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# THE CANADIAN JOURNAL.

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## ANCIENT CARVED STONE,

FOUND AT CHESTERHOLM, NORTHUMBERLAND, ENGLAND.

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BY THE REV. JOHN McCAUL, LL.D.,  
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IN the Gentleman's Magazine for 1833, p. 597, a stone, which is placed in the wall of the farm-house of Low Foggerish, about half-a-mile south of Chesterholm, is figured, and the following remarks are given by Mr. Urban's correspondent V. W.—Rev. John Hodgson:—

Here we have the umbilicated *moon* in her state of opposition to the sun, and the sign of fruitfulness. She was also, in the doctrines of Sabæism, the northern gate, by which Mercury conducted souls to birth, as mentioned by Homer in his description of the Cave of the Nymphs, and upon which there remains a commentary by Porphyry. Of this cave Homer says :

Fountains it had eternal, and two gates,  
The northern one to men admittance gives ;  
That to the south is more divine—a way  
Untrod by men—'t' Immortals only known.

The *Cross*, in gentile rites, was the symbol of reproduction and resurrection. It was, as Shaw remarks, "the same with the ineffable image of eternity that is taken notice of by Suidas." The *crescent* was the lunar ship or ark that bore, in Mr. Faber's language, the Great Father and the Great Mother over the waters of the deluge; and it was also the emblem of the boat or ship which took aspirants over the lakes or arms of the sea to the Sacred Islands, to which they resorted for initiation into the mysteries; and over the river of death to the man-

sions of Elysium. The *Cockatrice* was the snake god. It was also the basilisk or cock adder. "Habet caudem ut coluber, residuum vero corpus ut gallus." The Egyptians considered the basilisk as the emblem of eternal ages: "quia vero videtur ζωής κυρίειν και θανάτου, ex auro conformatum capitibus decorum appingebant Ægyptii." What relation had this with the Nehustan or Brazen Serpent, to which the Israelites paid divine honours in the time of Hezekiah? What is the circle with the seasons at the equinoxes and solstices marked upon it?—the signs of the four great Pagan festivals, celebrated at the commencement of each of these seasons? The corner of the stone, which is broken off, probably contained some symbol. I am not hierophant enough to unriddle and explain the hidden tale of this combination of hieroglyphics.

In the *Lapidarium Septentrionale*, n. 270, a very superior wood-cut of this stone (copied in the prefixed lithograph) is given, and Dr. Bruce offers the following observations:—

The carvings on this stone are probably <sup>1</sup>Mithraic emblems. It were a vain task to attempt to unveil the enigma concealed under each. Probably the original upholders of these ancient mysteries could not themselves give an intelligible account of them.

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<sup>1</sup> Many memorials of the worship of Mithras have been found in Britain, and some of them are symbolical. In the *Lapidarium Septentrionale*, n. 150, a scene of this class is represented. A lion stands over a human figure lying down, with one paw raised to the head of the figure, and at the side is another human figure seated, with apparently a flag in one hand and a wand in the other. Mr. Hodgson regards the seated figure as representing Mithras, and adds—"I would hazard a conjecture that the whole relates to the Mithraic rites called *Leontica*." This conjecture is certainly well founded, for this scene of a lion standing over a human figure lying down is often represented on Mithraic stones. See Mr. King's *Gnostics*, Plate ii. 1, and xi. 4. The term *Leo* was the designation of a person admitted to the fourth step among Mithraists, and part of the ceremonial of initiation was for the neophyte to simulate death.

The seated figure I take to be a representation of the officer under whose supervision the candidates for the fourth step passed through the preliminary rites, and I identify him with the *pater leonum*, or, it may be, *pater patrum* or *pater sacrorum*, under whom *prosedente* the ceremonial took place. See Henzen, nn. 5846, 6038, 6042a, 6042b. Part of a similar figure seems to be on a fragment figured n. 68, *Lapidarium Septentrionale*. The *pater patrum* may be regarded as=Grand Master or his Deputy, *pater leonum*=Master of the Lion Lodge, and *pater sacrorum*=Chaplain. In n. 65 of the same work, an altar is figured, bearing an inscription, DEO, "To the God." Dr. Bruce properly refers it to Mithras, but has not noticed that the palm-branch on each side, with the wreath or crown in which the letters DEO are cut, are symbols of INVICTO, a term frequently applied to this God. We have also an example of the single word INVICTO, "To the unconquered one"—denoting Mithras. See Henzen, n. 5846.

Mr. Hodgson's and Dr. Bruce's belief of the Mithraic character of the carvings on the Chesholm stone may have been chiefly derived from the presence of the objects on it identified with the sun and moon, as representations of them are often found in Mithraic scenes. Nor would the introduction of the cross be inconsistent, as there can be no doubt that occasionally Christianity and Mithraism were mixed. See Mr. King's *Gnostics*, p. 48, and my *Christian Epitaphs*, p. 57.

The learned editor then cites the principal parts of Mr. Hodgson's remarks, as given above. On comparing the two representations of the carvings on the stone, it appears that the twisted snake-like form of the tail of the bird, as given in the sketch supplied by Mr. Hodgson, is not observable in Dr. Bruce's wood-cut. Nor can there be, in my judgment, any reasonable doubt that the bird<sup>2</sup> was intended to represent a cock. As to the circular object in the right hand angle, with intersecting lines, it seems to me to be nothing more than the representation of an ordinary loaf of ancient Italian bread, which, we know, was thus divided into four parts—*quadræ*. Thus we have in Virgil, *Æn.* vii., vv. 114, 115—

*Et violare manu malisque audacibus orbem  
Fatalis crusti, patulis nec parcere quadris.*

And in his *Moretum*, vv. 48, 49—

*Lavat opus, palmisque suum dilatat in orbem  
Et notat, impressis æquo discrimine quadris.*

*Quadra* thus may be used here for *quarta*, and the two objects—the *gallus* (standing for *Galli*,) and the *quadra* (standing for *quarta*)—may symbolize the *Gallorum Quarta*, the<sup>3</sup> 4th cohort of Gauls. Now, from the *Notitia* we learn that this cohort was stationed in Britain, "*per lineam valli*," at *Vindolana*, and two altars (with a commemorative slab), erected by commanding officers of this cohort (see *Lapidarium*, nn. 244, 251, 262), that were found at Chesterholm, identify the two places. So far there can, I think, be little or no doubt of the meaning of the symbols. But what are the objects represented at the vertical angle?

Mr. Hodgson regarded them as the sun, the moon, and the cross; and his opinion seems to be correct as to the first two, so that the only question regarding them is—What do they symbolize? A reference to the use of the representations of these celestial bodies on ancient Roman coins will prove that they were on them the symbols of eternity. Thus on a coin described by Eckhel, vii., p. 181, we find the heads of *Severus* and *Julia Domna*, the first *radiatum*, the

<sup>2</sup> On an ancient monumental stone of the Roman period, lately found at Sea Mills, near Clifton, in Somersetshire (for a drawing of which I am indebted to the Rev. H. M. Scarth), a similar bird is represented.

<sup>3</sup> We have memorials of three regiments of Gauls in Britain—*Ala II Gallorum Sebosiana*, *Cohors II Gallorum*, and *Cohors III Gallorum*.

second *impositum lunæ*. On this that learned numismatist remarks:—  
 “*Placuit istud Augustorum par specie Solis et Lunæ proponere, quoniam hæc astra æterna credita, et æternitas ipsis etiam Augustis aut adfecta, aut vota.*” In confirmation of this view, he cites two inscriptions, given by Gruter, p. xxxii. 10, and p. xlii. 2:—“*Soli æterno. Lunæ. pro. Aeternitate. imperii. et. salute. Imp. Ca \* \* Septimii. Severi.*” &c., and “*Lunæ. Aeter. Sacrum. pro. salute. Imp. Caes. L. Septimi. Sev.*,” &c. See also coins of Decius and Etruscilla, and Rasche’s Lexicon, under *Sol* and *Luna*.

The sun and ‘moon, then, on this stone, may be symbols of the Emperor and Empress of the period, and who they were may be generally inferred from the cross (if it be one) that is between the disk and the <sup>5</sup>crescent, for on this supposition we should look, in the first instance, for these imperial personages in or after the time of Constantine. If we select the time of Constantine, the objects may stand for the Emperor himself and the Empress Fausta (up to 327 A.D., when she is said to have been killed), or, rather, the mother-Empress Helena, celebrated for her attachment to the Christian religion, and the reputed discoverer of the true cross. If we prefer the period after Constantine, these objects may symbolize any Christian sole Emperor and Empress down to the final withdrawal of the Roman troops from Britain, and thus may represent Theodosius the Great and Galla in 392 A.D., or, perhaps, Theodosius II. and Eudocia, in 423 or 424 A.D. If the object be not a cross, then I suspect that it

<sup>4</sup> The simplest form for representing these objects on stone, so as to distinguish them, would be, as here, by a disk and a crescent.

<sup>5</sup> Mr. Grover, in an article on “Pre-Augustine Christianity in Britain,” in the *Journal of the Archaeol. Association*, xxiii, p. 229, remarks that “the crescent was a conspicuous characteristic of the faith, as shewn in the catacombs (see Didron, p. 159)” ; and also with special reference to this stone—“It represents, amongst other devices, the cross and the crescent in conjunction, as in the tomb of the martyr Lannus of the catacombs. There is no doubt but these combined symbols refer to Christianity. And what is more remarkable is that the stone was found at Chesterholm (*Vindolana*), which was garrisoned by the fourth cohort of Gauls—Gaul, as we know, being completely Christianized at a very early period. The other devices, the sun, the cock, the triangle, &c., would lead to the assumption that the stone was the work of one of the Gnostic Christians.” In the copies that I have seen of the epitaph of Lannus, it is not quite clear that the object (placed over XPI., the contraction of CHRISTI) is a crescent; and there are examples of the use of this figure on Pagan altars, *e. gr.*, in n. 553 of the *Lapidarium Septentrionale* an altar is figured that bears the crescent between two gamma-shaped crosses. The cross, moreover, which is cut above that inscription, is not of the same form as that on the *Vindolana* stone, as it more closely resembles that which is called the Greek cross.



may be a monogram for IT=*iterum*, the tall I being crossed or the T elongated; and suggest, as the most probable solution consistent with this view, that the sun and moon are used, as the heads representing them are on a unique coin of Postumus, described by Eckhel, vii. p. 441, with the following comment:—*Solem et Lunam æternitatis esse symbola satis hactenus vidimus. In præsentem numo aliam allegoriam constituunt, nimirum præclaris suis factis inclarescere Postumum, et esse late conspicuum æque ac solem et lunam astra lucentissima.* Postumus held the office of Governor of Gaul, to which he had been appointed by Valerian, when he took the imperial title, and he entered on his second Consulship in that Province. According to this view, the sun, moon and monogram stand for Postumus Augustus, Consul for the second time, *i. e.*, A.D. 259. This solution has the additional recommendation of accounting in some degree for the use of symbols, for in that year Valerian and Gallienus were really the Emperors, and Æmilianus and Bassus the Consuls, whilst Postumus was but a usurper of only one year's standing, not sufficiently firmly established to warrant the safety of recognizing him in the dignities that he had assumed. The 1st cohort of Dacians in Britain adopted the title *Postumiana*, as we know from altars found at Burdoswald,=*Amboglanna*, in Cumberland (see *Lapidarium Septentrionale*, nn. 359, 360), but no year is given for this adoption, and I suspect that the epithet was not publicly used before at least A.D. 262, when Postumus celebrated his *ludi quinquennales* and took the title *Germanicus Maximus*.

According to this view, then, the objects carved on this stone may be regarded as symbolical of some such inscription as—POSTVMO·AVG·COS·II·COH·IIII·GALLORVM. But, as I have not yet touched the question whether it is a cross or not, I must now take up this subject. First of all, a distinction must be made between Pre-Christian and Christian crosses. Of the former there are several examples on stones found in Britain (see *Lapidarium Septentrionale*, nn. 237, 366, 546, 547, 553), but, so far as I know, no instance, except one that is very doubtful, has been found there of the Egyptian tau (T).

<sup>6</sup> Mono-grams, of even three or four letters, are common in inscriptions.

<sup>7</sup> In an article on "the Pre-Christian Cross," in the *Edinburgh Review* for January, 1870, it is stated that "a solitary instance of its use, as a sepulchral symbol, has been discovered, if we are not mistaken, in our own country. See *Archæ. Journal*, vol. i., p. 412, fig. 4."

Even the monogram (Constantinian, as it is called from that Emperor's use of it) is found on some Athenian tetradrachms and bronze medallions of the Ptolemies. There is, also, a similar combination of the letters X and p in the legend on a medallion of the Emperor Decius. But the object that appears on the Chesterholm stone seems unlike any other Pre-Christian example that I have seen, for it more nearly resembles the Latin cross. Now, there is no example of this form in the time of Constantine, but it often appears on coins of some later Emperors, *e. gr.* on a coin of Gratian's, assigned to 375 A.D., it is seen high up in the field, and before this on the *globus cruciger*<sup>9</sup> of Valentinian I. But on stones it has not been found, so far as I am aware, at any date before the beginning of the fifth century. In the frontispiece of "Christian epitaphs," I figure the stone, on which there is the first example of this cross in dated epitaphs. The inscription shows that its date is <sup>10</sup>407 A.D. See De Rossi, *Inscript. Christianæ Urbis Romæ*, n. 576. It may be urged

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As I have referred to this article, I may add that the theory that is given in it of the origin of the universal use of this symbol by various nations before Christianity, viz., that "the decussated figure, whether in a simple or a complex form, symbolised the traditional happy abode of their primeval ancestors, that 'Paradise of Eden towards the East,' as we find it expressed in the Hebrew," and that a circle and a cross were selected "the one to denote a region of absolute purity and perpetual felicity; the other, those four perennial streams that divided and watered the several quarters of it," seems to me remarkably unsatisfactory.

<sup>8</sup> It is extremely difficult, if possible, to fix the dates of the appearance of Christian symbols on imperial coins. The subject has engaged the attention of eminent scholars, but nothing sufficiently precise has resulted from their investigations. See "Ricerche critiche intorno alle medaglie di Costantino Magno e de sui figliuoli insignite di tipi e di simboli Cristiani," by M. l'Abbè Cavedoni, Modena, 1858, and "Numismatica Costantiniana portante segni di Cristianesimo," by Padre R. P. Garrucci, Roma, 1858.

<sup>9</sup> One of the *insignia* on coins of the Pagan Emperors was a *globus* (representing the earth) in the right hand, with a figure of Victory standing on it; the Christian Emperors, beginning, I believe, with Jovian, substituted the cross for Victory.

<sup>10</sup> The monogrammatic cross and the monogram were certainly in use long before this, and seem to have been for some time the recognized symbols of Christianity. It is difficult to assign a satisfactory reason for the lateness of the period at which the Latin cross was used as the symbol of the Christian faith. It has been suggested that fear of the consequences may have deterred believers from publicly using it, but this does not account for the absence of it during the reigns of Constantine and of his Christian successors down to the beginning of the fifth century. Another solution is derived from the great reverence in which the cross was held, that forbade the common use of a symbol so highly venerated.

that, although so late in its introduction at Rome, it may have been used at an earlier period in the Provinces. Thus Martigny remarks :

“Peut être faut-il dire que la croix parut plus tôt dans certaines provinces où le Christianisme fut plus tôt émancipé qu' à Rome, et M. De' Rossi le fait remarquer pour l' Afrique, et pour Carthage en particulier, qui, dès le quatrième siècle, fournit des marbres munis de cet auguste signe.”

This supposition seems to me very probable, especially as to Gaul and Britain, but no example on stone has been found, so far as I am aware, of which the date can be positively ascertained, in either of these countries, nor in Italy, Germany, or Spain, before that of 407 A.D. If this object, then, on the Vindolana stone be a Latin cross, and the sun and moon represent the Emperor and Empress, the time must be referred to <sup>11</sup>423 or 424 A.D., when Theodosius II. was Augustus and Eudocia, Augusta.

But we may interpret the sun and moon otherwise. They may be the common accessories in the representations of the crucifixion, believed by some to symbolize the darkness from the sixth to the ninth hour. We might expect them, however, as such, on the right and left hand of the cross. This belief—that the object is a cross—may be further supported by the triangular form of the stone, the triangle being a recognized Christian emblem of the Trinity. It accords, also, with the early history of Christianity in Gaul, from which it appears that there were churches at Vienne and Lyons before 177 A.D. when Irenæus succeeded Pothinus, and that in 250 A.D. seven missionaries were sent into that Province; consequently a supposition that the 4th cohort of Gauls was composed, in the 4th century or the beginning of the 5th, either wholly or chiefly, of those professing the Christian faith, is not unreasonable.

We may draw this article to a close, by stating the objections to the opinion that the object is a cross. First, then, it is unlike the examples of the Latin cross of the 4th century or the beginning of the 5th, as in these the limbs are in the form of wedges, whereas in this the arms do not expand, but <sup>12</sup>taper. Nor can it be regarded,

<sup>11</sup> This is beyond the most probable date of the *Nutitia*, and although some of the troops mentioned in it may have remained in their stations up to the final withdrawal from Britain, yet it does not seem safe, for any uncertain date of an act of a military body named in that work as quartered in Britain, to go lower than the year 410 A.D.

<sup>12</sup> In the example of 407 A.D. this expansion or dilatation is observable, but in a less degree than in those on coins.

if Dr. Bruce's representation of it be correct, as a Greek cross. Next, on the theory that it is a cross, we have no explanation of the adoption of the symbolical form of carving, such as is presented by the proposition to read IT = *iterum*, denoting the second consulship of the usurper Postumus. Again, of the objects found along the line of the wall to which dates can be assigned, some are of the 2nd century, many of the 3rd, very few of the 4th, and none of the 5th, if we except coins. The triangle, moreover, which has been regarded as one of the proofs of the Christian character of the stone, may more probably be explained as the representation of a pediment, the *tympanum* of which was commonly filled with sculptures. On the whole, I propose the solution—*Cohors Gallorum quarta*—as certain, and add to my previous remarks the suggestion that on the corner broken off (and, I fear, lost) there was, balancing the *quadra*, the representation of a *chors* (whence *cohors* is derived) i.e., probably, of a poultry coop. The explanation that I have offered of the three objects at the vertical angle does not appear to me equally satisfactory, but I regard it as much better than any other of which I am aware, and as probably the true solution.

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<sup>15</sup> The necessity for the *gallus* being in the middle, where the height of the stone was greatest, and thus for the *chors* and *quadra* occupying the angles at the base, satisfactorily accounts for the order being *Cohors Gallorum quarta*, not *Cohors quarta Gallorum* as found in inscriptions.



# ALEXANDER GORDON, THE ANTIQUARY.

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BY DANIEL WILSON, LL.D.,

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It is now close upon the completion of a full century and a half since there issued from the London press, in A.D. 1726, the *Itinerarium Septentrionale* of Alexander Gordon, familiar to all men as that prized folio which Jonathan Oldbuck undid from its brown-paper wrapper in the Hawes Fly, or Queensferry Diligence, on that memorable day when we are first privileged to make the acquaintance of The Antiquary *par excellence*. Over its pages many a devotee of archæology in that Augustan age, and since, following his example, has "plunged, nothing loath, into a sea of discussion concerning urns, vases, votive altars, Roman camps, and the rules of castrametation." It was, in truth, the *vade mecum* of all Roman antiquaries of that eighteenth century; and, though long since superseded and displaced, it embodies results of honest research which can never wholly lose their worth.

In his preface, Gordon tells us he "chiefly intended to illustrate the Roman actions in Scotland," and the work has as its central idea "Julius Agricola's march into Caledonia." In dealing with the Danes,—who, in the estimation of historians and antiquaries of that age, divided with the Romans the exclusive share in all historical remains,—he limits himself, in like manner, to "An account of the Danish invasions on Scotland, and of the monuments erected there on the different defeats of that people." He expressly designates his elaborate and learned folio as "this present essay on the antiquities of Scotland, my native country;" and purposes by its publication to relieve the Scottish nation from the charge of negligence "in collecting and publishing to the world their treasures of the Roman antiquities." As a publication, however, it issued from the English press. The title-page—which, after the fashion of eighteenth century folios, includes an elaborate summary of contents and a long Latin motto,—

closes with the information that it is sold by G. Strahan, at the Golden Ball in Cornhill, and by sundry other booksellers in the vicinity of Covent Garden, Temple Bar, and St. Paul's Church Yard, where still the publishing fraternity of London most do congregate. But the booksellers who vended such choice literary wares under the sign of the Golden Ball in Cornhill, or the Half Moon near Temple Bar, were the mere retailers of stray copies. The title-page sets forth that it is "printed for the author," and is immediately followed by what in our more democratic age would be regarded as an extravagant, if not altogether fulsome dedication, to Charles, Duke of Queensberry and Devon, illustrious in the antiquity of his line; bearing, as a Douglas, a name exalted in the annals of Europe; possessing by hereditary right the many shining qualities of his renowned forefathers, joined to a superlative nobility all his own; and so the dedicatory laudation proceeds in its extravagant hyperboles. The Duke's connection with the actual matter in hand appears to have been mainly traceable to the fact that the Roman works at Birrensworck, in Annandale, were situated on his Grace's estate, and the Duke had liberally aided his explorations there. It was not only an ancient stronghold of the Roman invader, but the actual citadel of the Scottish antiquary himself, in combating every opponent who ventured to differ from his theory as to the precise place where Agricola first entered Caledonia, and the route pursued by him in his great northern expedition. Here, to the eye of the enthusiastic explorer, were "clear evidences of Agricola's first incamping within the Caledonian territories," and "only six miles from where the Solway Firth is fordable, are to be seen the vestiges of the first Roman Camp of any to be met with in the south of Scotland, and the most entire and best preserved one that I ever saw." Here he recognises, as "yet to be seen by all, the four gates mentioned by Josephus, viz., The Prætoria, Decumana, Dextra, and Sinistra Gates. They are all plain and accessible, and sufficiently wide in case of a sally. The square ground where the Prætorium, or general's tent stood, is still remaining, as is also the ditch surrounding the camp;" with much else, all tending to "confirm the character of Agricola as given by Tacitus: *Adnectant periti, non alium ducem opportunitates locorum sapientius legisse,*" &c.

The locality is indeed one with abundant attractions for the archæologist. Both Roman camps and native earthworks abound. A beautiful

enamelled bronze bridlebit in the museum of the Scottish Antiquaries was found deep in the moss at the east end of Birrenswork Hill; and from the neighbouring moss of Middleby, only a few years subsequent to Gordon's visit to Annandale, a remarkable series of decorated rings, horse furniture, and other examples of native work in bronze, was recovered, and secured by his friend Sir John Clerk of Pennycuik, in whose collection they still are. The Roman entrenchments of Annandale are famous for their varied disclosures of inscribed altars and tablets, sculptures, statuary, and hypocausts; a ruined temple, with the name and dedication of its architect, AMANDUS, inscribed on the sculptured figure of the goddess Brigantia; a mutilated statue of Fortune, the fruit of a vow in gratitude for restored health, performed by a Prefect of one of Agricola's Tungrian cohorts; the sepulchral tablet, dedicated by a Roman mother to the shade of her daughter Pervica, a maiden who faded away under that bleak northern sky; with much else replete with interest to the antiquary and historical student.

No wonder then that Gordon, when penning a courtly dedication in the style of his age, gave full play to the most laudatory eulogies of the patron who had won his gratitude by facilities extended to him when ransacking the hoards of this old Roman treasury. But though he reverts in a similar style to the services of this and other titled patrons, he could discriminate between the true virtuoso and the gilded sham; and is by no means a blind idolator of rank and title. He contrasts the *honoured patrons of learning and historical research* with others, "and it is to be regretted, some of them of birth and fortune," who "give out that antiquity, and such like branches of learning, are but the chymeras of virtuosi, dry and unpleasant searches;" while they find in bear-gardens, gaming-tables, and midnight revellings things which fit their genius the best. But "such dissonant souls" he pronounces, in spite of all their wealth and honours, to be "only the dignified dregs of nature!"

