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JESUITA SERGINA PRIDE
KAL MARTIA S³ M^{XX}
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ANEXVILLAM
LIT¹⁰OR¹⁰ S¹⁰IC¹⁰
ET HIO SVOBENEMERENTI INP
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THE CANADIAN JOURNAL.

NEW SERIES.

No. LXVII.—DECEMBER, 1868.

CHRISTIAN EPITAPHS OF THE FIRST SIX CENTURIES.

BY THE REV. JOHN McCaul, LL.D.,

PRESIDENT OF UNIVERSITY COLLEGE, TORONTO, ETC.

V. THOSE IN WHICH THE OCCUPATION OR POSITION IN LIFE OF THE DECEASED IS STATED—(*Continued.*)

(*m*) To a sacred virgin :— 74.

PRIEIVNPAVSA
BETPRAETIOSA
ANNORVMPVLLA
VIRGOXIITANTVM
ANCILLADEIETXPI
FL · VINCENTIOET
FRAVITOV · CONSS

(*In coem. Callisti; De Rossi, n. 497.*)

Prie (*pridie*) [*Kal.*] *Junias pausabet* (*pausavit*) *Prætiosa, annorum, pulla* (*puella*) *virgo XII tantum, ancilla Dei et Christi, Flavio Vincentio et Fravito, Viris Clarissimis, Consulibus.*

“ On the day before the Calends of June, Prætiosa went to her rest, a young maiden of only twelve years of age, a hand-maid of God and of Christ, in the Consulship of Flavius Vincentius and Fravitus, most distinguished men,” *i. e.* May 31st, 401, A. D.

75.

HIC QUIESCIT GAVDIOSA $\overline{C}F$ ANCILLA DEI QVAE
 VIXIT ANNVS XL ET MEN · V · DEP · X¹ · KAL · OCTOB ·
 CALLEPIO $\overline{V}C$ CON f

(In S. Pauli; De Rossi, n. 739.)

Hic quiescit Gaudiosa, Clarissima Femina, ancilla Dei, quæ vixit annus (annos) XL et menses V. Deposita, X Kalendas Octobres, Callepio, Viro Clarissimo, Consule.

"Here rests Gaudiosa, a most distinguished woman, a hand-maid of God, who lived forty years and five months. Buried on the tenth day before the Calends of October, in the Consulship of Callepius, a most distinguished man," *i. e.* September 22nd, 447, A. D.

VI. THOSE IN WHICH THERE IS MENTION OF OR REFERENCE
 TO THE PLACE OF BURIAL.

(a.) *Locus factus* :—

76.

LOCVSBASILEONIS
 SEBIBOFECIT
 XENEBENEMEREN
 TIINPACE · DPRID
 NONASNOVEMB
 CONSS · HONORI
 AVG · VII · ETHODO
 SIITER · AVGG

(Ad S. Laurentii in agro Verano; De Rossi, n. 576.)

Locus Basileonis, se bibo (se vivo, vivus) fecit. Xene (Xenæ) benemerenti in pace. Deposita, pridie Nonas Novembres, Consulatu Honorii Augusti VII et Theodosi (Theodosii) iterum Augustorum.

"The place of Basileo. He when alive made it. To Xeno well-deserving in peace. Buried on the day before the Nones of November in the Consulship of Honorius Augustus, for the seventh time, and Theodosius for the second time, the two Augusti," *i. e.* November 4th, 407 A. D.

1. 2. *se bibo*. In Pagan epitaphs such forms are found as *se vivo*, *se vivus*, *se vivis*, *me vivus*. *Fecit*. This word is used in various connexions. In n. 31, I have noticed its use with *cum* in the sense "spend." We find it, also, with *fatum*, *scil. fatum fecit* = died; and with *titulus*, *scil. titulum fecit* = "made the inscription" or "caused the inscription to be made;" also with *locus*, *scil. locum fecit* = "made

the place of burial" or "caused the place to be made." F. C. = *faciundum curavit*, so common in Heathen epitaphs, is very rare in Christian. In both cases, I suspect, the place of burial was, sometimes, actually made by the person himself. Thus in Henzen's n. 6394—*communi labore sibi fecerunt*. l. 3. *Xene*. I have regarded this name as Greek, although I do not recollect having ever met with an example of it. *Xenis* occurs, and also *Xinna*, which Reinesius strangely believed to stand for *Cinna*.

This stone is remarkable as presenting the most ancient example of the representation of the cross in dated epitaphs. This symbol of Christianity, so common in inscriptions from the latter part of the fifth century, does not appear in any one of those of the first four centuries. The monogrammatic cross, as it is called, was used before this, not however as early as 209, as Zannoni inferred from an inscription given by Boldetti, p. 83. There is, certainly, a monogrammatic cross in that epitaph, but the date is 456, as is evident from the words *DÑ AVITI*, i. e. *Domini Nostri Aviti scil.* the emperor of that name. Boldetti, who was not aware of the Consulship of *Avitus Augustus*, interpreted the words as referring to *Avitus*, Consul in 209. The same careless investigator, p. 351, introduced a new fashion of cross on the authority of a stone that he found in the Catacomb of St. Agnes. This he not only figured, but described as a decussated cross transfixed with a spear, whilst it is really no more than an imperfect Constantinian monogram. His mistake led to serious waste of time and trouble, for some learned men, as De Rossi remarks, *arcanam significationem inani labore investigarunt*. See Cavedoni, *Bull dell' Ist.* 1843, p. 152. Aringhi, vol. ii. pp. 377–380, furnishes another example of the result of extravagant symbolism. More than four columns of his work are devoted to the explanation of certain figures, that he calls representations of the heart, in the inscriptions found in the Catacombs, and the subject is illustrated by various quotations from the Holy Scriptures, the Fathers, and Greek and Latin heathen authors. These figures, however, on which so much learning is wasted, are in reality nothing more than leaf-points, or leaf-decorations, that are commonly found in both Christian and Pagan inscriptions. See examples in Plate iii. 2. Nor was this ridiculous mistake limited to Aringhi. Boldoni suggested that the figure—unquestionably a leaf with a stem—signified *dolorem cordis intimum*, and Grasser believed that it was the representation *cordis spina transfixi*, and meant *cordolium*!

The Constantinian monogram is, as might be expected, of frequent occurrence on Christian sepulchral stones, but a great object of search relative to this symbol has been to find an example before the year 312 A. D. It was believed that one was found on a stone discovered by Boldetti, of the date 291 A. D., but De Rossi, n. 17, has, I think, correctly regarded this figure as merely an ornamental point. He himself, however, gives an example (n. 26), which may be, but cannot certainly be proved to be, of the date 298 A. D. The *earliest that I have noticed is of the date 331 A. D.

(b) *Locus emptus* :— 77.

COSTATINOS · EMIS
SE IANVARIVM · ET · BRI
TIAM LOCVM ANTE DO
MNA EMER ITA AEOSSO
RIBVS BVRDONE ETMICI
NVM ET MVSCO RVTIONE AVRISOLI
O VM VN SEMES · CONS · D · D · N · N · THAE
ODOSIO · ET · VALENTINIANO · II·

(In coenobio S. Pauli ; De Rossi, n. 653.)

Co(n)stat nos emisse, Ianuarium et Britium, locum ante domina (dominam) Emerita (Emeritam), a fossoribus (fossoribus) Burdone et Micinum (Micino) et Musco, ratione auri solidum (solidi) unum (unius) semessem (semissis), Consulibus Dominis Nostris Theodosio et Valentiniano iterum.

"It is unquestionable that we Januarius and Britia bought a place in front of (the sepulchre of) Lady Emerita from the diggers Burdo and Micinus and Muscus for the consideration of one solidus of gold and a half in the Consulship of our Lords Theodosius and Valentinian for the 2nd time," *i. e.* 426 A. D.

The formula *constat nos emisse* is not rare in monuments of this age, whence it appears that the line between *constat* and *nos* is merely a mark of punctuation. The sepulchre of *Saint Emerita* was in the cemetery of Commodilla, behind the basilica of St. Paul.

She and Digna are said to have suffered death at Rome, under Valerian and Gallienus.

* I do not take into account the use of crosses and monograms before Christianity, the meaning of which was of course different from the Christian signification. Examples of the gammadion occur on Roman altars found in Britain.

The *solidus* was originally called the *aureus*. It had different values at different periods. From the time of Constantine there were 72 (OB) coined to the pound of gold. The *semissis* and *tremissis* were coins respectively $\frac{1}{2}$ and $\frac{1}{3}$ of the *solidus*. Northcote, "Roman Catacombs," p. 28, notices this inscription, and remarks, "A *solidus* and a half the price paid for a single [?] grave was a sum equivalent to about eighteen shillings [sterling] of our own coin."

(c) *Locus *donatus* :— 78.

HIC REQVIESCIT IN PACE AMEN
 . . . SQVI FECIT · CVM OXVRE ANN . . . dep
 in LOCVM QVEM DONAVIT DOMINVS PAPA
 HORMISDA POSSEDATVR LOCS EVM NE QVIS
 MREMOBAT DEFVNCTVS EST N̄ON NOVEMBRIS
 FL· SYMMACO ET VOETIO V̄V C̄C̄.

(In *S. Martini in montibus*; De Rossi, n. 980.)

Hic requiescit in pace Amen ————— s, qui fecit cum oxure (uxore) annos ——— [Depositus] in locum (loco) quem donavit Dominus Papa Hormisda. Possedatur (possideatur) locus; eum ne quis unquam remobat (removeat). Defunctus est, Nonas (Nonis) Novembris (Novembres, Novembribus), Flavio Symmaco (Symmacho) et Voetio (Boetio), Viris Clarissimis.

"Here rests in peace Amen ————— s who passed with his wife ——— years. Buried in the place which the Lord Bishop Hormisda gave (to him). Let the place be held in possession; let no one ever remove it (or him). He died on the Nones of November, in the Consulship of Flavius Symmachus and Boetius, most distinguished men," *i. e.* November 5th, 522 A. D.

(d) *Locus bisomus* :— 79.

PETRONIVS IN PACE XVII· KALENdas
 NIS QVI VIXIT ANNVS LXVI· CONSVLATv olybrio et
 PROBINO V̄V C̄C̄· HIC REQVIESCIT IN Pace . . . quæ
 SEBIBA FECIT BISOMVS VACAT.

Petronius in pace, XVII Calendas ————— nis qui vixit annus (annos) LXVI, Consulatu Olybrio (Olybrii) et Probino (Probini) Viris Clarissimis (Virorum Clarissimorum). *Hic requiescit in pace* ——— quæ se liba (se viva) fecit. *Bisomus vacat.*

* For *locus concessus* see Epitaph 67.

"Petronius in peace on the seventeenth day before the Calends of ———, who lived 66 years, in the Consulship of Olybrius and Probinus, most distinguished men, *i. e.* 395 A. D. Here rests in peace ——— who in her life time made this. Space for two bodies is unoccupied."

l. 2. *nis.* The beginning of the word, of which this is the ending, was in the preceding line. *Consulatu Olybrio.* See note on epitaph 58. † *Bisomus vacat.* Was this an intimation that it was for sale? I have not seen Ratti's comment on this inscription, which was published in *Atti della pont. accad. d'arch.*, but De Rossi's notice of it is very unfavorable. He says that his observations show nothing but *incredibilem ejus in re epigraphica incertam et summam judicii levitatem.*

(e) *Locus trisomus* :— 80.

CALEVIVSBENDIDITAVINTRISOMVVBIPOSITIERANTVIN
 [IETCALVILIVSET
 LVCIVSINPA COS · STIL

(*E coemeterio SS. Quarti et Quinti* ; De Rossi, n. 489.)

Calevius vendidit Avin (Avinio) trisomu (trisomum), ubi positi erant vini (bini) et Calvilius et Lucius in pace, Consulatu Stilichonis.

"Calevius sold to Avinius a place for three bodies, where both Calvilius and Lucius had (already) been placed in peace, in the Consulship of Stilicho," *i. e.* 400 A. D.

The stone that bears this inscription is remarkable on account of the symbols that are cut on it, *viz.*, the monogram, the balance, the fish, the candelabrum with seven lights, the house, and the mummy in a receptacle approached by steps. Of the monogram and the fish I have already spoken. The candelabrum with seven lights, or the seven-branched candlestick, is frequently represented on the grave-stones of Jews, and was adopted from them by Christians, with, perhaps, a different meaning. The balance may have been derived from the notion of Psychostasy, which was Eastern in its origin, and to which the weighing of the Fates of Achilles and Hector in the Iliad is analogous. With it may be compared the expression used relative to Belshazzar in Daniel, v. 27. Or does the symbol merely indicate the just dealing of the deceased?

† I have given this epitaph in illustration of *locus bisomus*, chiefly on account of the words *bisomus vacat*; but the *locus* seems to have been *quadrisomus*, space for two bodies being unoccupied.

The house may have been used as indicative of the last dwelling-place, and the mummy certainly represents Lazarus and is symbolical of the resurrection. De Rossi refers to the discussion of these symbols by Mamachi, *Orig. ch.* iii., Munter, *Sinnbilder*, p. 57, Didron, *Hist. de Dieu*, p. 339, Raoul Rochette, *Mem. de l'Acad. des inscr.* xiii. 244, and by himself in *Spicil. Solesm.* iii. p. 549. Aringhi, ii. p. 357, figures the stone and illustrates the meaning as usual, by citations of all kinds from the authors of the Old and of the New Testament, from Origen, Irenæus, Jerome, Augustine, Chrysostom, and Gregory. And yet in this, as in other collections of quotations in Aringhi's work, the result, so far as definiteness of explanation is concerned, is very unsatisfactory.

(f) *Locus quadrisomus* :— 81.

FL · TATIANO ET QVINTO
AVR · SVMMACOVORIS
CI RISSIMIS EGOZITA
LOCVM QVADRIC
SOMV IN BSILIC
ALVA EMI

(*E basilica supra coem. Domitillæ ; De Rossi, n. 395.*)

Fl. Tatiano et Quinto Aur. Summaco (Symmacho), *Viris Clarissimis*,
ego Zita locum quadrisomum in basilica salva emi.

"In the Consulship of Flavius Tatianus and Quintus Aurelius Symmachus, most distinguished men (*i. e.* 391 A. D.) I, Zita, whilst alive, bought a place for four bodies in the Basilica."

(g) *Μνημεῖον* :— 82.

'Ἐκτίσθη τὸ μνημεῖον τοῦ μακαρίου Στεφάνου ἀπὸ Ἀπαμείας [?] ἐν μηνὶ Ἀπελλαίῳ ἰνδικτιῶνος ζ' τοῦ ἔτους ὑδῆ.

(*Schmurrin in Syria ; Kirchhoff, n. 9146.*)

"This monument of the blessed Stephen from Apamea was erected in the month Apellæus, in the 7th Indiction, in the year 438," of the epoch of the *Bostreni* (which counts from 105 A. D.)=December 544, A. D.

I have given only the expansion, as I am unable to present a copy of the original without type cut for the purpose. Other terms applied to the tomb are *μνήμα*, *τόπος*, *θήκη*, *σωματοθήκη*, *ἡροεῖον*, *παραστατικὸν*, *μνήμα*, *χαμοσύριον*, *τύμβος*, *κοιμητήριον*, *οἶκος αἰώνιος*.

(h) *In Basilica* :— 83.

VICTOR IN PACE FILIVS EPISCOPI VIXORIS
 CIVITATIS UCRESIVM VIXIT ANNIS XXXIII
 MENSIBUS VII DECES D XI KAL · NOVEBR · CONSVLATV
 D. N. HONORIVI AVGV DEPOSITVS IN BASILICA SANCTO
 RUM NASARI ET NABORIS SECVNDV ARCV IVXTA
 FENESTRA

(*In vico quodam ad S. Mariæ supra Minervam* ; De Rossi, n. 534.)

Victor in pace, filius Episcopi Vicxoris (Victoris) civitatis Ucresium. Vixit annis XXXIII mensibus VII. Decessit die XI Kalendas Novembres, Consulatu Domini Nostri Honorii sextum Augusti. Depositus in Basilica Sanctorum Nasarii et Naboris secundo arcu juxta fenestram.

“Victor, in peace, son of Bishop Victor of the City of the Ucresens. He lived 39 years 7 months. He departed on the 11th day before the Calends of November, in the Consulship of our Lord Honorius, for the sixth time, Augustus (i. e. October 22nd, 404 A. D.) Buried in the Basilica of Saints Nasarius and Nabor, in the second arch near the window.”

The Italics in the text are De Rossi's restorations. I have followed him in substituting G for C in the 2d line, and in reading I for T, before VI, in the 4th line.

1. 1. *Episcopi Vicxoris* (Victoris). This is the usual order—not *Victoris Episcopi Civitatis Ucresium* : thus also *Papa Hormisda*, *Papa Ioanne*. See De Rossi, n. 989.

In an inscription, found at Narbonne, (Mai, p. 83, Gruter, 1059, 1) of the year 445 A. D.—*Valentiniano Aug. vi.*—we have—

RVSTICVS · EPVS · EP̄I · BONOSI · FILIVS · EP̄I · ARATORIS ·
 [DE · SORORE ·
 NEPVS · EP̄I · VENERI · SOCI · IN · MONASTERIO COMPRB ·
 [ECCLE · MASSILIEN, &c.

Rusticus episcopus, episcopi Bonosi filius, episcopi Aratoris de sorore nepos, episcopi Venerii socius in Monasterio, compresbyter ecclesiæ Massiliensis.

1. 2. *Ucresium*. De Rossi regards this as used for *Urcensium* or *Urgensium*. There was a town called *Urgi*, in Numidia, and another called *Urci* in proconsular Africa. Each of these had its own Bishop in the fourth or fifth century.

Nasarius (or Nazarius) and Nabor, soldiers, are said to have been beheaded at Rome, in the persecution of Diocletian and Maximian.

(7) *Sepulcrum* :—

84.

VOSPER CRISTVM
 NEMIHABALIQVOVIO
 LENTIAMFIATETNESEPVL
 CRVMMEVMIIOLETVR
 DEPDIEVIIIDAVGVSTAS
 ADELFO V̄C̄ CONSS

(In *Mus. Lat.* ; De Rossi, n. 752.)

[Adjuro] *vos per Cristum* (Christum), *ne mihi ab aliquo violentiam* (violentia), *fiat et ne sepulcrum meum violetur*. *Depositus, die VII Idus Augustas, Adelfio* (Adelphio), *Viro Clarissimo, Consule*.

“I conjure you by Christ that no violence may be offered to me by any one, and that my sepulchre may not be violated. Buried on the seventh day before the Ides of August, in the Consulship of Adelphius, a most distinguished man,”
i. e. August 7th, 451 A. D.

Such *prayers and injunctions to respect the sanctity of the sepulchre are found in Pagan epitaphs : in both also the stronger form of imprecations is used. In a Heathen epitaph, we have *si quis violaverit ad inferos non recipiatur*; in a Christian, *male pereat, insepultus jaceat, non resurgat, cum Juda partem habeat, si quis sepulcrum hunc violaverit*.

Sometimes the anathema is resorted to, as in the following, found in the island of Salamis, and given by Kirchoff, n. 9303 :

Οἶκος αἰώνιος Ἀγάθωνος ἀναγνώστου καὶ Εὐφημίας ἐν δυσὶ θήκαις ἰδίᾳ ἐκάστῳ ἡμῶν. Εἰ δέ τις τῶν ἰδίων ἢ ἕτερός τις τολμήσῃ σῶμα καταθέσθαι ἐν ταῦθα παρ᾽ ἐξ τῶν δύο ἡμῶν, λόγον δόψῃ τῷ θεῷ καὶ ἀνάθεμα ᾗτω μαρναθῶν. *i. e.*

“The everlasting dwelling of Agatho, a reader, and Euphemia, in two graves, one for each of us separately. If any one of our relatives or any one else shall presume to bury a body here, besides us two, may he give account to God and let him be anathema maranatha”

* In Henzen's n. 6371 there is a similar prayer. I subjoin the inscription, as it is in some respects peculiar :—*Alexander Augg. ser. fecit se vivo Marco filio dulcissimo, caputafricesi, qui deputabatur inter bestitores* (vestitores) *qui vixit annis XVIII mensibu VIII diebu V. Peto a vobis* (vobis) *fratres boni per unum Deum ne quis vii titulo molestet post mortem*. See Orelli, n. 2685.

(k) *Sarcophagus* :—

85.

DEP	FL·IVLIVS ZACONVS ET
IVL	AVRELIA MERIA CON
ZACO	IVX EIVS HOC SARCOFA
NIS	GVM SIBI VIBI· POSVERVNT
DIE IIII	SI QVIS POST NOSTRAM PAV
NOVEM	SATIONEM HOC SARCOFA
BRES	GVM APERIRE VOLVERIT IN
DATIA	FERAT ECCLESIAE SALON·AR
NO ET	GENTI LIBRAS QVINQVAGINTA
CEREA	
LE COSS	

(Salonis ; Muratori, 381, 2.)

Flavius Julius Zaconus (Diaconus) et *Aurelia Meria* conjux ejus hoc (hunc) sarcophagum (sarcophagum) sibi vibi (vivi) posuerunt. Si quis post nostram pausationem hoc (hunc) sarcophagum aperire voluerit inferat ecclesie Salonitanæ argenti libras quinquaginta.

Depositus Julius Zaconis (Diaconus) die IV [Kalendas] Novembres, Datiano et Cereale Consulibus.

"Flavius Julius, a deacon, and Aurelia Meria his wife, whilst living, erected this sarcophagus for themselves. If any one after our decease shall take on himself to open this sarcophagus, let him pay as the penalty fifty pounds of silver to the church at Salonæ."

"Julius, the deacon, was buried on the fourth day before the Calends of November, in the Consulship of Datianus and Cerealis." *i. e.* October 29th, 358 A. D.

1. 1. *Zaconus*. See note on epitaph 65. Muratori observes :—

"*Zaconus et Zuconis est pro Diaconus et Diaconis, uti Zabulus pro Diabolus, Zeta pro Dieta.*"

I have regarded *Zuconis* as given in mistake for *Zaconus*, and think that the correctness of this view is confirmed by the name "*Julius.*"

1. 7. *Inferat*, &c. The naming of a penalty for violation of the grave is of very common occurrence in Pagan epitaphs, both Greek and Latin.

There is scarcely one of the *designations of the place of burial used in Christian epitaphs, so far as I recollect, that is peculiar to them. *Locus, tumulus, memoria, cubiculum, sepulchrum, sarcophagus*, &c.,

* I have not observed *quadrisomus* in any Pagan epitaph.

are found in Pagan inscriptions, from which, also, *domus æterna*, although inconsistent with belief in the resurrection, has been inadvertently borrowed. See De Rossi, nn. 159, 173.

VII. THOSE WHICH CONTAIN CYCLIC MARKS OF TIME.

(a) Day of the month, day of the week, and day of the moon without the year:—

86.

