-cited motto. Over the editorial column the device is repeated, with the difference that the floating Genius here adds the authority for her quotation—OVID, *in la Dr. Pangloss*. Underneath the floating figure are many minute roses and shamrocks; but towering up to the right and left with a significant predominance, for the special gratification of Montrealers of the olden time, the thistle of Scotland. Besides these primitive mottoes and emblematic headings, the *Mercury* and *Herald* likewise retain, each of them, to this day a certain pleasant individuality of aspect in regard to type, form and arrangement, by which they are each instantly to be recognized. This adherence of periodicals to their native physiognomy is very interesting, and in fact advantageous, inspiring in readers a certain tenderness of regard. Does not the cover of *Blackwood*, for example, even the poor United States copy of it, sometimes awaken in the chaos of a public reading-room

table, a sense of affection, like a friend seen in the midst of a promiscuous crowd? The English Reviews too, as circulated among us from the United States, are conveniently recognized by their respective colours: although the English form of each has been, for cheapness sake, departed from. The *Montreal Gazette* likewise survives, preserving its ancient look in many respects, and its high character for dignity of style and ability.

In glancing back at the supply of intelligence and literature provided at an early day for the Canadian community it repeatedly occurs to us to name, as we have done, the *Albion* newspaper of New York. From this journal it was that almost every one in our Upper Canadian York who had the least tendency to read, derived a considerable portion of his or her acquaintance with the literature of the outside civilized world, as well as with the leading details of its prominent political events. As its name implies, the *Albion* was intended to meet the requirements of a large number of persons of English birth and of English descent, whose lot is cast on this continent, but who nevertheless cannot discharge from the core of their hearts their natural love for England, their natural pride in her unequalled civilization. "*Cælum non animam mutant qui trans mæres currunt,*" was its gracefully-chosen and appropriate motto. Half a century ago, the boon of a judicious literary journal like the *Albion* was to dwellers in Canada a very precious one. The Quarterlies were not then reprinted as now; nor were periodicals like the *Philadelphia Eclectic* or the *Boston Living Age* readily procurable. Without the weekly visit of the *Albion*, months upon months would have passed without any adequate knowledge being enjoyed of the current products of the literary world. For the sake of its extracted reviews, tales and poetry the *New York Albion* was in some cases, as we well remember, loaned about to friends and read like a much sought after book in a modern circulating library. And happily its contents were always sterling and worth the perusal. It was a part of our own boyish experience to become acquainted for the first time with a portion of Kahl's *Christian Year*, in the columns of that paper. The *Albion* was founded in 1822 by Dr. John Charlton Fisher, who afterwards became a distinguished Editor at Quebec. Tolson Dr. Bartlett succeeded. The *New York Albion* still flourishes under Mr. Cornwallis, retaining its high character for the superior excellence of its matter, retaining also many traits of its ancient outward aspect, in the style of its type, in the distribution of its matter. It has also retained its old motto. Its familiar vignette bearing of oak branches round the English rose, the thistle of Scotland, and the shamrock, has been thinned out, and otherwise slightly modified; but it remains a fine artistic composition, well executed.

There was another journal from New York much esteemed at York for the real respectability of its character, the *New York Spectator*. It was read for the sake of its commercial and general information, rather than for its literary news. To the minds of the young the Greek revolution had a singular fascination. We remember once entertaining the audacious idea of constructing a history of the struggle in Greece, of which the authorities would, in great measure, have been copious cuttings from the *New York Spectator* columns. One advantage of the embry design certainly was a familiarity acquired with the map of Hellas within and without the Peloponnese. Navarino, Modon, Coron, Tripolizza, Mistra, Missolonghi, with the incidents that had made each temporarily famous, were rendered as familiar to the mind's eye as Sparta, Athens, Thebes, Thermopylæ, and the events connected with each respectively, of an era two thousand years previously, afterwards from other circumstances, became. Colocotroni, Mavrocordato, Miaulis, were heroes to the imagination as fully as Miltiades, Pericles, Nicias, afterwards became.

Partly in consequence of the eagerness with which the columns of the *New York Spectator* used to be ransacked with a view to the composition of the proposed great historical work, we remember the peculiar interest with which we regarded that periodical at a later period, on falling in with him, casually, at the Falls of Niagara. Mr. Hall was then well advanced in years; and from a very brief interview, the impression received was, that he was the beau ideal of a veteran editor of the highest type; for a man, almost omniscient; unslumberingly observant; sympathetic, in some way, with every occurrence and every remark; tenacious of the past; grasping the present on all sides, with readiness, genial interest and completeness. In aspect, and even to some extent in costume, Mr. Hall might have been taken for an English bishop of the generation just passing away.



REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JANUARY, 1870

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

COMPARATIVE TABLE FOR JANUARY

YEAR	TEMPERATURE.				RAINY.				SNOW.				WIND.	
	Mean	Excess above average	Maxi- mum	Mini- mum	No of days	Inches	No of days	Inches	No of days	Inches	Direction	Resultant.	Mean Velocity	
1842	27.0	+ 4.8	48.4	9.0	37.5	6	2.176	0	...	0	...	...	0.78 the	
1843	28.7	+ 6.6	56.3	- 1.8	57.1	7	4.295	12	14.2	...	...	...	0.60	
1844	20.2	- 2.9	45.3	- 7.2	62.1	7	6.005	11	24.2	...	...	...	0.70	
1845	20.5	+ 3.4	40.7	- 0.5	45.6	6	1.111	0	...	...	...	...	0.58	
1846	20.7	+ 3.4	44.0	- 2.1	45.3	7	2.232	0	0.0	...	...	...	1.19	
1847	23.3	+ 6.2	42.4	- 2.7	39.7	7	2.133	5	7.5	...	...	...	6.82 miles	
1848	28.7	+ 6.6	51.1	- 11.4	62.6	7	2.243	8	7.1	...	...	...	2.63	
1849	18.1	- 4.6	39.5	- 14.2	53.7	4	1.171	10	9.2	...	...	...	2.08	
1850	20.7	+ 6.6	46.4	- 0.6	36.6	5	1.256	8	6.2	...	...	...	0.71	
1851	25.5	+ 2.4	43.4	- 12.8	56.5	4	1.272	10	7.8	...	...	...	5.86	
1852	18.3	- 4.7	37.3	- 10.6	47.9	0	0.000	10	30.0	...	...	...	7.17	
1853	23.6	+ 0.6	46.4	- 9.1	50.6	1	0.294	6	7.5	...	...	...	2.52	
1854	25.0	+ 2.8	49.0	- 5.3	54.4	1	1.270	11	7.5	...	...	...	6.31	
1855	16.0	- 7.1	34.4	- 12.6	46.4	6	0.525	13	23.3	...	...	...	2.41	
1856	12.8	- 10.3	37.2	- 20.1	57.3	3	1.111	14	3.6	...	...	...	7.21	
1857	30.0	+ 6.9	47.4	- 6.5	40.9	3	1.152	11	21.8	...	...	...	6.24	
1858	26.3	+ 3.3	43.2	- 26.5	69.1	6	1.444	19	10.4	...	...	...	4.46	
1859	23.4	+ 0.3	46.4	- 6.8	63.2	4	0.746	10	8.7	...	...	...	3.17	
1860	19.3	- 3.2	37.0	- 11.2	48.2	4	0.683	23	20.5	...	...	...	6.06	
1861	21.7	+ 1.4	44.6	- 2.6	47.1	5	3.115	19	27.4	...	...	...	2.92	
1862	25.1	+ 5.0	47.0	- 14.0	61.6	10	1.122	17	20.6	...	...	...	8.53	
1863	24.8	+ 0.3	41.2	- 9.0	53.3	5	1.163	14	26.3	...	...	...	7.23	
1864	17.7	- 5.4	37.2	- 9.0	46.7	1	0.441	18	14.8	...	...	...	6.00	
1865	20.7	+ 2.4	44.0	- 14.6	58.6	1	0.521	19	10.3	...	...	...	4.80	
1866	17.6	- 5.6	43.8	- 4.8	46.0	2	1.111	21	42.0	...	...	...	2.98	
1868	19.0	- 4.1	39.0	- 7.0	46.0	1	1.111	21	42.0	...	...	...	6.06	
1869	27.7	+ 4.6	45.0	- 1.0	46.0	4	0.581	12	9.8	...	...	...	3.07	
1870	21.4	+ 1.3	43.0	- 5.2	48.2	8	3.412	18	21.3	...	...	...	3.40	
Resultant to 1869	23.10	...	43.80	- 7.07	50.34	4.37	1.163	13.53	5.77	...	...	...	3.07	
Excess for 70	1.35	...	+ 1.20	3.84	2.64	3.63	2.21	4.47	5.53	...	...	...	0.79	

Highest Barometer ..... 30.212 at 10 a.m. on 14th } Monthly range= 2.016 inches.  
 Lowest Barometer ..... 28.166 at 9:30 p.m. on 24 }  
 Maximum Temperature ..... 48.0 on 17th } Monthly range= 48.0  
 Minimum Temperature ..... -3.2 on 9th }  
 Mean Maximum Temperature ..... 32.16 } Mean daily range= 14.97  
 Mean Minimum Temperature ..... 17.938 }  
 Greatest daily range ..... 36.2 from a.m. of 14th to a.m. of 15th.  
 Least daily range ..... 2.8 from a.m. to p.m. of 21st.  
 Warmest Day ..... 16th ..... 36.905 } Difference= 29.42  
 Coldest Day ..... 13th ..... Mean Temperature ..... 6.63 }  
 Radiation { Solar ..... 64.0% on 27th } Monthly range= 66.0  
 { Terrestrial ..... 11.0% on 9th }  
 Aurora observed on 4 nights viz., 4th, 8th, 27th and 28th.  
 Possible to see Aurora on 10 nights; impossible on 18 nights.  
 Snowing on 18 days; depth 21.3 inches; duration of fall 112.0 hours.  
 Hailing on 8 days; depth 3.412 inches; duration of fall 80.7 hours.  
 Mean of Cloudiness=0.77.