The volume is illustrated with a map and sixty-six plates, engraved from the author's own drawings. These, as well as the prefatory notices, are turned to account as a means of honouring with special dedication: others of his patrons, including Duncan Forbes of Culloden, Lord Advocate of Scotland, the Honourable Roger Gale, Sir Gilbert Elliot of Minto, Sir James Dalrymple of New Hales, Sir Hans Sloan, M.D., General Wade, and others whose names are still

worthy of remembrance; in addition to dukes, lords, bishops, and dignitaries of all sorts, who had in any way favoured his undertaking. But there is one whom he selects for special recognition from among his Scottish friends and patrons, as "not only a treasure of learning and good taste, but now one of its chief supports in that country." This was Sir John Clerk of Pennycuik, Baron of His Majesty's Exchequer in Scotland, and one of the most zealous Roman antiquaries of that age. From him Gordon derived hearty sympathy and substantial aid. He was a frequent guest at Old Pennycuik House, and was accompanied by the Baron in his Northumbrian explorations, as well as in others nearer home. When describing his visit to Housesteads,—the old Roman Borcovicus, pronounced by Gordon to be "unquestionably the most remarkable and magnificent Roman station in the whole island of Britain," and by Dr. Stukely denominated "the Tadmor of Britain,"—he says: "When I had the honour to traverse this ground for the first time, with Sir John Clerk, Baron of the Exchequer, we caused the place to be dug where we were then sitting amidst the ruinous streets of this famous oppidum, and found a small statue of a soldier, accoutred in the Roman habit." This, with an altar and other trophies, were carried home in triumph to enrich the Pennycuik museum, of which Gordon says: "Among all the collections of Roman antiquities in Scotland, that of Baron Clerk claims the preference, both as to number and curiosity;" and then he goes on to describe a Roman spear-head of old mixt brass, a *hasta pura*, *fibulæ*, &c., of the same metal, a Roman *tuba*, *securis*, "as also two *cuneii* or wedges of the like metal. But it is disputable whether these were Roman or not. However as they are curious in their kind, and of the old mixt brass, I have thought fit to exhibit a draught of one of them. The Baron has several sorts of *hastæ* or Roman spears, found in different parts of Scotland. He has likewise a pair of the best preserved *crepidæ*, or Roman shoes, that ever I saw. As for the medals and curiosities in his possession, natural or artificial, it would require a treatise to describe them separately."

Nor was the ruined site of Housesteads unworthy to call forth the intelligent enthusiasm of its explorers; for even now, when the altars and sculptured figures, which lay scattered everywhere in sight on Gordon's first visit, have long been removed, its latest explorer, Dr. Bruce, speaks of the ruins of the ancient city remaining "complete



and vast as ever," and he adds that recent excavations "show us that when they are continued throughout the entire station, the ancient Borcovicus will be the Pompeii of Britain."

Such was the encouragement which stimulated Gordon to carry out his persevering researches, and embody the results in the famous *Itinerarium Septentrionale*. In this tall, thin, elaborately printed folio, emphasised throughout with italics and capitals of various type, the author records with loving minuteness his discoveries and observations relative to coins and medals, altars, inscribed tablets, and other memorials of the past, and his careful surveys and measurements of every station, camp, wall, fort, or military way ascribable to the Romans, in any part of Scotland or the neighbouring districts of Northumberland and Cumberland. The monuments now familiar as "The Sculptured Stones of Scotland," and assigned with little hesitation to native Christian art, but in Gordon's day unhesitatingly ascribed to the pagan Danes, also come under review, "with other curious remains of antiquity never before communicated to the public." He deals, indeed, with the whole subject of Scottish archæology, as it was then understood, and embraces in his antiquarian repertory everything, from the rudest stone axe or bronze celt, to the Ruthwell Cross and other choice specimens of native art; though after the fashion of his day subordinating all else to what was then deemed classic and Roman. In our own age of revived mediæval tastes, we may indeed feel thankful that it was not then possible to accomplish literally all that was implied in the author's wish that "antiquity and learning may flourish in the island, to the total extirpation of *Gothicism, ignorance, and bad taste.*"

Gordon subsequently supplemented his *Itinerarium* with an appendix, chiefly enriched by means of a learned correspondence concerning ancient sepulchral rites in Britain, carried on between his own special friend and patron, Sir John Clerk, and Roger Gale, a learned English antiquary, whose name is perpetuated, along with that of his brother Samuel, in the *Reliquiæ Galeanæ* of Nichol's *Bibliotheca Topographica Britannica*. They are pronounced by Gordon to be "two gentlemen who are the honour of their age and country."

The part which "Sandy Gordon" and his *Itinerarium Septentrionale* play, not only in one of the choicest of the Waverley Novels, but in its autobiographic picturings of the great novelist himself, has

helped to recall from a fast-obscuring oblivion the memory of the old Roman antiquary, though too late for any minute portraiture of the man. Dr. Robert Chambers refers to him, in his "Lives of Illustrious Scotsmen," as one of the numerous subjects of the biographer's pen "of whom nothing is known except their birth *in* Scotland, and their transactions in public life *out of it*;" and yet, as his Itinerarium shows, he did perform not a little very creditable and thorough work within the bounds of his native land before he finally joined the ranks of "the Scots abroad." Nevertheless, it is the fact of his later years having been passed in the New World which has stimulated me to some research, in the hope of recovering traces of an old Scottish antiquary and scholar in the times of American colonial life.

Alexander Gordon was an enthusiast after the true Oldbuck type. He must have been something of a genius, though of the arid and genuinely Dryasdust kindred. He was a man of good education, familiar with the Latin classics, and "possessing what was not in his time common among the Scottish literati, an intimate knowledge of the Greek language." He was no less familiar with the languages and literature of France and Italy; and, with a singular taste selected the Borgian Pope, and his gifted but not less infamous son, for the theme of one of his learned folios. He was a Master of Arts, but whether of Old King's College, or of Marischal College, Aberdeen, I have failed to ascertain. Among the subscribers who patronise his famous folio we might be tempted to recognise the favour extended to an alumnus of King's College, by the subscription of "The Principal of the University of Old Aberdeen" for two copies, while the head of the rival University of the New Town contents himself with one, but then it is "*One Royal*." Another of his subscribers is "Thomas Blackwell, M.A., Greek Professor in the Marischal University of Aberdeen," possibly his old instructor in Hellenic literature; but "John Ker, M.A., Greek Professor to the University of Old Aberdeen," extends a like favour to the work; and the name of its author was no rare one in the northern city on the Dee.

He was, I presume, a native of Aberdeenshire, but no record has been recovered to tell of his family origin. Sundry Gordons figure among the subscribers to his folio, and two of the most distinguished of the name—The Honourable Sir William Gordon, of Invergordon,

and the Right Honourable Sir Thomas Gordon, Vice Admiral of Russia,—are each selected for the special honour of dedication of an engraved plate. But the Gordons of Aberdeenshire are too numerous a clan to admit, on such grounds, of the assumption of relationship between the author and those of his name who extended their patronage to the work. For a time, at least, he was a citizen of Aberdeen, and, as I was informed by the late Sir George Clerk of Pennycuik, professionally engaged as a teacher of music. He was indeed possessed of tastes and accomplishments of a varied range, including more than one of the fine arts, and was even reputed to be the composer of some favourite Scottish airs. He must have presented peculiar traits of character such as Scott would have delighted to study, for he appears to have exhibited characteristics and habits ordinarily reckoned incompatible. He led a roving life, changed his profession repeatedly, devoted himself with unbounded enthusiasm to one of the most unprofitable hobbies that can engross the energies of a student, sought fame and fortune in the Old World and the New in widely differing occupations and pursuits, and yet ended by giving the lie to the old proverb which says "A rolling stone gathers no moss;" for, as will be seen, he bequeathed to his son and daughter a substantial estate in his New World home, along with the more characteristic inheritance of certain broad acres in Utopia!

In 1720, Dr. William Stukeley—famous among the English antiquaries of that eighteenth century,—published his account of Arthur's Oon, a singular, if not wholly unique structure on the banks of the River Carron, near the town of Falkirk, in Stirlingshire; or rather, as Dr. Stukeley notes, "near Graham's Dike," or the Northern Roman Wall. In that treatise he expresses his wonder that, among the many good scholars of the Scottish nation, no one had been found to collect and publish to the world the actual treasures of Roman antiquity abounding in their midst, instead of continuing to compile their ancient history "from invention and uncertain reports." This, Gordon tells us in his preface, "was sufficient excitement for me to proceed still more vigorously in collecting what I had begun;" and so, he was able to say, when his work was finished, "I confess I have not spared any pains in tracing the footsteps of the Romans, and in drawing and measuring all the figures in the following sheets from the originals; having made a pretty laborious progress through

almost every part of Scotland for three years successively. Indeed," he says, "I must acknowledge that I might have been able to have added many other valuable materials for the perfecting of this work had I had any encouragement from the public, seeing my own circumstances were not sufficient to have gone to the expense of searching and digging in places where I am most certainly convinced many other curious and noble monuments of the Romans may yet be found."

It was due to the author of a work devoted to the antiquities and traditions of Scotland, that the reviver of its old minstrel tales and lays should hold him in loving regard; for his researches were carried out among the same dales and glens where Scott himself ere long made his own itinerary, with results memorable to all men, in his *Minstrelsy of the Scottish Border*, and in the romances wrought by him as the fruits of such study of Scottish legend and character. In the pages of his *Itinerarium*, Gordon not only describes and delineates the altars and inscribed tablets, the Roman legends, and runic inscriptions of Inveresk and Cramond, of Ruthwell, Annandale, and the Eildon Hills—all favourite haunts of the great novelist,—but he furnishes no inconsiderable part of the actual materials which Scott turned to account in the creation of one of his most original characters: the Laird of Monkbarns.

According to the traditions of the Pennycuik family, as communicated to me by the late Sir George Clerk, the author of the *Itinerarium* was a grave man, of formal habits, tall, lean, and usually taciturn. But his silence was probably only in uncongenial society. He must have had his voluble fits at times, for he was known in the Pennycuik circle by the name of *Galgachus*. His thoughts at this time, we may presume, revolved so persistently around Mons Grampius and its Caledonian hero, that when they shaped themselves into words, they were apt to make the enthusiastic antiquary the butt of unsympathising juveniles. Of the pranks of the latter under such promptings some characteristic reminiscences are preserved; and especially that of the manufacture of a Roman altar, which was in due time brought to light on the Pennycuik estate, and furnished the basis for speculations not less learned and ingenious than those of the ever-memorable sculptured tablet, with its sacrificial ladle and inscription, dug up by *The Antiquary* on his third day's trenching of the Kaim of Kinprunes. In truth, the whole story is a genuine

legend of the Pennycuik family, derived by Scott himself from William Clerk, of Eldin, the grandson of the Baron. On one occasion, as he told, when visiting his grandfather at Dumerieff, in Dumfriesshire, the old Baronet carried some virtuosos to see a supposed Roman camp, and on his exclaiming at a particular spot, "This I take to have been the Prætorium," a herdsman who stood by responded: "Prætorium here, prætorium there; I made it wi' a slaughter spade." A brother of his informant, afterwards famous on the Scottish Bench as Lord Eldin, inherited another trait of the scions of the Pennycuik House. Being skilled as an artist, he employed his ingenuity in the manufacture of antique statues, which, mutilated into a becoming aspect of genuineness, were in due time dug up, to the great delight of the laird and the enrichment of his museum.

The curious collection of Roman and other antiquities which engaged the study of the older Scottish antiquary, and which Gordon enriched with various contributions, including a fine votive altar found at Barhill, on the Antonine Wall, a legionary tablet from the Crochill Fort, and other gifts of like kind: is still preserved at Pennycuik House, as in the days when the author of the *Itinerary* was welcomed there by the Baron, to whose taste its formation is chiefly due. It was, indeed, when prosecuting my own researches among its antique treasures, that the family traditions above referred to, relative to the author of the *Itinerarium Septentrionale*, were communicated to me by the late Baronet. But the old mansion itself, which furnished the arena for discussions akin to those which wrought such strife between the houses of Knockwinnock and Monkbarns, has long since disappeared. The present house, built by the Baron's son and successor in 1761, in the classic style which Robert Adam was then bringing into general favour, is chiefly interesting for its great room, styled *Ossian's Hall*, elaborately decorated by the pencil of Runciman with frescoes illustrative of the popular Gaelic epic. Its builder extended to the poet Allan Ramsay a like hospitable welcome with that which Gordon had received from his predecessor; and the romantic locality of Habbie's How, the scene of the poet's Scottish pastoral, lies only a few miles to the south-west, among the Pentland Hills.

There is no room for doubt that Scott had Gordon and his experiences in view, and even bore in remembrance certain familiar inci-

dents connected with the formation and later history of the Penny-  
 cuik collection, when he drew the inimitable portraiture of Jonathan  
 Oldbuck. He does indeed tell us, in the introduction to "The  
 Chronicles of the Canongate," that "the character of Jonathan Old-  
 buck, in 'The Antiquary,' was partly founded on that of an old  
 friend of my youth, to whom I am indebted for introducing me to  
 Shakespeare, and other invaluable favours." But he adds at a later  
 date that the only incident in the novel borrowed from the real cir-  
 cumstances of his early friend; *excepting the fact that he resided in an  
 old house near a flourishing seaport, is a scene which Scott himself  
 chanced to witness, in which he played the part of the Laird in his  
 conflict with Mrs. Macleuchar, at the head of her trap stairs in the  
 old High Street of Edinburgh.* Of his other recorded qualities—  
 including "an excellent temper, with a slight degree of subacid  
 humour; learning, wit, and drollery, the more poignant that they  
 were a little marked by the peculiarities of an old bachelor,"—the  
 Pennykuik traditions have preserved nothing in common; nor is it  
 easy to conceive of the patient, plodding author of the *Itinerarium*  
 ever unbending so far as to be found capable of wit or drollery.

But the power of idealization was too strong in Scott to admit of  
 his being the mere literary photographer of some familiar acquaint-  
 ance. Many traits of his old friend George Constable, of Wallace  
 Crag, were doubtless wrought into the ideal Jonathan Oldbuck;  
 but we have the authority of Lockhart for the fact that John Clerk,  
 of Eldin, a younger son of the Baron of Pennykuik,—author of a  
 famous essay on dividing the line in sea-fights, to which was  
 ascribed some of the victories of Lord Rodney and a general revolu-  
 tion in naval tactics;—who inherited the antiquarian tastes of his  
 father, supplied not a few of the most graphic touches in the inimi-  
 table portraiture of the Laird of Monkbarne. Nor was the author  
 wholly unconscious of personal traits of the Laird of Abbotsford  
 himself, derived in part from the enthusiasm of friends of his  
 youth, and fostered by such studies as those of "Sandy Gordon's  
*Itinerarium Septentrionale*." But Scott's characters are creations,  
 and not mere portraits, much less caricatures. They are true to  
 nature, and replete with evidence of that comprehensive study of  
 humanity in which the power of the poet and the dramatist lies.

But of the influence of the *Itinerarium Septentrionale* on the  
 literary form of "The Antiquary," and the enriching of its pages

with incident and character derived from this unlikely source, there can be no question. It is indeed very much in the actual words of Gordon's learned argument, though in a more condensed form than suited the ample page of his folio, that the Antiquary holds forth to Lovel on the disputed site of Agricola's victory. "As for our Scottish antiquaries," says Gordon, "they are so divided that some will have it to be in the shire of Angus, or in the Mearns; some at the Blair of Athol in Perthshire, or Ardoch in Strathallan; and others at Innerpeffery:" and so the solemn old folio, formal, tall and lean as its learned author, proceeds as it were in stately amplification of the very words listened to by Lovel on the Kaim of Kinprunes. And "now, after all this discussion," continued the Laird of Monkbarne, with one of his slyest and most complacent looks, "what would you think, Mr. Lovel—I say, what would you think, if the memorable scene of conflict should happen to be on the very spot called the Kaim of Kinprunes?"—or, as his genuine prototype, Sandy Gordon, would have it, at Galdachan, in Strathern. He has combated his opponents in detail, and now he proceeds: "From all which I am of opinion that the real place where the battle was fought, at the Mons Grampius, is, as I have already asserted, in Strathern, the famous *Glacialis Ierne* of which Claudius the poet afterwards makes so much mention." For is there not Agricola's camp visible there to all men, with distinct agger and fossa, porta decumana, prætorium, and all else? 'Tis true, a part of the square is washed away by the Ruchel, a torrent that there joins the river Ern. But what of that, when the identification can be clinched in this unanswerable fashion: "The situation of the ground," says Gordon, "is so very exact with the description given by Tacitus, that in all my travels through Britain I never beheld anything with more pleasure, it being directly at the foot of the Grampian Hills; besides there are the *colles*, or small rising grounds on which the Caledonians were placed before the battle, and also the high hill on which the body of the Caledonian army lay, and from which they came down upon the Romans. Nor is it difficult, on viewing this ground, to guess at the place where the *covinari*, or charioteers, stood. In fine, to an antiquary, this is a ravishing scene." And so he closes his argument beyond possible assault, with this crowning evidence: "Galgachus's name still remains on this ground; for the moor is called to this day *Galdachan*, or *Galgachan Rossmore!*"

There is no question where Scott obtained the materials which he turned to such choice account. It would be vain, indeed, to hunt in the grave pages of the *Itinerarium* for Edie Ochiltree's prototype. Yet it is in immediate sequence to a learned discussion about King Gald, or Galdus, and the transformation of his name into that of the Scottish hero, that he tells us: "they have a tradition that from the Fort of Ardoch to a place on the opposite side of the water, called the Keir, there is a subterranean passage in which there are old treasures hid. This tradition, which perhaps is very groundless, is kept up by two or three of the bardish verses which are handed from father to son, time out of mind:—

From the camp of Ardoch  
To the grinnin hill of Keir,  
Are nine kings' rents  
For seven hundred year.

I was much diverted," adds Gordon, "with some old astrological stuff which one of the inhabitants had from his great grandfather, directing his posterity, by certain obscure cyphers, to find out the treasure. I should not have mentioned the tradition had I not called to mind the story of King Arthur's body, which was discovered by some old verses of the bards; and if there be any treasure, I believe it may be Roman medals, or such kind of antiquities." After all the diversion which our antiquary professes to have derived from the credulity of the rustics of Strathallan, it is obvious that he could have been as easily lured by some mischief-loving Edie Ochiltree to try the powers of his "old astrological stuff," as the German adept in his search for the treasures of *Misticot's* grave. If he could only, with the help of magic formulæ or diviner's rod, have hit upon the spot, there is no questioning his readiness to have dug up the "nine kings' rents" in medals and other Roman ware, as genuine as the bonnet-pieces and testoons dug up in the ruins of St. Ruth. "Eh, sirs," exclaims the old Bluegown, "but human nature's a wilful and wilyard thing! Is it not an unco lucre o' gain wad bring this Dousterdivel out in a blast o' wind like this, at twal o'clock at night, to thir wild gousty wa's?—and amna I a bigger fule than himsel' to bide here waiting for him?"

But Mr. Alexander Gordon was no knavish adept. He merits all the praise of an honest and painstaking antiquary, who diligently travelled and studied for himself; and has preserved for us records



of earthworks, inscriptions, and relics of various kinds, of which, but for him, all knowledge would have been lost. The title of his famous folio is "Itinerarium Septentrionale, or a journey thro' most of the Counties of Scotland, and those of the North of England;" not indeed that that is the whole title, for it runs on into details sufficient for a respectable preface, and guarantees "a particular description of the Roman walls of Cumberland, Northumberland, and Scotland; their different stations, watch-towers, turrets, exploratory castles, height, breadth, and all their other dimensions; taken by an actual geometrical survey from sea to sea, with all the altars and inscriptions," &c., &c. As to Mons Grampius, he has surveyed it for himself, and floors his opponents by reminding them that the remarkable range of mountains called the Grampian Hills reaches from Dumbarton on the Clyde, to Aberdeen on the German Ocean; and though, no doubt, the Mons Grampius they are in search of must be one of this long range of Montes Grampii, yet he says: "Till I see some vestiges of a Roman camp in the Mearns, where there are none, I cannot be convinced that Agricola went so far north."

It was worth Sir John Clerk's while to give hospitable entertainment at Pennycuik House to one who could speak as an eyewitness of every camp, tower, and barrow of the whole Grampian chain. The Baron's father-in-law was Sir John Inglis, of Cramond, famous for its Roman harbour, of which Gordon says: "Here several Roman inscriptions have been dug up, and an incredible quantity of Roman coins of gold, silver, and brass of all sorts," besides altars, &c., which he describes from the originals "now in Baron Clerk's collection;" and he adds, "among all the collections of Roman antiquities in Scotland, that of Baron Clerk justly claims the preference, both as to number and curiosity;" but above all, a Roman stilus for writing, found, with its *theca graphiaria*, within an old Roman sepulchre, or cairn, in the County of Edinburgh, and "esteemed by all the curious as the greatest rarity of that kind ever found in Britain." The Baron's own learned report of his explorations is embodied in Gordon's supplement, wherein he notes the discovery in this same sepulchre of a "perpetual lamp," such as are affirmed to have been found still burning on the opening of certain tombs, and, in defiance of all known laws of combustion, to have only gone out when a supply of oxygen was admitted to them!

Pennycuik House stands on the skirts of the Pentlands, where the North Esk winds its way eastward to the Roman station of Inveresk; and is surrounded on all hands with antique sites and historical localities, rich in treasured memories, and in not a few tangible memorials of the past. The old Baron's library of learned folios and quartos still survives; and the valuable collection of Roman and other antiquities which rewarded his explorations in the surrounding regions, or was augmented by his father-in-law, Sir John Inglis, from the old Roman seaport at the mouth of the Almond, by Gordon himself, and by other contributors, furnished some curious illustrations for the "Prehistoric Annals of Scotland:" including specimens of primitive bronze work, and a rare example of ivory-carving,—a group of figures, of which the central one, a queen, seated with a book and lap-dog on her knee, suggests its destination as the queen-piece of a set of chess-men,—wrought, like others of its class, from the tusk of the walrus, or "huel-bone" of Chaucer. It is labelled, in the handwriting of the Baron, as having been found by John Adair, the old Scottish geographer, in 1682, when engaged in a survey of the kingdom by appointment of the Lords of the Scottish Privy Council. It must, therefore, have been in the Pennycuik collection when Gordon was ransacking it for his Itinerary; but it lay out of the line of his favourite studies, or of objects that then commanded the interest of the learned.