BALENTINE QVE VIXIT ANNOS XXXVI
DECESSIT · VIKAL · MAR · DIEBENERIS
LNAXVII.

(In *coem. Priscille*; De Rossi, n. 597.)

Balentine (Valentinæ), *que* (quæ) *vixit annos XXXVI. Decessit VI Kalendas Martias, die Beneris* (Veneris), *luna XVII.*

"To Valentina, who lived thirty-six years. She departed on the sixth day before the Calends of March, Friday, the seventeenth day of the Moon," *i. e.* February 24th, 411 or 327 A.D.

In this inscription the Consuls are not mentioned; nor is there any other form of expression for the year used; and yet the full date may be inferred from what is therein stated. It is plain that it must be a year in which February 24th and the 17th day of the Moon fell on Friday. Marini's comments are:—" *Hujus inscriptionis characteres, si auctor veterem ecclesiæ cyclum annorum LXXXIV sequutus est, pertinere possunt ad annos 327, 411, 495, qui cyrli XXX sunt, atque exordiuntur die solis luna XXII; proindeque novilunium Januarii contigit die X, Februarii die VIII, a qua ad VI Kal Martias, seu ad diem XXIV Februarii dies sunt XVII.*"

De Rossi discusses the subject, and shows that the choice lies between 327 and 411, as in 495 the Victorian canon was in use at Rome, according to which we should have had *luna XV*, not *XVII*. Of the two the first, 327, is preferable, as the characteristics of the inscription, *i. e.* the absence of contractions and the use of the ancient term *decessit*, point to the earlier date.

† This form or *domus æternalis* is unusually common in the epitaphs of *Pomaria* in Algeria. See Renier, n. 456. In different localities, as might be expected, different forms were popular. Thus *pius* often occurs in African, and *carus suis* in Spanish epitaphs.

(b) Hour, day of the month, and day of the Moon with year :—87.

PVER NATVSA Ω
 DIVOIOVIANO AVG · ET
 VARRONIANO COSS
 ORANOCTIS · IIII
 IN VEXIT VIII · IDVS MADIAS
 DIE SATVRNIS LVNAVIGESIMA
 SIGNO APIORNONOMINFSIMPCCIVS

(*In Mus. Capitolino ; De Rossi, n. 172.*)

Puer natus, (Alpha Omega) Divo Ioviano Augusto et Varroniano Consulibus, ora (hora) noctis IV, in vxit VIII Idus Madias (Maias), die Saturnis (Saturni), Luna vigesima, signo Apiorno (Capricorno), nomine Simplicius (Simplicius).

“A boy born (Alpha Omega) in the Consulship of the deified Jovian Augustus, and Varronianus (*i. e.* 364 A.D.)¹ in the fourth hour of the night, ——— the eighth day before the Ides of May, *i. e.* May 8th, on Saturday, the twentieth day of the Moon, in the sign of Capricorn, by name Simplicius.”

1. 1. *Puer natus.* This is no uncommon beginning. See n. 88, and notes on it. 1. 2. *Divo Ioviano.* This Emperor died on the *XIV Kal. Martias*, in the year 334 A.D., and after that date was styled, as was usual, *Divus*. Christians used the ordinary term, in the sense “deceased” or “late,” without regard to the sense assigned by Pagans.

1. 5. *In vxit.* It is difficult to determine what was the word intended by the unskilful workman who cut the inscription. Maffei, *Mus. Ver.* p. 252, makes two attempts at it :—“*fortasse inluxit intelligendum, hoc est lucidus moriendo evasit ; fortasse inussit, pro inustus est fidei nota, seu baptisate.*” Le Blant, *Inscr. Chrét. de la Gaule t. i. p. 479*, reads “*induxit,*” *i. e.* *induxit albas* = was baptized. See n. 88, and notes on it. Guasco, *iii. p. 141, n. 1235*, suggests “*inluxit,*” in the sense (according to De Rossi)—*Simplicium natum hora noctis quarta simul ac inluxerat dies VIII Idus Maii.* De Rossi objects to this—that the hours were astrologically counted not from midnight but from sunset, and, after stating Maffei’s and Le Blant’s views, remarks that the words are *novæ prorsus et Christianis titulis inauditæ.* He himself suggests, “*In vixit*” in the sense—*vixit in VIII Idus Maias, i. e.* *Simplicius* was born in the fourth hour of the night and lived only for the one day—May 8th. There are, I think, but few scholars that would accept the views of Maffei or Le Blant. Guasco’s is recom-

mended by similar phraseology in Muratori's n. 2, p. 431—" *Obiit bonæ memoriæ Cæsaria medium noctis die Dominica inlucescente VI Id. Decembris.*" Thus also Suetonius, *Cæsar*, c. 81—" *Ea nocte, cui illuxit dies cædis*, &c. In Kirchoff's n. 9119 we have the corresponding Greek phrase — ἐπιφωσκ[ούσης τῆς] ὀγδόης τοῦ Ἄ [θουρ] μηνός. But I am not satisfied. The objection to De Rossi's reading is—that he does not supply the letter in the place left vacant by the stone cutter *scil.* between N and V. Can it be that the vacant space was intended for the monogram, with the letters ΑΩ incorporated with it, as they often were, and that this having been omitted either from the ignorance or inadvertence of the workman, ΑΩ were cut in the corner, but yet should be read between *In* and *vixit*—*scil.* "in ΑΩ vixit" *i. e.* *in Deo* or *Christo vixit*, in the sense "lived in God," "died?" See n. 65, &c.

1. 6. *Die Saturni luna vigesima signo Capricorno.* This inscription has been discussed chronologically and astronomically by Blanchini, Lupi and Marini, but De Rossi is the first who has shown that the notices in it are really astrological, and that they should be regarded as forming a horoscope of birth. Thus, p. LXXXIV, he proves that each of these characteristics—*scil.* the fourth hour of Saturday, the Moon in Capricorn, and the twentieth day of the May moon—was regarded as unlucky. See also his comment.

(c) Day of the month, octave of Easter, and year :— 88.

NATV · SEVERINOMINEPASCASIUS
 DIESPASCALESPRIDNOVAAPRIILN
 DIEIOBISFL · CONSTANTINO
 ETRVFOV̄V̄CCCONSSQV̄V̄VIXIT
 ANNORVMVI · PERCEPIT
 XIKALMAIASETALBASSVAS
 OCTABASPASCAEADSEPVLCRVM
 DEPOSVITD · IIIIKALMAIFLBASILIO
 V̄CCONs

(*Urbini in ædibus publicis* ; De Rossi, n. 810.)

Natu(s) Severi nomine Pasc(h)asius dies Pasc(h)ales pridie Nonas Apriles, in die Jovis, Flavio Constantino et Rufo, Viris Clarissimis, Consulibus, qui vixit annorum (annos) VI. Percepit XI Calendas Maias et albas suas Octavas (Octavis) Paschæ ad sepulcrum deposuit, IV Kalendas Maias, Flavio Basilio, Viro Clarissimo, Consule.

"Severus, who had also the name Paschasius, was born on one of the Paschal days, the day before the Nones of April (*i. e.* April 4th), on the day of Jupiter, (Thursday), in the Consulship of Flavius Constantinus and Rufus, most distinguished men (*i. e.* 457 A. D.), who lived six years. He received baptism on the eleventh day before the Calends of May (*i. e.* April 21st), and laid aside his albs at the sepulchre, on the Octave of Easter, on the fourth day before the Calends of May, in the Consulship of Flavius Basilius, a most distinguished man," *i. e.* 463 A. D.

1. 1. *nomine*. Whether we regard *Severi* as used for *Severus*, or governed by some word understood, it seems certain that *nomine* should be joined to the name following, as in De Rossi's nn. 41, 49, 172, 229, &c. De Rossi remarks: "*Ille, cujus hoc est epitaphium, paterno sive materno cognomine Severus appellatus Paschasii quoque agnomen habuit, quod natus erat anno 457 die Jovis paschali.*" 1. 2. *dies Paschales*. Used for *die Paschali*. These *dies Paschales*, as we know from a law of the Emperor Valentinian, *Cod. Theodos.* ii. 8, 2, were in number 15, 7 before and 7 after Easter-day. *pridie Nonas Apriles die Jovis, i. e.* on Thursday, April the 4th, in Easter week, for in the year 457 A. D. (*scil.* the year in which Constantine and Rufus were Consuls), according to both Roman and Alexandrian calculation, Easter-day was observed on March the 31st. 1. 5. *percepit, i. e. baptisma percepit*, "received baptism." **Percipio* is similarly used in heathen inscriptions, where it is applied to those who had participated in the mystic rites of the *Mater Deum Magna Idæa* or of *Mithras*, known as the † *Taurobolium* and *Criobolium*. Thus we have — *percepto Taurobolio Criobolioque*, in an inscription, given by De Rossi n. 24, of the date

* In some instances, where this verb is used, it is difficult to decide whether the inscription is Christian or Pagan. Thus in Henzen's n. 6147:—*D. M. Murtius Verinus pater Murtie Verine et Murtie Florianeni filiiabus malemerentibus crudelis pater titulum iscripsit. Verina percepit M. X, vicxit annos XII, menses V, Florianes percepit M. XII. vicxit annis VIII, M. III. Innocentes acceperunt a suo patre quod ei debuerant*; and in Mommsen's 1. N. n. 3160:—*D. M. Ingeniosæ que vixit annis III, M. V, Dies XXI. Fide percepit mesorum VII. Aur. Fortunius pater filia.* Henzen regards *fide* as used for *fidem*; I am inclined to take it as an adverb.

† The *Taurobolium* and *Criobolium* were respectively sacrifices of a bull and a ram, on the occasion of initiations. The persons who received them (*qui perceperunt*) descended into a deep pit, which was covered over with a wooden platform composed of pierced planks. On this platform the animal was killed, and the persons beneath presented their bodies to receive the blood, as it descended through the holes. The result was believed to be purification that lasted for twenty years, or everlasting regeneration.

319 A. D. ; in Orelli's n. 2130, of the date 390 A. D. ; in his n. 2335 of the date 376 A. D. ; in Henzen's n. 6040, of the date 370 A. D. ; in Muratori's n. 4, p. 389, of the date 383 A. D. ; and also in Reinesius, *Cl.* 1, 40 (without date), whose note is worth reading. In Muratori's n. 2, p. 371, of the date 305 A. D., we have the words *Taurobolium percepi felic(iter)*.

The oldest example of the *taurobolium*, of which I am aware, was in 175 A. D. See Fleetwood, p. 11 ; Fabretti, p. 665 ; and Reinesius, as above.

Another term, in which there is a strange agreement, is *renatus*, applied by Christians to the baptized—as in De Rossi's n. 270, (*ca*) *elesti renatus (aq)ua qui vivit in (aevum)* (see also n. 36—*natus est in æternum*)—and by Pagans to the *Tauroboliat*. Thus *Taurobolto Criobolioque in aeternum renatus*, in Orelli's n. 2352, of the date 376 A. D. ; and *arcanis perfusionibus in æternum renatus Taurobolium Crioboliumque fecit* in Henzen's n. 6040. These mystic rites seem to have been a mixture of the cults of the *Magna Mater* and *Mithras*, with the addition of some Christian principles and terms.

1. 6. *XI Calendas Maius*. From the words *Octavas Paschæ*, and *Basilio Consule*, it is evident that this day—*scil.* April 21st—was Easter-day in the year 463 A. D., and that Severus was baptized, according to custom, on its vigil, the day being counted, as usual, from Saturday to Sunday evening. But here a great difficulty presents itself. According to the tables of Noris, Easter-day should in this year, conformably to Roman calculation, have been celebrated on *IX Calendas Apriles*, *i. e.* March 24th. The learned Cardinal discusses the subject *ad fastos consulares anonymi* and *de pasch. Lat. cyclo*, where he suggests two solutions, both of which have been proved to be erroneous, one by Van der Hagen, and the other by De Rossi. The latter shows that by the old Roman calculation of the cycle of 84 years, before it was amended by Prosper, and also by the Victorian correction, Easter-day was observed in the year 463 A. D., on the *XI Calendas Maius*, *i. e.* April 21st, not on the *IX Calendas Apriles*, or March 24th.

11. 6, 7. *albas suas Octavas Paschæ ad sepulcrum deposuit*. White dresses (*albæ*) were worn by those receiving baptism. On the Sunday next after Easter Sunday, *i. e.* the Octave of Easter-day, these dresses were laid aside, whence this Sunday was called *Dominica in Albis*. *Paschasius* was buried on the day on which, according to usage, he should have laid aside his *albs* or white clothes.

VIII. MISCELLANEOUS.

(a) The most ancient dated epitaph :— 89.

(See Plate IV, 3.)

(*In Mus. Lateran.*; De Rossi, n. 1.)

[A]ug(ustas) Vespasiano III Consule.—Jan(uarias.)

“ ——— before the Calends (?) of August, in the third Consulship of Vespasian” (i. e. 71 A.D.) “ ——— before the Calends of January.”

This fragment has been received as a part of a Christian epitaph by Reggi, Marini, and De Rossi. It is the most ancient of all such that bear dates. The chief grounds on which it has been regarded as Christian are that the slab is of the same kind as those used to close the tomb in the Catacombs, and that it had adhering to it the mortar by which such slabs were fixed in their places. To these grounds De Rossi has made an important addition, by his reading IAN as *Januarias*, thus showing that the stone closed a *locus bisomus*, containing the bodies of one who had died—before the Calends [?] of August, and of another who had died—before the Calends of January.

In the year 71 Vespasian was Consul for the third time, with Cocceius Nerva as his colleague. On the 1st of March or April he resigned the office, and, on the 1st of July, L. Flavius Fimbria and Attilius Barbarus were made *consules suffecti*. The year then is marked here, as in other Christian epitaphs, not by the names of the *suffecti*, but by that of one of the *ordinarii*.

(b) Unexplained numerals :— 90.

N·XXX· SVRA ET SENECA· COSS·

(*E coemet. Lucinæ*; De Rossi, n. 2.)

N·XXX· Sura et Senecione Consulibus.

“ In the Consulship of Sura and Senecio,” i. e. 107 A. D.

. The numeral III is omitted after SVRA and II after SENECA. See De Rossi's note.

I have not attempted to translate “N·XXX·,” as their meaning is unknown. The interpretation that has been generally received is that they stand for *numero XXX*, indicating that martyrs were buried there in number thirty. This view has been taken by Visconti, Cavedoni, Raoul Rochette, and Wiseman. Roestel also assents, but regards the inscription as commemorative of a past age. De Rossi

objects, in my judgment with good reason, to this *interpretation. He calls in question the genuineness or analogy of the other inscriptions usually compared with this as confirming the sense assigned to it, and points out the improbability that the stone marked a *loculus* in the Catacombs, as the greatest number of bodies contained in such is 4. He suggests that the inscription may be imperfect, and that thus N may be regarded as the last letter of ANN. *i.e.* *annorum, scil. annorum XXX*, the person, whose name preceded, being of thirty years of age. It is remarkable that in this De Rossi was anticipated by Maitland, who (p. 58) "reads the words as the fragment of *qui vixit ann. XXX Syrra et Senec. coss*, who lived thirty years. In the Consulate of Syrra and Senecio; that is, A.D. 102." I cannot concur in this explanation. It suits this particular case, but is wholly inapplicable in others *e. gr.* in Fabretti, p. 574, 61, we have the epitaph of *Leopardus*, a boy whose age is stated to have been 7 years and 7 months. At the commencement of it are the letters—DMASACRVM XI, *i.e.* *Dis Manibus Sacrum*. 40. Again, in the Catacomb of St. Agnes, De Rossi found LIX on the *loculus* of an infant. Nor can Amati's positive assertion that they indicate *loculorum ordines* be received, for this is contrary to the experience of those who have personally examined the Catacombs. To me it seems evident that there is no sufficient reason for believing either that these numerals indicate the number of bodies buried within, or that the deceased were Martyrs. I can offer no satisfactory solution: it has seemed to me, however, not improbable that the numbers were the marks of workmen—the *fossores* or their assistants—who may have been paid according to the number of *loculi* excavated or of slabs put up. I have observed a similar notation in a Pagan epitaph, given by Orelli, n. 5008:—*N. III. Id. Nov. Diis Manibus Didix Q. F. Quintinæ Luetina Priscus uxori optimæ V. A. XXVII*. Labus remarks:—"Numero tertio, Idibus Novembribus: cioè la pietra, il cippo, il monumento ecc. era posto nel terren sacro al No. 3."

* This view might seem to be as old as the time of Prudentius (*scil.* the 4th century), for he writes:—

*Sunt et multa tamen tacitas claudentia turbas,
Marmora quæ solum significant numerum.*

But the reference here seems to be to *Polyandria*—pits containing many dead bodies—not to *loculi*, of which, so far as I am aware, there is no example of their containing more than four.

(c) Specimen of Palæography:—

91.

(See Plate III, 1.)

(E coem. Cyriacæ ; De Rossi, n. 21.)

Decesit (decessit) Serotina pride (pridie) Kal. Martias m(ensium) X, dier(um) XX, Diocl(etiano) 7 (VI) consule.

"Serotina departed on the day before the Calends of March, (aged) ten months, twenty days, in the sixth Consulship of Diocletian," *i. e.* February 29th, 296 A. D.

(d) Use of D. M. by Christians:— 92.

D. M.

P · LIBERIO VIXIT ANN Ñ · V · MENS
Ñ III DIES Ñ VIII RANICIO
FAVSTO ET VIRIO GAL·

(E coem. ? ; De Rossi, n. 24.)

Diis Manibus. Publio Liberio, vixit annos numero V, menses numero III, dies numero VIII. Recessit Anicio Fausto et Virio Gallo (Consulibus).

"To the Gods the Manes. To Publius Liberius. He lived years in number five, months in number three, days in number eight. He retired (from this world) in the Consulship of Faustus and Virius Gallus, *i. e.* 298 A.D."

We have here an example of the use of the heathen formula D. M., *Diis Manibus*, in an epitaph that De Rossi and other scholars regard as Christian. I have noticed this anomaly in Part XI of my "Notes on Latin Inscriptions found in Britain" (*Canadian Journal*, X. p. 95), and ascribed it either to thoughtless use of the form, produced by familiarity with it as the ordinary commencement of a sepulchral inscription, or to the fact, that grave-stones were kept for sale with these letters cut on them, and were purchased by Christians without consideration of their appropriateness. Fabretti insists that these letters when they occur in a Christian epitaph, stand for *Deo Magno*, or *Deo Maximo*; but there is no doubt that his opinion is erroneous, for the form is found, in at least one such inscription, *in extenso, i. e.* *Diis Manibus*. See Orelli, n. 4458=4723, and compare Maitland, "Church in the Catacombs," pp. 59, 60, 61, who regards this inscription to *Liberius* as 'almost certainly Pagan.' The same view of it is taken by Roestel. I incline, however, to the belief that it is Christian. My reasons are that it was found in one of the Catacombs, that the stone was not broken, and that we find in the inscription the letter R used

for *recessit*, *requiescit*, or *reddidit*. See Epitaph, n. 1. Maitland's version of this inscription is liable to just censure. In his text, he gives R before ANICIO, but takes no notice of it either in his translation or in his remarks. Again, the date is given by him as A. D. 98; and although one would be disposed to explain this error by supposing that 2 was accidentally omitted before 98, by a typographical mistake, it is impossible to accept this solution, for, in pp. 58, 59, he notices this inscription as of earlier date than two others, one of A. D. 102, and the other of A. D. 111. In Westropp's "Handbook of Archæology," p. 400, we have the same inscription, with the same neglect of R in translation, and with the date A. D. 102. The same author assigns A. D. 130 for the inscription relative to Marius, and A. D. 160 for that relative to Alexander, without sufficient ground for assigning either year.

The most remarkable of the Christian epitaphs, that have the heathen formula in the commencement, is a well known one to *Leopardus*, discussed by Fabretti, p. 574, and by Raoul Rochette, in a "Memoire sur les antiquités chrétiennes des catacombes," in *Mem. de l'Académ. des inscript. et belles lettres*, XIII.

The inscription, as given by Fabretti, stands thus :

DMA SACRVM XL
LEOPARDVM IN PACEM
CVM SPIRITA SANTA · ACCEP
TVM EVMTE ABEATIS INNOCINEM
POSVER · PAR · Q · AN · N · VII · MEN · VII ·

In Raoul Rochette's *copy, we have *evinte* for *cumte* in the fourth line, and G for Q in the fifth. Mabillon discovered in this inscription a manifest reference to the rite of *confirmation*. Fabretti gravely corrects this interpretation, as he found in it a manifest reference to the rite of *baptism*! Raoul Rochette judiciously maintained that †neither was right. He remarks—"Il n'est question, dans ces expres-

* As given in *Dictionnaire d'Épigraphie Chrétienne*, ii. p. 758.

† Lupi held the same opinion, *viz.*, that there was no reference to either baptism or confirmation. He explains the 2d, 3d, and 4th lines thus: *Leopardum in pacem* (pace) *cum Spirita Sancta* (Spiritus Sanctos, Spiritibus Sanctis) *acceptum eumte* (cumdem) *abeatis innocinem* (habeatis innocentem). Corsini, *Not. Græc. Diss.* ii. p. xxxvi, rejects this view, and proposes the following as preferable:—*Leopardum in pace cum Spiritu Sancto* (the Holy Spirit). *Acceptum eundem a Beatis* (the Blessed) *innocentem posuerunt Parentes*.

sions d' une latinité barbare, d' aucun de ces sacrements de l' Eglise ; ou reconnait une foule d' exemples de ces mots ; *cum spirito, ispirito, hispirito sancto, cum spirita sancta*, altérés d' une manière plus ou moins vicieuse, et qui ne peuvent s' entendre que de l' ame même du chrétien, admise après la mort dans le séjour des bienheureux, en vertu de la synonymie connu des mots *anima* et *spiritus*, dans le vocabulaire de la basse latinité." He closes his observations on the inscription by proposing the following expansion :

" *Dis martyribus sacrum quadraginta
Leopardum in pace
cum Spiritu sancto accep-
tum eundem habeatis. *Innocentem
posuerunt parentes. qui [vixit] annis VII, mensibus VII."*

It is very difficult to infer from the two copies that I have before me—viz., Fabretti's and Raoul Rochette's—the true reading of the inscription ; but I entertain no doubt that both Mabillon's and Fabretti's interpretations should be rejected, and that Raoul Rochette's view as to *cum spirita sancta* is correct. At the same time, his expansion—*Dis Martyribus sacrum quadraginta*—is clearly inadmissible. There is no authority in any epitaph for this rendering. Nor is there any reasonable doubt that the letters DMA stand for *Dis Manibus*, as Mabillon understood them ; whilst the signification of XL, as I have observed in my note on Epitaph, n. 90, remains to be discovered. The rest of his expansion is probable, except the omission of *numero* after *annis*, which should be introduced, if Fabretti's punctuation be correct. But another, and a very remarkable, peculiarity of the inscription, hitherto unnoticed, remains to be considered—i. e. the use of the expression *acceptum habeatis* with the dedication *Dis Manibus* in a Christian epitaph. If we compare this with the words—*Manes sanctissimæ [sic] commendatum habeatis meum conjugem* in Orelli's n. 4775, a Pagan epitaph, and *Sanctique tui Manes nobis petentibus adsint* in Gruter's, 1061, 7, a Christian epitaph, there can, I think, be but little doubt that some Christians of the early ages retained

* I have given this whole expansion, as it appears in *Dictionnaire d'Épigraphie Chrétienne*, for I am unable to refer to the original article in the *Mém. de l'Académie*. I have but little doubt, however, that neither the presence nor the absence of the points is as Raoul Rochette intended: the authority of the *Dictionnaire* is not worth considering.

some of the Pagan superstitions. See Mabillon, p. 75, and Morelli, *Stil.* ii. 71, 72. To me it is plain, that whatever difference of opinion may arise as to the exact reading of this inscription to Leopardus, there can be no question that in it his parents asked the *Di Manes*, the Pagan deities of the unseen world after death, to receive with favor their innocent son. Nor can there be any doubt that the inscription is Christian, for this is proved by the use of the terms—*in pacem, cum spirita santa*. On the latter see Epitaph, n. 42; and on the use of Christian terms in Pagan inscriptions, see notes on Epitaphs 49, 88.