WIND.

Resultant Direction S. 89° W.; Resultant Velocity 2.63.  
 Mean Velocity 8.95 miles per hour.  
 Maximum Velocity 29.0 miles, from 7 to 8 p.m. of 17th.  
 Most Windy day 2d; Mean Velocity 18.40 miles per hour.  
 Least Windy day 20th; Mean Velocity 2.90 miles per hour.  
 Most Windy hour 10 p.m.; Mean Velocity 11.42 miles per hour.  
 Least Windy hour 6 a.m.; Mean Velocity 6.01 miles per hour.

Solar haloes on 16th and 28th, Lunar haloes on 8th, 13th, 19th, 20th and 21st.  
 Fog on 11th, 17th and 19th.  
 2nd January.—Very great diminution of atmospheric pressure, accompanied by a heavy storm of wind from the E., with rain and snow. Although the wind had veered to W.N.W. and the lateral velocity considerably decreased, the barometer did not indicate the lowest pressure till 9.30 p.m., when it read 28.165, a change of 1.583 inches from 8 a.m. of previous day, and the lowest pressure recorded at Toronto.  
 The record of the wind is incomplete for this month, the anemometer being under repair from the 18th to the 26th

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, — FEBRUARY, 1870  
 Latitude—43° 39' 4 North. Longitude—5h. 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom at temp. of 32°.			Temp. of the Air.			Excess of Mean above Normal			Tension of Vapour			Humidity of Air			Direction of Wind.			Velocity of Wind.			Rain in inches	Snow in inches		
	Mean			10 P.M.			10 P.M.			10 P.M.			10 P.M.			A.M.			A.M.						
	0 A.M.	2 P.M.	10 P.M.	0 A.M.	2 P.M.	10 P.M.	0	2	10	0	2	10	0 A.M.	2 P.M.	10 P.M.	0 A.M.	2 P.M.	10 P.M.	0 A.M.	2 P.M.	10 P.M.			0 A.M.	2 P.M.
1	29.657	29.695	29.674	29.645	29.674	29.655	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	2.5
2	29.490	29.480	29.490	29.490	29.490	29.490	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	2.0
3	29.847	29.804	29.815	29.804	29.815	29.804	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.2
4	29.167	29.055	29.047	29.047	29.055	29.047	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.6
5	29.882	29.828	29.827	29.828	29.827	29.828	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	...
6	29.833	29.763	29.761	29.761	29.763	29.761	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	...
7	29.640	29.587	29.585	29.587	29.585	29.587	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	...
8	29.311	29.190	29.200	29.190	29.211	29.200	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	...
9	29.403	29.352	29.352	29.352	29.403	29.352	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.2
10	29.063	29.008	29.008	29.008	29.063	29.008	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
11	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
12	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
13	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
14	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
15	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
16	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
17	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
18	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
19	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
20	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
21	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
22	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
23	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
24	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
25	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
26	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
27	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
28	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
29	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
30	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1
31	29.013	28.951	28.951	28.951	29.013	28.951	0.0	0.0	0.0	103.059	103.059	82	61	78	73	W	W	W	10	10	10	0.0	0.0	0.0	0.1



REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR FEBRUARY, 1870

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

Highest Barometer..... 30.175 at 8 a. m. on 4th. } Monthly range=  
 Lowest Barometer..... 28.900 at 4 p. m. on 17th. } 1.275 inches.  
 Maximum temperature..... 40° on 17th. } Monthly range=  
 Minimum temperature..... -6° on 21st. } 47° 2'  
 Mean maximum temperature..... 28.902 } Mean daily range=  
 Mean minimum temperature..... 14° 74' } 13° 28'  
 Greatest daily range..... 35° 2' from a. m. to p. m. of 25th.  
 Least daily range..... 3° 6' from a. m. to p. m. of 20th.  
 Warmest day..... 17th; mean temperature..... 31° 93' } Difference=31° 91'.  
 Coldest day..... 21st; mean temperature..... 2° 92' }  
 Maximum of Solar..... 66° on 6th. } Monthly range=  
 Radiation (Terrestrial)..... -16° on 21st. } 72° 7'.  
 Aurora observed on 1 morning, viz., -12th.  
 Possible to see Aurora on 10 nights, impossible on 18 nights.  
 Snowing on 18 days; depth 20.1 inches; duration of fall, 90.3 hours.  
 Raining on 2 days; depth, 0.529 inches; duration of fall, 9.7 hours.  
 Mean of cloudiness=0.73.