Only a few miles distant from Pennycuik House, in the vicinity of the old Roman track, lies the village of Romana, the name of which is supposed to perpetuate the memory of the constructors of certain Roman works near by, and so, as Gordon says, "to prove the veracity of its etymology." The stables of Pennycuik House are now surmounted with a dome-like structure, formerly erected in the neighbouring grounds as a fac-simile of the Arthur's Oon of Dr. Stukeley's old quarto: a singular bee-hive structure of squared masonry twenty-five feet in diameter, which, in spite of every conflicting analogy or probability, Gordon agrees with the elder author in believing to have been a Roman temple erected by Agricola. As to what Dr. Stukeley did or did not believe, we need not greatly concern ourselves. He visited Oxford in September, 1724, little more than a year prior to the issue of Gordon's famous folio from the press, and when he must have been in frequent correspondence

with his antiquarian friend on many knotty points of interpretation and deduction. A learned scholar and antiquary then resident there as Fellow of his College, Thomas Hearne,—himself one of the most voluminous of writers, whose works, in all their editions, extend to about one hundred volumes,—has recorded the fact in his diary, with this comment on his brother antiquary: "This Dr. Stukeley is a mighty conceited man, and it is observed by all I have talked with that what he does hath no manner of likeness to the originals. He goes all by fancy. In short, as he addicts himself to fancy altogether, what he does must have no regard among judicious and truly ingenuous men." A more recent biographer, in the "Penny Cyclopædia," sums up his character in this fashion: "No antiquarian ever had so lively, not to say licentious, a fancy as Stukeley. The idea of the obscure, remote past, inflamed him like a passion. Most even of his descriptions are rather visions than sober relations of what would be perceived by an ordinary eye; and never, before or since, were such broad continuous webs of speculation woven out of little more than moonshine." Such was the author of the "Account of a Roman Temple, Arthur's Oon," in the estimation of critical and discriminating judges. But the old proverb holds good, that "a man is known by his friends;" and the estimate of Gordon stands in amusing contrast to such inappreciative verdicts. After pronouncing that "Dr. Gale's and Burton's Itineraries will be famous whilst letters are in the world;" he adds, "nor, I hope, will the labours and industry of my worthy friend Doctor Stukeley be ever forgot, who has favoured the public with so many notable discoveries in antiquity and other branches of valuable erudition."

As to Arthur's Oon, the first notice of it occurs in the *Historia Britonum* of Nennius. In form it coincided with the bee-hive houses of Scotland's and Ireland's primitive Christian era, and its masonry was not greatly different from that of the Scottish round towers, popularly ascribed to the Picts. Whether it was a sacellum or a mausoleum, a templum termini, or what else, no two antiquaries were agreed. But in this, at least, the pair of enthusiasts concurred, that it was "not unlike the famous Pantheon at Rome, before the noble portico was added to it by Marcus Aurelius:" only Gordon must needs note that the Pantheon is of mere brick, "whereas Arthur's Oon is made of regular courses of hewn stone." This unhappily proved its ruin. In 1743, Sir Michael Bruce, the barbarian on whose lands it stood,

pulled it down for materials wherewith to build a mill-dam on the River Carron. The river whose banks it had made memorable from the days of Nennius, if not of Agricola, avenged the sacrilege by sweeping away the dismembered sacellum; and so Sir John Clerk, after "cursing the Gothic Knight with bell, book and candle," did the best he could to reproduce the lost relic on the banks of the North Esk. A noteworthy little incident, highly illustrative of Scottish character, is mentioned by Dr. John Hill Burton, who himself remembers it being brought as a charge against a candidate for the representation of a Scottish county, certainly more than a century after the base deed was perpetrated, that he was a descendant of the destroyer of Arthur's Oon!

There was much to be pondered over by the Laird of Pennycuik and his industrious brother antiquary. There had been a basso-relievo visible on the time-worn archway of Arthur's Oon, as like to an eagle with expanded wings as was that over Monkbarns' own doorway to the Abbot of Trocosey's mitre; only, as Gordon feels bound to confess, "age and time, and perhaps the same barbarous hand that erased the letters, may have defaced it, but even now part of the body and one of the wings may be faintly discerned." Here again was subject matter for many a solemn conclave. Gordon sums up a grand array of exhaustive arguments thus: "But besides all this, Dr. Stukeley has well observed that time has left Julius Agricola's very name on the place, as entire as the building, seeing it goes frequently under the appellation of Julius Hoff, or house; and if ever these initial letters I. A. M. P. M. P. T., mentioned by Sir Robert Sibbald, were engraved on a stone in this building, it may not be reckoned altogether absurd that they should bear this reading,—*Julius Agricola magnæ pietatis monumentum posuit templum.* But this the reader may either accept or reject, as he pleases. However, I think it may as probably be received as that inscription on Caligula's Pharos in Holland, which, having these following letters, C. C. P. F., is read *Caius Caligula pharum fecit.*" Here, it can scarcely be necessary to remind the reader, is the undoubted original of Aiken Drum's lang ladle. The Antiquary has demonstrated to Lovel beyond all possibility of cavil that the Kaim of Kinprunes, the *Castra pruinis* of Claudian—in *conspectu classis*, in sight of the Roman fleet, as Tacitus has it,—corresponds in all respects to the scene of Agricola's final conflict; and now is produced the grand

climax, held in reserve for a crowning triumph: the sculptured stone trenched up on the very spot, with its "sacrificing vessel, and the letters A. D. L. L., which may stand without much violence for *Agricola dicavit libens lubens.*" "Certainly, sir," responds the complaisant Lovel, "for the Dutch antiquaries claim Caligula as the founder of a lighthouse on the sole authority of the letters C. C. P. F.;" and so on to Mr. Oldbuck's "trivial essay upon castrametation, with some particular remarks upon the vestiges of ancient fortifications lately discovered by the author at the Kaim of Kinprunes," in which he flatters himself he has pointed out the infallible touchstone of supposed antiquity. It is interesting thus to trace the hand of the great master, with his Midas-touch transmuting such arid controversies into the sparkling humour of his choicest romance.

Gordon was able to contribute to the Pennycook discussions somewhat besides the learning which he had picked up in his northern Alma Mater. Like Dugald Dalgetty, he was a traveller to boot though on more peaceful errands. What his precise age was at the date of the publication of the famous folio on which his literary fame is based, I have failed to ascertain. In point of years he was greatly Baron Clerk's junior. But his journeyings had already extended beyond the shadows of the Grampians, and with the publication of the *Itinerarium* his connection with Scotland came to an end. His correspondence with his "worthy friend, Dr. Stukeley," had now been exchanged for more intimate personal intercourse, and he grows enraptured over the assembled rank and learning of the old London gatherings of the antiquarian fraternity, of which the Doctor was Secretary. The London Society of Antiquaries had at that date forsaken the Young Devil Tavern in Fleet Street, for the Fountain Tavern over against Chancery Lane, and in the following year removed to Gray's Inn Lane, and afterwards to the Temple. But apparently the more dignified quarters thus provided for their deliberations conflicted too much with the social habits of that age; and so, in the following year, 1728, we find the Fellows have once more emerged into Fleet Street, and are holding their meetings in the Mitre Tavern there. It was, in truth, the Antiquaries' Club according to the fashion of that eighteenth century; and to the genuine enthusiasts who took the lead in it, was so delightful that Gordon exclaims, "For my own share, I think sincerely that England seems now to be the true seat of the Muses, and London is become Apollo's

favourite residence." In his dedication to the Duke of Queensberry he expresses his gratitude "for many favours received both at home and abroad;" and his repeated allusions to the architecture of Rome and to the galleries of art of Naples, Venice, Florence, and other celebrated collections of continental Europe, as well as to the Raphaels, Titians, Domenichinos, and Vandykes in English collections, prove his familiarity with the works of the great masters as objects of personal study. He was indeed a zealous collector himself, alike as an antiquary and a connoisseur of art. He claims for "the Mercury now in London, which I myself had the good fortune to buy for the present Lord Bateman in Italy," an artistic value equal to any statue in Europe; while we come repeatedly on such references as this: "I carried away from the Fort of Carvoran a small portable altar, with an inscription dedicated to the tutelary god Vitorinus. This piece of antiquity I gave to Baron Clerk, and take it to be the same mentioned by Cambden." Again, at Castlestead, the Petriana of later Anglo-Roman antiquaries, in Northumberland: "here I purchased a small altar dedicated to the god Mars. The inscription is thus: DEO SANCTO MARTI VENUSTINVS LVPVS VOTVM SOLVIT LVBENS MERITO. This small altar, which I presented to the Right Honourable the Earl of Hertford, is very singular in giving the epithet *Sanctus* to the god Mars. Cambden shows an altar with an inscription, Deo sancto Belutucadro, which is supposed to be Mars; but this confirms the title *Sanctus* to that god of war, and is a very great curiosity." Had his researches been turned to a collateral branch of inquiry, well calculated to have engaged his attention, he would have learned from a study of the famous Eugubine Tables, found at the Umbrian town of Iguvium in 1444, that *Sancus* was the tutelary deity of the Sabines, and *Sabus*, the son of *Sancus*, their chief divinity and eponymous, with much else peculiarly tempting to so indefatigable an etymologist as Gordon proves himself to have been. For it was a study he "loved, not wisely, but too well."

But the prized altar of the Petrianian Mars has beguiled us from the remoter wanderings of the author of the *Itinerary*. This much is certainly known of him, that in early life he travelled over various parts of the Continent, explored considerable portions of France on foot, visited Germany, resided for years in Italy, and so—along with other fruits of such experience,—was able to confute Hector Boethius and later speculators on the purpose for which

Arthur's Oon was constructed. Winding up a comprehensive argument in his *Itinerarium*, he adds this final result of his own observations: "Indeed, for my own part, I never observed, in Italy or elsewhere, any real Roman temple whatsoever which was not at least four times as large as Arthur's Oon."

But, as already hinted, the antiquarian traveller had tastes and acquirements of a varied range, and in some respects of a more marketable character. He was able to state, in closing his *Itinerary*, that "all the monuments in this work are truly and faithfully exhibited from the originals, drawn on the spot by my own hand;" and as he refers to the inadequate encouragement extended to him having compelled him to curtail the expenditure on engraving, it is only just to assume that he had a greater command of his pencil than the coarsely executed plates of his folio would suggest. In reality, as now appears, he worked in oil, practised the art of portrait painting, and, as will be seen, made some of his paintings, including his own portrait, subjects of special bequest in his will.

In music his skill was considerable, nor is it wholly improbable that we may owe to him one or other of the unclaimed airs associated with Scottish song. Aberdeenshire has contributed its full share both to the lyrics and music of our national minstrelsy. The Rev. John Skinner, one of its own native poets, in his vigorous words to the old reel of Tullochgorum, appeals to the national sympathies against new-fangled foreign tastes:—

What need there be *sae* great a fraise  
 Wi' dringing dul Italian lays,  
 I wadna gie our ain strathspeys  
 For half a hunder score o' them

William Marshall, butler to the Duke of Gordon, composed and adapted some of the fine airs to which Burns wedded more than one of his most beautiful songs, such as "Of a' the airts the wind can blaw;" and we owe to the M.S. lute-book of Sir Robert Gordon of Straloch, dated 1627, several fine song tunes of an earlier century. It would be a pleasant discovery if we were enabled to associate a familiar national or Jacobite air with the name of the old Scottish antiquary. According to the traditions of Pennycuik House, his musical skill had been turned to account in his continental wanderings, somewhat after the fashion of Goldsmith's flute, though doubtless in more dignified professional ways than those which the author of "The Traveller" thus artlessly records:—

How often have I led thy sportive choir,  
 With tuneless pipe beside the murmuring Loire !  
 Where shading elms along the margin grew,  
 And freshen'd from the wave the zephyr flew ;  
 And haply, tho' my harsh touch, falt'ring still,  
 But mock'd all tune and marr'd the dancer's skill,  
 Yet would the village praise my wondrous power,  
 And dance, forgetful of the noontide hour,  
 Alike all ages. Dames of ancient days  
 Have led their children thro' the mirthful maze ;  
 And the gay grandsire, skill'd in gestic lore,  
 Has frisk'd beneath the burden of three-score.

Without the geniality of the author of "The Traveller," Gordon must have had some of his wayward propensities. Chalmers says that he "resided many years in Italy, and visited most parts of that country." Of this Italian sojourn—in whatever capacity it may have been carried out,—the known fruits are his lives of Pope Alexander VI. and Cæsar Borgia, and his "Complete History of Ancient Amphitheatres, more particularly regarding the architecture of these buildings, and in particular that of Verona," translated from the Italian of the Marquis Scipio Maffei. But both his literary and professional labours must have been pursued in a singularly erratic fashion. He seems to have forsaken the Muses for a time after his return from his continental wanderings, and is reported to have acquired much of his minute knowledge of Romano-Scotic antiquities while engaged as a surveyor of the route for the projected canal between the Forth and the Clyde, which follows the same course as the line of Agricola's forts and the later wall of Antonine.

In 1732 Gordon issued proposals for engraving, by subscription, a complete view of the Roman Walls in Britain, as they really appear on the ground ; their height, thickness, number of courses in the stone wall, inscriptions, altars, and all else ; "their whole number again delineated from their originals, according to exact mensuration, with a scale, and correction of former publications." Had he received adequate encouragement, he would doubtless have anticipated Horsley, Hodgson, Stuart, and Bruce, in many of their industrious researches. But he had already remarked of the illustrations of his *Itinerarium* : "Had my encouragement from the public been more considerable, they might have been executed with more expense, though not with greater truth and exactness." Horsley's *Britannia Romana* was, moreover, ready for the press ; the Scottish antiquary



had laboured on a thankless task, and the fruits of his painstaking researches were lost to the world.

“ How profitless the relics that we cull,  
 Troubling the last holds of ambitious Rome ;” -

so might the disappointed author have exclaimed, even in a more literal sense than the poet meant. This disappointment may have influenced the incidents of his later career, though he still found some recognition of his services in the cause of letters and archæology. In 1736 he was appointed Secretary of the Society for the Encouragement of Learning, and soon after succeeded to the more congenial office of Secretary of the Society of Antiquaries of London. It was probably through the influence of his brother antiquary, Dr. Stukeley, that he also obtained the secretaryship of the Egyptian Society, of which that amiable enthusiast was one of the founders ; and so had a new bent given to his researches, which is proved by his will to have been thenceforth the ruling passion of his life. The Society was chiefly composed of gentlemen who had visited Egypt, and were thereby assumed to have achieved some special mastery of its antique lore. Their Secretary, without apparently having enjoyed such opportunities, turned his indefatigable zeal in this new direction, published a succession of very learned and unreadable folios, undertook to solve the mysteries of hieroglyphics before the Rosetta Stone was heard of, and to illustrate “ all the Egyptian mummies in England !” Hence followed, in especial, “ Two Essays towards explaining the hieroglyphical figures on the coffin belonging to Captain W. Leithiullier, and on the Egyptian mummy in the museum of Dr. Mead ;” another folio of twenty-five plates of Egyptian mummies, engraved by Vander Gucht ; and, indeed, endless hieroglyphic elucidations and mystifications, carried on to the close of a life terminated under circumstances well calculated to have weaned anyone but such an enthusiastic devotee from this unprofitable toil

Of dropping buckets into empty wells,  
 And growing old in drawing nothing up.

Alexander Gordon, it may be surmised, was somewhat of a fossil mummy himself. Had his northern Alma Mater been able to furnish it, his fittest niche would have been some snug College Fellowship, with a Bodleian Library to browse in at his will. But it has rather been the fashion in the North to let such Fellows cultivate their learning on a little oatmeal. I confess to a kindly feeling

for the old antiquary. His fate, though no rare one in the history of the Scot, was scarcely what he deserved. He must have had one more point of resemblance to Jonathan Oldbuck, characteristic enough of many a pilgrim from Dee-side. "Were he thoughtless, or light-headed, or *rei suæ prodigus*," said the old attorney who had undertaken to become Jonathan's instructor in the profession of the law, "I would know what to make of him. But he never pays away a shilling without looking anxiously after the change, makes his sixpence go farther than another lad's half crown, and will ponder over an old black-letter copy of an Act of Parliament for days, rather than go to the golf, or the change-house." The author of the *Itinerarium* was of the same frugal type; and having no paternal acres on which to retire, after labouring so zealously to elucidate the antiquities of the Old World, he undertook an ampler *Itinerarium Septentrionale* beyond the furthest limit marked by column or temple of the god *Terminus*. It was his fortune to close his diligent life among the novelties of a world beyond the Atlantic, whither the Roman eagle never flew.

In 1741 Gordon was succeeded in the office of Secretary to the Society of Antiquaries of London by Mr. Joseph Ames, best known by his labours on typographical antiquities. He had married, and no doubt found the rewards of archaeological learning and research somewhat insubstantial resources on which to sustain his household gods. So he accepted an invitation to accompany Governor Glen to South Carolina, where he obtained an official appointment, acquired a valuable grant of land, and died apparently in the year 1754, leaving to his family gifts of fortune far beyond what could have been hoped for from the career of the antiquarian enthusiast. It is just possible that this colonial appointment bore some slight relation to his earlier researches. At least the fact is noticeable that, among the Roman relics recovered by him while exploring the Antonine wall, at Barhill Fort, near Auchinday, was a Roman altar sculptured with *patera* and *præfericulum*, which, he says, "is now in the hands of my curious and honoured friend, James Glen, Esq., present Provost of Lithgow." This is no doubt the James Glen of Longcroft, Esq., who appears as a subscriber for two royal copies of the *Itinerarium*, and not improbably a relative of His Excellency James Glen, Governor of South Carolina, the patron at whose invitation Gordon emigrated to his later home in the New World.

Unfortunately my enquiries after traces of the old Scottish antiquary in his new home beyond the Atlantic were delayed till after the close of the great Southern War, which has led to the destruction of records that might have thrown further light on his own career and on that of his descendants. Nevertheless, research has been rewarded far beyond my expectations, mainly through the kind and zealous co-operation of General Wilmot G. de Saussure, of Charleston, South Carolina, President of the St. Andrew's Society of that city, and one who prizes his claims to Scottish descent through a maternal ancestress. Alexander Gordon became a member of that Society shortly after his settlement in Charleston, as appears from its historical roll; but unhappily the original records, which should have told of the part he played in its proceedings, perished in the late war. In its original constitution the Society is styled the St. Andrew's Club, and as such flourished till the War of Independence. In an address delivered before the Society by Mitchell King, Esq., when celebrating its centennial anniversary, on St. Andrew's Day, the 30th of November, 1829, the speaker remarks: "In examining the earlier records of the Society, it is interesting, and sometimes curious, to read the petitions, and see the various applications made to them. If a poor man had been oppressed by a rich neighbour, if he had lost his little crop, or stood in need of necessaries for his family, he applied to the St. Andrew's Society. One tells that his neighbours have trespassed on his land, and that he has been harassed and ruined by lawsuits. Another says that after he had made a good crop a part of it was destroyed by the bears, and the rest stolen by negroes. In 1747, the sister of a Scottish Baronet, on her third application for further relief, informs them that she believes the recent troubles in Scotland (*i.e.* the rebellion of 1745,) had prevented her brother from sending her assistance:" and so the narrative proceeds. But for the ravages of more recent troubles, we might have recovered some graphic touches illustrative of the share which Alexander Gordon took in the good work of the St. Andrew's Club of Charleston, the oldest charitable society of South Carolina. From the imprint of the original rules of the club—"London: printed by James Crockatt, printer and bookseller to the Society, at the Golden Key, next the Inner Temple Gate, in Fleet Street, 1731,"—it seems doubtful if a printing press had been set up in South Carolina within ten years of the arrival in that scene of his latest achievements, of

the author of the *Itinerarium* and other learned folios and quartos. When the address which supplies those facts was delivered, in 1829, a younger Alexander Gordon, possibly enough a grandson of the antiquary, was secretary of the Society. In the centenary address due attention is given to the memory of notable members; Alexander Skene, an original Member of the Council of the Province; John Fraser, a favourite trader among the Yamassee Indians, and celebrated in the early history of the state for his romantic escape, with his family, from a massacre, in the Indian War of 1715; Mr. Crockatt, first Treasurer of the Society, a wealthy Charleston merchant, and the link, as we may presume, between the old Charleston Club and his namesake of the Golden Key, who styles himself *Bibliopola ad Societatem*. The Londoner was a bibliopole of note in his day; originated the *Universal History*, and had a hand in starting the *Daily Advertiser*. His Excellency, Governor Robert Johnson; Robert Wright, Chief Justice of South Carolina; The Honourable James Abercrombie, of the House of Tullibody, second President of the Society; the Rev. Dr. Alexander Hewat, the earliest historian of the state; and others of the South Carolinian brethren of St. Andrew, in like manner come under review; but so wholly had the literary or antiquarian fame of the author of the *Itinerarium* proved an exotic in his New World home, that my fresh inquiries after any surviving traces of him in South Carolina were responded to by the acknowledgment that such a name did indeed appear on the old rolls of the Society, but nothing was known of the man. No one dreamt of its being that of the ever-memorable Sandie Gordon of Jonathan Oldbuck; and so I received, in lieu of what I craved, a minute record of another Aberdonian colonist, Dr. Alexander Garden, F.R.S., a zealous student of botany and natural history, and subsequently Vice-President of the Royal Society of London, who in 1755 accompanied Governor Glen on a journey into the country of the Cherokee Nation. As to the actual subject of my inquiries, my informant added that, after diligent search, his labours resulted only in the two following facts:—"That about 1750 one Alexander Gordon became a member of the St. Andrew's Society; and that about 1755 one Alexander Gordon's will was proved before the proper Probate Court; but the records being destroyed by Gen. Sherman when he burnt Columbia, the will could not be found."

Here seemed a hopeless termination to my too tardy inquiries after the old colonist. Early in November, 1864, General Sherman telegraphed to Washington: "Georgia and South Carolina are at my mercy, and I shall strike." On the 15th of the same month he gave Atlanta to the flames, and set out on the great march in which he swept, like a destroying angel, through the South. Columbia, the capital of the latter state, experienced the same fate as Atlanta; and among the many treasures that perished I could no longer doubt that, with all its other records of varying worth and value, the will of Alexander Gordon, with the evidence it contained of family ties and fortune's favours, had for ever passed beyond recal. But not so. The indefatigable zeal of General de Saussure, stimulated by a hearty appreciation of the interest attaching to the search, led him to hunt for months among old deeds and records, with the gratifying result of adding various facts to our knowledge of the object of inquiry, in addition to the recovery of the highly characteristic document of the antiquary's last will, and its evidences of the ruling passion strong in death.

In one of the public offices, in Charleston, my kind correspondent traced out the recorded copy of a deed by which one Hamerton, the Registrar of the Province, farms out his office to Alexander Gordon, and appoints him, as his attorney, to transact all the business and receive all the fees of the office. "The book," he adds, "in which the deed is recorded, is so rotted away by the ink as to make it scarcely legible, and the leaves fall in pieces as they are turned." Nevertheless, it has been recovered ere too late; and here we find the old Aberdeen Master of Arts, Music Teacher, Painter, Land Surveyor, Litterateur, Secretary of the London Antiquaries, of the Egyptian Club, &c., in an entirely novel character as Attorney-at-Law, and Registrar of the Province of South Carolina. Among other recorded conveyances, General de Saussure has also traced one of a large lot of land in Charleston, in 1746, to Alexander Gordon, which he must have possessed at the time of his death; though such was not the kind of worldly estate of which he made much account in the final disposition of his goods. It is also apparent, from the same record, that he was domiciled in South Carolina prior to 28th March, 1746, the date of the conveyance to him, and that he died before 23rd July, 1755, as upon that day Alexander Gordon and Frances Charlotte Gordon, as devisees of Alexander Gordon, convey the lot to Sir Egerton Leigh.

His son appears to have followed the last of the many professional vocations of the versatile Scot, as I find among the members of "the Union Kilwinning Lodge No. 4, Charleston, under the jurisdiction of the Grand Lodge of Ancient Freemasons of South Carolina," Alexander Gordon, Attorney-at-Law, admitted in 1756.