(e) Specimen of Palæography:— 93.

(See Plate IV, 1.)

(In *Mus. Capitolin.*; De Rossi, n. 50.)

Anime (Animæ) innocenti Gaudentiæ, que (quæ) vixit annos V, menses VII, dies XXII, in pace. Mercurius pater filiae d (epositæ) 9 idus Novemb. Urso et Polemio coss.

"To an innocent spirit Gaudentia, who lived five years, seven months, twenty-two days, in peace. Her father Mercurius for his daughter buried on the sixth day before the Ides of November, in the Consulship of Ursus and Polemius," *i. e.* November 8th, 338 A. D.

(f) Use of *puer* as applied to persons of mature age:— 94.

URSO ET POLEMIO CONSS NATVS PVER
NOMINE MERCVRIVS D IIII KAL APRILI
DEPOSITVS VII · KAL · SEPT · QVI VIXIT
ANN · XXIIII · M · VII · DXV · BENEM · INP

(*Pisauri*; *e coem. Urbis*; De Rossi, n. 49.)

Urso et Polemio Consulibus, natus puer, nomine Mercurius, die IV Kalendas Apriles, depositus VII Kalendas Septembres, qui vixit annos XXIV, menses VII, dies XV, benemerenti in pace.

"In the Consulship of Ursus and Polemius (*i. e.* 338 A. D.) a boy was born by name Mercurius, on the fourth day before the Calends of April (*i. e.* March 29th). Buried on the seventh day before the Calends of September (*i. e.* August 26th), who lived twenty-four years, seven months, fifteen days; to him well deserving in peace."

On first sight of this inscription, it seems strange that a person of twenty-four years of age should be called *puer*, and that he should be said to have been born and buried in the same year. The explanation is that *natus* is used with reference to birth by baptism, estimated by

which *Mercurius* was but *puer* at the time of his death. See De Rossi's nn. 178, and 193.

(g) Mention of time of sickness before death :— 95.

PERPETVO BENEMERENTI IN PACE
 QVI VIXIT · ANNOS · PLM · XXX Menses ...
 DEPOSITVS IDVS APRILIS DEFVNctus ne
 OFITVS PERIT · IN DIES · V ·
 POS CONSVLATV · VICTORIs et
 VALENTINIANI · NOBI *lissmi pueri*

(In *Mus. Vat.* ; De Rossi, n. 214.)

Perpetuo bene merenti in pace, qui vixit annos plus minus XXX, menses — . Depositus Idus Aprilis (Idibus Aprilibus), defunctus neofitus (neophytus), perit in dies V, post Consulatu (Consulatum) Victoris et Valentiniani, Nobilissimi Pueri.

“To Perpetuus, well deserving, in peace, who lived thirty years more or less — months. Buried on the Ides of April (April 13th), died a neophyte, was sick for five days, in the year after the Consulship of Victor, and Valentinian, the most noble boy,” *i. e.* 370 A. D.

1. 4. *Perit in dies V.* This notice of the period of sickness is very rare. We have another example in De Rossi's n. 8 :—*ἐνώσησεν ἡμέρας ἰβ̄.* 1. 5. *Post consulatum Victoris et Valentiniani.* It is strange that this form should be used to denote the year, instead of the ordinary form—*Valentiniano III et Valente III*—especially as we have examples of the use of this latter in Christian epitaphs of January and March. No satisfactory reason can be assigned for this variation, which is also used in other cases apparently capriciously.

(h) *Domini Nostri* applied to Consuls not *Augusti* :— 96.

DD NN · CLAEARCO ET RICOMEDE VVCC
 CONSVLIBVS BENEMERENTI OLIBIONI QVI VIXIT
 ANNVS XV · MESIS VI DIES XX DECESSII
 DIE XII KALENDAS OCTOBRES IN PACE

Dominis Nostris Claearco (Clearncho) et Ricomede (Ricomere), Viris Clarissimis, Consulibus. Benemerenti Olibioni, qui vixit annus (annos) XV, mesis (menses) VI, dies XX. Decessii (decessit) die XII Kalendas Octobres in pace.

“In the Consulship of our Lords Clearchus and Ricomer, most distinguished men (*i. e.* 384 A.D.) To the well-deserving Olibio, who lived fifteen years, six

months, twenty days. He departed on the twelfth day before the Calends of October, in peace," *i. e.* September 20th.

1. 1. DDNN. The phrase *Domini Nostrī* is commonly applied to the Emperors; here it is used regarding private persons, who were Consuls. There are, also, other examples of this of earlier date. Hence Corsini, Zaccaria, and Cancelleri inferred that from the close of the 4th century, Consuls were usually styled *Domini*. Muratori, Hagenbuch, and De Rossi, more correctly, ascribe this use to inadvertency and mistake on the part of the stone-cutters.

(i) *Opisthographa*.— 97.

(1) HIC · POSITVS · EST
VICTORIANVS QVI VIXIT
ANN · PLVS MINVS L DIPOSI
TOS · IN PACE · DIEM III · KAL
IVN · DDNN · TL CAESARIO
ET NONIO · ATTIÇO · VVCC

(2) D M
Q. VERGILIVS. FELIX
QVI VIXIT. ANNIS. III
MES. VI. DIEB. XVII.

(*E coem. S. Hippolyti; D. Rossi, n. 445.*)

(1) *Hic positus est Victorianus, qui vixit annos plus minus L Dipositos (depositus) in pace diem (die) IV Kalendas Junias, Domini Nostris TL (Flavio) Cæsario et Nonio Attico, Viris Clarissimis.*

(2) *Diēs Manibus. Quintus Vergilius Felix, qui vixit annis (annos) III, mes (menses) VI, diebus (dies) XVII.*

(1) Here has been placed Victorianus, who lived fifty years, more or less—Buried in peace on the fourth day before the Calends of June, in the Consulship of our Lords, Flavius Cæsarius et Nonius Atticus, most distinguished men," *i. e.* May 24th, 397 A. D.

(2) "To the Gods the Manes. Quintus Vergilius Felix, who lived three years six months [and] seventeen days."

I have given this as an example of the *tabulæ opisthographæ*, that are sometimes found in the Catacombs, *scil.* tablets on which a Pagan inscription had been cut, but which were subsequently used for a Christian epitaph.

Nonius Atticus had *Maximus* as his *agnomen*. It has been inferred from a lamp bearing the monogram, and his name—*Noni Attici VC et*

Industris, that he was a Christian. This inference has been confirmed by a proof of the Christianity of the Nonian family at this period, given by Minervini, in *Bull. Nap.* Ser. 2 t. 1 p. 15, to which De Rossi, p. 198 refers, but which I have not seen.

(k) Specimen of Palæography:— 98.

(See Plate IV, 4.)

(*E coemet. S. Zotici*; De Rossi, n. 530.)

Lepuschus (*Lepusculus*) *Leo*, qui vixit anum (annum) et mensis (menses) undeci (undecim) et dies dece (decem) et nove (novem) perit septimu (septimo) calendas Augustas (*Augustas*) *Onorio* (*Honorio*) sexis (sexies) *Agusto* (*Augusto*).

"*Lepusculus Leo*, who lived a year and eleven months and nineteen days. He died on the seventh day before the Calends of August, (in the Consulship of) *Honorius* for the sixth time," *i. e.* July 26th, 404 A. D.

Lepusculus, as *Muscula*, was, probably, a pet name. Compare the modern *Leporello*. I have translated *perit* as standing for *perit*, but it may be used as $\tau\epsilon\lambda\epsilon\upsilon\tau\tilde{\alpha}$ in Epitaph 23.

(l) Posture in prayer:— 99.

(See Plate IV, 2.)

(*E coemet. Commodilla*; De Rossi, n. 251.)

Petronæ dignæ coniugi (conjugi) que (quæ) vixit annis (annos) XXI, et fecit cum compare (compare) suo menses X, dies V. [*Depositâ*] *Kalendis Novembribus* pos (post) *Consulatum Gratiani ter et Equitii*, *Ursus maritus sibi et innocenti compari fecit. Cesquet* (quiescit) *in pace*.

"To *Petronia*, a worthy wife, who lived twenty-one years, and passed with her mate ten months, five days. [Buried] on the Calends of November, in the year after the Consulship of *Gratianus*, for the third time, and *Equitius* (*i. e.* November 1st, 375 A. D.) *Ursus*, her husband, made (this) for himself and his blameless mate. She rests in peace."

I have selected this epitaph chiefly because the stone presents an illustration of the attitude of a person praying. This position was at one time so general, that those, who were suffering penance, were not permitted to stand up in the church during prayer.

The outstretched arms and uplifted hands were common to both Jews and Pagans. At one time this figure in the attitude of prayer was regarded as an emblem of martyrdom; and the crown and the

1

Epitaph No 95.

ANIME IN NOCEN
 TI GAVDENTIAEQVEVI
 XIT SAN. VM. VIII. XXII. IN PACE

мѣсто погребенія въ 42 годъ 41 днъ отъ рожденья урѣдъ погребенъ въ сѣ

4

Epitaph No 98

ΕΡΥΣΣΥΚΕΟ
 ΡΥΙΒΙΧΙ ΑΝ ΜΜ
 ΕΜΕΙΤΙ ΜΝ ΔΕΓΙ
 ΕΠΙΕΣ ΔΕ ΕΝ ΟΥΕ
 ΙΕ ΑΠ ΣΕ ΠΙ ΜΥ ΓΑ
 ΚΕΝ ΔΑ ΓΑ ΓΥ ΤΑ
 ΟΝΟ ΡΙΟΥ ΕΞΙ ΤΑ ΓΥ ΙΙΟ

2

Epitaph No 99



PETRONIAE DICNAE COIVCI QVE VIXIT ANNIS
 XXI ET FECIT CVM COMPARE SVO M X D V
 ΚΑΙ < ΝΟΒ > ΡΟS CONSS ΓΡΑΤΙΑΝΙ ΤΕΡΕΤΕ QVITI
 VRSVS ΜΑΡΙΤVΣ ΣΙΒΙ ΕΤ ΙΝΝΟCΕΝΤΙ CΟ
 ΜΠΑΡΙ FΕCΙΤ CΕSQVΕΤ ΙΝ ΠΑCΕ

VC VESPASIANA NO III COS

palm-branch, also, were interpreted as having similar significance, but these theories have not stood investigation. The figure in prayer is certainly a proof of Christianity, but the crown and the palm-branch are found on Pagan tomb-stones. See Muratori *Nov. Thesaur.*, 1828, 5, *Antiq. Ital. diss.* LVIII; Raoul Rochette, *Mem. sur les Antiq. Chrét.* p. ii. § 2; Cardinal Mai, *Vet. Script. Nov. Collect.* V, p. 3, n. 1; and De Rossi, n. 30.

No symbol has so far been suggested as a criterion of martyrdom, that has been universally accepted by scholars. And yet there are at present few, if any, who would give their assent to Dodwell's opinions *de paucitate Martyrum*, or to Burnet's views, in his "Letters from Switzerland, &c.," regarding the identity of the catacombs and *puticuli*.

Birds form one of the favorite decorations of Christian tombstones. The most common of these is the dove, represented singly or in pairs, with or without a branch in the mouth, sometimes perched on a tree, sometimes pecking at a bunch of grapes, and sometimes standing on a vase. Singly it has been regarded as the emblem of peace or of simplicity—in pairs it may have been, in some cases, the symbol of affection. It is Jewish in its origin, and was, doubtless, derived from the history of Noah. Two other birds are occasionally represented, the peacock and the phoenix. They are both Pagan in their origin, but were used by Christians as symbolical of the resurrection.

(m) Interval between death and burial:— 100.

DN·MAGNO MAXIMO AVG·II CONSS
 III IDVS MAIAS FATVM FECIT LEO ET
 DEPOSITVS PRIDIE IDVS MAIAS BENE
 MERENTI IN PACE

(*E coem. Cyriace*; De Rossi, n. 374.)

Domino Nostro Magno Maximo Augusto iterum Consule, III Idus Maias fatum fecit Leo et depositus pridie Idus Maias. Bene merenti in pace.

"In the second Consulship of our Lord Magnus Maximus Augustus (*i. e.* 388 A. D.), on the third day before the Ides of May (*i. e.* May 13th), Leo died, and was buried on the day before the Ides of May (*i. e.* May 14th). To him well deserving in peace."

l. 2. *Fatum fecit*. This rare expression for *defunctus est* is found in some other Christian epitaphs. See Corsini, *Not. Græc. Diss. ii*, p. XXIV.

1.3. *Depositus pridie Idus Maias*. Here the deceased was buried on the day after his death. Thus we find in Gruter, 1054, 8—*quæ recessit die Mercurii hora VIII et deposita die Iovis Iduum Maiarum, i. e.* she died on Wednesday and was buried on Thursday. See other examples in Corsini, *Diss.* i, p. 12. In Muratori's, 1959, 9, we have an example of an interval of two days—*Defunctus die XVI Kal. April. depositus XIII Kal, i. e.* he died on March 17th, and was buried on March 19th.

MOLLUSCOUS ANIMALS.

No. 3.

BY REV. PROFESSOR HINCKS, F.L.S.

The class Gasteropoda next claims our attention. It is considerably the largest in the Molluscos sub-kingdom; is the best representative of its characteristic structure, and occupies the same position among the Molluscos classes which the whole branch occupies among the greater divisions of the animal kingdom, being therefore the typical class in which the greatest number and variety of forms might reasonably be expected. Many attempts have been made at the proper sub-division of this vast assemblage of animal forms. The history of these is not required in connection with my present plan. So far as I can judge the best orders proposed are those of Cuvier with some combinations and modifications more recently suggested. These then I shall assume as a basis and after explaining their distinctions and discussing their mutual relations, I shall enumerate the families belonging to each order, combining or further sub-dividing as may seem to be required. But I must begin by a few observations on the kind of characters employed and their comparative value.

Cuvier's orders are founded on the position and structure of the organs for aeration. The 1st he calls Pulmonifera, having lungs instead of branchiae, by which he means to express breathing air directly, not through the medium of water. Since, however, these organs are not homologous with the lungs of higher animals, but are strictly so with the branchiae of other mollusks, it is better to adopt DeBlainville's name *Pulmobranchiata*. The order is generally admitted to be a natural one. 2. Nudibranchiata: I shall as we proceed venture an opinion on the proper series of these orders. It may be supposed that Cuvier

was influenced by the resemblance of the nudibranchiates to the naked air breathers known as slugs; but though these sea-slugs form a very distinct and natural group, which I cannot help thinking require to be kept separate as an order, the great difference both in their aercative apparatus and their habits of life should prevent these two orders being brought near to one another, and it seems probable that they will ultimately take their places in very different parts of the system. The 3rd order Inferobranchiata, distinguished from the preceding by the branchiæ being arranged in two rows under the projecting border of the mantle instead of on the back, bears a close resemblance to it in the form of the animals, but conforms essentially to the character of the next order, of which more recent Malacologists make it the last family. 4. The order called Tectibranchiata is known by the branchiæ, more or less divided, but not symmetrical, situated along the right side or on the back, being covered by the mantle, which usually encloses a shell. The animals are marine and like the preceding orders are hermaphrodite. The 5th order has been accounted a class under the name *Heteropoda*, but certainly presents only a deviative form of Gasteropoda, and as an order of that class has been named Nucleobranchiata. It includes swimming mollusks with the foot converted into a sort of fin, and the branchiæ consisting of feathery lobes on the posterior and left side of the back, with the heart, liver, and other viscera behind them in a common enclosure.

The 6th order is named Pectinibranchiata and is by far the most numerous of the whole, embracing nearly all those which have spiral shells of one piece and many with simply conical shells. The branchiæ composed of numerous segments ranged like the teeth of a comb, are attached in one or several lines to the lower surface of a cavity forming an opening between the border of the mantle and the body, and occupying the last whorl of the shell.

Order 7th Tubulibranchiata chiefly differs from the preceding in the animals being fixed to their place and hermaphrodite, whilst the sexes are distinct in Pectinibranchiata, but recent authorities with obvious propriety refuse to account these separate orders.

Order 8. Scutibranchiata is really distinguished chiefly by the sexes being united in the same individual, whilst the shell is widely expanded without an operculum. The members of the order as arranged by Cuvier are not very closely related, and this order also may be properly combined with Pectinibranchiata.

Order 9. Cyclobranchiata is distinguished by the branchiæ, like little leaflets or pyramids, attached in a cordon under the border of the mantle, the sexes being united in the same individual. The animals are the lowest of the great Pectinibranchiate group, to which, however, they certainly belong. The technical character resembles that of Inferobranchiata, but the organization is very different. The last four orders having the branchiæ in the anterior portion of the body are now generally combined under the name of Prosobranchiata. Perhaps, it would be still better to make Cuvier's name Pectinibranchiata, which well expresses the common character, embrace them all. They constitute the specially typical group among the Gasteropoda, and their further sub-division is a subject of great interest.

Some late writers on the subject combining, as already explained, all the orders related to Pectinibranchiata under the name of Prosobranchiata, unite also Tectibranchiata with Nudibranchiata and Inferobranchiata under the common name of Opisthobranchiata, thus reducing the whole class to four orders. This, however, is liable to great objection from the decidedly distinct characters of Nudibranchiata, which seem manifestly to claim for it rank as an order. If we only reduce Inferobranchiata to Tectibranchiata, and give its natural and just extension to Pectinibranchiata, we have five well marked orders of which it seems evident that Nudibranchiata occupy the lowest place, and Pectinibranchiata, that which represents Gasteropoda among the orders. But Nucleobranchiata are remarkable for the high development of their organization, and for resemblance to the higher classes, Pteropoda and Cephalopoda, we may therefore place them first. Pulmobranchiata will without question stand second, and then we have the five orders reduced to their natural series. In forming his orders Cuvier relied on the different position of the branchiæ, and on the comparative development of the reproductive system, the former being admitted as the leading character. Allowing the correctness of his opinion on each point, there are other considerations which justify the combinations now proposed, since, for example, the branchiæ are essentially of the same kind in the whole of the Pectinibranchiata in the extended sense we have given to the term, and there are other points of resemblance uniting them as one great natural group, whilst the separation or union of the sexual distinctions may assist in determining the comparative rank of the families, though not allowed to multiply orders by breaking up a great natural assemblage.

Before we proceed further it is desirable to inquire what other kinds of characters are available in the present state of our knowledge for the arrangement of Gasteropod Mollusks, and how far we can determine their comparative importance. One of the most obvious characters is derived from the shell itself, its presence or absence, its form, its substance, and its colouring. It is now universally agreed that shells considered without reference to the animals are mere play things altogether destitute of scientific interest, and if valued for their beauty or variety destitute of higher claims on our attention; but when we consider them as a part of an animal—a hard deposit on his surface, moulded on his form, and expressing his external distinctions, we cannot but expect that the study of the hard covering may be also connected with that of the creature—that we may learn to make what can be well preserved an index to much which we have but occasional opportunities of examining, and cannot well retain for reference—nay, even from comparison of the shells, to know the structure of many animals whose organization we have no opportunity of examining at all, though their shells may be in our collection. It is true indeed that form alone is not a constant and certain index to structure, and cases occur in which shells might be placed beside one another, from their very close resemblance, though when we are acquainted with the animal we find that they really belong to widely separated parts of a natural system, but such cases are not common, and in such instances, closer observation furnishes some clue to the discovery of their real affinities.

A Gasteropod Mollusk has a soft elongated body with a calyptiform mantle on which the shell is moulded. Where the cone is short and wide below the shell is nearly or quite simple and limpet-like; where it is high and not very wide at the base, it is usually spirally twisted, so that the shell is turbinated. Monstrosities of some of the snails occur in which the spire is drawn out with only a slight spiral twist, and the normal condition of the Wentletrap (*Scalaria pretiosa*) shows the successive whorls prevented from touching and uniting, so that we see their separation, though the convoluted form is perfect. From these observations we may trace the relation between the most elongated spiral and the simplest expanded cap, and as it is obvious that the same deviations in this respect may occur in families otherwise differently constructed, we understand the phenomenon of a water snail resembling a limpet, and a *Sigaretus*, a Venus's ear, whilst the limpet-like snail occurring in fresh waters and being pulmobranchiate, and the *Sigaretus*

wanting the nacreous lustre, and being apparently an animal feeder, are sufficient in these cases to prevent mistake.

Among shell characters of most real importance are differences in the form of the mouth, especially the absence or presence of a channel and of appendages, and the mouth being circular or nearly so and complete all round, or pressed against the next whorl so as to become lunate, or for the circle to seem broken; the growth appearing to be uniform or interrupted, a special border being then formed to the mouth at the completion of each period, and the old borders remaining as ornaments on the shell; the absence or presence of tooth-like processes about the mouth, and of folds on the columella, and differences in the substance of the shell itself. Here, however, it must be noted that the channel in the border being accommodated to the opening of the Siphonal canal only indicates its existence and direction. This canal is connected with a burrowing habit, but it is possible for it to be present or absent in animals connected by much more important particulars of structure, so that we cannot implicitly rely upon it in our attempts at natural grouping. The presence, number, and peculiar form of the *Varices* or remains of former borders of the aperture may be good generic characters, but could not lead to higher combinations. Folds on the columella are deserving of much attention as auxiliary characters. Tooth-like projections of shelly matter are always of interest, but must be employed with great caution, more especially as our knowledge does not enable us to connect them with any structural peculiarity or special habit of the animal. *Monoceros* is scarcely now admitted as a genus, and its supposed species hardly even all belong to the same genus. Curious tooth-like projections variously placed around the aperture adorn numerous species of *Helicidae* and *Auriculidae*, but their systematic value, beyond characterising species, is very doubtful.