WIND.

Resultant direction, N. 23° W.; resultant velocity, 2.84.  
 Mean velocity, 8.10 miles per hour.  
 Maximum velocity, 32.7 miles, from 7 to 8 a. m. of 27th.  
 Most windy day, 12th; mean velocity, 20.92 miles per hour.  
 Least windy day, 6th; mean velocity, 0.55 miles per hour.  
 Most windy hour, 1 p. m.; mean velocity, 11.09 miles per hour.  
 Least windy hour, 10 p. m.; mean velocity, 4.57 miles per hour.

Solar halos on 3rd, 4th, 7th, 12th, 19th, 21st and 26th  
 being very brilliant and accompanied by muck ams.  
 Lunar halos on 5th, 7th and 16th.  
 Fog on 6th, 7th, 14th, and 17th.  
 12th. 5.50 a. m., brilliant auroral display, accompanied by a considerable magnetic disturbance

COMPARATIVE TABLE FOR FEBRUARY

YEAR	TEMPERATURE.			Range	RAINY		SNOW.		WIND.	
	Mean.	Excess above Average	Maxi. mini.		No of days	Inches	No of days	Inches.		Resultant Direc. Ve. lity.
1842	26.0	+ 3.0	50.2	17.3	8	5.622	0	...	...	1.03 lbs.
1843	14.5	- 8.5	38.6	47.0	1	0.475	21	14.4	...	1.08
1844	26.0	+ 3.0	47.9	0.6	4	0.434	9	10.0	...	0.93
1845	26.0	+ 3.0	49.1	4.2	6	0.499	5	19.0	...	0.99
1846	20.4	- 1.5	41.9	16.1	5	0.965	13	16.1	...	0.65
1847	21.5	- 2.0	40.9	40.9	2	0.550	15	7.3	...	0.69
1848	26.6	+ 3.5	46.6	0.0	4	0.774	8	10.5	N 63 W 2.63	6.66 ms
1849	19.6	- 3.5	40.6	9.8	4	0.226	13	19.2	N 41 W 1.45	6.58
1850	20.0	+ 3.0	40.6	2.2	7	1.225	0	23.1	N 50 W 1.83	7.61
1851	27.6	+ 4.0	50.2	46.2	1	2.608	4	2.4	N 64 W 1.58	6.94
1852	23.4	+ 0.4	41.2	6.2	4	0.657	11	13.0	S 75 W 1.31	6.42
1853	24.1	+ 1.1	43.1	1.9	4	1.031	15	12.0	S 49 W 2.51	7.20
1854	21.1	- 1.9	42.8	10.8	5	1.470	15	18.0	N 7 1.73	6.91
1855	15.4	- 7.6	39.0	25.4	2	1.771	14	21.8	N 40 W 1.54	8.17
1856	15.7	- 7.3	37.8	18.7	8	0.074	0	9.7	N 61 W 1.71	10.71
1857	28.5	+ 5.5	52.4	6.9	11	3.084	1	11.7	N 45 W 1.63	9.52
1858	17.0	- 6.0	42.4	7.3	1	0.467	16	25.7	N 72 W 1.22	9.12
1859	20.0	+ 3.0	46.2	2.1	6	0.467	14	8.3	N 64 W 2.72	8.50
1860	21.8	+ 3.1	46.0	8.1	6	0.537	13	18.8	N 61 W 3.28	8.73
1861	23.1	+ 3.1	46.0	29.8	7	0.511	17	29.7	N 77 W 3.83	10.58
1862	22.5	- 0.5	37.8	5.2	4	0.181	17	23.1	N 55 W 1.93	8.52
1863	22.4	- 0.6	41.5	19.4	3	1.454	12	22.0	N 23 W 2.27	10.13
1864	24.3	+ 1.3	45.0	15.0	2	0.357	14	9.5	N 64 W 3.46	10.11
1865	22.4	- 0.6	42.2	10.6	3	0.871	11	16.8	N 23 W 1.91	8.23
1866	22.5	+ 5.0	45.0	8.0	3	0.836	12	16.9	S 60 W 5.14	9.40
1867	28.0	+ 5.9	44.0	0.2	8	1.328	13	13.4	N 57 W 1.58	8.85
1868	17.2	- 5.8	45.0	11.5	8	1.031	16	32.8	N 69 W 1.23	10.84
1869	23.6	+ 2.0	46.0	1	2	0.161	10	39.7	N 34 W 4.18	10.04
1870	21.5	+ 1.5	40.6	6	2	0.524	18	20.1	N 29 W 2.84	8.10
Excess to 1850	23.0	....	41.59	-7.21	4	10.093	12.20	19.14	N 67 W 1.11	8.60
Excess to 1870	-1.48	....	-3.09	+0.61	-4	2.163	4.41	6.70	...	0.50