But the most interesting and authentic of all documentary evidence is the last will and testament of the old antiquary, for a certified copy of which I am indebted to the courtesy of George Buist, Esq., Judge of the Court of Probate of Charleston, the descendant of the Rev. Dr. Buist, a Scottish clergyman of early colonial times. It is dated the 22nd August, 1754, the testator being then "sick and weak of body, but of sound mind, memory and understanding, thanks be given to Almighty God for the same." It proceeds thus: "As to the worldly estate wherewith it has pleased God to bless me with, I give the same and dispose thereof in manner following,"—and then follows, very characteristically, this somewhat apocryphal "worldly estate:" "I give, devise and bequeath unto the Honorable Hector Berenger De Beauvain, Esq., his picture, portrait, or effigies, by me, the said testator, painted, drawn, and represented." In like manner he bequeaths to the Reverend John Heywood a similar portrait of himself; while to his son, Alexander Gordon, he leaves "my own picture, together with all and singular the paintings, views and representations by me, the said testator, painted, drawn, and represented." He next apportions to his daughter, Frances Charlotte, his silver watch, and to his son his gold ring: and then follow the more substantial bequest to his son and daughter, of a lot of land in Ansonborough, with the houses thereon, "with all and singular other my pictures hereinbefore and not particularly given," with the plate and household furniture, to be equally divided between them; and those all disposed of, the dying antiquary thus crowns his grateful bequests: "Item. It is my express will and desire, and I do hereby order and direct, that my said son shall, as conveniently as may be, cause to be printed and published, my book now remaining in manuscript, and titled, *A Critical Essay towards the Elustrating the History and Chronology of the Egyptians and other most ancient nations, from the earliest ages on record till the time of Alexander the Great, &c., &c., &c.*"; and then the testator bequeaths to his said son two-thirds of all the profits to accrue from this invaluable publication, and to his aforesaid daughter the remaining third! It is to be

feared that the heirs had no adequate faith in the marketable value of hieroglyphic elucidations, and the world still awaits the publication of this Critical Essay.

From an old diary kept by a South Carolinian gentleman, about a century ago, to which General de Saussure has had access, it appears that Frances Gordon married, on the 30th May, 1763, John Troup, probably the same whose name figures along with that of her brother, as John Troup, Attorney-at-Law, among the Freemasons of the Union Kilwinning Lodge of Charleston.

At this point all traces of Alexander Gordon, the elder, are lost. During the late war, the registry books of almost all the churches in Charleston were destroyed, and a diligent search among the older tombstones of its cemeteries has failed to reveal the last resting-place of himself or his descendants. But if Roman antiquary ever follows from the Old World on a pilgrimage to the tomb of the author of the *Itinerarium Septentrionale*, it must be sought, or fancied, beneath the shade of some Pride of India or other semi-tropical tree, where the River Ashley finds its way to the Atlantic through a region devoid of older antiquities than the trail of extinct forest tribes. When Alexander Gordon settled in South Carolina, the Catawbas, Yamassees, Cherokees, and other aboriginal tribes still clung to their old hunting grounds, much as the tribes of ancient Caledonia hovered round the settlements of its Roman colonists, when Inveresk and Cramond were the Roman sea-ports of the Forth. But such analogies were little heeded in that eighteenth century. The Roman antiquary had exchanged the favourite researches of his Scottish itinerary for more obscure Egyptian mysteries; and it may be doubted if, amid the novel duties of Provincial Registrar, it ever occurred to him that he stood in a relation to those native tribes, the aboriginal owners of the soil, analogous to that of a prefect of the old Roman *proprætor* among the *Gadeni* and *Otadeni* of the Lothians.

Among the paintings and drawings, plans, and surveys of Roman walls, altars, inscriptions, and all else, which Alexander and Frances Charlotte, his son and daughter, inherited from the antiquary, there must have been some covetable fruits of his early labours, more appreciable now than then, if they have escaped the ravages of time, and the still more desiructive violence of civil war. Above all, there fell to the share of Alexander Gordon, jun., the portraiture

and effigies of the veritable antiquary himself, painted by his own hand, and which would now be a prized treasure in any archaeological gallery of the Old World or the New.

But no descendants of the author of the *Itinerarium* are now known in South Carolina, of whom to inquire after the portrait of their famed ancestor; though the slight traces still recoverable seem to indicate that they prospered. From an historical sketch of the St. Andrew's Society of Charleston, which accompanies its printed rules, the office-bearers and members can be traced from its foundation. Assuming the Alexander Gordon of 1740-48, of the St. Andrew's Club, to be the antiquary himself, his son's name does not appear among its members, though the Gordons of those old colonial days are otherwise well represented: in 1757 by the Hon. Captain John Gordon; in 1761 by the Rev. Charles Gordon; and in 1765 by the Right Hon. Lord Adam Gordon, with others of later date, on to 1825, when another Alexander Gordon appears,—possibly the grandson or some later descendant of the antiquary,—who was secretary from 1828 to 1833. He then filled the office of treasurer till 1844, when he is found holding both offices. Thereafter he acted as secretary till 1850, when the name disappears from among the Society's office-bearers till 1859, at which year Alexander Gordon is elected first vice-president, and so continues till 1864, when he must have been removed by retirement or—if it be the same individual,—by death, at an advanced age. But, recent as that date is, the Southern War and all the troubles which followed have wrought many changes; and so far, my informant writes me, he has failed, in this and other cases, “to trace any connection with the descendants of Sandie Gordon of Oldbuck veneration.”

John Troup, who in 1754 witnessed the antiquary's will, may be assumed to be the attorney-at-law of that name admitted to the Union Kilwinning Lodge of Ancient Free Masons in 1762,—the year before his marriage to Frances Charlotte Gordon, whose brother had joined the same Lodge a few years earlier. John Troup appears to have been a popular and prosperous man. On the reorganisation of the St. Andrew's Club, under its later name of the St. Andrew's Society, in 1787, after the War of Independence, he was chosen assistant-treasurer, and from 1790 to 1794 he filled the office of vice-president. He was distinguished in like manner by the brethren of the Kilwinning Lodge. From an old record recovered among the



papers of Dr. Edward Lynah, a former officer of the Lodge, which partially replaces official records, destroyed, along with all the jewels, books and charters, in the great fire of 1838, by which a large portion of the city of Charleston was reduced to ashes: it appears that on Monday, 13th January, 1794, the Right Worshipful Master, John Troup, entertained the Lodge at his own house; and in a note accompanying this entry, his death is recorded on the 30th January of the following year. A James Troup, probably his son, joined the Lodge in the latter year; but the destruction of nearly all the registry books of births, marriages, and deaths, at Charleston, during the late war; added to the absence of any recognition of the old scholar and antiquary, as such, in his later home: render it impossible to trace out his descendants through either line, or to recover any clue to the depository of the paintings and drawings mentioned in his will; and, above all, to that of the portrait of the testator himself, painted by his own hand, and specially bequeathed to his son as a family heirloom.

To the kind co-operation of General de Saussure, President of the St. Andrew's Society of Charleston, South Carolina, I owe the recovery of the most important facts relative to the colonial life of the author of the Itinerary; and I still indulge the hope that he may be able to crown his persevering and successful labours by tracing out this portrait of Sandy Gordon,—doubtless in the full glory of wig, ruffles, and lapel waistcoat, of the Georgian era,—and gracing with so interesting a piece of historical portraiture the hall of the Society of the Sons of St. Andrew, founded in the city of Charleston nearly a century and a-half ago.



ON THE SPECIES OF  
FAVOSITES OF THE DEVONIAN ROCKS OF  
WESTERN ONTARIO.\*

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Those who are acquainted with the subject will not need to be told that the present communication is to a large extent simply supplementary to the admirable paper published by Mr. Billings upon the Devonian Corals of Canada West, in which the species of *Favosites* are treated at considerable length (Canadian Journal, New Series, Vol. iv. p. 97). In some respects I find myself unable to agree with this eminent palæontologist in the conclusions at which he has arrived; and as I have had the opportunity of carefully examining a very extensive series of specimens, I am induced to submit my views upon this very perplexing group of corals.

The genus *Favosites*, Lamarck, comprises branched or massive corals, composed of numerous more or less polygonal corallites, which are divided internally by transverse septa or "tabulæ," sometimes quite rudimentary. The walls of the corallites are perforated by one, two, three, or more rows of "mural pores," by which the separate corallites are placed in communication. The septa are absent or rudimentary, being at most represented by tubercles or short spines.

The generic limits of *Favosites* have not been universally agreed upon by palæontologists, and the genera *Emmonsia*, Edw. & H., and *Astrocerium*, Hall, have been founded upon differences which Mr.

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\* As the present communication will be published, in a somewhat enlarged form, in a Report which I am preparing upon the organic remains of certain of the Palæozoic formations of Ontario, I have not in the meanwhile thought it necessary to prepare illustrations of the species therein described.

Billings rightly regards as not of generic value. Thus, *Emmonsia* is distinguished from *Favosites* simply by the incompleteness of the tabulæ; but this same peculiarity can sometimes be observed even in *F. Gothlandica*, the type-species of *Favosites*, individual examples of which not very uncommonly exhibit portions with the complete tabulæ of *Favosites*, and other portions with the imperfect tabulæ of *Emmonsia*. In the same way, there are many examples of *Favosites*, of more than one species, in which the tabulæ, whether naturally or from some peculiarity in the manner in which they were preserved, are quite rudimentary, and are even more imperfect than they are in ordinary specimens of *Favosites hemispherica*, upon which the genus *Emmonsia* was founded.

The genus *Astrocerium*, again, was founded by Hall (Pal. N. Y. Vol. ii. p. 126) to include corals exceedingly like *Favosites* in all superficial characters, but differing in the possession of spiniform septa. It would appear, also, though this character is not specially mentioned, that Hall believed the corals which he referred to *Astrocerium* to be destitute of mural pores. This latter point, if it could be proved, would amply suffice to separate *Astrocerium* generically from *Favosites*; but there is much reason to think that the apparent absence of mural pores may be due to mineralisation merely. At any rate, it is far from uncommon to meet with examples of undoubted species of *Favosites* in which no pores can be detected. The other point—namely, the presence of spiniform septa—is also not a satisfactory distinction, partly because some examples of *Favosites* exhibit the same thing, and partly because some examples which would generally be referred to *Astrocerium* from their geological position and general appearance, are without any traces of septa. Upon the whole, therefore, it would appear that the genera *Astrocerium* and *Emmonsia* cannot be retained.

The numerous species of *Favosites* may be divided into two groups, according as they are massive or ramose, *F. Gothlandica* being the type of the former, and *F. polymorpha* of the latter. The characters which have been relied on as separating the species of this genus are chiefly the following:—1. The diameter of the corallites; 2. The equality or inequality in size presented by the corallites; 3. The completeness or incompleteness of the tabulæ; 4. The number of rows of mural pores; 5. The position of the mural pores, whether on the flat faces of the polygonal corallites or on their angles; 6.

The presence or absence of rudimentary septa. For convenience of reference, the more important species of *Favosites* may be arranged as in the following table, it being remembered that some of the species here enumerated are perhaps not valid, and the characters derived from the number of rows of mural pores are not constant, even in the limits of the same species :

#### A. MASSIVE SPECIES.

- a. Tabulæ complete. One row of mural pores, placed on the faces of the corallites.
1. *Favosites basaltica*, Gold.
  2. *Favosites turbinata*, Billings.
- b. Tabulæ complete. Two rows of mural pores, placed on the faces of the corallites.
3. *Favosites Gothlandica*, Lam.
  4. *Favosites Niagarensis*, Hall.
- c. Tabulæ complete. Three rows of mural pores, placed on the faces of the corallites.
5. *Favosites multipora*, Lonsd.
  6. *Favosites Troosti*, Edw. & H.
- d. Tabulæ complete. Mural pores situated in the angles formed by the prismatic walls of the corallites.
7. *Favosites alveolaris*, Gold.
  8. *Favosites aspera*, Gold.
- e. Tabulæ more or less incomplete. Mural pores in one, or more commonly in two rows.
9. *Favosites hemispherica*, Yandell & Shumard.
  10. *Favosites Forbesi*, Edw. & H.

#### B. RAMOSE SPECIES.

- a. With one row of mural pores, on the faces of the corallites.
11. *Favosites polymorpha*, Gold.
  12. *Favosites cervicornis*, De Blainville.
  13. *Favosites reticulata*, De Blainville.
- b. With one row of pores, placed in the angles formed by the prismatic angles of the corallites.
14. *Favosites fibrosa*, Gold.

Of the above-mentioned species, the ones which have as yet been recognized as occurring in the Devonian Rocks of Canada are *Favosites Gothlandica*, Lam., *F. basaltica*, Gold., *F. hemispherica*, Yandell & Shumard, *F. Forbesi*, Edw. & H., *F. turbinata*, Billings, *F. cervicornis*, De Blainville, and *F. polymorpha*, Gold.

## I. FAVOSITES GOTHLANDICA (Lamarck).

The following is the diagnosis given by Mr. Billings of this cosmopolitan species in the paper already referred to:—"Corallum forming spheroidal, pyriform, or large hemispheric or flattened masses; corallites is general between one line and one and a half lines wide, sometimes less or more, often two lines; transverse diaphragms usually complete, rarely incomplete; mural pores in one, two or three series, usually two, those of the same series about half a line distant, sometimes less; pores surrounded by an elevated margin; faces of the tubes with one or two longitudinal striæ, more or less distinctly developed; radiating septa represented by a series of small spines, often in the rudimentary form of tubercles."

The chief characters which may be relied upon as distinguishing typical examples of *Favosites Gothlandica*, Lam., are the following:

1. The corallites are of comparatively large size, usually almost one and a half lines in diameter, but varying from one to two lines.
2. The corallites are generally markedly polygonal, and are for the most part tolerably uniform in their dimensions.
3. The mural pores are in two rows, placed alternately, or sometimes oppositely, on the faces of the corallites, and surrounded by elevated margins.
4. The tabulæ are complete, that is, extend from one side of the theca to the other.
5. Perfect examples are usually of a more or less hemispheric or pyriform shape, and have their lower surface enveloped in a thicker or thinner, concentrically-wrinkled epitheca.

Whilst the above characters are generally found to exist in typical specimens of *F. Gothlandica*, there are, nevertheless, numerous departures from this state of things, which must be attended to in studying this protean species:

The size of the corallites in some specimens not otherwise separable from *F. Gothlandica*, is sometimes uniformly below the average in an entire colony, not exceeding one line, or even a little less than this. This might not seem an important difference, but, as noticed by Mr. Billings, it gives the coral an apparently very distinct general appearance.

The corallites, though usually distinctly polygonal, are sometimes nearly round throughout an entire colony; and their relative size in the same mass may vary to some extent. Thus, it is not uncommon to meet with colonies, in which the great majority of the corallites

have a diameter of one and a half lines, whilst some few have a diameter of a line or a little less.

Whilst the mural pores are usually in two rows, there is sometimes but a single row, and sometimes three rows; and single colonies may be found to combine all these variations in different corallites. It is probable that the typical forms upon which Goldfuss founded his species *F. basaltica*, as believed by Lonsdale and McCoy, are truly referable to specimens of *F. Gothlandica*, Lam., in which but a single row of pores is present. *F. Goldfussi*, Edw. & H., again, seems unquestionably to be nothing more than a variety of *F. Gothlandica*, as asserted by Mr. Billings, the only distinctive characters brought forward by its authors being the unreliable ones that the rows of pores vary from one to three, and that they are more closely approximated than in typical examples of the latter. Lastly, the elevated ring which is often found surrounding the pores in *F. Gothlandica*, is in many cases absent, single specimens often exhibiting both conditions. It may be added that the pores themselves, even in specimens otherwise well preserved, can by no means universally be detected.

The tabulæ are for the most part complete, extending from one side of the theca to the other; but this condition of parts is by no means constant. Specimens, otherwise well preserved, sometimes exhibit a complete absence of the tabulæ, the corallites being hollow. Others exhibit a condition of things very similar to what occurs in *Favosites Forbesi*, though not so marked. The inner surfaces, namely, of the corallites exhibit rudimentary and imperfect tabulæ, in the form of little projecting lamellæ, or ridges, which project into the cavity of the theca. Specimens exhibiting this peculiarity can usually be distinguished from examples of *F. Forbesi* without difficulty, by the fact that the ridges representing the tabulæ are not so closely set, are more delicate and plate-like, usually run across the whole width of the corallite, and do not give to the interior of the theca the extraordinary roughness of appearance which is characteristic of *F. Forbesi*. In other specimens, again, the tabulæ have the characters which are distinctive of *F. hemispherica*, being closely set and incomplete, often more or less bent, and commonly interlocking. Such specimens, however, are readily separated from those which are rightly referred to *F. hemispherica*, by the fact that in the former some of the corallites are always found to exhibit the complete tabulæ

of *F. Gothlandica*, whilst the size of the corallites is on the average much more considerable. In fact, the commonest condition in the specimens here alluded to is that alternating portions of the mass exhibit the complete tabulæ characteristic of *F. Gothlandica* and the incomplete tabulæ characteristic of *F. hemispherica*. Mr. Billings has also pointed out that the same corallite sometimes exhibits complete tabulæ in one portion of its course and incomplete tabulæ in another.

As to the condition of the septa, the diagnosis of the species would, perhaps, be altered for the better by the statement that as a general rule the septa are absent, or at any rate are indeterminable. They are, however, not uncommonly to be recognized in the form of small inequalities or minute tubercles on the interior of the walls of the corallites; and they sometimes exist in the condition of distinct spines, though I have never noticed this state of things in any of the specimens from the Corniferous Limestone. It is, however, not uncommon in Silurian specimens, and it has been observed and figured by Mr. Billings from Canadian examples found in the Corniferous formation.

Adult colonies of *F. Gothlandica* usually have the form of much depressed pyriform masses, but great variations exist in this respect; and young colonies are usually spheroidal or simply pyriform, whilst the largest and oldest aggregations tend to assume the form of dome-shaped or hemispheric masses. The colony is based upon a concentrically-wrinkled epitheca, which is very commonly wanting in decorticated specimens, and attains a considerable thickness in aged examples.

*Locality and Formation.*—Common throughout the Corniferous Limestone in Canada West.

## II. FAVOSITES BASALTICA (Goldfuss).

It is with regard to this species that I find myself compelled, though with great diffidence, to differ from the conclusions arrived at by Mr. Billings (*Canadian Journal*, Vol. iv. p. 108), more widely than as concerns any other form described by him. Having, however, had the opportunity of examining a very extensive series of specimens, I cannot at present accept his views with regard to the limits of this species. It seems pretty certain, to begin with, that the forms included by Goldfuss (*Petref. Pl. xxvi. figs. 4 a—d*) under the name

of *F. basaltica*, differ from one another in their characters to such an extent that they would usually be (as they actually have been) separated into two distinct species. On the one hand, making the existence of a single row of mural pores the distinguishing character of the species, Goldfuss includes under this head forms which differ only in this character from *F. Gothlandica*; and, on the other hand, he associates with these other forms which differ very widely from *F. Gothlandica* in most of their characters, but which are believed to agree with the preceding in the above-mentioned feature. We may, therefore, consider that the *F. basaltica* of Goldfuss was made originally to include the following two groups of specimens:—

1. Specimens agreeing with *F. Gothlandica*, Lam. in possessing prismatic corallites, the size of which is upon the whole generally uniform, but which differ from *F. Gothlandica* in possessing but a single row of mural pores (*Petref.* Pl. xxvi. figs. 4 c, 4 d).

2. Specimens which agree with the preceding in having sometimes (not always) a single row of pores, but which differ in having nearly rounded or cylindrical corallites, the sizes of which are exceedingly unequal; whilst the place of complete tabulæ is taken by numerous short projecting lamellæ, which impart a peculiar and characteristic appearance to the inner surface of the corallites (*Petref.* Pl. xxvi. figs. 4 a, 4 b).

Now, it is the first of these groups of specimens that palæontologists have generally agreed in regarding as the type-form of *F. basaltica*, Gold.; and the chief difference of opinion has simply concerned the question whether these forms are separable from *F. Gothlandica*, Lam., or not. Some authorities, such as McCoy and Lonsdale, maintain, apparently with good reason, that these forms are truly referable to *F. Gothlandica*; whilst others, such as Milne Edwards and Haime, retain these forms under a separate species, under the name of *F. basaltica*. Whichever of these views may be ultimately adopted, I, at any rate, have seen no specimens from the Corniferous Limestone of Western Ontario which appear to me to be truly referable to the type here alluded to. We do meet, certainly, with specimens exhibiting prismatic basaltiform tubes, in every respect resembling *F. Gothlandica*, except that the corallites are on the average a little smaller, and that they exhibit but a single row of mural pores. These specimens I was at first sight disposed to set down as belonging to *F. basaltica*, and I have seen them so named by others. I have, however, suc-



ceeded in fully satisfying myself that the specimens in question are truly decorticated examples of *F. turbinata*, Billings, in which there is also but a single row of pores. Examples of this species can be found with the characteristic epitheca in all stages and in all degrees of removal, and when it has entirely disappeared, all the characters of this first section of *F. basaltica*, Gold. are assumed, the only distinguishing mark, perhaps, being that the walls of the corallites have the comparatively great thickness which is characteristic of *F. turbinata*. It need only be added in this connection, that unmistakable examples of *F. Gothlandica* not uncommonly exhibit, as has been often noticed by other observers, the single rows of pores which Goldfuss believed to be characteristic of *F. basaltica*; though I am not aware that any colony of *F. Gothlandica* has ever been observed in which all the corallites possessed but one row of mural pores.

We have now to consider the other group of specimens included by Goldfuss under the head of *F. basaltica*, namely, those in which the corallites are more or less circular or cylindrical in shape, and are very unequal in size, whilst they possess other peculiarities as well. These specimens were separated from *F. basaltica* by Milne Edwards and Haime, under the name of *Favosites Forbesi*; but they were subsequently re-united with the preceding group of forms by Mr. Billings, the name *basaltica* being retained for the combined groups. My own opinion, as I have already said, is that the colonies with small, nearly uniformly-sized, prismatic, and uniporous corallites (as occurring in the Corniferous Limestone), are referable to decorticated examples of *F. turbinata*, Billings. I, therefore, am at present disposed to believe that *Favosites Forbesi*, Edw. and Haime, is a good species, clearly separable from the type-form of *F. basaltica*, as generally accepted (though including part of *F. basaltica* of Goldfuss); and I shall describe under this name the second group of specimens to which I have drawn attention.

### III. FAVOSITES FORBESI (Edw. & Haime).

Corallum forming spheroidal, pyriform, cylindrical, or depressed hemispheric masses, composed of corallites which are generally circular or cylindrical in shape, and which are usually of very unequal sizes; mural pores usually in two alternating rows, rarely in a single row; tabulæ mostly rudimentary, and represented by very close-set projecting lamellæ, which roughen the interior of the corallites;

radiating septa represented, sometimes clearly, sometimes indistinctly, by a number of longitudinal ridges or striae.

The typical examples of this species are usually spheroidal, cylindrical, or club-shaped, and possess almost perfectly cylindrical corallites. The corallites are large and small, each larger one being surrounded by an incomplete ring of smaller. The larger corallites are uniformly about a line and a half or a line and three quarters in diameter; but the smaller corallites vary considerably in size, from an eighth of a line up to almost a line. The mural pores often cannot be made out, but in all the specimens I have seen there are constantly two rows of pores on the larger corallites, thus differing materially from *F. basaltica*, Gold. Mr. Billings, however, states that the smaller tubes possess but a single row of mural pores. The condition of the tabulae is exceedingly peculiar; and I do not think it can be due, as suggested by Mr. Billings, to the manner in which fossilisation was effected; since it is constantly present in all our Canadian examples of this species, whilst these occur side by side with examples of *F. Gothlandica* in which the tabulae are complete. The tabulae, namely, are present in an incomplete and rudimentary form, being represented by numerous close-set lamellae, ridges, or short spines, which project a short way into the interior of the corallite, giving it a most peculiar and easily-recognised appearance. The most perfectly preserved specimen in my possession, in which the tubes are filled up, instead of being as usual hollow, exhibits tabulae which are slightly more developed than those just described, approximating closely to what is observable in *F. hemispherica*. The tabulae, namely, in this specimen, are close-set, thin, flexuous lamellae, which for the most part extend almost half way across the corallite, often bifurcating or interlocking at their free ends; but which in some instances actually become complete, and pass right across the corallite. The radiating septa are quite rudimentary, and, when discernible at all, have the form of obscurely-marked longitudinal striae. Lastly, I have observed in several specimens, especially in those of a cylindrical or clavate form, the peculiar feature that the calices of a greater or less moiety of the colony are closed by an epitheca, closely resembling what is observed in *F. turbinata*, Billings.