A class of characters much and justly valued since attention has been called to it and offering great assistance in the determination of natural families, is derived from the *operculum*; its absence or presence, its substance whether shelly or horny, and the mode of its formation whether from a marginal or a central nucleus, as well as its figure.

A still more important class of characters is derived from an organ characteristic of the higher (the cephalous) Molluscos animals and used by them in obtaining or preparing their food, which has been called their tongue or lingual ribband, but which needs an express name and should be spoken of by that which Huxley has proposed;

Odontophore. The teeth are usually ranged upon it, in a median and two lateral tracts, which have been called the rachis and pleurae terms which are scarcely necessary, and, the first at least, not free from serious objections. The Odontophore is sometimes short but often of great length, its edges behind the mouth being united so as to form a tube, which after passing for a short distance under the oesophagus is rolled or spirally twisted. It seems that the part in use is soon worn away and that the reserved portion is gradually pushed forward, the tube slitting open so as to afford a fresh surface. The form of the teeth both median and lateral, the number in each row and the number of rows vary in different families and different species, and are apparently adapted to the kind of food and the mode of procuring it employed by the animal. Hence, besides the use which may be made of the minuter differences as specific characters, the leading varieties, like the differences in the beaks of birds marking their kind of food or mode of appropriating it, serve to distinguish families, and may now be said to be of great and unquestionable importance.

Even so late indeed as the publication of Mr. Woodward's valuable manual, the extent to which they could be used seemed very doubtful, and he makes objections to their systematic value being estimated highly. He says: "It must be remembered that the teeth are essentially *epithelial cells*, and, like other superficial organs, liable to be modified in accordance with the wants and habits of the creatures. The instruments with which animals obtain their food are of all others most subject to these *adaptive* modifications, and can never form the *basis* of a philosophical system." He adds this note, "the carnivorous opossums have teeth adapted for eating flesh, but are not on that account to be classified with the placental carnivora."

It may be replied that our object being to bring together creatures of like organization and mode of living, the adaptive modifications of a common plan which determine the kind of food and mode of life are precisely what we ought to make use of, except for the highest divisions, and we find both the teeth of Mammalia, and, as already referred to, the beaks of birds, are of prominent importance in characterising even the great families. We should not allow resemblances or differences of the Odontophore of Mollusks to interfere with the classes or orders which depend on higher characters, nor ought we to use distinctions derived from this one part alone, or we should create an *artificial* system not perhaps better than others, and more difficult of application

as depending on microscopical observation ; but not to use along with others a character manifestly connected with distinctive habits of life, would be to neglect means within our reach for determining natural affinities, and as knowledge on the subject has rapidly increased would no longer be thought of. Greater characters taken from the brain and the absence of placentation, separate the Opossums from the Carnivora, but their dentition establishes an important relation of analogy, giving these animals the same position in the nonplacentated or Lyencephalous sub-class, which the Carnivora hold in the Gyrencephalous and the Insectivora in the Lissancephalous. The objections or doubts of Mr. Woodward have not then any force which should prevent general attention to the structure of the Odontophore as an aid in classification.

I confess that I cannot see the advantage gained by giving names to the principal varieties in the disposal of the teeth as has been done by Troschel and Dr. J. E. Gray. Several of the varieties seem to me to be very slight modifications of each other ; none of them could of itself alone give character to a natural group of animals, and I cannot perceive that the new terms afford any real assistance in stating the facts concisely and intelligibly. Along with the peculiarities of the Odontophore must be noticed the form of the muscle in which it is contained, and the absence or presence, form and markings, of what have been called the buccal plates.

Important characters are also derived from the number of the tentacles, the position of the eyes, the form of the foot and other circumstances relating to the animal. It is to the proper combination and subordination of these characters, giving prominence to general form and habit in distinguishing families, and in doubtful cases placing the creature in the group to which, considering all the characters it seems to have the nearest affinity, that we must look for a good natural system. In the higher divisions we look for fewer but more important distinctive marks accompanied by a certain recognisable aspect of each group, and its expression of one of those tendencies of development, five of which have been pointed out as the sources of the leading differences under each general type.

I cannot help here desiring to commemorate the obligations of all who study the Mollusca to Dr. J. E. Gray of the British Museum, for his important services to this branch of Science, as indeed to all departments of Natural Science.

I do not follow his system, and I may fancy that he at times subdivides too much, and indulges too much in the invention of names; but we owe to him the pressing on our notice, the importance of attention to the foot, the operculum and the odontophore of Gasteropods; much assistance in estimating the value of shell characters, and the essential principle that knowledge of the animal, the operculum and the odontophore must always be united with that of the shell before we can be satisfied as to its systematic relations in a natural arrangement. This last principle is not always convenient in its application, and we are sometimes driven to rely for the time on resemblances, which cannot be accounted certain proofs of real affinity, but even then it is well to know where our information is deficient, and it is truly important that where knowledge is accessible we should be excited to seek it, not supposing our work to be done whilst essential points are neglected. Few indeed have contributed as much as Dr. Gray to the progress of this part of Malacology and let him be honored accordingly.

I have already expressed the opinion that Cuvier's orders of Gasteropods were founded on the right principles, though increasing knowledge has shown that he divided somewhat too minutely for natural grouping. Those who have corrected his plan seem to have gone to the other extreme in uniting as one order the strikingly different Tectibranchiata and Nudibranchiata, which they have immediately to admit as sub-orders, and which every observer feels to be as well separated from each other, as either of them from the other received orders. Correcting this error we have, as already given, the five orders of Gasteropoda, and it remains to consider more particularly their families. As excelling in the organs of sense and in power, and as manifesting an approach towards the higher classes of the sub-kingdom, the Nucleobranchiata, though deviating most widely from the true Gasteropodous type, must rank as the first order. Those known are divided into two families: Firolidae with elongated bodies and either no shell, or a cap-like very delicate shell enclosing the branchiae with the heart and liver on the back of the animal; and Atlantidae with a shell into which the animal can withdraw and which has an operculum. Other forms probably exist or had existed but are not known to us. The nearest approach may possibly be found in *Janthina* among the Pectinibranchiata, which almost imitates the muzzle of Firolidae and resembles them in dentition. The branchiae partially protected by the shell are exposed on the back, and the animals are pelagic and floating with the operculum converted

into a contrivance for carrying the ova. All this may indicate no more than a slight analogy, but it is curious and interesting. The best known animal of this order is the *Carinaria* whose delicate Argonanta-like shell is often seen in collections, and which has been often figured showing its habit of swimming with the fin, formed from the foot upwards and the back downwards.

The second order Pulmobranchiata has little direct affinity with the first, but takes this position from an idea that air-breathing marks more active life than water breathing, and from the certainty that the great order Pectinibranchiata occupies among the orders, the position which the class Gasteropoda takes among Mollusca, and the Molluscous sub-kingdom in the whole animal kingdom; whilst the lower place of the remaining two orders seems hardly liable to doubt. The most numerous members of the order, the snails and their allies, have the sexes united, which, considered alone would place them below a large portion of the Pectinibranchiata, but the highest Pulmobranchiata have the sexes distinct and closely resemble the highest vegetable feeders among Pectinibranchiata, the Odontophore corresponding exactly. The present order presents a very natural series and the families are well established. I cannot indeed believe *Oncidium* the type of a family distinct from Limacidae, or separate Aciculidae from Cyclostomidae. With these reductions the families are:

1. Cyclostomidae.
2. Auriculidae.
3. Helicidae, snails.
4. Limacidae, slugs.
5. Lymnaeidae, water snails.

Cyclostomidae have a horny operculum, generally a circular mouth and an odontophore like that of Litorinidae, with the sexes distinct.

Auriculidae have no operculum, the aperture elongated and denticulated; animal with two tentacles and sessile eyes behind them; a broad muzzle, united sexes, a horny buccal plate, and numerous teeth with a distinct median series.

Helicidae have usually a well developed shell capable of containing the animal, the body is spiral distinct from the foot. There are almost always 4 tentacles, the upper pair bearing the eyes. There is a horny crescent-shaped buccal plate, the differences of which form valuable characters. The Odontophore is oblong with numerous similar teeth like a pavement. The number of species is very great, and the differences of form striking.

Limacidae have the foot united with the body; tentacles and eyes as in the snails; mantle small, shield-shaped; shell small or rudimentary, usually internal or partly covered by the mantle; in *Oncidium* there is no shell, not even a rudiment, and the mantle completely covers the animal.

Lymnaeidae inhabit water or wet places; have a thin horn-colored inoperculate shell with a sharp lip; the animal has only 2 tentacles the eyes being at their inner bases; the mouth has a buccal plate, and the odontophore resembles that of Helicidae.

Those who would satisfy themselves as to the value of the buccal plates and the form of the teeth as characters, should examine the observations on the Terrestrial Pulmonifera of Maine by Edward S. Morse, published in 1864. The numerous and excellent figures here given bring the matter clearly before the reader. The able author may be too fond of multiplying families and genera, but he is an acute observer and has made an important contribution to science.

It confirms our notion of the value of the character of the order drawn from the adaptation to air-breathing, that there is no common character of the Odontophore throughout the order, but we find its arrangements adapted to the special mode of life of the families, and even in some instances of sub-families or genera. We are also made to observe that the carnivorous character of the Odontophore does not necessarily indicate the highest position as to general development. These facts will be useful to us in the difficult inquiry lying before us respecting the subdivision of the great order Pectinibranchiata.

(To be continued).

ON METONYMS, OR TRANSLATED AND QUASI-TRANSLATED PERSONAL NAMES.

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Most readers are aware that the names Erasmus and Melanchthon are not the original native names of the persons who are thus usually designated in history and literature. They also probably know what the original names of these two distinguished men were. They know that Melanchthon is the German family name Schwartzerd, Blackearth,

in a Grecised form. They may remember, too, the anecdote of the popularity of his *Loci Communes* or Theological Summary, at Rome, while circulating as the production of one Ippofilo da Terra-negra, but its instant condemnation when discovered to be the work of the German reformer Philip Melancthon. They may know likewise that the family name of Erasmus was the Low-German one of Gerrit, in High-German Gerhard, fancifully and no doubt wrongly held to be a corruption of Gernhaber, an antique synonym of Liebhaber, of which Erasmus, Beloved, was supposed to be a sufficient translation. Moreover it will be remembered by some that the prenomens of Erasmus, namely Desiderius (which is intended to be identical in sense with Erasmus, the Beloved,) originated in the baptismal name of the little Gerrit, which was itself Gerrit, the same virtually as his surname: that, in fact, like Sir Cresswell Cresswell, the great scholar of Rotterdam was christened by his own family name, and that the reiteration that resulted was attempted to be rendered by the respectively Greek and Latin terms Desiderius Erasmus. (Both names were familiar enough at the time, as belonging to popular 'saints,' one being identical with the French St. Didier, the other with the Italian St. Elmo or Ermo.)

Now there are many other less familiar examples of somewhat similarly translated or quasi-translated names to be met with in literary history; and as we have not been so fortunate as to light on any detailed collection of such instances, we have thought it might be of some interest and even occasional utility, to make a record here of our own memoranda in this regard, incidentally jotted down from time to time. We have seen such works as Barbier's *Dictionnaire des Ouvrages Anonymes et Pseudonymes*, published in Paris in 1822; Wheeler's *Dictionary of the Noted Names of Fiction*, published at Boston in 1865; and the *Handbook of Fictitious Names* by "Olphar Hamst," published in London in 1868. But in these we find no detailed list of the class of names now referred to; and which we have ventured to style Metonyms, translated or quasi-translated names.

Salverte has a chapter on translated names; but the scope of his work (*History of the Names of Men, Nations and Places, in their connection with the Progress of Civilisation*) did not require him to enumerate more than a few examples. In Lower's *Patronymica Britannica*, the Latinised names are of a class to be met with only in the old Charters and legal records of England. Baillet's *Auteurs Déguisés*, had the work been within our reach, might possibly have helped us. We

offer our collection simply as a contribution to a more complete list, for the use and information of the student who has occasion to consult the original authorities for the civil and literary history of the 16th century; and under correction, for we have not been able, in every instance, to recover the source of our notes. Hallam, Whewell, Disraeli, Dibdin and Brunet furnished us with some of them. Our translated names will be those which, like the instances already described, convey in a Latinised or Grecised form the sense, real or supposed, or approximated to, of the vernacular name. Our quasi-translated names will embrace such as have, for convenience, been moulded into a Latin form, and have assumed in the process a shape under which the vernacular form is not, at first sight, readily recognised; as, for example, Linnæus, for Linné, Grotius for de Groot.

At the period of the 'Revival of Letters,' when the Latin and Greek tongues came again to be familiarly understood among the literary men of Western Europe, and to be used by them with elegance in the writing of history and other works, and in correspondence and even common conversation with each other, it was found that the proper names of persons (as also of places) constituted, in many instances, sounds harsh to the ear, and forms uncouth to the eye, in the midst of the flow and harmony of the lately-revived, so-called classical languages. The plan was consequently soon adopted of softening and harmonising the names required to be used, either by translating them according to their etymology, or by resuming the forms of the same names as they were before becoming barbarised in the fourth and fifth centuries, or by suffixing convenient terminations.

For this smoothing-down of rough foreign proper names there was the authority and example of the great authors whose works were again becoming widely known. The Greek historians moulded to their own vocal organs the names of Persian and other Asiatic persons and places. Livy did the same with Etrurian, Oscan and Phœnician names. Caesar and Tacitus did the same with places and persons in the West, the writers in each instance preserving in the metonym, material of high value now to the ethnologist and comparative philologist.

The fastidiousness of taste generated by the newly-revived studies carried men too far when, as in some of the literary clubs or academies in Italy, they adopted the custom of addressing each other by venerable names that did not, even in sound, belong to them: just as, centuries before, under the influence of another partial 'revival of letters,'

Charlemagne had saluted his Chancellor Angelbert as Homer, and Alcuin, the head of the Palace-school, as Flaccus. (It was characteristic of the age in which this earlier revival had happened, that Charlemagne himself was styled by a name not taken from Greek or Roman annals, but from the records of Holy Writ;—he was academically, so to speak, King David; while his superintendent of public works, and subsequent biographer, Eginhart, was addressed by the name of the ingenious nephew of Moses, Beseleel.) These are examples of pseudonyms, not metonyms: conceits playfully indulged in by great men, but not worthy of much attention. It was quite another thing to Latinise or Grecise a name that had become barbarised: or, when harsh and uncouth-looking from its Teutonic or other foreign constitution, to translate it, according to received analogies, into a corresponding equivalent term, in communications by writing or word of mouth, carried on between literary men.

The learned Greeks who found their way from Constantinople to Italy in the fourteenth and two following centuries, would readily shew their pupils how to transmute conveniently names that seemed uncouth; and to construct out of them others that would resemble those borne by themselves and by the Byzantine writers with whose works they were familiar. Here are the names of some of these literary emigrants: Johannes Argyropylus, John Silvergate; Antonius Eparchus, Antony le Préfet; Nicolaus and Zachariah Calliergus, Nicholas and Zachary Fairwork; Georgius Gémistus or Pletho, George Fulman. Any one of these might be a metonym from the Teutonic or some other Western dialect, similar to those which we are about to enumerate. The names of the Byzantine writers are of a similar stamp: Johannes Stobæus, John of Stobi; Photius, Bright or Manly; Maximus Planudes, Astray; Thomas Magister, the Teacher; Georgius Chæroboscus, Swineherd; Demetrius Triclinius, Butler, Buffetier; Theodorus Prodrômus, Scout; Manuel Holobôlus, Alclod; Georgius Syncellus, Fellowfriar, Confrère, Chum; Constantinus Psellus, Stammerer; Georgius Pachymeres, Clumsy; Theodorus Anagnostes, the Reader; Johannes Philoponus, Lovework,—to say nothing of earlier and more venerable names, Latin as well as Greek, simple and compound, all possessing visible vernacular significations.

Almost as familiar as the instances of Erasmus and Melancthon, are those of Œcolampadius, professor of Divinity at Bâle in 1528; Bucer, professor of Divinity at Cambridge in 1549; and Capnio, the very

learned preceptor of Melanchthon. The first is properly Hussgen, corrupted from Hausschein, Houselight; the next is Kuhhorn, Cowhorn; and the last is Reuchlin, Smoke. Capito, a friend of Bucer's, was really Koepstein, Headstone. Melissus, author of eight books of *Melitemata*, *Studies*, printed at Frankfort in 1595, is Paul Biene, Bee (*Melissa*, bee). We have also a printer at Bern, named Apiarius. Cochliæus, author of a *Historia Hussitarum*, and an opponent of the Reformation, was Wendlestein, Cochlæa, Periwinkle, Winkle. Perizonius, author of *Origines Babylonicæ et Ægyptiacæ*, was Voorbrock, Apron, perizon-e.

In the cloisters at Bâle, not far from the resting-place of Erasmus, is a tablet to his friend *Episcopus*; and near by are other more recent memorials to members of the same family, whereon the vernacular name of *Bischoff* is resumed. Pareus, author of three folio volumes of divinity, in 1593, was Wangler, wange being cheek in German, and *pareia* being cheek in Greek. *Macropedius*, a writer of Dramatic pieces for the young, was Langevelt, macro having reference to *Lange*, and *pedius* to *velte*, field, *campus*, *pedion*. *Opilio* was Schaefer, Shepherd, *opilio* being shepherd, as though *ovilio*, from *ovis*. *Lentilius* was *Linsenbarht*, a supposed progeny of *linse*, German for lentils. *Malleolus*, a modest diminutive of Charles Martel's name, was *Hemmerlein*, which is sufficiently English in sound to speak for itself. He was a divine of Zurich: some of his treatises were printed at Bâle in 1497. Jerome Bock, *Anglicè Buc*, a naturalist, whose *Kreuter-buch* was printed at Strasbourg in 1546, appears on the title page of the Latin version of that work, as *Hieronymus Tragus*, the equivalent of his name in Greek. *Manneken*, author of a *Complete Letter Writer* in 1476, elevates his family-name by Latinising it *Virulus*, not *Homunculus*. *Kammermeister*, a distinguished commentator on the New Testament, was *Camerarius*, Chamberlain. (His family-name was once *Liebhard*.) *Loos*, in Low-German, crafty, compiler in 1581, of *Illustrium Germaniæ Utriusque Catalogus*, is *Callidius*. *Kallison*, a pupil of Melanchthon's, became *Callistus* and *Calixtus*, *Formosissimus*. *Ulric Molitor* in 1489 was doubtless a *Mueller*; as also *Crato Mylius*, a printer at Strasbourg; and a *Farinator* in 1477. *Vermeulen* is *Molanus*, and *Walscemueller*, *Hylacomylus*. The real name of *Regiomontanus*, the great mathematician at the close of the fifteenth century, was *Mueller*. *Regiomontanus*, *Montrealer*, is his designation as being a native of *Konigsberg*, *Mont-real*, in Franconia. *Johannes de Tritten-*

heim, a voluminous historical writer in 1546, is known as Trithemius. Jodocus Badius Ascensius, the learned printer, is no more than Josse Bade of the village of Asche, in Flanders. We meet with distinguished Hebrew scholars bearing the evident metonyms of Aurogallus and Acoluthus.

Giles Overmann, translator into Latin of the romance of the Ulespiegel (whence the French *espiglerie*), in 1657, is Ægidius Periander. The metonyms in -ander are very numerous. An obvious one is Neander for Neumann. Of this name there were many men of note. The family name of the modern theologian Neander was Mendel. He was born a Jew, and assumed the name Neander on relinquishing the Jewish faith. On a tablet in Westminster Abbey appears the following inscription under the name of a Franciscus Neumannus:—

Exutá jam carne, animarum in sede
Receptus, vere Neander factus est.

One Stephen Neumann figures as *Homo Novus*. Megander is Grosman. But Albertus Magnus is Albert de Groot. (His works consist of twenty-one folio volumes.) Theodorus Bibliander is Theodore Buchmann. Xylander, editor of Greek and Latin authors in 1532, was, in the vernacular, Holzmann, Woodman. Then we have several Osanders, Heiligmann, a name now degenerated into Osmann; and a medical writer of Hesse, Johannes Dryander, John Eichmann. We may conjecture what the originals may have been of Onosander, Ganander, Nicander, Cratander, Kyriander and Melander. The last was perhaps Schaefer again, Sheep-man. Matthias Flach Francowitz, principal author of the Ecclesiastical History known as the *Centuriæ Magdeburgenses*, was Flacius and Flaccus Illyricus. Valentinus Paccus was Hartung Frid. (Hart, valens; Friede, pæ.)

Conradus Dasypodius, a mathematician, and translator of 'Theodosius and Autolyceus on the Sphere,' in 1572, was Conrad Raüchfuss, Hairy-foot. Lycosthenes, compiler of a once well-known volume of *Apophthegmata* published at Geneva in 1633, is Wolf-hart, that is, as Kilian says, *Fortis ut Lupus*. Maurolyceus also seems to speak for itself. Neoaëtos is Neuenaar, aar being eagle, that is, aëtos. Comes Neuenarius, Comes Neætius, and Comes *Novæ Aquilæ*, all mean Count Neuenaar. Pelargus is Storch, that is, Stork. The family-name of Joachim Fortius Ringelbergius, in 1516, was also Storch. An Abbot Anser bore the family-name of John Huss, Latinised. Luscinius was Nachtigall. Godofredus Rabus is Godfrey Raaban, Raven. In Ra-

banus Maurus we have a hint of how 'raven' may have been applied in some cases as a sobriquet. Maurus is 'The Moor.' Petrus Niger, a German, was the author of a work, *Ad Judæorum Perfidiam Extirpandam*, printed at Esslingen in 1475. Coracopetra was Rabenstein. Other names from colour are Cyaneus and Brunus. One from taste is Sapidus, a metonym however, probably, from Weise, Wiseman. Frederic Barba-rossa, i. e. russa, red, will be familiar to all. (Gildebertus is said to signify much the same—Rutilus barbâ.) There are many Lupuses; and a Canius, who was a Netherlander, de Hondt, the Hound. Wolfgang, a common prenomem, appears to have been simply furnished with the termination -us; although it is explained to be Lupi incessus, Wolfgait. Musculus, diminutive of Mus, is Mauslein, Little mouse.

Crusius is a quasi-Latinisation of the Low-German Krueys, Cross; also of Kraus. There are likewise a Crucius, a Cruciger and a Crucigerus. Van Horn became Ceratinus, 'keras' being 'horn.' Vander Steen was à Lapide, 'steen' being 'lapis.' Erastus is Lieber, akin respectively to Erasmus and Liebhaber, 'liebe' being 'eros,' love. Thomas Naageorgus is Thomas Kirchmeyer, 'naos' being 'Kirch, ecclesia,' and 'meyer,' colonus-villicus, farm-bailiff.