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETIC OBSERVATORY, TORONTO, ONTARIO, — MARCH, 1873.  
 Latitude—43° 39.4 North Longitude—80° 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Excess of Mean above Normal			Tension of Vapour			Humidity of A. r.			Direction of Wind			Result	Velocity of Wind.			Rain in Inches	Snow in Inches				
	O. A. M.	2 P. M.	10 P. M.	O. A. M.	2 P. M.	10 P. M.	O. A. M.	2 P. M.	10 P. M.	O. A. M.	2 P. M.	10 P. M.	O. A. M.	2 P. M.	10 P. M.	O. A. M.	2 P. M.	10 P. M.		A. M.	P. M.	H. P. M.			Ho. eult.	M. I. X.		
1	333	29.300	29.421	29.360	23.0	29.8	19.0	22.67	2.90	106.133	0.75	103	86	85	85	Cal. m.	W. S. W.	W. S. W.	N. W. S. W.	N. W. S. W.	N. W. S. W.	N. W. S. W.	16.8	9	25.10.92	0.2		
2	523	29.627	29.749	29.682	14.0	17.2	11.4	11.12	-11.68	97.1068	0.62	106	87	82	81	W. S. W.	W. S. W.	W. S. W.	W. S. W.	W. S. W.	W. S. W.	W. S. W.	10.8	17.4	8.0	12.27	12.87	inap.
3	593	29.965	29.896	29.822	6.8	20.1	12.0	14.15	-11.87	95.1050	0.63	106	86	83	83	W. S. W.	W. S. W.	W. S. W.	W. S. W.	W. S. W.	W. S. W.	W. S. W.	8.0	3.0	2.0	3.20	4.41	0.3
4	724	29.504	29.683	29.612	20.6	24.1	21.5	22.93	-0.32	98.1120	1.04	106	77	93	90	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	4.8	12.0	4.8	2.17	8.31	0.3
5	764	29.774	29.810	29.784	21.2	30.6	25.0	25.78	-0.73	105.1231	1.26	116	93	84	84	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	4.0	22.0	4.0	2.22	4.09	inap.
6	711	29.611	29.641	29.611	23.1	30.1	25.1	25.38	-1.62	106.1331	1.16	115	90	86	84	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	4.2	15.0	4.2	1.11	7.12	2.5
7	376	29.418	29.510	29.442	21.9	28.4	23.0	23.38	-1.62	106.1331	1.16	115	90	86	84	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	4.2	15.0	4.2	1.11	7.12	2.5
8	551	29.617	29.639	29.600	21.3	28.0	23.0	23.18	-5.82	104.1171	0.76	98	90	76	83	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	3.8	12.0	3.8	1.0	6.80	0.0
9	725	29.680	29.710	29.672	11.8	29.8	21.1	22.65	-5.00	105.1096	1.10	103	86	84	77	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	2.0	14.0	2.0	1.0	6.80	0.0
10	647	29.555	29.721	29.630	27.7	37.0	32.0	32.97	-5.90	141.1000	0.67	106	94	68	88	Cal. m.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	7.6	11.0	7.6	1.0	8.44	1.0
11	697	29.680	29.669	29.610	10.4	15.0	12.0	12.77	-15.37	95.1081	0.65	105	80	91	86	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	7.6	11.0	7.6	1.0	8.44	1.0
12	310	29.300	29.338	29.343	11.4	16.9	12.0	12.97	-11.00	92.0831	0.69	98	85	90	82	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	13.2	14.5	13.2	1.0	10.25	0.0
13	099	29.099	29.111	29.099	23.5	32.0	25.0	25.76	-1.18	118	118	110	69	86	86	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	20.6	10.0	20.6	1.0	10.25	0.0
14	641	29.705	29.759	29.702	23.5	32.0	19.1	25.76	-3.33	125.0929	0.53	106	91	54	78	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	13.2	14.5	13.2	1.0	10.25	0.0
15	713	29.357	29.372	29.357	17.6	31.3	27.0	27.98	-1.43	108.1144	1.06	136	85	81	70	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	9.8	6.0	9.8	1.0	7.50	9.0
16	637	29.125	29.112	29.112	14.7	17.6	18.3	17.63	-12.12	97.8088	0.87	107	93	82	87	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	9.8	6.0	9.8	1.0	7.50	9.0
17	103	29.248	29.248	29.248	22.4	35.1	33.8	32.65	+2.57	113.117	1.15	135	94	67	80	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	N. E.	6.2	29.0	6.2	1.0	8.44	10.0
18	803	29.763	29.763	29.763	24.1	31.2	23.3	32.40	+4.00	109.0881	0.80	103	77	44	64	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	6.0	3.0	6.0	1.0	14.04	10.0
19	841	29.760	29.760	29.760	15.6	34.2	32.4	32.40	+2.17	104.1165	1.10	110	69	65	63	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
20	421	29.421	29.421	29.421	38.1	38.1	38.1	38.1	-1.19	119	119	119	69	65	63	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
21	246	29.376	29.376	29.376	41.2	36.7	36.7	36.38	+4.62	206.1591	1.60	153	94	77	84	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
22	504	29.635	29.635	29.635	33.1	34.9	27.3	31.17	-0.07	107.1339	1.26	142	88	68	84	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
23	814	29.958	29.958	29.958	23.0	24.0	24.0	24.25	-5.07	106.0031	0.91	103	86	64	67	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
24	105	29.113	29.113	29.113	24.8	36.3	28.0	32.33	-3.31	104.1061	0.78	108	70	49	66	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
25	147	29.012	29.012	29.012	30.9	27.3	28.7	25.97	-6.97	97.1087	1.60	144	64	50	72	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
26	29	29.898	29.898	29.898	20.7	33.4	33.4	33.63	-0.70	126.1331	1.50	107	54	70	78	Cal. m.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
27	266	29.266	29.266	29.266	27.0	31.3	31.3	31.3	-1.15	115	115	115	69	65	63	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
28	174	29.267	29.267	29.267	43.0	32.7	33.1	36.05	+1.62	165.1791	1.80	174	88	77	82	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
29	610	29.683	29.683	29.683	35.8	41.4	32.4	40.35	+1.92	159.1781	1.64	174	92	67	81	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
30	810	29.787	29.787	29.787	33.1	36.7	36.7	36.33	+1.62	173.1881	1.68	188	85	76	80	Cal. m.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
31	704	29.800	29.800	29.800	33.1	41.4	40.3	39.70	+1.62	159.1781	1.64	174	85	82	86	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5
20	620	29.620	29.620	29.620	27.0	30.68	25.26	26.27	-3.70	111.1211	1.15	116	85	71	81	Cal. m.	N. W.	N. W.	N. W.	N. W.	N. W.	N. W.	17.0	4.2	17.0	1.0	14.04	1.5