Mr. Billings has shown that small specimens having the characters above mentioned pass by a perfect transition into much larger pyriform specimens, which present the peculiarity that the corallites at

the base of the mass are large and unequal in size, whilst those at the summit are on the average smaller, and are nearly equal in size. The same distinguished paleontologist has also pointed out that the younger pyriform colonies also pass, by an equally perfect transition, into elongated cylindrical forms, often of considerable length. Both these statements I am enabled to confirm from my own observations.

Besides the typical examples of *F. Forbesi* which I have just described, there occur not uncommonly others which I cannot at present separate from this species, though they present several more or less well-marked peculiarities. The corallum in the examples in question resembles in shape the more ordinary individuals of *F. Gothlandica*, being circular and flattened above, and springing from a pointed and attenuated base, which was doubtless enclosed in an epitheca. The corallites are not distinctly circular, but are cylindrical or sub-prismatic, and they are nearly equal in size, having an average width of one line. Interspersed, however, with the ordinary corallites are some smaller ones having a diameter of half a line or a little less. The mural pores appear to form a double series. The radiating septa are well marked, and form a series of about twelve strong ridges which run longitudinally in the interior of the corallites. These septal ridges are crossed by rudimentary tabulae in the form of short spine-like lamellae, about three or four in the space of a line, and not placed on the same level in contiguous ridges. It is possible that these forms are specifically distinct from those which I have here referred to *F. Forbesi*: but I do not feel that it is safe to separate them at present.

*Locality and Formation.*—Corniferous Limestone, Port Colborne, and lot 6, con. 1, Wainfleet.

#### IV. FAVOSITES HEMISPHERICA (Yandell and Shumard).

In its essential characters, this species is very closely allied to *F. Gothlandica*. Externally, however, it may in general be distinguished from the latter by the much smaller size of the corallites, which are usually only from one twenty-fourth to one twentieth of an inch in diameter, though they sometimes reach one line. Internally, the species is distinguished by the fact that the tabulae are incomplete, very thin and closely set, usually extending only about half way across the corallite, and often interlocked towards its centre. Some of the tabulae, however, are usually complete. The mural pores

are stated to be in one, two, or three rows (Milne Edwards and Haime, and Billings); but I have not succeeded in detecting their arrangement in any of the Canadian examples which have come under my own notice. According to Milne Edwards and Haime, also, there are twelve well developed septa, but these are indeterminate in the Canadian specimens. This species may turn out, as suggested by Mr. Billings, to be identical with *F. Gotthlandica*, but its distinctive characters can usually be recognised with such ease as to justify placing it under a separate specific title. There can be no hesitation, however, in following Mr. Billings in his refusal to adopt the genus *Emmonsia*, proposed by Edwards and Haime to receive this species, and founded simply upon the incomplete condition of the tabulae.

*Locality and Formation.*—Common in the Corniferous Limestone of Ridgeway, Port Colborne, and many other localities in Western Ontario.

#### V. FAVOSITES TURBINATA (Billings).

“Corallum forming elongate turbinate masses, sometimes two feet in length and six inches in diameter, often curved at the base. Corallites nearly of a uniform size, usually somewhat less than a line in width; transverse diaphragms thin, flat, flexuous, complete or incomplete. Only one row of pores has been observed. Whole surface, except the upper part, covered with a strong epitheca which closes the mouth of the cells.”—(Billings.)

There can be no question as to the specific distinctness of this most remarkable species, the most singular representative of the genus. The form of the colony varies much, but is in typical specimens that of a straight or curved cone, which varies in length from less than an inch up to two feet. Other examples are more or less cylindrical, either straight, like *Orthoceratites*, or more commonly curved or twisted, and of irregular diameter. Other specimens, again, are irregularly curved masses, which look like large potatoes.

In perfectly preserved specimens, the whole of the colony except the upper surface is covered by a thinner or thicker epitheca, which seals up the calices of the corallites. The summit of the colony is usually somewhat cup-shaped (though this may not be a natural appearance); and it is only here that the corallites are open. In most specimens the epitheca is smooth, and is sufficiently thin to allow of the walls of the corallites to be distinctly traced through it.

In such cases, the mouth or calice of the corallites appears to be closed with a kind of disc, which is sometimes level with the general surface, often depressed slightly below it, and sometimes elevated in the form of a rounded boss.

In a very large number of specimens, the epitheca has been more or less denuded over parts where it originally existed. In such cases it is mostly only the epitheca which has been removed, and the corallites are left intact and uninjured, with their calices quite empty. In other cases, the epitheca has been entirely decorticated, whilst the corallites may remain uninjured, or may be more or less broken away towards their outer ends. Such specimens can in general be readily recognised by the general shape of the colony and the peculiar characters of the corallites. In other cases, lastly, the epitheca is sufficiently thick to render the calices of the corallites below obscure or invisible. In these instances, concentric lines of growth are usually exhibited by the epitheca, and these are sometimes developed into such strong and regular annulations as to simulate pretty closely the appearance of perfect specimens of *Clisiophyllum Oneidaense*, Billings.

The corallites radiate from the imaginary axis of the colony, either in straight lines or curves; and the size of the mass in the turbinate specimens increases rapidly by the interstitial addition of fresh corallites. In shape the corallites are rounded, sub-prismatic, or more commonly distinctly prismatic. In size they are by no means uniform, there being generally a considerable number of under-sized corallites intercalated amongst the nearly equal-sized larger tubes. The larger corallites have most commonly a diameter of from a line to a tenth of an inch, whilst the smaller ones may be half a line or less in width.

The tabulæ are commonly complete, sometimes incomplete; and are about three or four in the space of a line.

The mural pores, so far as I have observed, are uniformly in single rows, placed on the flat surfaces of the corallites, not surrounded by an elevated border, and of comparatively large size. Their distance apart is most commonly about half a line, but is sometimes as much as a line.

The walls of the corallites are of unusual thickness, in the great majority of cases; and they are not undistinguishably fused with those of contiguous corallites. Hence the lines of division between the walls of neighbouring tubes can be plainly seen in parts from

which the epitheca has been removed, or even through the epitheca itself when the latter is of no great thickness.

Completely decorticated specimens might very readily be referred to one of the two groups of forms usually placed in *F. basaltica*, Gold.—the group, namely, comprising forms with prismatic corallites of small size, with but a single row of pores. Specimens, again, exhibiting longitudinal sections, but not exhibiting the outer surface, would also, almost certainly, be referred to *F. basaltica*. In the former case, the thickness of the walls of the corallites, and their being generally quite distinct and not fused with one another, would usually suffice for their determination. In the latter case, a positive determination would probably be impossible, unless some portion of the outer surface could be observed.

*Locality and Formation.*—Common in the Corniferous Limestone of Ridgeway, Port Colborne, and other localities in Western Ontario.

#### VI. FAVOSITES POLYMORPHA (Goldfuss).

Corallum dendroid, often dichotomously branched, or reticulated; diameter of branches varying from a little over a line to more than an inch. Corallites radiating in all directions from an imaginary axis nearly at right angles, more or less contracted internally and widening as they approach the surface. Diameter of corallites from half to three quarters of a line in branches of half an inch across, often with smaller ones intercalated. Calices in reality polygonal, but usually rendered circular by thickening of their walls. Mural pores in a single series.

The ramose species of *Favosites* are so variable in their characters, that I propose to treat them separately, along with the species of *Alveolites*, to which they present many superficial resemblances. The definition above given would include the typical forms of *F. polymorpha*, but numerous examples are to be met with which may be regarded as being on the one hand mere varieties of *Favosites polymorpha*, or which may on the other hand be regarded as distinct species. Such, for example, are the forms which have been referred by De Blainville to the species *F. cervicornis* and *F. dubia*, and which have been regarded with more or less doubt as distinct by subsequent observers. Besides the above, the Devonian Rocks of Western Ontario yield at any rate one ramose form of *Favosites* which appears to be distinct from any as yet described.

## CLASSICAL NOTES.

BY W. D. PEARMAN, M.A.,  
CLASSICAL TUTOR, UNIVERSITY COLLEGE, TORONTO.

*Read before the Canadian Institute, February 1st, 1873.*

The first point to which I would call your attention is an attempt to explain an anomaly in the use of the tenses of the subjunctive, in Latin, in conditional propositions. This anomaly consists in the employment of the present subjunctive in the protasis, followed by an imperfect in the apodosis, whereas, from the ordinary rules of syntax, we should expect to find the same tense employed in both, or, if there were any variety, that the present and perfect or the imperfect and pluperfect might be interchanged, and not, as in the cases to come before us, to have a definite tense in the protasis followed by an indefinite tense in the apodosis. Some striking instances of this anomaly are quoted by Munro, in his edition of Lucretius, in a note on Bk. v., v. 277. They are Virgil, G. iv. 116; Tibullus i. 4, 63; i. 8, 22; Catullus vi. It occurred to me that the difference in tense might be accounted for by the preference which the Latins, as well as the Greeks, always gave to the present tense, in such cases as an action, though begun in *past* time, was regarded as still going on: e.g., where in English we say "I have long thought," the Latin would be "diu cogito;" because we still continue to think at the *present* time, although the first occasion of our doing so may have been some time *past*. This explanation, so far as their meaning is concerned, will suit the passages quoted. In the first, Lucret. v., 277: Qui nisi contra corpora retribuatur rebus recrectque fluentis omnia jam resoluta forent, &c. Lucretius says that all things would have long ago been resolved and converted into air, if the air had not kept restoring them in the form of showers. Here we see that, though the act of resolution would have taken place at any time *past*, the act of restoration is still going on; and therefore, in accordance with the use which I have mentioned, is expressed by the *present* subjunctive.

Again, Virg. G. iv. 116: *Extremo ni jam sub fine laborum vela traham et terris festinem advertere proram Forsitan . . . et*

canerem, &c. Virgil says that he would have sung of other things, if he had not been (as he still was) furling his sails and hastening to turn his prow to the shore. Next, Tibull. i. 4, 63: Carmina ni sint, Ex humero Pelopis non nituisset ebur. The ivory shoulder shone forth as soon as the songs were made, but those songs still exist.

*Ibid* i. 8, 22: Cantus et e curru Lunam deducere tentat, et faceret si non æra repulsa sonent. In this case we have the present tense, because the troubles of the moon are still healed, as often as they occur, by the same process: whereas she would have been drawn down by the first incantation.

Catull. vi.: Flavi, delicias tuas Catullo ni sint illepidæ atque inegantes Velles dicere nec tacere posses. Flavius would have spoken of her long ago, if she had not been (as she still was) unlady-like, &c.

In all these cases we see that while the state or action, described in the conditional clause, may be considered as still existing or going on as much now as it ever did, that in the other clause might have taken place indefinitely at any time past.

Sophocles' *Antig.*, 250 foll., and Æschylus *Sept. c. Theb.*, 1042. It is generally believed that Sophocles, in his *Antigone*, intended to take up the fortunes of the *Cædipodæ* at that point where Æschylus leaves them, in his play of "The Seven against Thebes;" and it has been remarked that we have the character and conduct of his heroine, *Antigone*, plainly foreshadowed in the last speech which the *Antigone* of Æschylus utters as she quits the stage. One point, however, which I have not seen noticed by any of the commentators, struck me as proving, in a remarkable manner, that Sophocles must have intentionally shaped his play, so as to make it accord with the circumstances as presented by Æschylus; and that is the minuteness of detail with which he makes the guard, who had been set to watch the dead *Polynices* and to prevent any attempt to bury him (as a punishment for his unnatural conduct towards his native city), inform us that, though dust has been sprinkled on the dead body, so as to satisfy the bare ceremonial requirements of burial, the ground round about is hard and unbroken, and there is no earth thrown up by the spade, but the doer of the deed has been one who has left no sign. I cannot help thinking that Sophocles must have had v. 1042 of the *Sept. c. Theb.* in view when he wrote these lines, for there *Antigone* says that her brother shall be buried, even if she has to do it herself, carrying the dust in the bosom of her robe. The whole



passage, it is true, in which this line occurs is evidently imitated by Sophocles in different parts of his *Antigone*, but this apparent correspondence, in the minutest detail, seemed to me so remarkable as to be worthy of notice.

*Æschines contra Ctesiph.*, sec. 77. This passage has always puzzled the commentators, and no satisfactory explanation has hitherto been offered. The explanation here proposed, although I am far from presuming to say that it is by any means a certain one, was suggested by a passage in the *Agamemnon* of *Æschylus*, v. 358, sqq., where what would seem to be a similar metaphor is employed. In the passage before us, *Æschines* is holding up to ridicule the strange metaphors which he says that *Demosthenes* uses, and he expresses his surprise that the Athenians can sit to hear such coarse language. The other expressions which he quotes are metaphors taken from the vineyard and hunting field: *e.g.*, "Men have lopped the branches of the people;" "Our affairs have been hamstrung." That which follows is, if I am right in my conjecture, a metaphor from fishing. "We are being huddled in rush-nets to the narrows, men are stringing us (or 'ripping us up') as they do gar-fish." In this rendering, the MSS. reading *πρωκτον* gives more force to the expression, although it justly lays *Demosthenes* open to the charge of coarseness which *Æschines* brings against him. The word *φορμωφραφούμεθα* is a compound one, one of its roots signifying "a rush or wicker mat" also used for "a fishing basket," and the other "to sew or fasten together." It only occurs in this one passage. L. and S. translate it "to squeeze up." The word *βελόνη* signifies both "a needle" and a kind of fish—"gar-fish." It seems not improbable that ambiguity was studied, and the metaphor overstrained in the attempt to convey the two ideas of netting fish and sewing with a needle. The passage which I quote from the *Agamemnon*, exactly illustrates the first part of the metaphor. The walls of Troy are described as having a net thrown over them in such a way that not one of the people can escape the *μέγα δουλείας γάγγαμον ἄτης*—"the mighty trawl net of slavery," as Paley translates it. The *γάγγαμον* was the narrow part of the net, into which the game or fish were driven in order that they might be caught with more ease, and it thus corresponds with *τὰ στενά*, "the narrows," in this passage of *Æschines*.

*Tacitus*, *Hist. i.*, 71. *Sed ne hostis metueret conciliationis adhibens, statim inter intimos amicos habuit.* This passage has been variously

altered, inasmuch as it is plainly impossible to extract sense without gross violation of the rules of syntax. The reading which Halm calls "palmarem emendationem," communicated to him by Fleckeisen, seems to me too much like a re-writing of Tacitus: *i.e.*, *Sed deos testes mutuæ reconciliationis adhibens*, &c.; and the other readings are disposed of summarily by Orelli and others. The variant reading, which some of the MSS. are reported to have, *hostes* and *conciliationes* is scarcely worth attention, as *is* and *es* are said to be constantly interchanged in MSS., partly owing to the unsettled orthography of many of the plurals of substantives, &c. It has occurred to me that the alteration of *metueret* into *metu esset*, with a comma after *conciliationis*, would make excellent sense, while the change of *metueret* into *metu esset* is almost the slightest possible, if we consider how this tense is formed, (*Key's Lat. Gr.*, sec. 483.) Thus we should have *Nec Otho quasi ignosceret sed, ne hostis metu esset conciliationis, adhibens statim inter intimos amicos habuit*. The mistake, as I think, of those who would read *metum . . . adhiberet*, &c., has been in supposing that *adhibens* was necessarily to be separated from the words which immediately follow. *Adhibere* is frequently used in the sense of "admit or invite to one's counsels;" "to employ."

I would translate then, "Nor did Otho treat him as though he were pardoning him but, that he might not be an enemy through mistrust of reconciliation, immediately employing him, he enrolled him among his intimate friends." *Hostis*, "public enemy," as Church & Brodribb remark, is a term not improperly applied to the enemy of the emperor.

Demosthenes de Corona, sec. 292. καὶ μὴ τῇ προαιρέσει τῶν κοινῶν ἐν τῷ τῶν ἐναρτίων μέρει τετάχθαι. Here προαιρέσει τῶν κοινῶν is generally taken to mean τῇ πολιτείᾳ and translated "public policy." The context, however, would seem, in my opinion, to require that its ordinary meaning should be given to the word κοινῶν, *i.e.*, "shared in common." Demosthenes charges Æschines with rejoicing at the success and grieving at the reverses, not of his own citizens but of the enemy. He says then that Æschines, by his view of what are common interests (*i.e.*, affect him equally with others) is arrayed among the party of the enemy. "Sympathies" would, in my opinion, be a better rendering of this phrase, in the present instance, than "public policy."

## CANADIAN LOCAL HISTORY.

## THE FIRST GAZETTEER OF UPPER CANADA.

WITH ANNOTATIONS,

BY THE REV HENRY SCADDING, D.D.

The full title of the work which it is proposed to reprint, with annotations, is as follows:—"A short Topographical Description of His Majesty's Province of Upper Canada, in North America, to which is annexed a Provincial Gazetteer. London: Published by W. Faden, Geographer to His Majesty, and to His Royal Highness the Prince of Wales, Charing Cross, 1799. Printed by W. Bulmer and Co., Russell Court, Cleveland Row, St. James's." In the second edition, published in 1813, "His Royal Highness the Prince of Wales" is altered to "His Royal Highness the Prince Regent," and the Printers are Hamblin and Seyfang, Garlick Hill, Thames Street. In the first edition the following "Advertisement" or Preface appears:—"The accompanying Notes and Gazetteer were drawn up by David William Smith, Esq., the very able Surveyor General of Upper Canada, at the desire of Major-General Simcoe, on the plan of those of the late Capt. Hutchins for the River Ohio and the Countries adjacent. London, October 1st, 1799." The David William Smith here named was born in 1764. He was the son of Lieut.-Col. Smith, of the Fifth Regiment of Foot, formerly of Salisbury, who died Commandant at Fort Niagara in 1795. At an early age he was appointed an Ensign in his father's regiment, in which he subsequently obtained the rank of Captain. Afterwards he was called to the bar in Upper Canada, with precedence as Deputy Judge Advocate. Besides being Surveyor General, he was also one of the Trustees for the Six Nations, and of the Executive Council of the Committee for administering the Government in the Governor's absence; a member of the first three Upper Canadian Parliaments, and Speaker of the House of Assembly in two of them. On his return to England in

1802, he resided at Alnwick, where he was principal agent to the Duke of Northumberland. He was created a Baronet in 1821. In 1837 he died. He is spoken of as "a high-minded English gentleman, universally beloved for the kindness and warm-hearted generosity of his character." In Burke's General Armory, Sir David is described as being "of Upper Canada;" and in allusion doubtless to his services in that Province, his shield, Burke informs us, bore a beaver "on a chief;" and over the crest appeared the word "Canada." The whole article in Burke reads as follows:—"Smith (as borne by the late Sir David William Smith, of Upper Canada, and of Preston, County of Northumberland, Baronet.) Sir David left four daughters; the eldest married to Charles Tylee, Esq., and the youngest to Edward Tylee, Esq. Per pale, gu. and az. : on a chevron, or, between three cinquefoils, ar. as many leopard's' faces sa. ; on a chief of the third, a beaver passant proper. Crest: A sinister hand erect apaumé, coupé at the wrist, gu., the wrist encircled with a wreath of oak, or, the palm charged with a trefoil slipped, ar. ; on an escroll above—CANADA. Motto: Pro rege et patriâ. Sir David left no heirs male. His only son was killed at Quiberon, in 1811, on board His Majesty's frigate, *Spartan*."

The Instructions issued to the early surveyors by Sir David, while acting officially in Upper Canada, are still preserved. They are full of interest to the present inhabitants of the localities named. We give the letter addressed by him to Mr. Augustus Jones, at York, dated Niagara, 15th June, 1796, from which we gather that in 1796 an extension of the limits of York (Toronto) was already in contemplation. (The Governor referred to is still Gen. Simcoe.) "Sir: I enclose to you a plan of the County of York, shewing what has been surveyed, that in case His Excellency may be pleased to order it to be enlarged, you will be able to comply with His Excellency's instructions, either by laying out another range of blocks to the northward, or by continuing them to the eastward. I am, Sir, &c., D. W. Smith, Acting Surveyor General."

The Notes and Gazetteer of Upper Canada about to be reproduced, are said above to have been drawn up on the plan of those of the late Capt. Hutchins for the River Ohio and countries adjacent. Of this Capt. Hutchins and his productions we have the following notice in Allibone's Critical Dictionary of English Literature: Hutchins, Thomas, 1730-1789. Captain R[oyal] Army. Subsequently Geo-

grapher General of the United States; was a native of Monmouth, New Jersey. 1. Boquet's Expedition against the Ohio Indians. Philadelphia, 1765., London, 1766, 4to. pp. 14 and 71: 5 plates. Two of the plates are from designs by Benj. West. In French, Amsterdam, 1796. "The accounts here laid before the public appear to be perfectly authentic, and they are drawn up with equal perspicuity and elegance." Lond. Monthly Magazine. 2. A Topographical Dictionary of Virginia, Pennsylvania, Maryland and North Carolina. London, 1778, 8vo, pp. 67. 3 plates. In French, Paris, 1781. 3. Historical Narrative and Topographical Description of Louisiana and West Florida. Philadelphia, 1784, pp. 94, &c.

In the edition of 1813 the Preface or Advertisement varies slightly from that given above. It says: "The following Notes and Gazetteer were drawn up by David William Smith, Esq., late Surveyor General of the Province of Upper Canada, to illustrate the Map of that Colony, by the desire of Major-General Simcoe." It is then added: "This edition, the SECOND, has been revised and corrected to the present time by Francis Gore, Esq., Lieutenant-Governor, &c., &c., to accompany the NEW MAP compiled in the Surveyor General's office, and recently published under his direction." London, 1813. Many particulars relating to Governor Gore are narrated in "Toronto of Old." He was in England during the period of the war with the United States, 1812-14.

After the departure of Mr. D. W. Smith in 1802 the affairs of the Surveyor General's department were superintended for a time by Messrs. Chewett and Ridout conjointly. Then Mr. C. B. Wyatt became Surveyor General. Subsequently Mr. Ridout was appointed. During a portion of the incumbency of D. W. Smith, Mr. Christopher Robinson, formerly of the Province of Virginia, who had borne a commission in the corps of Queen's Rangers, was Deputy Surveyor General. The heading of the first edition, "A General Topographical Description of Upper Canada," is reduced in the second to "A Topographical Description," &c. The work then opens: "By an Act of the British Parliament, [commonly known as the Canadian Constitutional Act of 1791,] passed in the thirty-first year of His present Majesty, [i. e. George III.,] to repeal certain parts of an Act passed in the fourteenth year of His Majesty's reign, entitled, 'An Act for making more effectual provision for the Government of the Province of Quebec, in North America, and to make further provision for the

Government of the said Province;’ the Province of Quebec was divided into the Provinces of Upper and Lower Canada, which two Provinces were separated according to the following line of division, as set forth in His Majesty’s Proclamation of the 18th day of November, 1791, Alured Clarke, Esq.,\* Lieutenant-Governor, &c., &c., &c.’ To commence at a stone boundary on the north bank of the Lake St. Francis, at the cove west of Pointe au Bodét, [in Bouchette’s Topographical Dictionary of Lower Canada, this is ‘Baudet,’] in the limit between the township of Lancaster and the Seigneury of New Longueuil, running along the said limit in the direction of north 34 degrees west, to the westernmost angle of the said Seigneury of New Longueuil; thence along the north-western boundary of the Seigneury of Vaudreuil, running north 25 degrees east, until it strikes the Ottawa River; to ascend the said river into Lake Tomisaming; and from the head of the said lake by a line drawn due north until it strikes the boundary line of Hudson’s Bay, including all the territory to the westward and southward of the said line, to the utmost extent of the country commonly called or known by the name of Canada.” [The old Longueuil is situated in the County of Chambly.]