Several authors are named Cellarius; all probably Kellners, that is Cellarers: one, in 1661, published in Amsterdam an Atlas of the Heavens. There are three Opsopœi, in all likelihood Kochs, that is, Cooks. Latinised names from trades or occupations are numerous. Pellicanus was Kurshner, Furrier, one dealing in pelles, peltries. Messenmaker, Cutler, is Cultrifex, in 1479, from culter, a knife. Hermanus Figulus was Herman Töpfer, Potter. We meet with Piscator, Fischer; Agricola, Pächter, Farmer; Serrarius, Sawyer, Holz-sager; Caspar Sagittarius, Archer, Bogenschüke; with Latomus, Miner, Steinbrecher; with Sartor, and Sartorius, Taylor, Schneider; with a Pistor, Baker, doubtless Becker; a Ravisius Textor, Weaver, Weber; a Tinctor, Dyer, Farber; a Sutor, Shoewright, Schuster; and a Lapidanus, Stoner, Steiner: also with a Kaiser Karl Fidicen, who was surely a Fiddler, Geiger, or Lutist, Löther. A Felix Fidlerus or Fiedlerus occurs. The last epistle written by Melanchthon was to a Johannes Aurifaber, Goldsmith. It is signed "Philip Melanchthon, brevi moriturus," p. 430, Ed. Elzev. 1647. Georgius Acanthus we may suppose to have been George Dorn, that is, Thorn. Rivinus, the botanist, we know, was Bachman, from bach, beck, rivulus, rivus; and Vander Boeken or Beken, Torrentius. Vander Bosch was Sylvius, and Fagius was Buchlein, diminutive of Beech.

Printers as well as authors allowed their names to appear in Latin and Greek forms. Several of the metonyms already noticed appertained to printers. Oporinus is Herbst, that is, Harvest. Eucharius Cervicornus, at Cologne in 1520, is Eucharius Hirschhorn, Staghorn. (We meet with Cornucervinus also for Von Hirschhorn.) Petrus Cæsaris, a Fleming, was Pieter Keysere. Petrus Perna was Peter Ham, Schinte. Graphæus was probably Schreiber, and Cephalæus Hauptmann; Nicolaus Lupus, Wolf, was a printer at Lyons in 1499. We have not at hand the famous *Epistolæ Obscurorum Virorum*. Some amusing imitations of metonymised names would doubtless be found therein.

It is unnecessary to remark upon such direct Latinisations as Zumptius, Zuinglius, Vossius, Arminius (Hermansen); or on such obvious ones as Vredius for de Vree, Venius for Van Veen, Arimæus for Van Arum, Musius for Muys, or Chœrius for Vander Keere, which in French is du Tour, that is, like Keere in Low-German, Turn or Circuit. Dodonæus, a physician and botanist in 1616, is Dodoens. Christian Gottlob Sachs was first Sachsus; then Saxius. Zypæus is Vanden Zype.

Judex is the name of a Danish writer on Printing. (We have the name Judge in English.) A Danish mathematician was named Nicolaus Raymarus Ursus. The Icelandic author of the *Orkneyinga Saga*, sive *Historia Orcadensium*, printed at Copenhagen in 1780, Jonas Jonæus, is, in effect, Jonas ap Jones. Reinier Gemma, surnamed the Frisian, must have been Jewel, Jewel, in his own vernacular Low-German.

A surgeon of Ghent is renowned in 1722 under the name of Palingenius. This appears to have been a fanciful expansion of his real name, which was Palfin. In like manner, from a partial similarity of sound, the name of the Cretan grammarian Moscopulus was usurped by Peter von Musschenbroek, literally, Swallow-brake. Noviomagus is simply a local name for Nimeguen, anciently Nieuwmegen. His real name was Goldenhaur; as that of Pomeranus was Bugenhagen. Myconius we once supposed to be a Grecising of some word signifying Baldhead; but Pipericornius, literally Pfeffercorn, Peppercorn, in his *Chronicón Thuringiacum*, says, *Fuit Myconius alio nomine Mecum dictus*; but what Mecum may be a corruption of, is not evident. Tabernæmontanus, a naturalist, whose *Eicones Plantarum* appeared at Frankfort in 1588, was so named from his having been born at

Tabernæ Montanæ, that is, Bergzabern, a town in the Palatinate (stadt in der Pfalz).

The famous name Paracelsus was probably intended to express a relation to Celsus, the great medical philosopher of the first century, and seems to be formed on the analogy of 'paradoxus,' 'contrary to opinion;' as though it would describe one who could astonish Celsus. Two of his Tracts are entitled respectively, Paragranum, Paramirum. It has however been imagined by some that 'Paracelsus' has reference to 'Hohenheim,' a place from which his father derived an agnomen; the family-name being Bombast von Hohenheim. The complete series of names possessed or assumed by Paracelsus himself was: Philippus Aureolus Theophrastus Paracelsus Bombastus ab Hohenheim Eremita. He was born in 1493 at Einsiedeln, the site of an ancient Swiss monastery: in monkish phraseology, the neighborhood was styled Helvetiæ Eremus. Hence comes the final term in the series of names borne by Paracelsus, Eremita. The inflated and mysterious words adopted professionally by Paracelsus are said to have been the original 'Bombast,' as applied to language. Here is a brief specimen of a letter of his to Erasmus, who had consulted him at Bâle in 1522: 'Quæ mihi sagax musa et Astoos tribuit medica, candidè apud me clamans: similitum judiciorum manifestus sum auctor. Regio hepatis pharmacis non indiget, nec aliæ duæ species indigent laxativis. Medicamen est magistrale arcanum potius ex re confortativâ specificâ ex melleis abstersivis, id est, consolidativis.' More follows. (The Astoos is probably the mystic familiar, Azoth, kept by 'Bombastus,' as Butler speaks, Hud. iii. l. 628, "shut in the pummel of his sword.") Erasmus appears to have been well pleased with the opinion given. In his reply he says: 'Demiror unde me tam penitus noris semel duntaxat visum. Enigmata tua non ex arte medicâ, quam nonquam didici, sed ex misero sensu verissima esse agnosco,' &c. The great specific of Paracelsus was a tincture of opium: a remedy omnino laudandum: hence by popular corruption our familiar word 'laudanum.'

In the metonymising of Italian personal names, the process is often simply to revert to the original form of the word. As when Perbuono becomes Perbonus; Giovanazzo, Juvenatius; Paolo Giovio, Paulus Jovius; Giovanni Giocondo, Johannes Jucundus; Feboni, Phœbonius, Vettori, Victorius; Settali, Septalius; Navigero, Naugerius. Thus, Accorsi, author of the "Great Gloss," a work on Law in six folio volumes, published in the 13th century, is also Accursius. Sometimes a compound name is represented by a similar compound, as when

Mezzobarba, the name of an annotator on *Oceo's Numismata Imperatorum Romanorum*, becomes *Mezliobarbus*. Sometimes the name is Latinised by a translation of its meaning in Italian: as when *Banchieri*, Bankers, Exchange-brokers, became *Cambiatores*, and *Ricci*, 'of the curled locks,' professor of *Belles Lettres* at Florence in 1500, became *Crinitus*, and *Pietro Capretto*, an Italian mystic writer in 1492, became *Petrus Hædus* (kid). *Giovanni Giglis* is *Johannes de Liliis*, *Giglis* being from *Giglio* for *Lilio*, that is *Lilium*, *Anglicè*, *Lily*. Occasionally the name is Grecised in a similar manner: as when *Forteguerra* becomes *Crateromachus*, 'Strong i' th' Fight,' and *Buonacorsi* is supposed to be sufficiently expressed by *Callimachus*, signifying probably for the occasion, 'Of graceful action in the Tournament.' *Johannes Victor Rossi*, a Roman satirist, is, somewhat mixedly, *Janus Nicius Erythræus*, and *Giampietro Arrivabene*, elegantly, *Eutyechius*. *Ritius* represents *Riccio*; also *Riz*, *Ris* and *Rit*. One would have supposed that *Galeotto*, 'Galley-slave,' would have chosen some more elaborate metonym than 'Galeottus.' By entitling a work of his 'De vulgo Incognitis,' he, in the 15th century, forestalled the 'Things not generally known' of Mr. Timbs.

Local, territorial and family appellations are expressed by appropriate local and gentile adjectives. Thus *Rucellai*, head of the Platonic academy at Florence, is *Oricellarius*; *Chiaramonti*, *Claramontius*; *Lorenzo de' Medici*, *Laurentius Medicæus*; *Ambrogio di Calepio*, *Ambrosius Calepinus*. In *Belcarius* (*Hist. Rer. Gallicarum*), *Ercole d'Este* becomes *Hercules Atestinus*.

We have an interest on this continent in the name of *Amerigo Vespucci*. On the title page of his *Novus Mundus*, addressed to *Lorenzo de' Medici*, it is metonymised into *Albericus Vespuccius*. *Albericus* was softened into *Americus*: Italianised, it became *Amerigo*. In old French he is called *Emeric de Vespuce*. This identifying of *Amerigo* with *Albericus* determines the prosodiacal quantity of the penultima of *America* in Latin, all the Teutonic proper names in *-icus* having it long; but custom has rendered it short in *America*. In a volume of Latin and other verse in the Bodleian, of the date 1761, we have the old soldier of the reign of George II. describing his exploits on this continent and speaking in good iambics of

Americæ sinus, et immanes lacus,
Comata sylvis montium cacumina,
Gravesque lapsus fluminum, urbium situs
Et barbarorum corpora, et vultus truces, &c.

The familiar name of Columbus is the pure Latin form of the old North Italian and old French Colon, which in the latter language is also Coulon. Both are corruptions of Columbus, the masculine form of Columba, Dove. Peter Martyr looks as if it were a name belonging to our list of metonyms, but deceptively so. There are two Peter Martyrs. One the author of an *Enchiridion de Nuper sub Carolo repertis Insulis*, printed at Bâle in 1521, and of the *De Orbe Novo Decades octo*, printed at Alcalá in 1530: works of interest, both of them, to us on this continent. On the title page of the old translation of the first-mentioned little tractate his name figures as *Pierre Martyre de Millan*: and in a copy of the work, now lying before us, he is styled *Petrus Martyr, ab Angleriâ, Mediolanensis*. The other Peter Martyr is the reformer so called, who was a native of Florence and professor of Divinity at Oxford in the reign of Edward VI. His family-name was Vermiglio or Vermeille, Latinised into *Vermilius*. *Petrus Martyr* was the name under which a church hard by his father's house was dedicated. This suggested a baptismal name for the child.

Dante's name is an abbreviation of *Durante*; and *Durante*, as an Italian family-name, is Latinised into *Durandus*. In the case of the poet, however, it assumes a kind of Greek form, *Dantes*, when metonymised. In Keble's *Prælectiones de Poeticæ Vi Medicâ* he appears as *Dantes Aligherus* (to express *Allighieri*); and in the *Pœmata et Inscriptiones of Landor* we have

*Danten sæcula quina transierunt
Cum Florentia funebres honores
Solvit manibus optimi poætæ.*

In the church of St. Onofrio at Rome is to be seen the brief inscription over the remains of Tasso: *TORQUATI TASSI OSSA*. Tasso we thus learn became *Tassus*, just as Bembo became *Bembus*. Paolo Sarpi, better known as Fra Paolo and Father Paul, historian of the Council of Trent, is *Paulus Sarpus*. But his name is often concealed under the anagram *Pietro Soave Polano*, formed from the words *Paolo Sarpi Venetiano*. (There is a writer on German Typography, named *Paul Pater*.) Aldo Pio Manuzio, the father of the Alduses, each, like himself, a learned printer either at Venice or Rome, is *Aldus Pius Manutius*. Aldo itself is said to have been *Theobaldo* abbreviated.

The name of Tifi Odassi, a writer of Macaronic verse in the 15th century, has, like that of the artist Taddeo Gaddi, when uttered by Italian lips, an Hibernian ring. In Latin it is dignified into *Typhus*

Odaxius. This was probably a taking advantage of sounds. Giovanni Paolo Parisio in that way became Johannes Paulus Parrhasius, a name famous in its day, and liable to be confounded with that of the artist-pupil of Socrates. (In passing, it may be remarked that some Irish names submit readily to the Italianising and Latinising process. The well-known Montreal name Donegan looks as if it were an example of this; and on the title page of a Compendium, in Latin, of Irish Church-history, anno 1621, we have it set forth that it was composed 'à Philippo Osulleuano Bearro, Ibero.') In Nicolaus Laurentius for Cola di Rienzi, we have a correction in Latin of a kind of slang once in vogue in Italy in regard to names,—the custom, that is to say, of speaking of persons of note by abbreviated, nursery-names. Giotti's name is said to be a fragment of Ambrogiotto, that is, little Ambrogio or Ambrosius. Italian writers Latinised the Scottish name Crichton into Critonius. In Italian itself the famous Crichton was Giacomo Critonio. Buchanan makes it Crihtonius. Here we have helps to the pronunciation of the original name. In Latin versions of some of the treatises of Savonarola, that name is treated as purely classical. We have also his letters printed at Paris in 1674: Hier. Savonarolæ Epistolæ. He is ordinarily known as Hieronymo and Girolamo da Ferrara: and is frequently quoted as Hieronymus Ferrarius, that is, by his Christian and local names Latinised. Old English writers speak of him as Jerome of Ferrarie, and Jerom Ferrarie.

The proud name of Julius Cæsar Scaliger or Scaligerus, eminent in the literature of the 16th century, was properly J. C. della Scala, of the della Scalas de Bordone, who were allied, it was asserted by Julius, to the princely della Scalas of Verona. Some who were irritated by the arrogance and ostentatiousness of Julius, professed to know that his name was simply Bordone; and that della Scala denoted the sign of his father's trade or the street where he lived. Joseph Justus, the illustrious son of Julius, took the trouble to re-assert a family connection with the noble della Scalas. This drew forth from Gaspar Sciopius, at Mentz in 1607, a refutation, or supposed refutation of that claim—Scaliger Hypobolimæus, (the supposititious Scaliger), hoc est, Elenchus Epistolæ Josephi Burdonis, pseudo-Scaligeri de Vetustate et Splendore gentis Scaligeræ. Sannazarus is a quasi-Latinisation of Sannazzaro, St. Nazarius, author in 1502 of the Arcadia, a pastoral romance, which was, in part, the model of our own Sir Philip Sidney's Arcadia. This writer is also spoken of by his academic pseudonym

Actius Syncerus. The name of the Neapolitan poet Cariteo is the Italian form of his academic name, Chariteus. In this instance, the assumed name has caused the family-name to be forgotten.

Among French metonyms, that of the Stephani will perhaps be the most familiar. Vernacularly, the Stephani were the Etiennes, Estiennes, or Stephenses, a succession of learned printers who, throughout the whole of the sixteenth century, did admirable service. Henry, Robert, and Henry, junior, of this name, have the honour to be sometimes distinguished from each other in imperial fashion, as Stephanus I., II., III. Charles, Paul and Antony Stephens were also printers, but of less note. Another familiar metonym to be noticed here, in connection with the Etiennes, although otherwise out of its place, is Scapula, probably *Schulterblatt*, Shoulder-blade. Not many years since, 'Scapula,' like 'Donatus' and 'Calepinus' previously, had almost merged its personal associations in those of a book. A 'Donat' was a grammar: a 'Calepin,' in French, was a note-book: and a 'Scapula' was, with us, a certain large Greek Lexicon. It had an origin not reputable. While Henry Stephens was bringing out his *Thesaurus Lingux Græcæ*, an assistant in his printing-office, Scapula, secretly made an abridgment of that ponderous work, and subsequently published it at Bale. The lesser book, though itself of huge size, yet being the smaller of two evils,—(the greater being in the form of four folio volumes)—the sale of the latter was hindered, and the interests of Stephanus III. were so seriously interfered with, that his bankruptcy ensued. A Scapula, now, is philologically valueless.

In the 16th century, we meet with the name Odet de Turnebu, borne by the author of a French comedy; and with Adrianus Turnebus, in the vernacular, Turnèbe, a Greek scholar and critical annotator. This name is said to be, in fact, the Scottish name Turnbull, Gallicised first into *Tournebœuf*, and then partially Grecised into Turnebus, where -bus represents bous, that is, bœuf, although in verse the termination is found short as well as long in quantity. The original Turnbull, in the time of King Robert Bruce, was, according to the Scottish legend, called Ruel. In 1644 we find printed at Paris a volume in quarto entitled *Adami Blævodæi Opera Omnia*, including *Varii Generis Poëmata*. We here hardly recognise, in its Latin guise, the familiar Scottish name of Blackwood. Marbœuf, a bishop of Rennes, Latinised his name into Marbodus.

In Sammarthanus we have a base metonymisation of the name 'de

Sainte Marthe.' Two brothers of this name, Scævola and Louis, began the *Gallia Christiana*, a Church-history of France, publishing four volumes in folio under that title, in 1656, a work that has since swollen, without being completed, to fourteen volumes in folio. With this name we may compare the probably more familiar 'Nostradamus'—which is a similar base rendering of 'de Notre Dame'—the name, in the vernacular, of the great 'prophet' of 1555, "médecin du Roi Charles IX., et l'un des plus excellents astronomes qui furent jamais," so styled on the title page of the Lyons edition of his predictions in 1611. Lodelle's epigram on this personage is well known:—

Falsa damus cum nostra damus, nam fallere nostrum est,
Et cum nostra damus, non nisi falsa damus.

Hieronimus Natalis, author of *Meditationes*, &c, in 1594, is Jerome Noël: that is: Noël having been, through the Provençal Nadal, Naël, originally Natalis, Noël is Latinised back into that form. Comitum Natalis, author of a work on Hunting, in 1681, is Noel des Comtes. Petrus de Natalibus, on the other hand, in 1493, is Pierre des Natalles.

In 1590 we meet with Guidonis Conchylii Poëmata. These are the Poems of Guy Coquille, juriconsult and poet. Cornelius à Lapide, author of ten folio volumes of Scripture-criticism in 1657, is Corneille de la Pierre. The great grammarian and dialectician, Ramus, slain in the massacre of St. Bartholomew, was in plain vernacular, Pierre de la Ramée. But Camus, Caylus, Simus, Datus, Reglus, Dumus, and some others of a like appearance, do not belong to our metonyms.

Johannes Viator, a commentator on the book of Job, is Jean Pélerin. Petrus Comestor, whose *Historia Scholastica super Novum Testamentum* was printed in 1473, was Pierre le Mangeur. Antonius Sylviolus is Antoine Forestier; and Sylvius is du Bois. Macarius is l'Heureux. Dionysius Exiguus is Denis le Petit. Johannes Parvus is Jean Petit. Mercator is Mercier. Petrus Sarcinator is Pierre le Couturier.

Auratus is Dorat. Calceatus is Chaussé. Clericus is le Clerc. Curtius is le Court. Clusius is de l'Ecluse. Crucius is Le Croix. Creuxius is Le Creux. (This Le Creux is the author of a *Historia Canadensis*, sen *Novæ Franciæ liber x*, ad annum Christi MDLVI, printed at Paris in 1664.) Calvinus is Chauvin, Bald. Cognatus is Cousin. Paschasius is Pasquier. Regnius is le Roi. Renatus is Récué. Benenatus is Bienné, bookseller and printer in Paris in 1570.

Faber is Favre and le Fevre, *i. e.* Wright or Smith. Aurifaber is Orfevre, *ouvrier en or*. Tannaquil Faber is Tannaguy le Fevre, father of the learned Madame Dacier. Belcarius (*Rer. Gall. Hist.*, 4-5.) speaks of Jacobus vulgo Cor appellatus: Cordatum, he adds, quod Latinis aliud sonat [*viz. Wise*], quidam vocare malunt. This is the famous, so-called French Argonaut, Jacques Cœur, of the year 1480. (See an admirable portrait of him at the beginning of his Life, by Louisa Stuart Costello.)

Johannes Vulteijs, an epigrammatist of Rheims in 1537, is Jean Faciot, *vultus* and *facies* being akin. Omphalius is du Bellay, perhaps from a fancied connection with Umbilicus, through the Italian Ombelico, Bellico. Philibertus Hegemon, author of a book of Fables in 1583, is Philibert Guyde. Hadrianus Junius for Hadrian le Jeune seems to be a base metonym; as also are Pinus for du Pin and des Pins, and Feuardentius for Feuardent. A French copyist in 1344, is named Thomas Plenus Amoris: in English Fullalove occurs.

Latinised local surnames are common: Nicolaus Vernuleus, author in 1656 of Johanna Darcia, vulgo Puella Aurelianensis, is Nicholas de Vernulz. Jacobus de Vitriaco is Jacques de Vitry. (We meet also with a Ph. R. Vitriacus.) Demontiosius is de Montjoisieu. Bellojocanus is de Beaujeu. Alanis de Insulis is Alaine de l'Isle. De Veteri Ponte is Vipont. De Capite Fontium is Cheffontaines. Porretanus is de la Porrée. Serranus is de Serres. Licius is de la Lice. Baius, de Bay; Plovius, de Blonay. No remarks are necessary on Budæus for Budé, Finæus for Finé, Gallæus for Gallé, Duræus for Duré or Dury, Danæus for Danès, Cartesius for Des Cartes: on Petavius for Petau, Salmasius for Saumaise, Santolius for Santeuil: or on Muretus for Muret, Huetius for Huet, &c. Helvetius was probably, vernacularly, le Suisse, the Swiss. Theodorus Beza is Theodore de Bèze, like our Beda for Bede. He was also fancifully transformed into Adeodatus Seba. De Thou, commonly known as Thuanus, President of the Parliament of Paris, in his Universal History of the period 1546-1607, written in Latin, ingeniously translates the modern names, carrying the process to an extreme. With him, Chartier or Cartier is Quadrigarius, Charioteer; Entragues, Interamnas; Des Marets, Paludanus, &c.

In the Spanish and Portuguese languages, metonyms, when they occur, will be, in many instances, as in Italian, a return to a real or supposed ancient form. The Spanish name Sanchez thus becomes

Sanctius, and the Portuguese *Estaço*, *Statius*. *Enzinas*, the first translator of the New Testament into Spanish, is Grecised into its equivalent, *Dryander*, *Oakman*, *Aikman*. The first person who sailed round the world was a Spaniard named *Sebastian Canus*. A learned Spaniard, author of three folio volumes of *Institutiones Morales*, &c., named *Azorius*, died in 1603. An eloquent Spanish prelate who, dying at the age of 40, left twenty-seven folio volumes of Theology, was named *Tostatus*. Each of these appears to be a Latinised name. In Spain, during the Moorish occupation, Oriental and Western tongues were in close contact. From this fact we derive the advantage of having some difficult names moulded for us into convenient shape. *Avicenna*, for example, is more readily uttered than the full native name—*Abu Ali Hussain Ben Abdalla Ben Sina*. We speak of the great commentator on Aristotle as *Averrhoes*, instead of *Ebn Roshd*. *Rhases*, a medical authority is, in full, *Abu Beker Muhammed Ben Zacharia El Rasi*. He is sometimes also *Rhazeus*. *Albategnius* is *Muhammed Ben Gebir Albatani*. *Boabdilla* is *Abu Abdilah*. Conversely, as we are informed, in Arabian writers *Hippocrates* figures as *Bograt*, *Hipparchus* as *Abra-chis*, and so on. In some Spanish documents referred to by *Froude*, the English name *Hawkins* appears as *Achines*.