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MARCH, 1870  
COMPARATIVE TABLE FOR MARCH

YEAR	TEMPERATURE.			RAIN.		SNOW.		WIND.	
	Mean	Excess above average	Range	No of days	Inches	No of days	Inches	Resultant Direction	Mean Velocity
1842	35.8	0	15 1/2 to 55.3	4	3.166	8	2.5	0	0.70 lbs
1843	31.3	8.3	2.5 to 39.9	2	0.625	18	2.5	0	1.18
1844	31.3	1.1	9.6 to 41.2	6	2.476	18	14.0	0	0.57
1845	35.4	5.8	6.6 to 69.1	6	1.963	5	2.8	0	0.66
1846	33.1	3.4	8.3 to 41.3	5	0.850	6	2.3	0	0.30
1847	29.2	3.4	0 to 38.3	5	1.237	6	4.2	0	0.11
1848	33.5	3.9	0 to 53.0	7	1.625	6	0.7	N 60 W	2.03
1849	30.8	2.2	7.2 to 39.3	2	0.745	2	2.3	N 3 W	1.43
1850	32.4	2.5	12.0 to 47.3	2	0.770	0	8.8	N 21 W	2.62
1851	30.6	1.0	0 to 56.3	8	3.080	12	19.3	N 8 W	1.93
1852	30.7	1.1	7.4 to 47.1	9	2.427	3	7.1	N 59 W	0.71
1853	30.7	1.1	7.4 to 47.1	9	2.427	3	7.1	N 59 W	2.00
1854	28.5	1.1	14.0 to 41.4	5	1.485	8	2.8	N 53 W	3.39
1855	28.5	1.1	14.0 to 41.4	5	1.485	11	18.1	N 53 W	4.76
1856	28.5	1.1	14.0 to 41.4	5	1.485	11	18.1	N 53 W	7.65
1857	27.8	1.5	5.5 to 63.1	4	0.335	15	11.3	N 63 W	6.62
1858	28.4	1.9	5.6 to 60.9	10	0.917	6	0.2	N 58 W	6.43
1859	30.3	1.7	9.8 to 44.4	15	0.852	11	2.4	N 64 W	1.96
1860	34.5	4.9	12.8 to 54.2	6	2.136	14	18.9	N 61 W	7.01
1861	26.9	2.7	8.2 to 52.6	8	2.564	11	18.3	N 54 W	4.33
1862	28.8	0.8	8.0 to 35.5	8	2.564	11	18.3	N 54 W	2.50
1863	23.9	3.5	3.0 to 46.2	4	0.687	7	11.4	N 27 W	2.62
1864	25.1	4.0	3.0 to 47.2	9	1.629	12	3.7	N 53 W	2.29
1865	33.6	4.0	7.6 to 59.1	10	3.056	12	18.9	N 61 W	6.84
1866	27.6	3.0	4.8 to 43.8	6	0.617	14	33.4	N 34 W	2.12
1867	31.3	1.7	6.0 to 49.8	7	2.669	5	4.2	N 52 W	2.12
1868	23.1	6.5	4.0 to 52.2	3	0.985	6	15.0	N 21 W	2.86
1869	26.3	3.3	5.2 to 38.6	2	0.765	18	62.4	N 18 E	4.73
1870	29.63	...	2.13 to 49.76	6.27	1.007	0.67	10.33	N 66 W	3.29
Excess over '70	3.36	7.80	3.07 to 10.96	4.27	0.852	8.23	52.01	...	1.38