The Province of Upper Canada is bounded to the eastward by the United States of America; that is, by a line from the 45th degree of north latitude, along the middle of the River Iroquois or Cataraqui, into Lake Ontario; through the middle thereof until it strikes the communication by water between that lake and Lake Erie; thence along the middle of the communication into Lake Erie; through the middle of that lake until it arrives at the water communication between it and Lake Superior; thence through Lake Superior northward, to the isles Royale and Philipeaux, to the Long Lake, and the water communication between it and the Lake of the Woods; thence through that lake to the most north-western point thereof; and from thence a due west line to the River Mississippi.

[Bouchette observes that “this boundary was fixed by the treaty of 1783, but is erroneous, inasmuch as a line drawn west from the Lake of the Woods will not strike the Mississippi at all.” In President Russell’s opening speech to the two houses of Parliament of

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\* A notice of Alured Clarke will be given hereafter; he was Lieutenant-Governor, acting in the absence of the Governor-in-Chief, Lord Dorchester.

Upper Canada, on the 15th of June, 1799, we have an allusion to the Mississippi as a westerly boundary of his Province. "Honorable Gentlemen and Gentlemen," he says, "I am happy to inform you that the intelligence communicated to me in the beginning of the winter, respecting a combined attack of this Province said to have been in preparation from the side of the Mississippi, turns out to have little or no foundation. It has, however," he then adds, "had the pleasing effect of evincing an internal strength to repel any hostile attempt from that quarter; for I cannot sufficiently applaud the very animated exertions of the Lieutenants of Counties and the loyal spirit and zeal exhibited by the Militia of the several districts on this occasion, whereby two thousand select volunteers from the respective corps thereof were immediately put into a state of readiness to march with their arms at a moment to wherever they might be ordered, and I am persuaded that the rest would have soon followed with equal alacrity if their services had been wanted." The military spirit of the young colony of Upper Canada was, we see, fated to be thus early put to the test. The reply to this part of the President's address from the "Commons" reads as follows: "It affords us the highest satisfaction to learn that the inhabitants of this Province have been so unanimously determined to oppose any attempt which might have been contemplated to disturb its flourishing improvements, not doubting that similar energy will be shewn by all classes of the people to prevent the introduction of French principles, and preserve uncontaminated the constitution which the mother country has given us." The Speaker of the Lower House on this occasion was David William Smith, of whom an account has been given above. *President Russell, who, it may be observed, had been previously Military Secretary to Sir H. Clinton during the war of the Revolution in the United States, refers again to the expediency of being prepared for hostile attacks on Upper Canada, in the closing speech of the session of 1799. "Although," he says, "the sequestered situation of this Province has, through the favour of Providence, hitherto exempted it from sharing in the calamities of the cruel war which still ravages Europe, I cannot too earnestly exhort you to recommend it strongly to your constituents not to relax in their attentions to militia duties, and to keep that portion of each battalion which has been selected by my desire for immediate service in a constant state of readiness to act when wanted."*]

To the westward and to the northward, west of the Mississippi, its boundaries are *indefinite*; the northern limits of Louisiana not being well known. [Of Louisiana, the North American and West Indian Gazetteer of 1778 says: It stretches from N. to S. about 15 degrees, namely from lat. 25 to 40; and from E. to W., about 10 or 11 degrees; that is, from long. 86 to 96 or 97, for the limits are not precisely fixed. M. de Lisle, the Gazetteer then adds, gives it a much greater extent, especially on the north side, which he joins to Canada, so that part of it is bounded by New York, Pennsylvania, Virginia, &c., and on the west by the rivers Bravo and Salado. In the second edition (1813) of our Provincial Gazetteer, the paragraph in which Louisiana is named remains unchanged.]

To the northward, it is bounded by Hudson's Bay, as settled by the treaty of Utrecht [1713], in the 49th parallel of north latitude, *extending due west, indefinitely.*

Soon after his Excellency, John Graves Simcoe, Esq., the first Lieutenant-Governor, had taken upon him the administration of the Government of the Province, he divided it by proclamation into nineteen counties, viz:—1, Glengary; 2, Stormont; 3, Dundas; 4, Grenville; 5, Leeds; 6, Frontenac; 7, Ontario, consisting of the islands in the lake of that name; 8, Addington; 9, Lenox; 10, Prince Edward; 11, Hastings; 12, Northumberland; 13, Durham; 14, York, consisting of two Ridings; 15, Lincoln, consisting of four Ridings; 16, Norfolk; 17, Suffolk; 18, Essex; 19, Kent.

This last county comprehends all the country, not being territory of the American Indians and not included in the several other counties, extending northward to the boundary line of Hudson's Bay, including all the territory to the westward and southward of the said line, to the utmost extent of the country commonly known by the name of Canada.

These nineteen counties send sixteen representatives to the Provincial Parliament, who, with Legislative Council, are called together once every year. The representatives are elected for four years to serve in the Assembly, unless the Parliament be sooner dissolved by the person administering the Government.

[In the second edition (1813), instead of the above list of nineteen counties, the following table is given:—



## DIVISION OF THE PROVINCE OF UPPER CANADA.

DISTRICT. COUNTY.		TOWNSHIP.	DISTRICT. COUNTY.		TOWNSHIP.	
Eastern.	Glengary ..	Lancaster.	Midland.—(Continued.)	Frontenac ..	Loughborough.	
		Charlottenburgh.			Portland.	
	Kenyon.	Hitchinbroke.				
	St. Regis Indians.	Bedford.				
	Stormont ..	Cornwall		Lenox and	Addington	Ernest Town.
Osnabruck.		Adolphus Town.				
Dundas ...	Finch.	Hastings ..	Sydney.	Fredericksburgh.		
	Roxburgh.			Richmond.		
	Williamsburgh.			Camden, East.		
Prescott ..	Matilda.	Prince	Edward ..	Ameliasburgh.		
	Mountain.			Hallowell.		
	Winchester.			Sophiasburgh.		
	Hawkesbury.			Marysburgh.		
Russell ...	Caledonia.	Newcastle.	Northum-	Murray.		
	Longueuil.			berland ..	Cramahe.	
	Alfred.			Haldimand.	Hamilton.	
	Plantagenet.			Ainwick.		
Johnstown.	Grenville ..	Edwardsburgh.	Durham ..	Hope.		
		Augusta.		Clarke.		
		Wolford.		Darlington.		
	Leeds ....	Oxford on the Rideau	Home.	East Riding	Whitby.	
		Marlborough.			of the	Pickering.
		Montague.			County of	Scarborough.
Gower, N. & S.		York ....			York and Peninsula.	
Carleton ....	Elizabethtown.	King.	Etobicoke.			
	Longe.	Whitchurch.	Markham.			
	Lansdown.	Uxbridge.	Vaughan.			
Midland.	Frontenac ..	Crosby, N. & S.	Gwillimbury, East.	Do. West.		
		Bastard.		Do. North.		
		Burgess.		Scott.		
		Elmsley.				
		Kitley.				
		Nepean.				
		Howe Island.				
		Pittsburgh.				
		Wolfe Island.				
		Kingston.				

DISTRICT. COUNTY.		TOWNSHIP.	DISTRICT. COUNTY.		TOWNSHIP.																									
Home.—(Continued.)	West Riding of the County of York ....	Toronto.	Lincoln ...	Boston.	Ancaster.																									
		Trafalgar.			Glanford.																									
		Nelson.			Saltfleet.																									
		Flamborough, East.			Binbrook.																									
		Do. West.			Grimsby.																									
		Beverley.			Caistor.																									
		Six Nation Lands,			Clinton.																									
		North of Dundas			Louth.																									
		St. eet.			Grantham.																									
		Reserved Lands,			Niagara.																									
		Crown Lands and			Stamford.																									
		Church Lands.			Thorold.																									
					Pelham.																									
	Gainsborough.																													
	Wainfleet.																													
	Crowland.																													
	Willoughby.																													
	Bertie.																													
	Humberstone.																													
		Haldimand. {	Six Nation Land,	south of : undas	Street.																									
London.	Norfolk ...	Rainham.	Niagara.	Dover.	Chatham.																									
		Walpole.			Camden, West																									
		Woodhouse.			Oxford.																									
		Charlotteville.			H. ward.																									
		Walsingham.			Harwich.																									
		Houghton.			Raleigh.																									
		Middleton.			Romney.																									
		Windham.			Tilbury, E. & W.																									
		Townsend.			Shawaucce.																									
		Turkey Point and				Western.	Kent .....	Mersea.	Gosfield.																					
		Promontory of			Essex.....				Sandwich and Town.	Colchester.																				
		Long Point.								Malden.																				
										Amberstburgh																				
	(Garrison).																													
	Maidstone.																													
	Rochester																													
		London.	Oxford....	Burlford, and Gore of						Burlford.																				
	Middlesex.									London.	Westminster.	Southwold.																		
												Dorchester.	Yarmouth.	Dunwich.	Aldbrough.															
															Delaware.	Malahide.	Bayham.													
																		Middlesex.	London.	Westminster.	Southwold.									
																					Dorchester.	Yarmouth.	Dunwich.	Aldbrough.						
						Delaware.	Malahide.	Bayham.																						
					Middlesex.				London.															Westminster.	Southwold.					
																									Dorchester.	Yarmouth.	Dunwich.	Aldbrough.		
																												Delaware.	Malahide.	Bayham.

The counties send twenty-five representatives to the Provincial Parliament, &c.—Ed. 1813.]

Pointe au Bodét is situated nearly half way on the north side of Lake St. Francis, which is about 25 miles long, and narrow throughout. The object of dividing the Province of Quebec at a stone boundary in the cove, west of this point, was apparently in order that the seigniorial grants, under French tenure, should be

comprehended in the Province of Lower Canada, and that the new seigniories or townships, which were laid out for the loyalists, should be within the Province of Upper Canada; the said stone boundary being the limit between the uppermost French seigniory (M. De Longueuil's) on the River St. Lawrence, and the lower new seigniory of Lancaster, surveyed for the disbanded troops and loyalists; his Majesty having in the year 1788 signified his intention that they should be placed upon the same footing in all respects as the loyalists in Nova Scotia and New Brunswick, by having their lands granted to them in free and common soccage.

In passing from the Pointe au Bodêt, westward, through Lake St. Francis and up the River St. Lawrence, the route is generally made on the north shore. Lancaster is the first township fronting this lake: it extends nine miles, which is the ordinary size of the townships, and extending twelve miles back from the front. Lancaster is watered by three small rivers, one of which empties itself to the east, and another to the west of Pointe Mouillée, which projects into the lake towards the centre of the township.

The next township is Charlottenburg, well watered by the River aux Raisins, which, rising in the Township of Osnabruck, runs through that and the Township of Cornwall, and discharges itself into Lake St. Francis, at the south-east angle of Charlottenburg, eastward of Point Johnson. In front of this township are several small islands.

Between Charlottenburg and Cornwall is a small tract possessed by the Indians, who have a considerable village on the south shore, called St. Regis; and in this part of the St. Lawrence lie several islands, one called Petite Isle St. Regis, immediately opposite their village, and another, Grande Isle St. Regis, a little higher up, opposite the town of Cornwall.

In the rear of Charlottenburg is the township of Kenyon.

The township of Cornwall adjoins next; in the front is the town, of a mile square, lying in a commodious bay of the river, and watered by a small rivulet which runs through the town. Two branches of the River aux Raisins pass through the lands of this township; and in the front thereof are the Isles aux mille Roches et des Cheveaux Ecartées; Grande Isle St. Regis, lying in front of the town. In the rear of this township is the township of Roxburgh.

The township of Osnabruck lies above Cornwall ; the River aux Raisins rises here in several branches ; it has two other streams which run into the St. Lawrence in front, off which lies the Isle au Longue Sault, Isle de trois Cheveaux Ecartées, Isles au Diable, et Isle au Chat.

The Rapid, called the Long Sault, lies in front of this township ; the boats, in going up, keep the north shore in great measure, because the south shore is not settled ; but in descending, they universally pass between the islands and the south shore, that being the largest, deepest, and altogether the safest passage. The inhabitants of late years have taken down their grain with safety on rafts to the Montreal markets.

Many people think that the lumber trade is carried on with more safety down the rapids, than by those which pass Chambly from Lake Champlain ; it being a frequent observation at Quebec, that the rafts from the Upper St. Lawrence are less ragged than those which come from Lake Champlain. There is, however, some little additional risk to the rafts from Upper Canada, by reason of having to pass the small Lakes St. Francis and St. Louis—all broad waters being more or less against the rafting trade. But as the Lake St. Pierre, which is larger than either St. Francis or St. Louis, must be passed, whether from Lake Champlain or the Upper St. Lawrence, there is no doubt but the lumber trade will find its way down the St. Lawrence. Some settlers have already made the attempt, even from the head of the Bay of Quinté ; and when the produce of that very fertile country shall be exported for the Montreal or foreign markets, the raft will answer a double purpose ; it requires but few hands to manage it ; and grain or potash may be carried as dry as in any other way.

The township of Williamsburgh is next above Osnabruck ; it has but few streams. There are some islands in its front ; among the rest, Isle au rapid Plat, the west end of which lies also in front of Matilda, the next township. In the front is Point aux Pins and Point Iroquois ; the latter of which has the advantage in a great measure of commanding the passage up and down the St. Lawrence. A few islands lie in the front of this township, and a peninsula, which is insulated at high water.

[Matilda is the next township above Williamsburgh : 2nd ed.]

Edwardsburgh is the next township; the front of which is Johnstown, of a mile square. This, with the town of Cornwall, has been most judiciously seated, the one being immediately above, the other below, the rapids of the Upper St. Lawrence, and of course easy of access from the Lake St. Francis below to Cornwall; and from Johnstown vessels may be navigated with safety to Queenstown above Niagara, and to all the ports of the Lake Ontario. In the front of this township is Pointe au Cardinal, Pointe au Gallop, Point Iurogne, and Pointe au Foin; and several islands, among which are Hospital Island and Isle du Fort Levy, where the French had a garrison, the ruins of which are still to be seen.

A little above Johnstown, on the south shore, is Fort Oswegatchie, situated on a river of that name.

Augusta lies above Edwardsburgh; it has but few streams; Pointe au Barril is in front.

The next township is Elizabeth Town, which is well watered by the River Tonianta and three other streams. The Isles du Barril lie in front of this township.

The township of Yonge lies next, and is of irregular shape. The River Tonianta empties itself into the St. Lawrence near the south-east angle of this township. Towards the upper part are the narrows made by a peninsula from the north shore, and Grenadier Island, which lies in front of this township, as do several smaller ones.

Landsdown is next; it has several small streams, and many islands in its front, but none of any size.

Leeds adjoins Landsdown, and is well watered by the River Gananoque, which affords a good harbour at its entrance.

Howe Island lies partly in front of this township, as do several small islands.

Pittsburgh lies above Leeds; part of Wolfe Island, and part of Howe Island are in its front. This township adjoins to Kingston; from hence westward, the St. Lawrence opens into the Lake Ontario, it being about 120 miles direct from Kingston to Pointe au Bodét.

The St. Lawrence may be classed with the most noble rivers in the world; its waters flow for the extent of 2,000 miles before they reach the ocean; the commercial advantages from such a situation increase in proportion to the population of its banks. The Indian trade, in a great measure, takes its current down the St. Lawrence,

particularly since vessels of a considerable size are daily building for the navigation of the lakes.

The land in all the before-mentioned townships is for the most part fertile, and under as high a state of cultivation as can be expected from the time it has been settled; the first improvements being made since the peace of 1783, when all was in a state of nature and heavily timbered.

There are now between 30 and 40 mills [more than 40 mills: 2nd Ed.] in the extent mentioned, on this river, the most remarkable of which are on the Gananoque. Good roads have been opened, and bridges well constructed; some of them over wet lands and the mouths of creeks and rivers of very considerable extent; and the first settlers have been able, by their very great industry, to erect comfortable houses.

In the rear of these townships, on the St. Lawrence, are upwards of twenty others in which settlements have been commenced, to the southward of the Ottawa or Grand River, which many of them front; others are well supplied by the waters of the Rideau [wrongly printed Radeau, occasionally, in both editions] and River Petite Nation, with the Gananoque lakes and streams, all of which afford abundance of situations for mills. These rivers, like most others in Canada, abound in carp, sturgeon, perch and cat-fish; the ponds affording green and other turtle, with fish of various sorts. The lands in their vicinity are differently timbered according to their quality and situation. The dry lands, which are generally high, bear oak and hickory; the low grounds produce walnut, ash, poplar, cherry, sycamore, beech, maple, elm, &c., and in some places there are swamps full of cedar and cypress.

The banks of most of the creeks abound in fine pine timber, and the creeks themselves afford in general good seats for saw mills; materials for building are readily procured.

The heads of the Rivers Rideau and Petite Nation communicate by short portages or carrying places with the waters which fall into the St. Lawrence, and promise to afford great advantages to all kinds of inland communication. The forks of the Rideau, about which are the townships of Oxford, Marlborough and Gower, promise to be, at some future period, an emporium for interior commerce.

The birch canoes which go to the North-west country, pass up the Ottawa River with the merchandize, and descend with peltries.

The town of Kingston is situated at the head of the St. Lawrence on the north shore, opposite to Wolfe Island; it occupies the site of old Fort Frontenac, was laid out in the year 1784, and is now of considerable size; it has a barrack for troops and a house for the commanding officer, an hospital, several storehouses, an Episcopal Church, [a Roman Catholic Chapel,] a gaol and court house. A cove near to the town [upon which the town is situated: 2nd ed.] affords a good harbour for shipping; it is safe, commodious and well sheltered. Large vessels seldom go below Kingston, although it is navigable to Oswegatchie, about 70 miles down the river; the stores, provisions, &c., which are lodged in the dépôt at this place, being usually transported there in boats from Montreal.

About Kingston there are several valuable quarries of limestone, and the country in general is rather stony, which is not found to be detrimental to the crops.

The township which surrounds this town bears the same name.

Ernest-town lies above Kingston; it is watered by two small rivers; Amherst Island lies in its front. In the rear of this township is Camden; the Appenee river, on which there are excellent mills, runs through it.

Having passed Ernest-town, the Bay of Quinté commences with Fredericksburgh to the north at its entrance, and Marysburgh to the south.

This bay, which may be considered throughout as a harbour, is formed by a large peninsula, consisting of the townships of Ameliasburgh, Sophiasburgh and Marysburgh, extending easterly from an isthmus, where there is a portage, at the head or west end of the bay, to Point Pleasant, the easternmost extremity of the peninsula, opposite to Amherst Island.

The River Trent empties itself into the head of the bay, to the eastward of the portage, and supplies it with the waters of the Rice lake. To the westward of the portage, in Lake Ontario, is the harbour of Presqu' Isle de Quinté, now called Newcastle.

This peninsula of the three townships, called the county of Prince Edward, extending from the mainland like an arm, hides from the Lake Ontario the townships of Sidney, Thurlow, Adolphustown and Fredericksburgh, which front the north side of the bay.

The River Trent, discharging itself between the townships of Murray and Sidney, finds its passage between the county of Prince

Edward and the townships on the north side of the bay ; its stream is increased by the Appanee river running in from Camden, and dividing Richmond from Fredericksburgh, joins the waters of the bay near John's Island, a small isle opposite to a settlement of Mohawks, so called after Captain John, a Mohawk chief, who resides there, and who, with some others of that nation, had a tract of land given them by his Majesty, of about nine miles in front on the bay, and about twelve miles deep ; preferring this situation, they separated from the rest of their nation, who were settled on the Grand River, or Ouse.

In Fredericksburgh and Adolphustown there are several fine bays and coves ; and in the latter township there is a small town on the bay opposite to Marysburgh.

The River Shannon runs into the bay at the south-east angle of the township of Thurlow, and the Moira River at the south-west angle of that township.

There are several small coves and bays also in the peninsula of Prince Edward, and a small lake between Sophiasburgh and Marysburgh, which empties itself into a bay of Lake Ontario.

There is an island in the bay between Sophiasburgh and Thurlow, and between Killikokin Point and Point Oubesuoutegonga, of about seven miles long.

Isle de Quinté, now called Nicholas Island, lies off Ameliasburgh in Lake Ontario ; and off Point Traverse in Marysburgh are the Duck Islands. In the deep bay between Point Traverse and Point Pleasant are Orphan Island and Isle du Chêne.

The River Trent, which falls into the head of the Bay of Quinté, not only leads off the waters of the Rice lake, but of a chain of lakes between it and Lake Simcoe ; a few miles up the river, on the south side, are salt springs.

The fertility of the soil about the Bay of Quinté is generally allowed : the land is rich, easily worked, and produces several crops without manure ; twenty-five bushels of wheat are often produced from one acre ; the timber is much like that of the other parts of the Province—oak, elm, hickory, maple, &c. The bay is narrow throughout, and upwards of fifty miles long, all which distance it is navigable for those small vessels that are used on the lakes.

An apparent tide is frequently noticed in the Bay of Quinté, not dissimilar to those observed in some of the upper lakes. [Merely



the rise and fall occasioned now and then by the prevalence or absence of certain winds.] The bay abounds with wild fowl and fish of various kinds; the River Trent affords a salmon fishery.

In passing from the head of the Bay of Quinté into Lake Ontario, you cross a very short portage in front of the township of Murray, being the isthmus between it and the peninsula of Prince Edward; at the end of the portage, and before you enter Lake Ontario, is a small lake, exceedingly beautiful, and the land on its banks extremely good; to the northward of this portage it is proposed to make a canal, to connect the waters of the bay with those of the lake. The circumstance of two small streams rising near each other, and running different ways, seems to point out the facility of the measure. The cut, which Campbell (in his "Notes on the Political Survey of Great Britain") calls Earl Gower's canal, seems to be well suited to this country, where labour bears so high a price, and where the rooting up of immense trees is so great a difficulty to encounter.

[John Campbell, LL.D., 1708-1775, a voluminous Historical, Biographical and Political writer. The allusion is probably to the second Earl Gower who, in 1786, became Marquis of Stafford.]

A little to the westward of the portage and proposed canal, is the harbour of Newcastle, a situation well suited for commerce and protection, and sheltered from all winds; a knoll on the peninsula affords a healthy site for the town.

After leaving Murray, in going to the westward along the shore of Lake Ontario, you pass the townships of Cramahé, Haldimand and Hamilton, which are now settling; and arriving at the township of Hope, you find excellent mills; from thence there is a portage to the Rice Lake.

You then pass by the fronts of Clarke, Darlington, and Whitby; and coming to Pickering, you meet with an excellent salmon and sturgeon fishery, at a river called Duffin's Creek, which is generally open, and large enough to receive boats at most seasons of the year.

After leaving the township of Pickering, you pass under the high lands of Scarborough, and arrive at the township of York.

All the townships on the north side of the lake are well watered by small streams, at the mouths of which are ponds, and low land capable of being drained and converted into meadows. In the rear of the township of Murray is the township of Seymour; in the rear of Cramahé is Percy in the rear of Haldimand is Alnwick; and in

the rear of Hamilton is Dives. [The last eight words are omitted in 2nd edition.]