Oriental names and titles familiar to us through the Greek and Latin, as *Xerxes*, *Darius*, *Ahasuerus*, *Porus*, *Chosroes*, *Sapor*, would not be recognised by us in their vernacular forms.

After the Greek civilisation had invaded the previously-isolated Palestine, a custom arose there of adopting for use in intercourse with western men, western names possessing, to some extent, a like sound. *Hillel* became *Pollio*; *Joshua*, *Jason*; *Onias*, *Menelaus*; *Silas*, *Silvanus*; *Saul*, *Paul*; and Hebrew or Aramaic names were made to assume a Greek form, *Eliakim* becoming *Alcimus*; *Amittai*, *Matthæus*; *Yeragon*, *Hircanus*. Even translations of names occur: as when *Elnathan* or *Nathaniel* becomes *Dositheus* or *Theodotus*. *Tertullian's* untenable theory may here be referred to: *Quis nescit*, he asks in his *Liber Apologeticus* against the 'Gentes,' *nomen Iovis à Iehovâ deductum; et Adonis ab Adonai, Iacchi à Iah, et Vulcani à Tubal Cain, et Musæi à Moyse, et Iani, quo Noahum intelligo, à Iain vino*. "By such devices," *Huet* said to *Bochart*, "the Hebrew or its dialect is made to furnish the origin of the names of King Arthur, and all the knights of the round table of Charlemagne, and the twelve worthies of France; and, if required, of all the Incas of Peru. Was it not won-

derful sagacity in a German whom I knew, who would prove that Priam and Abraham, Æneas and Jonas, were the same persons?"

In the case of Chinese names the process of Latinising has been of use. Western men would not be in the habit of speaking so readily of Confucius and Mencius had not some ingenious Latinist brought Kung-fu-tse and Meng-Tseu into those respectable forms. In like manner Tao-tze might be Taocius. (Somewhat similarly, Zerdusht or Zarathustra has been moulded into Zoroaster.)

Slavonic proper names, as exemplified in some Polish and Russian examples, look as if it would be difficult to make them presentable in Latin or Greek form. But to one familiar with the philological history of such names a legitimate mode of metonymising them would present itself. It is evident that such names as *Przedziecki* and *Oleszczynski*, without manipulation, would look ill at ease in a page of Latin. *Sarbiewski*, we observe, is metonymised into *Sarbievius*, and the family of *Leszynsky* is spoken of by de Thou as the *domus Lascinia*. The real name of the Polish poet *Acernus*, who died in 1608, was *Klonowicz*. (A sister of the emperor Justinian, by birth a *Moesian*, was called in her native speech *Biglinitza*: in Latin she became *Vigilantia*.)

Early Teutonic names have been subjected to the metonymising process. To the Latinisation of such names as *Merwig*, *Chlotwig*, *Dietrich*, are due the familiar *Meroveus*, *Merovingian*, *Ludovicus*, *Louis*, *Theodoric*. *Deutsch* or *Teutsch* itself was transformed in Italy into *Theotiscus*, whence the familiar, but (until lately) detested name *Tedesco*. On a medal of Gregory VIII., commemorative of the massacre of St. Bartholomew, we have the legend *VGNOTTORUM STRAGES*, 1572, where the word *Huguenots*, or *Eid-genossen*, Oath bound associates, is metonymised, without being translated. Our '*Vortigern*,' however, is more euphonic than the Latinised names assigned him by *Gildas* and *Nennius*. In the former he is *Gurthrigurnus*: in the latter, *Guorthigirrus*.

In England, the Latinisation of a proper name has seldom availed to supersede its vernacular form; nor does it appear that the practice of translating into expressions of equivalent meaning was in much favour. In a few instances, local epithets as designating individuals became familiar. *Verulamius* would be pretty widely recognised; but popularly, to this day, *Francis*, *Baron Verulam* and *Viscount St. Albans*, is simply *Lord Bacon*. *Armachanus* would be held to denote either the pre-Reformation reformer *Richard Fitz Ralph*, archbishop of

Armagh in 1347, who translated the Bible into the Irish language; or else the illustrious James Usher, archbishop of the same see in 1626. Malmesburiensis might be taken perhaps for Thomas Hobbes; or else for William of Malmesbury, whose real name was Somerset. Odericus Vitalis is always quoted under that Latinised form. He was born at Shrewsbury in 1075. (The name of the Continental Vitalis is said to be a conceit for Vita Lis, 'Life is a Strife.') Asserius Menevensis, the adviser of Alfred the Great, is usually Asserius; but he is sometimes Azurius, from the Welsh asur, azure. He was a native of Wales. Giraldus Cambrensis is seldom Anglicised. Caius is Key or Kaye. Faber is, as we have seen, Wright or Smith. Carus may be a Latinisation of Car or Ker. (Buchanan so Latinises Ker.) Alabaster is Arblaster, *i. e.* Arbalistarius, Low-Latin for a cross-bowman. Sylvester is Boys, duBuis. Nequam was probably, in the first instance, Neckham. With 'William Rufus' all are familiar. Cæsar, as an English surname, has arisen from the disuse of a real family surname. Sir Julius Cæsar, master of the rolls, in the reign of James I., thought fit to drop the surname borne by his Italian ancestors. His father's name, on his migrating to England, from Previso, in 1550, was Cæsar Adelmaredalmare, or Dalmarius. The first Earl of Chester, nephew of the Conqueror, was Hugh Lupus. Plantagenet comes near the Latin, de Plantâ Genistâ, 'wearing the cognisance of the broom-spray.' Duns Scotus means probably 'Duns of the northern dialect.' He was born in Northumberland. Erigena, on the face of it, is Erin-born. His full name was Johannes Scotus Erigena—a tautology probably, as in A. D. 880 Scotus alone would denote one 'Erin-born.' Pelagius is a Grecising of Morgan, Armoricus, 'of the sea-board.' He was abbot of Bangor in A. D. 400. Reginaldus Polus and Poli Synopsis are combinations not unfamiliar to the English eye. Each involves a Latinisation of the common name Poole. Patrick Young, librarian to James I., metonymised his name into Patricius Junius. There is an author in 1602 of a *Historia Britanniae Insulae ab Origine Mundi*, named Richardus Vitus, who, at Basingstoke, where he was born, would have been vulgarly known as Richard White. (Among continental writers there is a Hugo Candidus. Rhabanus Maurus was, as we have already seen, famous in the ninth century, together with numerous Nigers before and since.) Bovill is Bovillus, Bullock. Erasmus so Latinises the name of his English correspondent Bullock. Lovell is Lupellus, diminutive of Lupus. Llewellyn has been Latinised into Leonellus.

Brunel also probably represents indirectly an animal name. The popular satires in which beasts and birds are made to speak and act like men, brought into common use such terms as Reynard, Grimalkin, Bruin, Chanticleer, Partlet. There was in circulation in the 12th century a *Speculum Stultorum*, entitled *Brunellus*; where *Brunellus* stands for a well-known patient but much abused quadruped. The author of this production was an English monk named Nigel Wiroker.—Erasmus makes Colet, Coletus, although the name, uncorrupted, is said to be *Acolyta*. Sir Thomas More, Erasmus metonymises into *Morus*. Influenced by the sound, he playfully inscribes to the English Chancellor his famous satire, the *Encomium Moriaë*, ‘The Praise of Folly.’ “*Quæ Pallas istuc tibi misit in mentem inquires?*” he supposes More to say to him on the occasion; he replies: “*Primum admonuit me Mori cognomen tibi gentile, quod tam ad Moriaë vocabulum accedit, quam es ipse à re alienus. Es autem vel omnium suffragiis alienissimus. Deinde suspicabar, hunc ingenii nostri lusum tibi præcipuè probatum iri, propterea quod soleas hujus generis jocis, hoc est, nec indoctis, ni fallor, nec usquequaque insulsis, impendio delectari, et omnino in communi mortalium vitâ Democritum quendam agere.*” Cecil, Lord Burghley, allowed his name to be converted into *Cæcilius*, as though he had been descended from the gens *Cæcilia* of ancient Rome. The name was really *Seysil*, and previously *Sitsilt*. *Belcarius*, (de Beaucaire, the reforming archbishop of Metz,) in his *Rerum Gallicarum Commentarii*, Latinises *Seymour* into *Semerus*. With him, *Leicester* as a title is *Licestrianus*, and *Warwick*, *Varvicus*. Erasmus styles the *Marquis de Vere*, *Princeps Verianus*. *Payne Fisher*, *Oliver Cromwell’s* poet-laureate, called himself *Paganus Piscator*.

With *Sleidan*, in his translation (published at Amsterdam in 1656) of *Froissart* and *Philip de Comines*, *Derby* is *Derbius*, the *Earl of Derby* is *Comes Derbius*; *Lancaster*, *Lencastrius*; *Gloucester*, *Clocestrius*; *Harcourt*, *Haricurtius*; *Howard*, *Havartus*; and *St. Leger*, *Calangerius*, where the English pronunciation of *St. Leger* is attempted to be expressed. The author of the so-called *Chronicle of Turpin*, first printed at Paris in 1527, makes *Fergus*, *Ferragus* and *Ferractus* to be the same name. A quotation in a note to *Browning’s Paracelsus* speaks of “*Anglum quendam Rogerium Bacchonem.*” This is *Roger Bacon*, the “wonderful doctor” of the 13th century to whose writings *Paracelsus* is reported to have been much beholden.

Hallam says of Buchanan's *Rerum Scoticarum Historia*, "Few modern histories are more redolent of an antique air." *Lit. Hist.* ii. 356. The illusion is maintained by the classical sound of the proper names euphoniously metonymised, without regard, however, to their etymology. With Buchanan Ramsay is Ramsæus; Huntley, Huntliæus; Cunningham, Cunigamius; Andrew Ker, Andreas Carus; Colin, Calenus; Arthur, Arcturus; Bruce, Brussius; Eliot, Æliotus; Creighton, Crihtonius, &c. Wishart he ventures to make Sophocardius. The name of the early Scottish historian Hector Boethius is a Latinisation of Hector Boëce, Boeis, probably Boyce. Sometimes he is Bœotius. We have seen Boyd transformed into Bodius, Price into Pricæus, and Ross into Rossæus. Alexander Ross, author of the curious cento entitled *Virgillii Evangelizantis Christias*, thus Latinises his name: although at the close of his dedication ad Illustrissimum Puerum, Carolum, Magnæ Britanniæ Principem, (afterwards Charles II.) he subscribes himself Alex. Ros (Dew). On the title page (ed. Lond. 1638,) there is a representation of himself, crowned with laurel, and blowing a trumpet: an epigram underneath, with allusions to the conceit in Ros, explains the whole:

Hæc est Virgillii quam cernis buccina, nuper
 Muta, sed ad flatum nunc animata meum.
 Illius hæc laurus; jam nostra in fronte virescens
 Quæ, nisi Ros foveat, marcida laurus erit.
 Quid sine voce tuba est? vel quid sine ROSÆ corolla?
 Buccina voce crepat, laurea ROSÆ viret.

Owen, the epigrammatist, is, on his own authority, and that of his encomiasts, at the beginning of his little volume, *Audoënus*. Andrew Borde, the original 'merry Andrew,' author of the 'Merrye Tales of the Madmen of Gotham,' called himself, by a kind of Artemus-Ward effort, Andreas Perforatus (Bored). The title page of Howell's 'Familiar Letters' has a Ciceronian aspect by virtue of its first heading—*Epistolæ Hoellianæ*. Fuller, in his *Worthies of England*, (i 407) plays in his usual strain, on the name of Bp. Jewel. "It may be said of his surname, nomen, omen; Jewel his name and precious his virtues; so that if the like ambition led us Englishmen, which doth foreigners, speciously to render our surnames in Greek or Latin, he may be termed *Johannes Gemma*, on better account than *Gemma Frisius* entitleth himself thereunto." (*Gemma Frisius* we have already noticed.)

The ambition in 'foreigners' here slightly glanced at by Fuller, was at a later period satirised by Arbuthnot in the proposed 'Memoirs of Martinus Scriblerus'; and by Sterne in his pretended quotations from Slawkenbergius, Metheglingius, &c. Almost the only names of Latin sound wont to be mentioned in modern English literature are those of the abstractions, Junius and Sylvanus Urban. In the Poëmata et Inscriptiones of 'Savagius Landor' the recent names of Brougham, Canning and Southey appear as Brogamus, Caninius and Sutheius.

A few titular episcopal signatures of Latin form, also, continue to be familiar to the English eye; such as Oxon., Ebor., Winton., abbreviations of the proper local adjectives in Latin. It is a note of the temper of the times, that a practice has crept in of writing, in the sense here referred to, Exeter instead of Exon., London instead of Londin. (short for Londiniensis). (According to old usage, 'Toronto' in this sense, should be written 'Toronton'; *i. e.* Torontonensis; episc. being understood; on the analogy of Avenionensis from Avenio, Sulmonensis from Sulmo, &c.: and Colombon. for Colombonensis from Colombo in Ceylon.) It is not wholly alien to our subject to mention here that although Canadensis is a usually received term, in Science and Latin prose, Ferrarius, in his work on the 'Culture of Flowers,' printed at Rome in 1733, repeatedly employs Canadanus. He speaks of "fraga Canadana insolitæ magnitudinis," 'Canadian strawberries of an extraordinary magnitude,' and of a "vitis Canadana," 'a Canadian vine,' as flourishing in the Gardens of the Barberini palace. (The word seems to be founded on the analogy that has produced Cuban from Cuba, Texan from Texas.) A local possessive formed in Latin from 'Ontario,' viz. Ontarius, may also have some interest. It occurs in the Bodleian volume of Academic verse of the time of George II., before referred to:

"Jamque novæ gentes et centum uberrima regna
Se Britonum titulis ultro regalibus addunt.
Ex quo præruptis scopulis plaga pinea vastum
Obsidet Osvegum, sonituque per arva marino
Lata fremit, lacuumque Ontaria maxima sævit."

In 1551 Sebastian Castalio or Castellio produced a translation of all the books of the Bible in flowing and pleasant Latin. It is dedicated to our Edward VI. In it, the Jewish and other oriental names have a classic aspect, by being provided with suffixes and declined in accordance with the demands of the construction. Sir John Cheke said of

this translation: (vide p. xxxii. Introduction to Castalio)—“*Mehercle, majorem percipio fructum in legendo Castellionem quam in volvendis omnium scriptorum commentariis: oratio facilis est, explicata, dilucida, suavis, concinna et diserta: verba pura et Latina et quæ propius naturam rationemque Græcæ Hebraicæque locutionis attingunt.*” For comparison, here is a passage from Castalio: “*Pudet confractum Moabitam, ejulate quiritantes, nunciate ad Arnonem periisse Moabitam, sumptumque supplicium esse de terrâ campestri, de Helone, de Jasa, . . . denique de omnibus Moabiticæ terræ oppidis tam remotis tam vicinis.*” The corresponding passage in the Vulgate version runs as follows: “*Confusus est Moab, quoniam victus est: ululate et clamate, annunciate in Arnon quoniam vastata est Moab, et judicium venit ad terram campestram; super Helon, et super Jasa, . . . et super omnes civitates terræ Moab, quæ longe et prope sunt.*”

In 1661, Duport, regius professor of Greek in the University of Cambridge, turned the Psalms of David into Homeric Greek, exhibiting much ingenuity in metonymising the Hebrew names. The following might be a couplet from the Iliad:

*Σήωνα κρατερόφρον' Ἀμορραίων βασιλῆα,
Καὶ Βασάνιοι μέδοντα, πελώριον ὄβριμον Ὠγον.*

The reader of Aristophanes will remember how readily the Greek language lends itself to the manufacture of humorous compound terms, Modern Greek is equally adapted to the same purpose. A translation of Bunyan's *Pilgrim's Progress*, published at Athens in 1854, renders the names given to the characters in that book, very well. Turnabout is Eumetabolos: Smoothman, Glucologos: Mr. Anything, Alloprosallous: Mr. Vain-confidence, Mettaiotharrhes: Giant Slaygood, Agathoctonos: Dare-not-lie, Phugopseudes: Standfast, Eustathes: Madam Bubble, Pampholux: Father Honest, Gero-Timios. This last epithet reminds one of the modern Greek term 'caloyer,' which possibly may have perplexed readers of Childe Harold. It is the modern Greek Kalo-ger, pronounced -yer, Kalos gerôn, 'the good, old man,' 'the good father': the word occurs in connection with a description of the monastery of Zitza in Albania:

“The convent's white walls glisten fair on high:
Here dwells the calo-yer, nor rude is he,
Nor niggard of his cheer.”

SIR WILLIAM HAMILTON'S PHILOSOPHY :
AN EXPOSITION AND CRITICISM.

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ARTICLE IV.—*Criticism of Hamilton's System, Continued.*

The last article of this series was occupied with the criticism of Hamilton's doctrine of consciousness, which may be regarded in the light of an introduction to his whole system of philosophy. The next subject, which I propose to discuss, is the doctrine of External Perception, inasmuch as it seems to me to involve a greater number of the most important principles of his philosophy than any other doctrine.

Referring for the details of his theory of perception to the exposition of his system in the second article of this series, I think it necessary here merely to recall the general position, which he endeavours to defend and explain, that man has an intuition or immediate knowledge of a nonego or matter as existing in space. That we possess such an immediate knowledge, he maintains, is the natural or unbiassed testimony of human consciousness; and accordingly he names his own system *Natural Realism*. On the other hand, those who deny such an immediate knowledge of matter, but still maintain that matter really exists, are obliged to explain by various hypotheses our belief in its reality; and these philosophers he accordingly proposes to name *Hypothetical Realists*. The system of Hypothetical Realism is that which has found most general favour among philosophers, and it is that which Hamilton has set himself specially to overthrow. The present article will be devoted mainly to the criticism of his polemic against this system.

(A.) The first point, which demands attention in connection with this subject, is Hamilton's appeal to the natural testimony of human consciousness as being in favour of his position, that man has an intuitive knowledge of an extended nonego. That such is the natural testimony of our consciousness, he does not assert merely on his own authority, but he maintains to be proved by the admissions even of those philosophers who refuse to acknowledge the trustworthiness of the testimony.

I. At the outset of this discussion, therefore, it is necessary to consider Hamilton's citation of his opponents as admitting the fact of consciousness to which he appeals. A number of the most explicit statements conveying this admission are quoted in his Dissertation on the Philosophy of Common Sense, pp. 747-8,* and among these are to be found passages from the writings of Descartes, Berkeley, Hume, Schelling, Malebranche, Fichte, as well as of other philosophers. In a passage in one of his lectures (Vol. I., pp. 289-92), where the same subject is discussed, Hamilton selects from these statements those of Berkeley and Hume; and we must therefore suppose that, at least when he wrote his lectures, these two quotations seemed to him the most suitable for his purpose. Yet it is impossible to avoid serious misgivings as to the propriety of citing either of those two philosophers as admitting the fact of the natural belief of mankind in the reality of the things which they perceive through the senses, while denying the authority of that belief. The quotation from Hume, indeed, is, perhaps, less exceptionable than the other, but does not admit, when correctly interpreted, of being applied to the purpose for which it is adduced by Hamilton; but certainly there is no mode in which it is possible to justify his quotation from Berkeley. The passage quoted runs as follows: "I do not pretend to be a setter up of *new notions*. My endeavours tend only to unite and place in a clearer light that truth, which was before shared between the vulgar and the philosophers: the former being of opinion, that *those things they immediately perceive are the real things*: and the latter, that *the things immediately perceived are ideas which exist only in the mind*. Which two notions put together, do, in effect, constitute the substance of what I advance." Now, even though Hamilton may not have comprehended the main drift of Berkeley's philosophy, the above passage might have taught him that there is no sense in which his opponent could fairly be represented as rejecting the natural testimony of consciousness to our immediate perception of a material reality. On the contrary, that is a testimony to which, as Sir William Hamilton himself admits,† Berkeley may rightfully appeal, and actually "did appeal more confidently, perhaps more logically, than Reid." Indeed, whatever judgment may be given as to the truth of Berkeley's system, an impartial criticism cannot refrain from deciding that

* See also *Discussions*, p. 92, note.

† Reid's Works, p. S17, note.

presents stronger claims to the name of Natural Realism than can be urged in favour of Hamilton's. For (1) while the former attributes reality, in the sense in which he understands the term, to all sensible objects, the secondary as well as the primary qualities of matter indifferently, the latter limits our perception of reality to the primary qualities, though there cannot be a doubt that the natural instinct of mankind, unchecked by scientific reflection, is to believe, when a rose is before the eyes, that its color is not less real than its figure. Moreover (2) while the gist of Berkeley's arguments is to prove that there is no unperceived reality underlying the objects of perception, Hamilton, in a measure, destroys the realistic aspect of his system by restoring, in his doctrine of the Conditioned, the unknown material substance which his opponent relegates to the category of unfounded hypotheses, contradicted by the natural convictions of mankind. It must thus (3) be evident further, and it will appear more fully in the sequel, that we are left in irremediable perplexity as to what Hamilton meant by *reality* in consequence of his recognising realities underlying those which are the immediate objects of perception, whereas the reality which Berkeley attributes to these objects, and which, he believes, is also attributed to them by the vulgar, has always a specific signification. But whatever may be thought of these remarks on the comparative claims of the Hamiltonian and Berkeleyan philosophies to be regarded as systems of Realism, it does not admit of doubt that Berkeley can, in no fair view of his system, be represented as rejecting the admitted belief of the human mind as the reality of the things perceived through the senses. The utmost that can be said is, that his understanding of what is meant by reality differs from Hamilton's; but a different interpretation is very far from a total denial of the reality attributed to material things.

The evidence wrung from Berkeley in favour of his Scottish opponent's assertion is thus found to break down under examination; and when we look into Hume's evidence, we find that it can scarcely stand such a test any better. The passage quoted, it must be remembered, occurs in the Essay on the Sceptical or Academical Philosophy; and the statements cited are written from the Sceptical point of view, asserting nothing dogmatically either for or against our natural beliefs, but merely plying against each other antagonistic conclusions of the human mind, so as to exhibit the instability of all purely speculative results. In the passage adduced by Hamilton the equipoise instituted

is between the natural belief of mankind in the reality of the phenomena presented in perception and the philosophical doctrine which attributes reality only to an unperceived substance underlying these phenomena. Now, although Sir William Hamilton does maintain the immediate objects of perception to be in some sense real, yet there is another sense in which he persistently refuses to predicate real existence of anything but the unknown substratum of phenomena, for which, in the passage under consideration, Hume asserts that there is no proof. The sceptic therefore cannot be said to reject the above natural belief of men in any important sense in which it is not also rejected by his opponent; and consequently his evidence cannot be admitted in the case in which it is adduced.