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

Highest Barometer..... 30.174 at 8 a.m. on 25th. } Monthly range= 1.293.  
 Lowest Barometer..... 28.861 at 8 a.m. on 13th. }  
 Maximum Temperature..... 44° on 29th & 31st. } Monthly range= 38.8°.  
 Minimum Temperature..... 5° 52 on 3rd. }  
 Mean Maximum Temperature..... 32.97. } Mean daily range= 12° 51.  
 Mean Minimum Temperature..... 29° 46 }  
 Greatest daily range..... 29° 46 from a.m. to p.m. of 10th }  
 Least daily range..... 4° from a.m. to p.m. of 22nd. }  
 Warmest day..... 31st. Mean Temperature..... 39° 70. } Difference= 26° 93.  
 Coldest day..... 11th. Mean Temperature..... 12° 77. }  
 Maximum { Solar..... 68° 0 on 29th. } Monthly range= 7° 54.  
 Radiation { Terrestrial..... 4° 24 on 3rd. }  
 Aurora observed on 6 nights, viz.: 1st, 2nd, 8th, 23rd, 24th and 30th  
 Possible to see Aurora on 12 nights; impossible on 10 nights  
 Snowing on 18 days; depth 62.4 inches; duration of fall 141.6 hours  
 Raining on 2 days; depth 0.755 inches, duration of fall 16.2 hours.  
 Mean of Cloudiness=0.68

WIND.  
 Resultant Direction N. 18° E.; Resultant Velocity 4.73.  
 Mean Velocity 10 1/2 miles per hour.  
 Maximum Velocity 28.5 miles, from 1 to 2 p.m. of 23rd  
 Most Windy day 29th; Mean Velocity 19.55 miles per hour.  
 Least Windy day 20th; Mean Velocity 1.91 miles per hour.  
 Most Windy hour 3 p.m.; Mean Velocity 12.15 miles per hour.  
 Least Windy hour 11 p.m.; Mean Velocity 8.60 miles per hour.

Solar haloes on the 5th, 8th, 14th, 15th, 19th, 20th and 25th.  
 Lunar haloes on the 9th and 10th. March 13th. crowds noisy.  
 23th. Robins numerous, these birds have been more or less numerous all winter in the neighbourhood.

The amount of snow will be seen from the comparative table, to have been unproductive. The amount for the winter, 1869-70, is the least on record, 123.4 being nearly double the average fall, 65.3.



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

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations, 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..... 20.056 at 10 p. m. on 25th } Monthly range= 0.683  
 Lowest Barometer..... 20.273 at 2 & 4 p. m. on 18th. }  
 (Maximum temperature..... 67.0 on 14th } Monthly range= 37.4  
 (Minimum temperature..... 29.0 on 8th. }  
 Mean maximum temperature..... 53.91 } Mean daily range= 17.01  
 Mean minimum temperature..... 39.60 }  
 Greatest daily range..... 20.8 from a.m. to p.m. of 26th.  
 (Least daily range..... 7.0 from a.m. to p.m. of 6th.  
 Warmest day..... 14th; mean temperature 63.83 } Difference=17.03  
 Coldest day..... 4th; mean temperature 38.90 }  
 Maximum { Solar..... 84.0 on 14th } Monthly range= 65.0  
 Radiation { Terrestrial..... 10.0 on 8th }  
 Aurora observed on 11 nights, viz.: 1st, 2nd, 6th, 7th, 8th, 12th, 21st, 22nd, 25th, 26th & 29th.  
 Possible to see aurora on 18 nights; impossible on 12 nights.  
 Snowing on 2 days; depth, 0.1 inches; duration of fall, 3.2 hours.  
 Raining on 9 days; depth, 2.145 inches; duration of fall, 68.3 hours  
 Mean of cloudiness=0.56.

WIND.