The river Nen empties itself into Lake Ontario, in the township of Pickering, east of the Scarborough heights; it runs from a considerable distance in the country through Scarborough, Markham, &c., crossing the Yonge Street, and apparently rising in the vicinity of one of the branches of Holland's River, with which it will probably, at some future period, be connected by a canal. This river abounds with fish; at its embouchure are good intervals for meadow ground, and it is the back communication from the German settlement in Markham to Lake Ontario.

York, which is at present the seat of Government of Upper Canada, lies in about 43 degrees and 35 minutes north latitude, and is most beautifully situated within an excellent harbour of the same name, made by a long peninsula, which embraces a basin of water sufficiently large to contain a considerable fleet. It has this advantage over the other ports on Lake Ontario, that vessels may ride safely at its entrance during the winter.

On the extremity of the peninsula, which is called Gibraltar Point, are commodious stores and block-houses, which command the entrance to the harbour; on the mainland, opposite to the Point, is the garrison, situated on a point made by the harbour and a small rivulet, which, being improved by sluices, affords an easy access for boats to go up to the stores; [the last seventeen words are omitted in the 2nd edition.] The barracks, being built on a knoll, are well situated for health, and command a delightful prospect of the lake to the west, and of the harbour to the east. The Government House, which is not yet finished, is about two miles above the garrison, near the head of the harbour, and the town is increasing very rapidly. [In the 2nd edition, the preceding sentence reads thus:—"The Government House is about two miles from the east end of the town, at the entrance of the harbour, and the town is increasing very rapidly." The Government House referred to in the 2nd edition was situated in the Fort. It was destroyed by the concussion occasioned by the blowing up of the powder-magazine, when York was taken by the United States force in 1813.] The front of the city, as now laid out, is a mile and a half in length; several handsome squares are projected, particularly one open to the harbour. The River Don empties itself into the harbour a little above the town, running through a marsh, which,

when drained, will afford beautiful and fertile meadows; this has already been effected in a small degree, which will no doubt encourage further attempts. The long beach or peninsula, which affords a most delightful ride, is considered so healthy by the Indians, that they resort to it whenever indisposed; and so soon as the bridge over the Don is finished, it will of course be generally resorted to, [in 2nd edition: the bridge over the Don, being finished, is frequented] not only for pleasure, but as the most convenient road to the heights of Scarborough.

The ground which has been prepared for the Government House is situated between the city and the River Don, in a beautiful spot, and its vicinity well suited for gardens and a park. [By "Government House" is here meant the first Parliament Buildings, which were afterwards burnt by the enemy in 1813.] The oaks are large, the soil excellent, and watered by various streams; the harbour is well calculated for ship-building and launching of vessels. The Yonge Street, or military way, leading to Lake Simcoe, and from thence to Gloucester on Lake Huron, commences in the rear of the city. This great communication has been opened to Gwillimbury, 32 miles; and must be the great channel to the North-West, as it is considerably shorter than the circuitous route by the Straits of Niagara and Detroit. [In the 2nd edition, the following sentence is inserted here:—The tract of land between Kempenfeldt and Penetanguishene Bays has been lately purchased from the Indians, and a road is opening, which will enable the North-West Company to transport their furs from Lake Huron to York, thereby avoiding the circuitous route of Lake Erie, and the inconvenience of passing along the American frontier. We add in a note below the official document attesting the purchase at Penetanguishene.\*] Farm lots of

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\* UPPER CANADA.—To all to whom these Presents may come, Greeting. Whereas the Chiefs, Warriors and People of the Chippeway Tribe or Nation of Indians, being desirous, for certain considerations hereinafter shewn, of selling and disposing of a certain tract of Land lying near the Lake Huron, or butting and bounding thereon, called the Harbour of Penetanguishene, to His Britannic Majesty King George the Third, our Great Father, Now know ye that we the Chiefs, Warriors and People of the Chippeway Tribe or Nation, for and in consideration of One Hundred and One Pounds, Quebec currency, to us paid, or in Value given, the receipt whereof we hereby acknowledge, to have given, granted, sold, disposed of, and confirmed, and by these presents do give, grant, sell, dispose of and confirm for ever, unto His Britannic Majesty King George the Third, all that tract or space containing land and water, or parcel of ground covered with water, be the same land or water, or both, lying and being near or upon the Lake Huron, called Penetanguishene, butted and bounded as follows:—Beginning at the Head or south-westernmost angle of a Bay, situated above certain French ruins, now lying on the East side of a small Strait leading from the said Bay into a larger Bay called Gloucester or

200 acres are laid out on each side of Yonge Street, having a width of a quarter of a mile each, on the street; in general, the land is excellent, and fit for every purpose of husbandry.

Sturgeon Bay, the Head or south-westernmost angle of the said Bay being called by the Indians Opetiquawswing; then North 70 degrees West to a Bay of Lake Huron, called by the Indians Nottoway Sagué Bay; thence following the shores of Lake Huron according to the different courses and windings of the said Nottoway Sagué Bay; Penetanguishene Harbour and Gloucester or Sturgeon Bay, sometimes called also Matchadash, to the place of beginning, containing all the lands to the northward of the said line, running North 70 degrees West, and lying between it and the waters of Lake Huron, together with the Islands in the said Harbour of Penetanguishene. To have and to hold the said parcel or tract of land, together with all the woods and waters thereon lying and being, unto His said Britannic Majesty King George the Third, his heirs and successors for ever, free and clear of all claims, rights, privileges and emoluments which we the said Chiefs, Warriors and People of the said Chippeway Tribe or Nation might have before the execution of these Presents, and free and clear of any pretended Claims, rights, privileges or emoluments to which our Children, Descendants and Posterity may hereafter make to the same. Hereby renouncing and forever absolving ourselves, and our children, descendants and posterity, of all title to the soil, woods and waters of the above described parcel or tract of land in favour of His said Britannic Majesty, his heirs and successors forever. In Witness whereof we have, for ourselves and the rest of our Tribe or Nation, hereto set our marks, seals and signatures, this twenty-second day of May, and in the Thirty-eighth year of the Reign of our Great Father, King George the Third, at York, in the Province aforesaid, having first heard this Instrument openly read and rehearsed in our own language, and fully approved by ourselves and our Nation. Signed, William Claus, Superintendent Indian Affairs, on behalf of the Crown, (L.S.); Chabondasheam, (L.S.) [figure of a Reindeer]; Aasance, (L.S.) [figure of an Otter]; Wabiniquon, (L.S.) [figure of a Pike]; Ningawson, (L.S.) [figure of a Reindeer]; Omassanahsquitawah, (L.S.) [figure of a Reindeer.] In the presence of William Willcocks, Commissioner on behalf of the Province; Alexander Burns, Commissioner on behalf of the Province; Samuel Smith, Major Q. Rangers; Arthur Holdsworth Brooking, Lieut. Q. Rangers; John McGill, Adjutant Q. Rangers; J. Givins, Agent of Indians; W. Johnson Chew, Indian Department; George Cown, Indian Department. To this Instrument was annexed a plan of the Lands and Harbour purchased, and schedule of the goods given as an equivalent for the same.

"We do hereby certify that the following Goods were delivered in our presence to the Chippeway Nation, subscribers to the within Deed, being the consideration therein mentioned, as sent from the general Store by order of the Commander-in-Chief:—Twenty pair Blankets of 2½ Points, 16s. 6d.—£16 10s. Twenty-five pair Blankets of 2 Points, 12s.—£15. Seventeen pair Blankets of 1½ Points, 9s. 9d.—£8 5s. 9d. Four pieces Blue Strouds, eighty-four yards, 117s. a Piece—£23 8s. Forty-four Pounds Brass Kettle, 2s. 4½d.—£5 4s. 6d. Four Pieces Calico, 18½ yards each is seventy-four yards, 55s. 6d. per piece—£11 2s. Three Pieces Linen, 25 yards each is seventy-five yards, 75s. per piece—£11 5s. Three Pieces Calimanco, 30 yards, is ninety yards, 54s. 9d. per piece—£8 4s. 3d. Nine dozen Butchers' Knives at 4s. 6d. per dozen—£2 0s. 6d. Amounting in the whole to One Hundred and One Pounds, Quebec currency Signed, William Willcocks," &c.

(To be continued.)

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —MAY, 1873.  
 Latitude—43° 30' 30" North. Longitude—81° 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Excess of Mean of Above Normal			Tension of Vapour.			Relative Humidity			Direction of Wind.			Resulant	Velocity of Wind.			Rain in Inches.	Snow in Inches.				
	6 A.M.	2 P.M.	10 P.M.	Menn.	Temp. of the Air.			Normal	Tension of Vapour.			6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.		2 P.M.	10 P.M.	Res't			6 A.M.	2 P.M.	10 P.M.	
					6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.																	6 A.M.
1	29.842	29.706	29.534	29.6787	44.5	57.8	48.8	51.33	+ 4.48	182	141	153	158	61	20	43	42	N	E	E	N 78 E	2.4	11.0	9.0	5.96	0.73	0.480	
2	409	331	313	3437	48.1	43.0	39.8	41.95	- 5.23	259	164	225	213	77	59	92	80	E	E	E	N 63 E	17.0	17.2	11.2	14.03	14.92	.020	
3	284	395	580	4353	39.8	47.0	38.7	42.02	- 5.53	200	182	193	221	84	88	82	82	N	S	S	N 40 E	11.6	6.6	9.0	4.72	7.64	Inap.	
4	697	792	649	7853	45.2	54.6	47.0	49.48	- 1.32	209	233	232	220	69	54	72	64	N	E	E	N 60 W	9.6	9.5	5.8	1.76	6.62	Inap.	
5	945	996	851	9720	46.3	52.4	44.8	47.90	- 0.75	204	182	131	171	64	46	44	51	E	E	E	N 78 E	12.6	18.8	17.6	14.87	15.11	Inap.	
6	940	860	773	8503	46.7	54.0	46.7	49.68	- 0.70	153	193	181	178	48	44	56	50	E	E	E	N 81 E	4.0	18.2	18.0	15.57	15.58	.900	
7	732	722	668	7018	44.5	42.0	42.0	42.77	- 6.57	201	251	231	257	90	94	94	93	E	E	E	N 84 E	15.9	20.0	17.0	17.23	17.26	.035	
8	634	588	461	5427	40.9	47.0	47.0	45.22	- 4.47	248	273	273	265	96	85	85	88	E	E	E	N 84 E	15.9	20.0	17.0	17.23	17.26	.035	
9	370	577	593	5125	46.7	56.4	50.3	50.88	+ 0.83	230	305	269	286	93	67	73	78	S	E	E	N 72 W	5.6	11.5	6.0	2.83	9.13	130	
10	407	365	190	3305	43.0	58.2	47.0	50.37	- 0.35	219	348	240	280	79	72	77	76	W	S	S	N 45 W	3.0	4.5	2.40	5.75	6.02	.020	
11	122	393	491	5378	41.1	47.7	38.0	42.32	- 8.78	233	168	128	170	80	47	56	63	N	W	S	N 55 W	6.0	13.0	6.2	6.08	7.08	.196	
12	552	481	511	5088	34.7	50.6	42.0	43.15	- 8.28	154	216	214	202	77	59	80	72	N	W	W	N 74 W	10.7	9.2	10.4	16.46	16.99	.090	
13	521	492	506	5070	40.5	53.1	47.7	48.68	- 3.10	170	296	204	219	67	73	61	63	N	W	W	N 26 W	13.0	6.4	13.4	7.79	10.45	...	
14	583	591	633	6082	45.9	60.4	48.1	52.07	- 0.07	200	198	181	194	64	37	53	51	N	W	W	N 27 W	4.0	18.4	13.5	10.71	12.72	...	
15	709	701	747	7305	44.8	58.2	47.7	51.27	- 1.22	233	324	204	250	78	67	62	68	N	W	W	N 24 W	11.0	15.0	12.8	12.91	13.03	...	
16	656	660	660	6720	49.9	62.9	52.8	55.97	+ 2.80	216	231	177	207	60	39	44	46	N	W	W	N 31 W	7.6	7.0	7.0	5.19	7.25	...	
17	704	656	684	6707	49.2	51.3	40.9	51.27	- 2.27	213	298	255	258	61	79	71	68	E	E	E	N 65 E	3.8	5.0	4.2	1.93	4.22	...	
18	618	619	609	6167	49.9	60.7	53.1	54.33	+ 0.47	295	363	348	338	82	68	80	80	E	E	E	N 85 E	12.6	10.6	5.2	9.45	8.13	...	
19	603	588	504	5563	50.6	62.5	56.0	56.68	+ 2.48	385	398	400	394	76	70	89	79	E	E	E	N 70 E	7.0	5.5	1.2	4.73	4.83	...	
20	442	303	282	3382	54.2	68.6	64.7	63.82	+ 8.87	355	438	530	469	71	88	80	80	S	E	E	N 29 W	1.6	9.4	0.0	2.72	2.77	...	
21	350	380	444	4065	59.6	71.9	58.0	61.86	+ 8.89	369	430	349	369	71	61	70	66	W	W	W	N 58 W	15.8	19.5	3.6	11.17	11.81	...	
22	480	542	480	5440	56.0	67.0	59.7	61.38	+ 5.52	333	442	465	425	74	65	92	77	N	E	E	N 45 E	3.3	5.0	0.0	0.87	2.30	...	
23	429	390	201	3512	65.7	73.0	61.4	64.67	+ 8.77	448	561	488	513	99	72	89	84	Calim.	E	E	N 70 E	8.3	12.6	0.0	5.33	5.49	...	
24	330	419	584	4497	65.0	61.2	59.3	61.15	+ 7.93	418	489	373	452	84	64	75	85	W	W	W	N 36 W	0.0	12.6	10.2	6.02	6.17	.034	
25	667	561	730	6662	55.0	65.8	49.3	55.90	- 0.65	357	467	321	371	82	73	90	82	W	W	W	N 80 W	6.2	7.0	12.2	8.15	9.10	...	
26	882	933	992	9430	42.0	50.6	45.9	48.58	- 9.98	197	235	220	212	73	64	57	64	E	E	E	N 10 W	1.6	12.0	13.5	4.17	7.90	.316	
27	087	30	033	30	0177	46.7	60.0	50.6	53.87	- 3.304	227	236	205	245	70	40	72	59	N	W	W	N 3 W	14.6	7.1	6.8	4.98	8.93	...
28	087	30	033	30	0177	46.7	60.0	50.6	53.87	- 3.304	227	236	205	245	70	40	72	59	N	W	W	N 15 W	1.4	0.6	3.2	3.58	5.23	...
29	0032	29.5040	29.5010	29.5058	47.7	65.7	49.52	51.91	- 0.16	260	308	270	279	76	63	72	70	E	E	E	N 75 W	8.32	11.57	8.03	8.88	9.25	2.5	

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MAY, 1873.

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 of the wind are from hourly observations.

Highest Barometer.....30.091 at 8 a.m. on 30th. } Monthly range  
 Lowest Barometer .....29.122 at 6 a.m. on 13th. } 0.969.  
 { Maximum temperature.....76.4 on 27th. } Monthly range  
 { Minimum temperature.....30.0 on 14th. } 46.4  
 { Mean maximum temperature.....49.07 } Mean daily range  
 { Mean minimum temperature.....42.22 } 18.85  
 { Greatest daily range.....29.60 from a.m. to p.m. of 4th.  
 { Least daily range.....6.8 from a.m. to p.m. of 8th.  
 Warmest day.....27th; mean temperature 64.967 } Difference=23.72  
 Coldest day.....2nd; mean temperature 41.935 }  
 Maximum Solar .....130.2 on 24th. } Difference=112.2  
 Radiation { Terrestrial .....18.0 on 14th.  
 Aurors observed on 8 nights, viz: 16th, 17th, 18th, 21st, 22nd, 23rd, 27th and 29th.  
 Possible to see aurora on 20 nights; impossible on 11.  
 Raining on 13 days; depth, 2.205 inches; duration of fall, 62.2 hours.  
 Mean of cloudiness, 0.65.

WIND.

Resultant direction, N. 26 E.; Resultant velocity, 2.69 miles.  
 Mean velocity, 8.88 miles per hour.  
 Maximum velocity, 28.0 miles, from noon to 1 p.m. of 13th.  
 Most windy day, 8th; mean velocity, 17.26 miles per hour.  
 Least windy day, 25th; mean velocity, 2.30 miles per hour.  
 Most windy hour, 3 p.m.; mean velocity, 11.94 miles per hour.  
 Least windy hour, 2 a.m.; mean velocity, 5.97 miles per hour.

Solar haloes on 1st, 9th and 16th.

Lunar haloes on 6th and 13th.

Lightning on 12th, 20th, 22nd, 23rd, 26th and 27th.

Thunder on 12th and 23rd.

Fog on 25th. Dew on 16th, 22nd, 23rd and 31st.

Ice on 12th and 14th.

Hour frost on 30th.

COMPARATIVE TABLE FOR MAY.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.			
	Mean.	Excess above Average.	Maxt. num.	Min. num.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant Direction.	Mean Velocity.	
1845	49.6	-2.0	77.8	27.8	50.0	8	2.300	0	0.0	0	...	0.55 lbs.
1846	55.6	+3.9	79.7	33.1	46.6	9	4.375	0	0.0	...	...	0.46
1847	54.4	+2.8	72.1	26.7	45.4	12	2.019	0	0.0	...	...	0.20
1848	54.1	+2.5	78.0	31.5	46.7	13	2.820	0	0.0	N 40 W	1.31	4.93mils.
1849	48.0	-3.6	72.2	27.9	44.3	16	5.115	0	0.0	N 45 E	1.97	5.33
1850	47.6	-4.0	77.8	27.5	50.3	7	9.645	1	1.04	N 61 W	2.65	6.32
1851	51.3	-0.2	73.3	28.0	45.3	12	2.950	1	0.5	N 32 W	1.50	6.34
1852	51.4	0.3	73.3	32.0	41.3	7	1.125	1	1.25	N 82 W	0.99	4.00
1853	50.9	-0.7	78.4	32.2	46.2	17	1.420	1	1.420	N 2 W	0.83	5.16
1854	52.2	+0.6	71.4	25.2	48.2	11	4.630	0	0.0	E	0.10	5.38
1855	53.1	+1.5	77.5	33.0	44.5	6	2.565	2	0.9	N 1 W	1.76	5.93
1856	50.5	-1.1	82.2	31.2	51.0	14	4.580	1	1.04	N 4 E	3.98	9.81
1857	48.9	-2.7	74.8	26.0	48.8	15	4.115	1	1.04	N 23 W	1.14	8.13
1858	48.9	-2.7	62.8	31.0	38.8	17	6.307	0	0.0	N 42 E	1.33	9.30
1859	55.2	+3.6	79.6	39.5	40.1	11	3.410	0	0.0	N 72 E	1.59	5.70
1860	47.5	+3.9	74.5	32.5	42.0	16	1.815	0	0.0	N 28 E	2.65	7.17
1861	47.5	-4.1	73.0	28.0	45.0	12	3.380	0	0.0	N 47 W	1.60	9.17
1862	52.2	+0.6	78.5	32.4	46.1	8	1.427	0	0.0	N 52 W	2.80	7.87
1863	54.3	+2.7	79.0	36.4	42.6	14	3.363	0	0.0	N 56 E	0.41	5.89
1864	54.8	+3.2	79.0	32.2	46.8	18	4.070	0	0.0	N 7 W	1.86	5.64
1865	52.3	+0.7	73.0	30.0	49.0	11	1.005	0	0.0	N 3 W	1.65	5.48
1866	48.3	-3.3	73.0	33.4	40.0	13	2.820	0	0.0	N 46 W	1.49	9.28
1867	46.5	-5.1	65.0	24.6	40.4	18	3.220	0	1.04	N 51 W	3.55	8.40
1868	51.8	+0.8	73.0	33.2	39.8	16	1.670	0	0.0	N 38 E	1.16	6.87
1869	50.8	-0.8	74.2	31.4	42.8	16	2.805	1	1.04	N 20 W	2.36	6.55
1870	56.3	+4.7	81.2	38.8	42.4	10	1.150	0	0.0	N 23 E	1.09	5.48
1871	64.2	+2.6	85.0	32.4	62.6	7	2.302	0	0.0	N 23 W	2.53	7.70
1872	51.9	+0.3	78.8	32.0	46.8	14	1.934	0	0.0	N 52 W	2.23	6.49
1873	51.9	+0.3	76.4	30.0	46.4	13	3.205	0	0.0	...	...	...
Results to 1872	51.64	.....	76.12	31.06	46.06	11.94	3.214	0.35	0.97	N 14 W	1.64	6.73
Excess for 72	+0.26	.....	+0.28	-1.06	+1.34	+1.06	1.006	0.36	0.07	...	...	0.24

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JUNE, 1873.  
 Latitude—43° 39' 4 North. Longitude—81° 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day.	Barom. at temp. of 32°.			Temp. of the Air.			Tension of Vapour.			Humidity of Air.			Direction of Wind.			Resultant.			Velocity of Wind.			Rain Inches.	Snow Inches.	
	6 A.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	U	2 P.M.	10 P.M.	Direction.	Force.	Direction.			Force.
1	29.898	29.919	29.8732	55.0	57.1	53.657 00	0	0	0	60	64	64	NW	SW	Calm.	5.4	10.6	0.0	3.77	4.75	...	...		
2	745	640	6063	54.2	64.7	63.958 08	0.08	228	357	322	318	64	58	79	65	NE	E	E	3.84	4.08	5.32	...		
3	374	270	3087	57.8	71.0	67.622 82	4.82	364	582	429	472	74	74	91	82	W	W	W	2.59	4.42	1009	...		
4	379	305	3169	58.6	76.0	62.266 80	6.03	342	458	440	424	69	50	78	59	SW	SW	SW	6.88	8.41	060	...		
5	377	390	4352	68.9	67.4	57.562 05	2.97	421	541	281	386	83	75	59	68	NW	S	N	6.37	8.76	025	...		
6	708	737	7653	63.1	69.2	67.859 62	0.22	234	390	376	331	73	64	70	67	N	N	N	10.0	9.0	8.4	...		
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
...	29.5934	29.5571	29.5557	29.5671	58.05	69.66	60.81	63.70	1.69	378	452	415	417	75	63	75	70	...	...	...	...	...	...	

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JUNE, 1875.

COMPARATIVE TABLE FOR JUNE.