It may, however, be allowed that Hume's positive doctrine is founded on a rejection of this natural belief, which he yet acknowledges to exist. The belief, to which Hamilton appeals, must be an original belief of the human mind; and he admits that his reasoning would be invalidated by disproving the originality of the belief.* Now, this is precisely what Hume endeavours to disprove. The belief of men, the existence of which he acknowledges, is one which he holds to be acquired; and, as already mentioned in the first article of this series, he employs an elaborate chapter in the *Treatise of Human Nature* in tracing its genesis. There is thus an additional ground on which it is impossible to accept Hume's evidence as testimony to the existence of the belief, to which Hamilton appeals; and it is the more remarkable that Hamilton did not see this, as one of the passages, to which he refers in this connection, seems to be in the chapter of Hume's *Treatise*, which endeavours to explain the origin of the belief.

The remaining testimonies, it is to be feared, will all evaporate likewise before the light of examination. They all admit of being explained as referring to a belief which is either not original or not rejected by the witnesses adduced in any sense in which it is not also rejected by Hamilton in his doctrine of the Conditioned. There is, for example, a brief quotation from the Cartesian *De Raci*, stating the belief of mankind, "*Res ipsas secundum se in sensum incurrere.*" Can any one be far amiss in saying that Sir William Hamilton is among the philosophers who reject the doctrine that things in themselves (*res ipsae secundum se, Dinge an sich*) enter immediately into

* *Discussions*, p. 92, note.

the sensuous perceptions of the mind? Similarly the quotation from Stiedenroth's *Psychologie* is capable of interpretation on either of the above suppositions, though one would require to be acquainted with the general doctrine of its author to explain with certainty the particular drift of this passage. It is unnecessary to dwell upon those passages to which Sir William Hamilton has referred without quoting them; but one may well ask, though one can scarcely hope to answer, what interpretation, inconsistent with the doctrine of the Conditioned, it is possible to put on the following quotation from Tennemann: "The illusion that things in themselves are cognisable is so natural, that we need not marvel if even philosophers have not been able to emancipate themselves from the prejudice. The common sense of mankind, which remains steadfast within the sphere of experience, recognises no distinction between things in themselves and phenomena; and the philosophising reason commences therewith its attempt to investigate the foundations of this knowledge and to recall itself into system."*

The witnesses, summoned with so much confidence by Sir William Hamilton, might therefore all be allowed to retire, on the ground that their testimony does not bear upon the point which it is adduced to prove, were it not that Sir William's most distinguished antagonist allows the evidence of a certain class of these witnesses. "Those indeed," says Mr. Mill, "who, like Kant, believe that there are elements present, even at the first moment of internal consciousness, which do not exist in the object, but are derived from the mind's own laws, are fairly open to Sir W. Hamilton's criticism. . . . But, as regards all existing schools of thought not descended from Kant, Sir W. Hamilton's accusation is without ground."† One cannot but feel at a loss in dealing with an assertion of this kind, not illustrated by any explanation, or supported by any defence; but the authority of the philosopher who makes the assertion claims for it some recognition in this connection. Are we then, in deference to this authority, to admit that Hamilton is justified in compelling Kant and his followers at least to give evidence in his favour? I am obliged to acknowledge that I have altogether misinterpreted the drift of Kant's philosophy, if Mr. Mill's charge against it is well founded. Undoubtedly Kant holds that, even in our earliest perceptions, the relations of space and time, under

* Examination of Sir W. Hamilton's Philosophy, pp. 160-1.

† Quoted in *Discussions*, p. 92, note.

which objects are perceived, as well as the categories of the understanding, under which they are thought, are derived not from the objects, but from the mind's own laws. Mr. Mill also holds that these elements in our knowledge of objects are derived from the mind's own laws, and are not furnished by the objects themselves. The only difference between his doctrine and Kant's is in reference to the time at which these elements make their appearance in consciousness, the former maintaining, in opposition to the latter, that they are produced, not at once, but only after a more or less gradual process of association, although of course that process must have been accomplished before the period at which memory begins, and consequently at a period not very much later than that which is supposed in the theory of Kant. It is therefore an essential point in Mr. Mill's doctrine regarding our knowledge of matter, that the illusion of the externality, under which material things appear to us, is generated inevitably in accordance with the law by which sensations and other mental states become associated; and that this illusion, from the date of our earliest reminiscences, is so irresistible, that it can be dispelled only by the conclusions of psychological enquiry—conclusions which are still so inadequately established, that they are rejected by a large number of those who are engaged in such inquiry. I do not on this account lay to the charge of Mr. Mill's doctrine, that it exhibits, as Hamilton is fond of saying, "our Maker as a deceiver, and the root of our nature as a lie." It is competent for any one to maintain, and every scientific man does maintain, that there are illusions which the human mind naturally and inevitably creates, which it is the function of science to remove. But as this plea may be urged by Mr. Mill, it may with equal right be urged by the disciple of Kant. It matters not whether the mental forces, which give birth to the illusions destroyed by science, operate so slowly as to produce their results only after a comparatively long process, or so swiftly that their results emerge on the first outburst of mental activity. If indeed it were maintained by Kant that the human mind is so constituted as to be incapable of exposing the illusions to which it is naturally subject, his doctrine might be held liable to the accusation which Sir William Hamilton brings against it, and in which Mr. Mill joins. But the creator of the modern German philosophy has not marred his system by such a flaw. If he holds that the mental faculties, from the very commencement of their exercise, originate illusory appearances, he holds quite as unequivocally that these faculties are themselves competent to

discover the illusory character of such appearances by a scientific criticism of the elements which constitute human knowledge.

What, then, must we suppose, led Sir W. Hamilton to imagine that the statements of antagonistic philosophers, which we have now examined, are to be interpreted as admissions in his favour? A solution of this question will probably be reached by examining the nature of the belief to which these statements refer, and by considering the manner in which that belief ought to be treated by the scientific student of the human mind.

II. There cannot be a doubt that a belief, conviction, intuition, knowledge, consciousness, or whatever else one may choose to call it, of something external to, or different from, *oneself*, must be acknowledged to exist in the mind of every man. That in all my consciousness I am aware of that which is not I, apprehended as occupying space and as enduring in time, and that I cannot choose but be aware of it except by ceasing to be conscious,—this statement will be admitted by every human being to be the expression of a fact in his consciousness from the date of his most distant reminiscences down to the latest hour at which reflection is possible. Though it may be generally true, as Sir W. Hamilton more than once asserts after Varro, that there is no absurdity too great not to have found a supporter among any of the philosophers, I am confident that a special exception must be made in reference to the denial of this mental fact. At least it would have been interesting if Sir W. Hamilton, instead of collecting acknowledgments of this fact, had employed some of that curious learning, which has endeavoured to discover the “local habitation and the name” of the philosophical sect of Egoists, in hunting out any philosophers by whom the fact has been denied. The truth is, that this is not only one of the facts which the investigator of the human mind must study, but, when properly viewed, it is, as the most obtrusive fact in our mental history, also the prime fact in mental science, the explanation of which inevitably drags in all the general questions suggested by the phenomena of human knowledge. On this account the fact under consideration necessarily occupies the most prominent place in the speculations of schools representing the most antagonistic tendencies of philosophical inquiry; and there are not wanting, in the writings of philosophers, most opposed to Sir W. Hamilton in their interpretation of the fact, statements, quite as explicit as any which he has penned, of the irresistibility and the immediacy with which in our ordinary consciousness

the intuition of an external objects makes its appearance. Could the Scottish philosopher desire, or could we find in his works, a clearer or more forcible expression of this intuition than is given in a passage from one of Schelling's earlier writings,—a passage, which, if I have traced his reference correctly, is among those referred to, without being quoted, by Hamilton? "I believe, no one will lightly deny that all trustworthiness of our knowledge rests on the *immediateness* of intuition. The philosophers of the highest genius speak of the knowledge of outward things as of a revelation which happens to us, not as if by that means they meant to explain anything, but to indicate, that it is in general impossible to bring about the connection between an object and its apprehension (*Vorstellung*) by means of intelligible conceptions. They name our conviction with regard to outward things a *belief*, either because the soul communicates most immediately with that which it believes, or, to express it in a word, because that conviction is a truly blind assurance, which does not rest on inferences (from cause to effect) or on proofs of any kind. Moreover one cannot see, how any opinion, which is produced only by means of arguments, can pass into the soul, can become the ruling principle of action and of life in such a manner as the belief in an external world. Whence comes this element of immediateness, and of insuperable certainty arising from immediateness, in our knowledge?" *

This mental phenomenon then being one, whose existence is admitted by Sir W. Hamilton's opponents as distinctly as by himself, it is evident that they did not consider such admission to be out of harmony with their theories of perception; and the impartial critic will, I am persuaded, agree with their opinion. It is necessary therefore to point out the misapprehension which led Sir W. Hamilton to suppose that such an admission is irreconcilable with any theory but his own. One source of this erroneous impression has already been explained in treating of his doctrine regarding the authority of consciousness as the ultimate standard of appeal. It was then shown that he has failed to discriminate the general fact, that in an act of perception I am conscious, and the special fact, that in an act of perception I am conscious of an individual object. The former of these it would be the climax not of scepticism, but of madness, to question. It is easy enough moreover to state in

* See Schelling's *Abhandlungen zur Erläuterung des Idealismus der Wissenschaftslehre*, III.

popular language, which is satisfied with describing the superficial appearance of things, but it is far from easy to define with scientific exactness, the object of which I am conscious in an act of external perception. Let it however be supposed that this is not so difficult as it is in reality, we are still far from having determined with precision, what the testimony of consciousness is in such an act; and we are thus brought to a second source of the error into which Hamilton has fallen.

We may suppose that every necessary precaution has been taken to discover and to describe exactly the phenomenon of consciousness which we are now discussing, and that, after the labours of numerous observers and writers have been employed on it, we are now in a position to declare a certain statement universally accepted. It will, I believe, be acknowledged by all, though not perhaps in the very same terms, that external perception is an apprehension of something which appears at least to be different from the perceiving mind, as well as to be existent in time and in space; and that this apprehension bears from the very first so strong an appearance of immediateness, that it is taken by the unreflective mind to be from the very first really immediate. Sir W. Hamilton's theory is, that the testimony of consciousness is thus committed to the doctrine of the *real* or *original* immediacy of external perception, and that consequently the denial of this doctrine necessarily involves the rejection of that testimony. Now, in citing the authority of consciousness as in favour of any theory, there are certain laws by which Sir W. Hamilton taught his pupils to be guided. One of these, which he names the Law of Parsimony, enjoins "that nothing be assumed as a fact of consciousness but what is ultimate and simple." In explaining this law he asks,* "What is a fact of consciousness?

. . . . In the first place, every mental phenomenon may be called a fact of consciousness. But as we distinguish consciousness from the special faculties, though these are all only modifications of consciousness—only branches of which consciousness is the trunk, so we distinguish the special and derivative phenomena of the mind from those that are primary and universal, and give to the latter the name of *facts of consciousness*, as more eminently worthy of that appellation. In an act of perception, for example, I distinguish the pen I hold in my hand, and my hand itself, from the mind perceiving them. This distinction is a particular fact—the fact of a particular faculty, perception. But

* *Lec. on Metaph.*, vol. I., p. 260. See also *Reid's Works*, pp. 749–50.

there is a general fact, a general distinction, of which this is only a special case. This general fact is the distinction of the Ego and the non-Ego, and it belongs to consciousness as the general faculty. Whenever, therefore, in our analysis of intellectual phenomena, we arrive at an element which we cannot reduce to a generalisation from experience, but which lies at the root of all experience, and which we cannot therefore resolve into any higher principle,—this we properly call a fact of consciousness.” We have here, then, a distinct statement of a rule by which we are restricted in appealing to the testimony of consciousness. The veracity of this testimony must not be supposed to be involved in the truth of the mental judgment contained in *any* phenomenon of consciousness. It is only when, after analysis, we have reached those facts which do not themselves admit of decomposition, that we are in a position to declare the veracity of our natural beliefs at stake, and on that ground to cite their authority. We may indeed make a narrower restriction, which would undoubtedly be admitted by Hamilton, that we are at liberty to cite the authority of consciousness only when, by means of the process which is more correctly called criticism than analysis, we have discovered those facts which have not merely resisted all attempts at decomposition hitherto, but must, from their characteristic attributes, be declared incapable of being decomposed. Now, it may safely be said that no one, who is inspired by an earnest love of science, will hesitate to support Sir W. Hamilton in maintaining the unimpeachable veracity of such ultimate facts of consciousness, and the legitimacy of citing their evidence as an authority from which there is no appeal; but in order to render the citation of this authority valid in any particular controversy, it must, on Sir William’s own showing, be first of all made out, that the fact adduced is truly ultimate and simple. In the present case, therefore, it is not enough to have determined with scientific precision the object of which we are conscious when consciousness has been developed into an act of external perception; it is absolutely requisite to show that the differentiation of ego and nonego and the recognition of the nonego as occupying space have not been, and cannot have been, an evolution from simpler facts.

Now, it will be found that Sir William Hamilton does adduce reasons, which must be acknowledged to be, if not perfectly conclusive, at least very forcible, to prove the ultimate character of the essential facts which are implied in external perception; and these reasons will afterwards demand our consideration. At present our

attention is limited to the question whether, in appealing to the authority of consciousness as establishing his theory of perception, he has fulfilled the conditions of his own test for determining the validity of such an appeal. It is evident, then, that, in order to meet the requirements of the prescribed test, his appeal should be made only after the fact appealed to has been shown to be incapable of scientific interpretation except as one of the absolutely final results in the analysis of mental phenomena. From the circumstance that he adduces reasons to prove this with regard to the fact of external perception, he might, at the first glance, be supposed to found his appeal on the conclusiveness of these reasons. Yet a more careful examination will undoubtedly show that this is very far from being the ground on which he bases the validity of his appeal.

In proof of this it might be deemed sufficient to refer the student of Sir William Hamilton's writings to the impression produced by the general style in which he discusses this subject; but it is possible to point out several facts which establish incontrovertibly the above assertion.

1. It is important in this connection to notice, in the first place, the discussion, to which the twenty-fifth of his lectures on Metaphysics is devoted, on the objections to his theory of perception. That discussion is limited to two points, which he considers his opponents bound to establish in order to a successful polemic against his theory. He thinks that they were bound in the first place to adduce reasons sufficient to justify their rejection of the testimony of consciousness to our immediate knowledge of the *non ego*, and in the next place to substitute a legitimate hypothesis in room of the rejected fact. It is evident, from this account of its drift, that his discussion starts with assuming the original immediacy of perception; and accordingly when we proceed to his criticism of the objections to his doctrine, we do not meet with the slightest expression of even a surmise, that the "testimony" of consciousness under consideration might be rejected by some on the ground that perception can be explained by acknowledged psychological laws as a development from more elementary facts.

2. It is further evident, that Sir W. Hamilton did not found his appeal to the veracity of consciousness in the present instance on the proved impossibility of analysing the phenomenon of perception, from his citation of the admissions made by his opponents. These admissions have been considered already, and it has been seen that they amount to

no more than a statement of the fact of perception as it appears in the consciousness of every man. Sir W. Hamilton, however, mistakes this statement for a concession of the very point at issue between him and the great majority of his antagonists, and it is on the ground of such a mistaken concession that he declares the testimony of consciousness to be in favour of his theory.

3. But the most conclusive evidence that Sir W. Hamilton has in the present instance forgotten the conditions which make an appeal to the testimony of consciousness valid, is the fact that he makes such an appeal at all. For such an appeal is altogether needless, if the condition under which alone it may be made is fulfilled. To make the appeal allowable, the fact appealed to must be shown to be an absolutely elementary fact in human consciousness; and when this is done with regard to perception, the whole question at issue between the Natural Realists and their opponents is set at rest. It is wholly unnecessary to plead the veracity of the primitive beliefs, out of which the phenomena of human consciousness have been generated; for the controversy, raised by the opposition to Natural Realism, is not, whether it is legitimate to set aside any of these beliefs, but whether the conviction, involved in external perception, is to be reckoned in the number of such beliefs at all.

To appreciate Sir W. Hamilton's position fully, however, we must consider this question in the state in which he took it up. It had from the first been urged against the philosophy of Common Sense, that it is only a retreat from unpalatable conclusions of science to the unscrutinised beliefs of mankind; and Sir W. Hamilton, referring to this charge, acknowledges that it comes home to some philosophers of the Common Sense school. "In this country in particular," he says,* "some of those who opposed it (the argument of Common Sense) to the sceptical conclusions of Hume did not sufficiently counteract the notion which the name might naturally suggest; they did not emphatically proclaim that it was no appeal to the undeveloped beliefs of the unreflective many; and they did not inculcate that it presupposed a critical examination of these beliefs by the philosophers themselves. On the contrary, their language and procedure might even sometimes warrant an opposite conclusion." It cannot therefore be pleaded in Sir William Hamilton's favour, that the rock, on which he has struck, is one whose

* Reid's Works, p. 752.

dangers have been made apparent only by researches subsequent to his own. It is a rock on which, we have just seen, he acknowledges that some previous investigators of his own school had been shipwrecked ; and it is consequently difficult to see how he should have run upon it so directly himself. There is room enough for conjecturing what can have led him into a course, against which he has uttered such unequivocal warnings ; it is possible that the true cause is to be found in what may be regarded as one of the great misfortunes—perhaps Ferrier was right in regarding it as “the one mistake,”*—of his philosophical life, that he should have dedicated his powers to the service of the Common Sense school as represented by its most characteristic exponent, Dr. Reid. Whether external perception be a primitive intuition of the human mind or not, it was idle to refer to the ordinary and irresistible convictions of mankind except to discover the fact which it is the office of mental science to explain. To refer to these convictions, as if they superseded all the recognized processes of science, was to foreclose the very inquiries, which constitute the science of mind, into the nature and the origin of mental phenomena. Sir W. Hamilton, therefore, by accepting this philosophy as the highest effort of speculation, unfortunately bound himself to shape his theory of perception into harmony with it, and was accordingly forced to disallow the question with which the above quotation from Schelling concludes, “Whence comes this element of immediateness and of insuperable certainty in our knowledge ?” To him our knowledge of external things *is* immediate ; we know, and have a right to ask, nothing beyond that fact. If the argument from common sense be, as is maintained by Hamilton, merely a reference to the ultimate and simple facts of human consciousness, then the Common Sense school is indistinguishable from other schools of speculation ; for there is no philosophy which does not professedly seek to discover by what smallest number of ultimate and inexplicable facts the phenomena of the universe may be explained, or which dreams of denying these facts after they have been discovered. But when any circle of inquirers distinguish themselves by their habit of appealing to common sense, it is difficult to understand for what purpose such an appeal can be habitually made, unless it be to array the unscientific opinions that are universally current among men against speculative conclusions which cannot be rebutted by the recognized methods of

* Ferrier's *Lectures and Philosophical Remains*, vol. I., p. 489.

science. The ordinary opinions of men will always oppose obstacles enough to the progress of scientific thought ; and it is unfortunate that Sir W. Hamilton should even have made an appearance of countenancing that kind of opposition to the advancement of the science, in whose service few lives have been so faithfully spent. Still it is due to him to remember that the mistake he has made is in diametrical opposition to general principles of investigation which he has himself prescribed.

Reviewing our discussion of the belief or conviction revealed in the perception of external things, we see that it is but one of the phenomena of the human mind which it is the office of mental science to study, and that therefore we should abandon science in favour of ordinary unscientific opinion, were we to foreclose at once all inquiry into the origin and composition of this belief by merely pleading that in the consciousness of all men it appears as a simple and ultimate fact. We have now, therefore, the way cleared for this inquiry, and for an examination of Sir W. Hamilton's contributions to its settlement.

(B). In proceeding then to consider whether any scientific explanation can be given of perception, except by regarding it as one of the elements of which human consciousness is built up, it is necessary to eliminate from the phenomenon all that is non-essential. Now, it will certainly be admitted by all that, in order to an act of perception, there must be something perceived, and perceived as something different from the perceiver. This is the highest generalization under which the objects of knowledge can be ranged ; for in all knowledge there must be a knower and that which is known. But the object of external perception is, moreover, always perceived as *here* or *there*, as extending from this point to that in various directions, as, it may be, moving from this position to that ; in other words, it is always perceived as *existing in space*. I do not deny that it may be proved on scientific grounds legitimate to use the word *perception* for acts of knowledge, in which the object is known not under the relations of space ; as, for example, to speak of perceiving the smell or the taste of an apple, the heat of a fire or the sting of a bee ; but it will be allowed by all who understand the question we are now encountering, that it is advisable, till this question is settled, to apply the term in a stricter sense, only to those knowledges of which the object is perceived as occupying space. The objects of perception must also be perceived as existing in time, but this is a condition to which the objects of all consciousness are restricted. Still further, the objects of perception are perceived as offer-

ing a resistance to the voluntary activity of the perceiver. Besides these four facts I know of no other constituent element of perception.

In strictness, therefore, there are only two facts essential, and at the same time peculiar to the mental phenomenon of sense=perception; these are the facts, that the objects of perception are perceived as exist, in space, and as resisting our voluntary exertion. The perception of space and the perception of resistance present, consequently, a primary claim to consideration. But the more general aspect of perception, in which its objects are presented as different from the perceiver, is usually discussed along with the others, and it is so by Hamilton, who commonly describes perception, in its most essential form, simply as an immediate knowledge of the nonego or not-self. It will, therefore, probably be found advantageous, at least in the present criticism, to follow the order thus pointed out, and commence our discussion with this aspect of the phenomenon under investigation.

I. It is unfortunately necessary, at the outset of this discussion, to insist most explicitly on a strict adherence to the precise meaning of the term *nonego* or *notself*. Clearly these words express nothing but the object of knowledge considered as different from the knower. If the object of knowledge admits of more specific determination, this is not implied in the designation of it as nonego. The special inquiry, therefore, to which we are limited at present, seeks to discover merely how the ego becomes conscious of the nonego, how *I* become conscious of *that which is not I*. Now, evidently, the consciousness of that which is not myself becomes possible only in contrast with the consciousness of myself, as the consciousness of self can emerge only in the simultaneous consciousness of notself. The inquiry, therefore, into the origin of our consciousness of the nonego reduces itself to the question, what originates in every human consciousness the antithesis of me and that which is not I?