Resultant direction, N. 34° E.; Resultant velocity, 4.18.  
 Mean velocity, 7.03 miles per hour.  
 Maximum velocity, 30.0 miles, from 7 to 8 a.m. of 23th.  
 Most windy day, 17th; mean velocity, 17.24 miles per hour.  
 Least windy day, 23rd; mean velocity, 1.01 miles per hour.  
 Most windy hour, 10 a.m.; mean velocity, 9.63 miles per hour.  
 Least windy hour, 8 p.m.; mean velocity, 5.04 miles per hour.  
 Solar balcoes recorded on 4th, 10th, 11th, 13th, 14th, 22nd, and 30th.  
 Lunar balcoes on 10th.  
 Fog recorded on 14th, 19th, and 20th.  
 First thunder storm of year on 13th.  
 24th. Thunder storm at 7 p m  
 10th. Woodpeckers numerous.  
 22nd Swallows seen.

YEAR.	TEMPERATURE.			RAIN.		SNOW.		WIND.			
	Mean	Excess above Average	Maximum	Minut num	Range	No. of days	Inches	No. of days	Inches	Direction.	Mean Velocity.
1842	43.7	+ 2.1	69.8	26.1	0	8	3.746	2	0.1	0	0.57 lbs
1843	40.9	+ 0.1	71.6	14.7	56.9	7	3.182	3	0.1	...	0.48
1844	47.6	+ 6.5	74.6	14.9	59.7	10	4.516	4	Imp	...	0.24
1845	42.1	+ 1.1	66.7	15.5	61.2	11	3.226	4	1.5	...	1.00
1846	44.0	+ 3.0	81.8	24.2	67.0	10	1.896	2	1.3	...	0.65
1847	39.2	+ 1.8	65.1	9.3	65.8	8	2.876	2	4.0	...	0.59
1848	41.3	+ 0.3	65.1	22.7	42.1	5	1.451	1	0.5	N 77 W	1.46
1849	39.0	+ 2.0	72.0	16.5	69.5	10	2.652	2	1.7	N 43 W	3.14
1850	37.9	+ 3.1	65.7	18.0	47.7	7	4.726	2	1.1	N 29 W	1.12
1851	41.3	+ 0.3	59.3	25.0	33.6	11	2.255	3	1.2	N 14 W	2.52
1852	38.2	+ 2.8	53.8	29.0	33.8	6	1.996	4	9.4	N 23 E	2.44
1853	41.9	+ 0.9	66.7	5.0	40.7	10	2.622	1	1.0	N 12 W	1.95
1854	41.0	+ 0.0	64.5	20.2	41.3	12	2.685	4	2.7	N 50 W	2.57
1855	42.4	+ 1.4	60.4	10.7	53.7	12	2.034	3	1.6	N 36 W	3.69
1856	42.3	+ 1.3	72.2	14.2	53.0	13	2.784	3	0.1	N 29 W	1.64
1857	33.4	+ 5.6	52.0	5.9	46.1	10	1.755	11	12.9	N 60 W	4.15
1858	41.5	+ 0.5	65.2	21.8	43.4	13	1.642	2	0.1	N 14 W	1.64
1859	39.5	+ 1.5	61.8	22.6	42.2	9	2.547	8	1.2	N 36 W	2.33
1860	39.5	+ 1.5	61.8	19.6	42.3	11	1.282	5	0.3	N 37 W	4.10
1861	42.0	+ 1.0	67.0	23.8	43.2	12	1.611	4	0.9	N 37 E	2.31
1862	39.0	+ 1.4	63.0	14.5	53.5	10	2.553	4	0.2	N 30 E	2.48
1863	42.0	+ 1.0	69.0	8.6	60.4	8	2.210	4	1.6	N 14 E	3.73
1864	40.9	+ 0.1	59.4	28.1	31.3	16	3.633	3	2.5	N 41 E	3.39
1865	43.1	+ 2.1	62.5	23.0	39.5	17	3.972	6	2.0	N 64 W	2.11
1866	43.0	+ 2.9	73.0	28.5	42.5	7	1.676	2	Imp	N 42 W	3.34
1867	39.5	+ 1.5	65.5	25.4	40.1	12	2.147	6	7.3	N 31 W	2.68
1868	38.0	+ 3.0	64.0	9.2	64.8	7	0.940	10	5.3	N 63 W	2.43
1869	40.1	+ 0.9	72.2	16.0	55.0	9	2.963	6	0.6	N 39 W	4.03
1870	44.0	+ 3.6	67.0	29.6	31.4	9	2.141	2	0.1	N 34 E	1.13
Results to 1869	40.2t	.....	67.13	18.52	48.61	9.80	2.418	3.75	2.61	N 21 W	2.07
for 1870	+ 3.62	.....	6.13	11.05	11.21	0.80	0.274	1.73	2.41	.....	1.12

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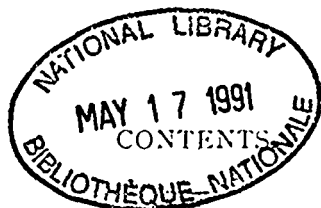
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