YEAR.	TEMPERATURE.					R.I.V.		S.N.O.W.		W.I.N.D.	
	Mean.	Excess above average.	Maxi- mum.	Mini- mum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Direction.	Mean Velocity.
1845	61.0	-0.7	84.6	38.6	46.1	11	3.715	...	...	0	0.27 lbs
1846	63.3	+1.6	84.2	39.1	45.1	0	1.920	...	...	...	0.32
1847	68.4	+3.3	77.8	36.7	41.1	1	2.625	...	...	...	0.30
1848	68.4	+3.3	77.8	36.7	41.1	1	2.625	...	...	...	0.30
1849	63.2	+1.6	81.4	35.2	49.2	7	1.810	...	...	N 61 W	1.00
1850	64.3	+2.6	85.6	34.2	51.4	10	3.345	...	...	S 71 E	0.38
1851	59.2	-2.6	79.2	37.0	42.2	11	2.695	...	...	S 2 W	1.26
1852	60.8	-1.0	80.1	37.2	42.9	10	1.160	...	...	S 76 W	1.49
1853	60.5	-1.3	80.1	37.2	42.9	9	1.360	...	...	N 1 W	0.19
1854	64.1	+2.4	92.5	35.2	57.3	9	1.460	...	...	N 24 E.	0.71
1855	59.9	-1.8	81.6	36.2	45.4	17	4.070	...	...	N 69 W	1.33
1856	62.1	+0.4	82.2	42.0	47.2	13	3.200	...	...	S 21 W	0.90
1857	64.1	+2.4	86.0	35.0	51.0	21	6.040	...	...	N 40 W	1.16
1858	60.2	+0.5	90.2	42.5	47.7	12	2.945	...	...	S 20 E	0.25
1859	65.3	+4.1	86.4	32.2	54.2	14	4.085	...	...	N 77 E	1.95
1860	63.2	+2.4	81.6	49.2	32.4	14	2.130	...	...	N 44 W	3.13
1861	61.3	+0.5	87.8	41.6	46.2	13	2.329	...	...	N 39 W	2.29
1862	60.6	-1.2	85.4	39.4	46.0	10	1.907	...	...	S 26 W	1.77
1863	60.1	-1.6	84.8	37.4	47.4	13	1.665	...	...	N 50 W	2.26
1864	63.0	+1.3	93.4	34.8	58.6	6	0.670	...	...	S 55 W	1.72
1865	63.0	+1.3	93.4	34.8	58.6	6	0.670	...	...	S 30 W	0.90
1866	60.2	-1.5	90.2	40.0	50.2	16	2.720	...	...	S 15 W	0.71
1867	61.3	+0.4	88.0	44.0	44.6	8	0.855	...	...	S 84 E	0.48
1868	62.0	+1.1	84.2	38.0	46.2	11	2.217	...	...	N 10 E	0.86
1869	68.4	+3.3	81.4	36.4	45.0	22	4.375	...	...	N 80 W	1.71
1870	67.3	+2.2	88.4	50.0	38.4	16	8.090	...	...	N 17 E	0.40
1871	61.4	-0.3	83.0	41.8	41.2	13	3.340	...	...	N 80 W	2.04
1872	63.7	+2.0	88.0	41.8	46.2	8	2.145	...	...	N 69 W	0.76
1873	63.7	+2.0	89.6	40.0	49.6	10	0.686	...	...	N 18 E	1.00
1874	61.65	...	86.30	39.11	47.19	11.70	2.984	...	...	S 64 W	0.83
Excess for 73	+2.02	...	+3.20	+0.80	+2.31	1.70	2.303	...	...	...	+1.28

Norm. - The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 9 A.M., 1 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest barometer.....26.056 at 7 a.m. on 1st. } Monthly range  
 Lowest barometer.....29.160 at 2 p.m. on 30th. } 0.797.  
 Maximum Temperature.....89.5 on 19th. } Monthly range  
 Minimum Temperature.....40.5 on 1st. } 49.6.  
 Mean Maximum Temperature.....75.66 } Mean daily range  
 Mean Minimum Temperature.....52.38 } 21.928.  
 Greatest daily range.....32.7 from p.m. of 4th to a.m. of 6th.  
 Least daily range.....8.0 from a.m. to p.m. of 23rd.  
 Warmest day.....10th. } Mean Temperature.....75.68 } Difference=18.091.  
 Coldest day.....13th. } Mean Temperature.....60.77 }  
 Maximum Solar Radiation.....14.94 on 19th. } Monthly range  
 Radiation } Terrestrial.....2.90 on 1st. } 116.4.

Aurora observed on 11 nights, viz.: 1st, 14th, 16th, 18th, 20th, 24th, 25th, 26th, 27th and 29th.  
 Possible to see Aurora on 24 nights; impossible on 6 nights.  
 Raining on 10 days; depth 0.650 inches; duration of fall 24.2 hours.  
 Mean of Cloudiness, 0.46.

WIND.

Resultant Direction N. 18° E.; Resultant Velocity 1.00 miles.  
 Mean Velocity 0.43 miles per hour.  
 Maximum Velocity 53.8 miles, from 2 to 3 p.m. of 20th.  
 Most Windy day 20th; Mean Velocity 16.53 miles per hour.  
 Least Windy day 16th; Mean Velocity 1.29 miles per hour.  
 Most Windy hour 2 p.m.; Mean Velocity 10.28 miles per hour.  
 Least Windy hour 4 a.m.; Mean Velocity 3.49 miles per hour.

Lightning and Thunder on 4th, 10th, 14th, 16th, 28th, 29th and 30th.  
 Solar halos on 6th.

It will be seen from the comparative table that this month is the driest June recorded except June, 1864.



MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—JULY, 1873.  
 Latitude—13° 39' 4" North. Longitude—8h. 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.			Rain Inches.	Snow In Inches.		
	Mean.			Mean.			Mean.			Mean.			Mean.			U	10 P.M.	10 P.M.				
	U.A.M.	2 P.M.	10 P.M.	6 A.M.	12 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.	10 P.M.							
1	29.357	29.435	29.533	63.0	70.1	63.0	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
2	29.467	29.507	29.533	67.2	72.3	67.2	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
3	29.539	29.530	29.533	70.1	72.3	70.1	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
4	29.537	29.510	29.533	69.7	72.3	69.7	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
5	29.423	29.428	29.533	65.8	72.3	65.8	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
6	29.511	29.501	29.533	65.7	74.1	65.7	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
7	29.511	29.501	29.533	65.7	74.1	65.7	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
8	29.555	29.631	29.610	66.8	70.1	66.8	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
9	29.675	29.695	29.641	66.45	72.6	66.45	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
10	29.691	29.676	29.626	66.003	72.6	66.003	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
11	29.677	29.700	29.701	72.53	76.0	72.53	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
12	29.851	29.813	29.763	80.35	80.0	80.35	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
13	29.641	29.607	29.599	69.95	75.0	69.95	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
14	29.641	29.683	29.641	68.8	75.0	68.8	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
15	29.753	29.631	29.650	64.0	75.0	64.0	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
16	29.441	29.441	29.441	60.7	75.0	60.7	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
17	29.330	29.330	29.330	60.4	75.0	60.4	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
18	29.330	29.330	29.330	60.4	75.0	60.4	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
19	29.404	29.471	29.471	63.8	75.0	63.8	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
20	29.660	29.660	29.660	69.0	75.0	69.0	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
21	29.814	29.801	29.801	70.95	77.0	70.95	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
22	29.767	29.691	29.683	69.45	77.0	69.45	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
23	29.683	29.677	29.683	69.45	77.0	69.45	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
24	29.469	29.469	29.469	64.87	75.0	64.87	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
25	29.612	29.635	29.635	69.22	75.0	69.22	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
26	29.612	29.612	29.612	69.22	75.0	69.22	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
27	29.761	29.761	29.761	69.45	75.0	69.45	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
28	29.469	29.487	29.487	62.62	77.3	62.62	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
29	29.682	29.695	29.700	69.32	77.3	69.32	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
30	29.720	29.720	29.720	69.32	77.3	69.32	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
31	29.690	29.690	29.690	69.32	77.3	69.32	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01
22	29.690	29.670	29.681	69.32	77.3	69.32	0.92	632	680	670	80	83	73	S W	S W	N W	8.0	8.6	11.4	6.0	6.0	6.01

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JULY, 1873.

COMPARATIVE TABLE FOR JULY.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.	
	Mean.	Excess above Average.	Max. num.	Min. num.	No. of Days.	Inches.	No. of days.	Inches.	Direction.	Mean Velocity.
1846	68.2	- 8.2	96.0	36.7	7	2.192	0	0	0	0.30 lbs.
1846	68.0	+ 0.6	94.0	44.6	9	2.895	...	...	...	0.29
1847	68.0	+ 0.6	97.0	43.2	18	3.356	...	...	...	0.10
1848	68.0	+ 1.0	82.4	44.1	10	1.890	...	...	...	0.10
1848	68.0	+ 1.0	88.0	45.2	4	1.415	...	...	...	0.76
1850	68.0	+ 1.6	86.2	51.6	12	3.270	...	...	...	3.62
1851	65.0	- 2.4	82.7	46.6	12	3.625	...	...	...	4.94
1852	66.8	- 0.6	90.1	48.5	12	4.025	...	...	...	3.33
1853	65.0	- 1.8	91.3	41.6	10	0.915	...	...	...	4.13
1854	72.6	+ 6.1	98.0	42.6	10	4.805	...	...	...	3.63
1855	67.0	+ 0.6	92.8	49.2	13	3.246	...	...	...	4.03
1856	69.9	+ 2.6	96.0	49.6	8	1.129	...	...	...	6.47
1857	67.8	+ 0.4	86.0	47.0	16	3.476	...	...	...	5.84
1858	67.9	+ 0.5	85.0	52.0	13	3.072	...	...	...	4.74
1859	66.9	- 0.6	88.0	44.7	12	2.611	...	...	...	6.79
1860	63.9	- 3.6	88.0	43.8	13	4.356	...	...	...	5.81
1861	65.4	- 2.0	84.6	47.6	16	2.635	...	...	...	7.29
1862	66.7	- 0.7	85.6	48.2	15	5.341	...	...	...	6.60
1863	67.0	+ 0.2	83.6	48.0	16	3.408	...	...	...	6.80
1864	69.7	+ 2.9	90.2	49.0	12	1.332	...	...	...	3.89
1865	68.0	+ 2.4	83.0	45.8	11	2.470	...	...	...	6.00
1866	70.4	+ 3.0	94.0	47.8	16	6.390	...	...	...	6.34
1867	68.2	+ 0.8	94.0	48.2	12	1.065	...	...	...	4.17
1868	76.5	+ 8.4	93.4	60.0	0	0.616	...	...	...	6.46
1869	64.6	- 2.0	84.0	49.8	13	4.616	...	...	...	5.46
1870	68.8	+ 1.4	87.4	48.0	16	1.896	...	...	...	6.07
1871	66.0	- 1.4	88.4	47.8	11	1.255	...	...	...	4.82
1872	70.2	+ 2.8	90.0	62.2	13	2.297	...	...	...	6.67
1873	68.4	+ 1.0	87.0	47.6	11	1.913	...	...	...	3.60
Res'ts to 1872	67.38	...	80.66	47.61	10.73	2.220	...	...	...	4.93
Excess for 1873	+ 0.08	...	+ 2.05	0.01	+ 0.27	1.307	...	...	...	+ 1.15

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.....20.865 at 8 a.m. on 12th } Monthly range = 0.686.  
 Lowest Barometer .....29.170 at 4 p.m. on 11th }  
 { Minimum temperature .....57° on 23rd } Monthly range = 40°  
 { Mean maximum temperature.....79°66' } Mean daily range = 19°64'  
 { Mean minimum temperature.....69°02' }  
 { Greatest daily range.....31°5' from a.m. to p.m. of 23rd.  
 { Least daily range.....8°5' from a.m. to p.m. of 2nd.  
 Warmest day.....4th; mean temperature.....73°82' } Difference = 16°37'.  
 Coldest day.....10th; mean temperature.....57°05' }  
 Maximum { Solar.....149°1' on 4th } Monthly range = 113°4'.  
 Irradiation { Terrestrial.....36°0' on 7th }  
 Aurora observed on 10 nights, viz.—2nd, 12th, 16th, 16th, 20th, 21st, 22nd, 23rd, 23rd, 20th and 30th.

Possible to see Aurora on 22 nights; impossible on 9 nights.  
 Raining on 11 days; depth, 1.013 inches; duration of fall, 29.3 hours.  
 Mean of Cloudiness, 0.65.

WIND.

Resultant direction, S. 76° W.; resultant velocity, 1.71.  
 Mean velocity, 0.11 miles per hour.  
 Maximum velocity, 7.3 miles, from 4 to 6 p.m. of 6th.  
 Most windy day, 6th; mean velocity, 12.66 miles per hour.  
 Least windy day, 31st; mean velocity, 2.66 miles per hour.  
 Most windy hour, 2 p.m.; mean velocity, 10.06 miles per hour.  
 Least windy hour, 6 a.m.; mean velocity, 8.46 miles per hour.

Fog on 4th, 16th, 21st and 29th.  
 Thunder or Lightning on 1st, 3rd, 13th, 17th, 24th and 25th.  
 Rainbows on 17th and 18th.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—AUGUST, 1873.  
 Latitude—43° 39' 4 North. Longitude—8h. 17m. 53s. 172d. Elevation above Lake Ontario, 108 feet.

Day.	Barom. at temp. of 32°.			Temp. of the Air.						Excess of Mean Above Normal.						Fusion of Vapour.						Humidity of Air.						Direction of Wind.						Velocity of Wind.						Rain in Inches.	Snow in Inches.																																																																																																								
	M. mer.			10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.		10 P.M.																																																																																																															
	O.A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.	0 A.M.	3 P.M.	10 P.M.																																																																																																													
1	29.469	29.560	29.584	29.6570	27.8	27.4	27.2	27.0	26.8	26.6	26.4	26.2	26.0	25.8	25.6	25.4	25.2	25.0	24.8	24.6	24.4	24.2	24.0	23.8	23.6	23.4	23.2	23.0	22.8	22.6	22.4	22.2	22.0	21.8	21.6	21.4	21.2	21.0	20.8	20.6	20.4	20.2	20.0	19.8	19.6	19.4	19.2	19.0	18.8	18.6	18.4	18.2	18.0	17.8	17.6	17.4	17.2	17.0	16.8	16.6	16.4	16.2	16.0	15.8	15.6	15.4	15.2	15.0	14.8	14.6	14.4	14.2	14.0	13.8	13.6	13.4	13.2	13.0	12.8	12.6	12.4	12.2	12.0	11.8	11.6	11.4	11.2	11.0	10.8	10.6	10.4	10.2	10.0	9.8	9.6	9.4	9.2	9.0	8.8	8.6	8.4	8.2	8.0	7.8	7.6	7.4	7.2	7.0	6.8	6.6	6.4	6.2	6.0	5.8	5.6	5.4	5.2	5.0	4.8	4.6	4.4	4.2	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0	0.8	0.6	0.4	0.2	0.0	0.000	0.240

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR AUGUST, 1873.

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 results for the wind are from hourly observations.

Highest barometer.....20.097 at 8 a.m. on 6th } Monthly range  
 Lowest barometer.....20.338 at 6 a.m. on 16th } 0.659.  
 { Maximum Temperature.....85.0 on 22nd } Monthly range  
 { Minimum Temperature.....40.3 on 24th } 35.0.  
 { Mean Maximum Temperature.....76.92 } Mean daily range  
 { Mean Minimum Temperature.....67.94 } 17.98.  
 { Greatest daily range.....29.8 from a.m. to p.m. of 6th.  
 { Least daily range.....6.6 from a.m. to p.m. of 31st.  
 Warmest Day.....22nd; Mean Temperature.....74.73 } Difference=15.18.  
 Coldest Day.....25th; Mean Temperature.....60.83 }  
 Maximum { Solar.....143.90 on 22nd } Monthly range  
 Radiation { Terrestrial.....35.4 on 17th } 107.6.  
 Aurora observed on 4 nights, viz, 8th, 16th, 17th and 23rd.  
 Possible to see Aurora on 21 nights; impossible on 7 nights.  
 Raining on 12 days; depth 1.013 inches; duration of fall 23.1 hours.  
 Mean of Cloudiness, 0.48.

WIND.

Resultant Direction N 84° E.; Resultant Velocity 1.35 miles.  
 Mean Velocity 5.66 miles per hour.  
 Maximum Velocity 27.4 miles, from 1 to 2 p.m. of 16th.  
 Most Windy day 13th; Mean Velocity 10.99 miles per hour.  
 Least Windy day 25th; Mean Velocity 2.37 miles per hour.  
 Most Windy hour 2 p.m.; Mean Velocity 9.67 miles per hour.  
 Least Windy hour 4 a.m.; Mean Velocity 3.07 miles per hour.

Dew on 8 mornings.

Fog on the 10th.

Lightning on 7th, 11th, 12th, 21st, 22nd, 23rd and 30th.

Thunder on 11th, 21st, 22nd and 23rd.

COMPARATIVE TABLE FOR AUGUST.

YEAR.	TEMPERATURE.				RAIN.			SNOW.			WIND.	
	Excess above average.	Maxt. inum.	Mini. inum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant. Direction.	Veloc'y.	Mean Velocity.	
1846	07.0	1.7	84.8	41.5	44.3	0	1.725	...	...	...	0.19 lbs	
1847	08.4	2.2	86.4	49.6	36.9	9	1.170	...	...	...	0.17	
1848	05.1	1.1	82.6	44.0	38.6	10	2.140	...	...	...	0.10	
1849	09.2	3.0	87.0	48.7	38.3	8	0.855	...	...	...	0.98	
1850	06.3	0.1	79.0	49.0	30.0	10	4.970	...	...	...	4.65 mls	
1851	06.8	0.6	85.0	41.0	44.0	13	4.363	...	...	...	0.60	
1852	03.6	2.6	79.8	42.0	37.6	10	1.366	...	...	...	0.35	
1853	05.0	0.9	81.2	45.8	35.4	9	2.690	...	...	...	4.48	
1854	08.6	2.4	94.9	42.6	62.4	11	2.575	...	...	...	4.63	
1855	08.0	1.8	99.2	45.0	63.6	6	0.465	...	...	...	3.30	
1856	04.1	2.1	83.6	40.0	43.6	7	1.455	...	...	...	0.30	
1857	03.6	2.6	82.7	41.0	41.2	12	1.680	...	...	...	1.70	
1858	05.3	0.9	86.2	40.0	42.3	13	5.263	...	...	...	4.00	
1859	07.6	1.4	84.0	44.0	40.0	11	5.800	...	...	...	1.04	
1860	06.6	0.4	82.2	48.8	36.4	11	3.900	...	...	...	6.97	
1861	05.6	0.7	87.0	46.8	40.2	14	3.405	...	...	...	7.03	
1862	07.6	1.4	89.5	47.0	38.2	15	2.953	...	...	...	6.30	
1863	06.6	0.4	85.0	42.8	46.7	16	3.483	...	...	...	4.21	
1864	08.6	2.4	94.0	47.0	47.0	12	2.208	...	...	...	6.90	
1865	08.2	1.0	87.8	44.4	43.4	13	5.060	...	...	...	1.60	
1866	00.8	6.4	77.0	43.4	34.0	14	4.457	...	...	...	4.89	
1867	08.1	1.9	95.2	43.2	63.0	10	2.440	...	...	...	1.38	
1868	07.2	1.0	84.4	46.8	37.6	13	1.562	...	...	...	4.75	
1869	03.6	2.6	80.0	43.5	45.6	11	4.273	...	...	...	5.16	
1870	07.1	0.9	84.0	40.0	44.0	14	3.422	...	...	...	4.62	
1871	07.4	1.2	89.5	41.0	43.5	8	2.806	...	...	...	1.91	
1872	09.6	3.3	91.8	61.0	40.6	10	2.405	...	...	...	5.92	
1873	06.0	0.4	85.0	46.4	38.6	12	1.013	...	...	...	1.69	
Mean to 1872	66.10	...	86.53	44.64	41.89	11.07	3.002	...	...	...	1.43	
Excess for '73	0.40	...	1.63	1.76	3.29	0.03	1.080	...	...	...	6.22	
								...	...	...	0.34	



REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR SEPTEMBER, 1876. COMPARATIVE TABLE FOR SEPTEMBER.

YEAR.	TEMPERATURE.			RAIN.		SNOW.		WIND.	
	Max. above average.	Mini- mum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Direction.	Mean Velocity.
1845	56.0	31.0	25.0	16	0.246	...	...	...	0.34lbs
1846	56.0	31.0	25.0	11	0.555	...	...	...	0.33
1847	55.6	31.0	24.6	15	0.685	...	...	...	0.33
1848	54.2	28.1	26.1	11	3.116	...	...	N 71 W	2.38
1849	58.2	32.7	25.5	9	1.450	...	...	N 73 W	0.68
1850	56.5	29.6	26.9	11	1.733	...	...	N 65 W	1.02
1851	56.0	32.0	24.0	9	2.665	...	...	N 14 E	1.03
1852	57.5	35.8	21.7	10	3.630	...	...	N 77 W	0.53
1853	58.8	32.9	25.9	14	5.140	...	...	North	1.06
1854	61.0	33.8	27.2	12	3.379	...	...	N 23 W	1.33
1855	59.5	33.0	26.5	12	5.559	...	...	N 20 E	1.29
1856	57.1	35.0	22.1	13	4.108	...	...	S 79 W	1.98
1857	58.6	34.1	24.5	11	2.610	...	...	N 08 W	1.01
1858	59.1	35.6	23.5	6	6.745	...	...	S 74 W	1.53
1859	55.2	33.1	22.1	16	3.825	...	...	N 44 W	1.60
1860	55.3	32.7	22.6	14	3.989	...	...	N 71 W	2.63
1861	59.1	37.1	22.0	17	3.607	...	...	N 71 W	1.39
1862	59.6	39.0	20.6	8	2.314	...	...	N 59 W	1.07
1863	59.9	31.4	28.5	8	2.255	...	...	N 16 W	1.59
1864	56.4	37.8	18.6	11	2.548	...	...	S 86 E	0.47
1865	54.5	42.0	12.5	12	2.460	...	...	N 33 W	1.45
1866	53.2	34.4	18.8	15	5.637	...	...	S 37 W	1.45
1867	57.0	31.8	25.2	9	1.278	...	...	N 74 W	0.88
1868	56.0	30.0	26.0	16	4.250	...	...	N 63 W	1.16
1869	60.7	34.4	26.3	8	4.027	...	...	N 29 E	2.26
1870	51.8	45.8	6.0	11	6.194	...	...	N 74 W	1.72
1871	54.8	34.0	20.8	8	1.200	...	...	N 79 W	1.47
1872	59.1	38.2	20.9	16	2.528	...	...	N 81 W	2.92
1873	57.3	33.5	23.8	14	3.020	...	...	...	...
Results to 1872	58.05	31.93	26.04	11.21	3.679	...	...	N 53 W	1.01
Excess for 73	0.76	1.07	0.64	2.79	0.650	...	...	...	+

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 A.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....30.025 at 2 p.m. on 8th. } Monthly range  
 Lowest Barometer.....29.293 at 4 p.m. on 4th. } 0.822.  
 { Maximum Temperature.....79.00 on 12th. } Monthly range  
 { Minimum Temperature.....38.50 on 15th. } 45.5.  
 { Mean Maximum Temperature.....66.17. } Mean daily range  
 { Mean Minimum Temperature.....49.82. } 19.35.  
 { Greatest daily range.....27.31 from 2 p.m. of 12th to 2 p.m. of 13th.  
 { Least daily range.....1.92 from a.m. to p.m. of 7th.  
 Warmest day.....4th.....Mean Temperature.....59.75 } Difference=24.92.  
 Coldest day.....20th.....Mean Temperature.....41.83 }  
 Maximum } Solar.....13.95 on 15th. } Monthly range  
 Radiation } Terrestrial.....2.90 on 11th. } 108.5.  
 Aurora observed on 6 nights, viz.: 4th, 14th, 19th, 20th and 25th.  
 Possible to see Aurora on 10 nights; impossible on 11 nights.  
 Raining on 14 days; depth 3.020 inches; duration of fall 53.5 hours.  
 Mean of Cloudiness, 0.46.

WIND.

Resultant Direction N. 81° W.; Resultant Velocity 2.02.  
 Mean Velocity 7.53 miles per hour.  
 Maximum Velocity 30.0 miles, from 1.30 to 2.30 p.m. of 30th.  
 Most Windy day 1st; Mean Velocity 15.87 miles per hour.  
 Least Windy day 7th; Mean Velocity 2.43 miles per hour.  
 Most Windy hour 1 p.m.; Mean Velocity 12.06 miles per hour.  
 Least Windy hour 10 p.m.; Mean Velocity 4.45 miles per hour.

Dew recorded on 1st, 3rd, 9th, 10th, 14th, 12th, 22nd and 27th.  
 Fog on 4th, 7th, 9th, 10th, 12th, 23rd and 27th.  
 First frost of season 16th severe.  
 Lightning on 4th, 12th, 18th, 19th, 26th and 27th. Thunder on 4th, 10th and 27th.  
 Solar halo Sept. 9th. Lunar halo 9th.







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