Evident though these statements seem to be, the looseness with which the correlative terms *ego* and *nonego* are used, shows that it is far from being unnecessary to direct attention to the facts stated. The most celebrated philosophical work, published within recent years, is undoubtedly the *Examination of Sir W. Hamilton's Philosophy* by Mr. Mill; yet, in a chapter of that work entitled "The Psychological Theory of the belief in matter, how far applicable to mind," there occur the following observations:* "Although these two elements, an ego

* See p. 204, 1st edition.

and a nonego, are in our consciousness now, and are, or seem to be, inseparable from it, there is no reason for believing that the latter of them, the nonego, was in consciousness from the beginning; since, even if it was not, we can perceive a way in which it not only might, but must have grown up I now propose to carry the inquiry a step further, and to examine whether the ego, as a deliverance of consciousness, stands on any firmer ground than the nonego; whether, at the first moment of our experience, we already have in our consciousness the conception of self as a permanent existence; or whether it is formed subsequently, and admits of a similar analysis to that which we have found that the notion of notself is susceptible of." Obviously it is here taken for granted that the consciousness of self may possibly be an original factor of the human consciousness, even though the consciousness of the notself arise only after a more or less prolonged process. In the sense in which nonego and notself are used by Mr. Mill, and which may be vindicated by a prevalent usage, this assumption may be perfectly justifiable; for, though it is impossible to discover the self and the notself in our consciousness, using these terms in their most general, which is also their etymological, signification, yet it is possible that the self may appear in consciousness before a certain special form of the notself, before that special form which is distinguished by the characteristic of extension, and which we name *matter*. It is extremely natural that matter should thus be identified, in ordinary philosophical language, with the nonego. There is no commoner figure of speech than that in which a characteristic belonging to the most prominent part of any whole is taken to denominate the whole itself; and the most numerous, certainly the most obtrusive, portion of the nonegos presented in consciousness is made up of material things, that is, of things existing in space. It not to be overlooked, moreover, that there may be sound philosophical reasons for using the word *matter* to designate the nonego in general, or in other words for describing objects known as constituting the matter of knowledge; for it may prove to be a result of mental inquiries, that all objects, that the whole matter of knowledge is formed by projecting our own mental states and thus making them things that may be contemplated by us as different from ourselves. But it must not be overlooked, that the question in debate with regard to external perception concerns those nonegos which are presented to the ego under the conditions of space; and the qualities which are usually regarded as essential to matter, and which are accord-

ingly denominated primary all hinge upon these conditions. It is therefore of the utmost importance to discriminate precisely and constantly all questions in reference to our consciousness of the nonego in general from those concerning the special group of nonegos distinguished by the attribute of extension.

As we have found, in the most celebrated criticism of Hamilton, the absence of any discrimination between these two classes of questions, it will not surprise us to come upon the same confusion in his own writings. This want of precision could be adequately illustrated only by an extensive examination of his works; but one or two passages expose with special clearness the inexact use which he makes of the terms ego and nonego with their equivalents. "It may appear," says he, for example, in Note D* appended to Reid's Works, "not a paradox merely, but a contradiction, to say, that the organism is, at once, within and without the mind; is, at once, subjective and objective; is, at once, Ego and Nonego. But so it is; and so we must admit it to be, unless, on the one hand, as Materialists, we identify mind with matter, or, on the other, as Idealists, we identify matter with mind. The organism, as animated, as sentient, is necessarily ours; its affections are only felt as affections of the indivisible Ego. In this respect, and to this extent, our organs are not external to ourselves." * In order to avoid the conclusion, that this quotation contains "not a paradox merely, but a contradiction," it is evidently necessary to understand by Ego something more than is expressed by the first personal pronoun,—to understand not *me* simply, but everything else that may be viewed as having a certain relation to me. More pertinent to the subject in hand is Sir W. Hamilton's constant identification of the nonego with matter. "When I concentrate my attention in the simplest

* *Reid's Works*, p. 886, note *. Compare p. 858, note*. It is curious to come upon the same observation in Locke's *Essay*: "Self is that conscious thinking thing, whatever substance made up of (whether spiritual or material, simple or compounded, it matters not), which is sensible, or conscious of pleasure or pain, capable of happiness or misery, and so is concerned for itself, as far as that consciousness extends. Thus every one finds, that whilst comprehended under that consciousness, the little finger is as much a part of himself as what is most so. Upon separation of this little finger, should this consciousness go along with the little finger and leave the rest of the body, it is evident the little finger would be the person, the same person; and self then would have nothing to do with the rest of the body" (Book II., chap. 27, § 17).

act of perception," he says,* "I return from my observation with the most irresistible conviction of two facts, or rather two branches of the same fact;—that I am,—and that something different from me exists. In this act I am conscious of myself as the perceiving subject, and of *an external reality* as the object perceived." Then a few pages further on, "The ego and nonego,—mind and matter, are not only given together, but in absolute coequality." †

These passages are cited not for the purpose of bringing home to Sir W. Hamilton the charge of denuding philosophical terms of their precise signification. Unhappily the intensity of one's regret at the want of precision arises from the fact of its being strongly palliated, if not justified, by very extensive usage. Possibly the inexactness with which the two universal factors of knowledge are spoken of in English, may arise from the unfortunate difficulty of finding for the knower a term which expresses clearly and exclusively the first person. I believe, it would be found advantageous if we could conveniently use for this purpose the first personal pronoun alone; for when we substitute such words as *mind*, *soul* or *spirit* even terms like *the self*, or *the ego*; in fact, when we use *I* or *me* themselves as substantives with the definite article, we require a constant reminder to prevent ourselves from attaching to our language more than the pure self-consciousness. An advance, however, has been made towards clearness on this subject by the adoption of such terms as *the self*, *the ego*, &c., instead of the substantives, *mind* and *soul*. Though expressions like *the self*, *le moi* and even *the I* may be met with in some of the older English and French authors, ‡ yet their introduction into general philosophical literature may be traced to the influence of the modern German philosophy, and is perhaps with justice ascribed by Krug || specially to Fichte's *Wissenschaftslehre*. We are thus placed into a more favourable position for appreciating the problem regarding the origin of self-consciousness, understanding by the self simply what we mean when we use the words *I* and *me*, and neither consciously nor inadvertently inserting into our meaning any thing such as a nervous system, an organic body, or a spiritual substance,

* *Lectures on Metaphysics*, Vol. I., p. 288. † *Ibid.*, p. 222.

‡ See Locke's *Essay*, Book II., c. 27, §§ 9 & 20; Pascal's *Pensées*, Art. V., § 18.

|| In his *Philosophisches Lexicon*, under the word *Ich*. Cardinal Wiseman traces the prevalence of transcendental philosophy among the Germans to the fact, that their first personal pronoun admits easily of being converted into a substantive. (See Renan's *De l'origine de langage*, p. 190, note.)

that it is not identical with the self, however intimately associated with it it may be.

What interpretation then is mental science to adopt of self-consciousness? Is it to be regarded as a fact which is required for the explanation of all the other phenomena of consciousness, but which is itself incapable of being explained? Or can it be explained as a development from the recognized laws of a consciousness in which the distinction of self and notself has not yet made its appearance? We have to consider what Sir W. Hamilton has done towards the solution of this problem. By referring to my previous article in the last number of this journal,* it will be found that his doctrine on this subject has been discussed at considerable length in connection with his analysis of consciousness. From that discussion it appears that he certainly maintains the self to be an essential factor of consciousness, consciousness being described as a relation between the self and its modifications, in which the former recognizes the latter. It is also proved, however, from the drift of Hamilton's doctrine of the Conditioned, that he does not regard the self as, in the act of consciousness, recognised by itself along with its modifications, the belief in it being merely a subjective necessity arising from the impotence of thought. The objections to this doctrine need not be here reproduced; but it is not out of place to notice the attempts, which have been made since Hamilton's time, at a settlement of the question in dispute. We are especially called upon to notice the recent discussion of the subject by Mr. Mill. From repeated examination of the chapter in his work on Hamilton, which is devoted to this discussion, and to which reference has already been made, I have drawn only a deepened impression of the extreme fairness with which the difficulties of the problems discussed are appreciated and stated, even when apparently in most violent collision with the author's general psychological principles; and it raises some hope of progress in the science of mind, when the separate problems, presented by mental phenomena, are dealt with in view of their own difficulties, rather than for the purpose of working out a general theory of psychology into all its details. At the same time there are formidable obstacles in the way of accepting Mr. Mill's discussion as at all commensurate with the requirements of the phenomenon.

It has been already pointed out that Mr. Mill has raised a serious

* See pp. 372-8.

hindrance to his success by his inexact use of the terms, ego and non-ego. We are not surprised, therefore, to find him so far astray as to assert that we know nothing of the mind except as a series or succession of feelings, although he acknowledges that "our notion" of mind involves in it the conception of something that remains unchanged amid the changes of feeling through which alone we know it; and this conception, he thinks, may arise from the same laws as the equivalent conception in our notion of matter. His words are,* "We have no conception of mind itself, as distinguished from its conscious manifestations. We neither know nor can imagine it, except as represented by the succession of manifold feelings which metaphysicians call by the name of states or modifications of mind. It is nevertheless true that our notion of mind, as well as of matter, is the notion of a permanent something, contrasted with the perpetual flux of the sensations and other feelings or mental states which we refer to it; a something which we figure as remaining the same, while the particular feelings through which it reveals its existence, change. The attribute of Permanence, supposing that there were nothing else to be considered, would admit of the same explanation when predicated of mind, as of matter. The belief I entertain that my mind exists, when it is not feeling, nor thinking, nor conscious of its own existence, resolves itself into the belief of a Permanent Possibility of these states. . . . Thus far, there seems to be no hindrance to our regarding mind as nothing but the series of sensations (to which must now be added our internal feelings), as they actually occur, with the addition of infinite possibilities of feeling requiring for their actual realization conditions which may or may not take place, but which as possibilities are always in existence, and many of them present. The Permanent Possibility of feeling, which forms my notion of myself,"—and so on. There is scarcely a point in this statement to which exception must not be taken, if we understand by mind, self or ego simply *me*. So far am I from knowing myself always and only as a series or succession of feelings, that I never know nor can conceive myself as such; and the assertion, that I am a series of feelings, is a contradiction in terms; it is tantamount to the assertion, that I am not I. What I am in reality, is not considered here; but I am never conscious of myself as being what I am represented to be in the above description of Mr. Mill. It is true, Mr. Mill

* *Examination of Sir W. Hamilton's Philosophy*, pp. 205-6.

qualifies his statement by the admission that "our notion of mind is the notion of a permanent something," which we "figure" as remaining the same while our feelings change. But this admission is wholly eviscerated of its import by its explanation. The permanent something, which we name the mind or self, is merely a permanent possibility; and our notion of mind is accordingly explained as being a notion not only of an actual series, but of an infinite (indefinite?) possible series of feelings. Now, I am indeed conscious of myself as permanent and absolutely invariable amid all the changes of which I am conscious; but that very fact excludes the conception of myself as a series, however permanent may be succession of phenomena of which the series is constituted; and such a conception does not become a whit more intelligible or true to the facts by explaining the series as one that is not merely actual, but infinite in its possibilities.

There is indeed a sense in which Mr. Mill's words might be understood, in which they might also be regarded as but an awkward expression of a truth. A feeling, considered as a concrete fact, is but a mind or self existing in a certain state. The description of the mind, therefore, as a succession of feelings, might be regarded as amounting to no more than the assertion, that the mind is the mind in the successive states in which it exists or is capable of existing. One may well be justified in thinking that this could not have been Mr. Mill's meaning, not only because no one is at liberty to reduce any of his statements to such a truism, but because such an interpretation of his language is wholly inconsistent with the drift of his discussion on this subject. Mr. Mill's object is to explain how a series of feelings generate the notion of a permanent something to which they belong. Now, this object implies that he starts from the conception of feelings as phenomena in which there is, as yet, developed no consciousness of a permanent self that feels. Mr. Mill, therefore, in reality forces us back on the question, whether mental phenomena are, in their primitive form, undefined by any consciousness of self, and yet governed by such laws as to originate this consciousness sooner or later in all men.

The affirmative answer to this question, according to Mr. Mill, makes two postulates, (1) that the human mind is capable of expectation, (2) that there are certain laws of association among mental phenomena. To these postulates reference will require to be made again in different connections, and therefore they need only be stated here. It is, however, worth while to notice that there is also postulated, as will appear

from Mr. Mill's own admissions, a power of reminiscence with all that it implies. It must not be forgotten, moreover, that, in explaining the origin of selfconsciousness in accordance with this theory, whatever terms may be used in accommodation to the necessities of human language, the theory supposes that mental phenomena, in their essential and original nature, are not referred to a self or mind. It is of the first importance to urge this precaution; for, whatever may be the primitive state of mental life in man, all language is adapted to the expression of a mental condition in which selfconsciousness is an essential factor, and it is one of the most insuperable difficulties, if not a sheer impossibility in this controversy, to find terms which do not take for granted the very point at issue.

What, then, has Mr. Mill contributed towards analysing the phenomenon of selfconsciousness? His analysis, imperfect as he admits it to be himself, seems to me even more imperfect than he supposes. Confessedly he accounts for nothing in selfconsciousness except the notion of permanence, and it may be granted provisionally that so far his account is satisfactory, as it is needless to raise any dispute on such a point. We shall discover immediately the aspect in which he thinks that his theory fails to explain selfconsciousness, but there is another obtrusive aspect in which it is also unsuccessful. What it attempts to account for is not the consciousness of self at all! It explains, let it be admitted, how the notion of a permanent something grows up in the human consciousness; let it also be admitted that it explains how the notion of a permanent something which is generated by sensations alone becomes differenced in consciousness from that notion of a permanent something which attaches itself to *all* mental states; but how the one notion is drawn to the one pole, while the other rushes to the opposite pole, of an antithesis which runs through all subsequent consciousness, is not explained in any form in which the existence of the antithesis is not already assumed. Given the consciousness of myself, which of course implies the consciousness of that which is not myself, it becomes quite conceivable that I should refer to myself all my mental states, while I connect with something that is not myself, the particular group of phenomena called sensations; but how the consciousness of these two contradictories is in the first instance created, I cannot find that Mr. Mill has made even an attempt to explain. He points out, it is true, but his explanation goes no further than to point out, how certain mental phenomena, namely the sensations, might, by the ac-

knowledged mental forces which produce classification, be grouped together and thus be distinguished as a subordinate species from the whole genus of the mental states. But, waiving altogether the legitimate doubt whether any classification is possible before self-consciousness arises, it is evident that the classification, described by Mr. Mill, not only could not originate the definite antithesis of me and that which is not I, but could not originate any contradictory antithesis whatever. I and that which is not I are, as contradictory, necessarily exclusive of each other; and to suppose that the distinction between a species and its genus could produce the consciousness of two things which are mutually exclusive, is to suppose that a process takes place for the production of this particular effect, which is never known to take place in any other instance. Such a hypothesis, one need not fear to say, will not be defended by the most distinguished exponent of the principles of scientific induction.

This defect in Mr. Mill's analysis of self-consciousness the theory of Professor Bain might be taken as an effort to supplement. With the latter indeed there is none of the diffidence regarding the possibility of analysing self-consciousness, which has been noticed as characterising the discussion of the subject by the former. Adopting a theory of Mr. Lewes' *Physiology of Common Life*, Professor Bain attributes "sensation or feeling, that is, consciousness" to all the nervous ganglia, though of course such a consciousness is explained as being in reality not the consciousness of the animal, of whose organism the ganglia form a part, but the consciousness of as many separate inferior animals as there are ganglia. The process, by which these separate consciousnesses are gathered into one united consciousness, is explained by Professor Bain,* but need not be considered here. It is obvious, however, that, starting from such a doctrine, he must refuse, as he does with perfect explicitness, to recognize self-consciousness as essential to mental life, at least in its rudimentary forms; and he maintains even that the conscious distinction of the self and the notself is unnecessary to knowledge, that a veritable act of knowledge may take place without any one being conscious that he knows. The remarks I quote are in reference to the first proposition in Professor Ferrier's *Institutes of Metaphysics*, that "along with whatever any intelligence knows, it must, as the ground or condition of its knowledge, have some cognizance of

* *The Emotions and the Will*, pp. 600-1, 2nd edition.

itself." "What I dissent from," he says,* "is the placing of *self* in the relationship of a factor or foil in *all* our cognitions. I grant it to the fullest extent in the great cardinal cognition, subject=object, mind *versus* matter, internal and external. I maintain, however, that this is only one of innumerable cognitions of the human mind, although a very commanding one. Moreover, I grant that everything that we know ultimately takes a part in that great comprehensive antithesis, ranging itself with one or the other pole. Still things might have been known although the subject-object distinction had never emerged at all; it being enough for cognition that any sort of contrast should exist. I can know light simply by the transition from it to darkness; light-darkness is a veritable cognition, a genuine stroke of knowledge, even if carried no further. . . . We might remain for ever at this point, being distinctly aware of a number of qualities without attaining the subject-object cognition. It is true that we do not remain in any such narrow sphere, but carry on our knowledge further and further, until at last every conceivable quality is arrayed round one or other pole of the greatest cognition of all."

The starting point, then, of Professor Bain's theory of the self is obvious. The distinction, of which every knower is conscious, between himself and all that is not himself, is maintained to be merely one, though the most prominent, of the discriminations which arise in human consciousness, discrimination being regarded as the fundamental condition of all knowledge. But how does this, the most general of our discriminations, in the first instance originate? It is in reply to this question that Professor Bain seems to me to be more explicit than Mr. Mill. His theory, briefly stated, is as follows: The germ of the distinction between self and notself is to be found in the difference between our feelings of movement and our sensations. There is a more marked contrast between these two classes of phenomena than between any two classes of sensations. In passing from the putting forth of energy to a sensation we are conscious of a wider transition than in passing from a taste to a smell or from a colour to a sound, and the result is a flash of clearer cognition. We are thus enabled to distinguish sensation as a whole from our feelings of movement as a whole, and our feelings of movement as a whole from sensation as a whole; whereas, if we had no sensation, we could distinguish merely feelings of movement from one

* *The Emotions and the Will*, p. 597, 2nd edition.

another; were we without feelings of movement we could distinguish only different sensations. This is the germ of the distinction between self and not self; to develop it something more is required. This requisite is found in the distinction between impression and idea, between the state of things called the present or actual and the subsequent state of things called the ideal. Actual impressions vary with our movements, and, to be obtained or retained, require that certain movements be performed, so that the actual state comes to be associated with our feelings of movement. In passing to the ideal state, on the other hand, the bodily movements necessary to secure the actual may be dispensed with. There thus arises a contrast very marked, between the actual and the ideal, a contrast such as that of which we are conscious between the reality and the bare imagination, for example, of a feast. This antithesis between the ideal and the actual, between imagination and reality, is expressed in such terms as internal and external, subject and object, self and not-self.*

Here certainly there is no shrinking from the conclusions to which a general theory of mind has led. We feel ourselves in the presence of the same unhesitating and unswerving directness with which Hume advances to his results. It is well for us that Professor Bain has unambiguously proclaimed the ultimate issue of a psychological analysis^s which professes the strictest adherence to the methods of modern science, even though we may be obliged, since our dreaming and our waking consciousness are made up of the same materials, to accept in their most literal signification the words of Prospero: "We are such stuff as dreams are made of." Yet one can scarcely avoid feeling that there are various grounds on which it is impossible to regard the above analysis of self-consciousness as fulfilling the requirements which modern science has taught us to recognise as essential to the scientific establishment of any theory.

It is, in the first place, a circumstance suggestive of doubt, that Professor Bain's analysis is not the analysis adopted even by those psychologists who maintain the possibility of decomposing self-consciousness. It must always remain extremely questionable, whether self-consciousness admits of analysis at all, as long as scarcely two of those who attempt the analysis ever arrive at the same elementary constituents. But, in the second place, an obstacle to the acceptance of such an

* See *The Emotions and the Will*, pp. 593-8, 2nd edition.

analysis is to be found in the want of definiteness as to the condition of mind previous to the birth of self-consciousness. This seems to me to affect peculiarly the theory of Professor Bain, from his very attempt to be more explicit on the subject by means of his doctrine, which ascribes consciousness to all the nerve-centres distributed throughout the nervous system. This phenomenon, which he names consciousness, is distinguished, on the one hand, from that consciousness of which alone there is any recollection, and, on the other hand, from purely nervous action. The only consciousness, over which memory extends, and which can therefore be described, not by hypothesis, but from knowledge, is a consciousness in which the apprehension of self forms an universal factor. Moreover, the usual descriptions of consciousness all assume the presence of this factor; for it is commonly explained as the knowledge which a mind possesses of the states in which it exists. If I eliminate, from any of my conscious states, the knowledge that I am in that state, what is the residuum? Nothing that I can conceive but the current of nerve-force which formed the correlate of the conscious state. But a nervous current is as destitute of all mental characteristics as a current of electricity, a thermal vibration or a sonorous wave. What then is this consciousness, which is neither consciousness, as usually understood, nor yet a purely physical state? It is not enough to say, that it is something, but that what it is, cannot be defined. We must know it at least sufficiently to be able to distinguish it from other things, before we can assert that it is capable of generating the antithetical notions of the self and the not-self.

Finally, the notion, of which Mr. Bain gives an analysis, is not the notion of self. Granting, in accordance with the admission already made in the criticism of Mr. Mill's analysis, that the grouping together of sensations in contrast with feelings of movement, of ideal states in contrast with the actual, could take place before the appearance of self-consciousness, it is a sheer begging of the question to claim for these contrasted groups identity with the two terms of the great antithesis which is now under consideration; for there is in all this no light thrown upon the problem, how ideas and impressions—how feelings of movement and sensations—how, in short, all mental states come to be felt as *mine*,—how "I" become conscious of *myself* as existing in these states. It is only by allowing the element sought to slip imperceptibly into our analysis, that we can discover self-consciousness in the synthesis described by Professor Bain. There is certainly nothing in

any of the elements which he exhibits, nor is there anything in their combination, that should oblige or even authorize us to identify such a combination with that of which we are conscious as our *selves*. We might indeed allow some probability to the above explanation of the manner in which self-consciousness arises, if we supposed that mental, like chemical, combination may produce effects whose properties are entirely different from those possessed by any of the combining elements. Such an hypothesis is not to be discarded without examination; it requires only from psychologists a proof similar to that which is furnished by chemistry. Now, of an immense number of chemical compounds we know the composition with certainty, not only by being able to decompose them into their constituent elements, but also by our ability to reproduce the compounds by a combination of their elements. Even those organic compounds, however, which have not yet been reproduced in the laboratory of the chemist, still exhibit the most satisfactory evidence of their composition; the substances may be placed before the senses, and, under perfectly reliable tests, be shown to yield a definite number of recognisable elements. Can anything like this process be carried out in reference to the self? If it can, it certainly has not yet been done. "I" cannot submit to any psychological reagents which compel me to give up the elementary mental stuff of which "I" am constituted. Every analysis of "me" is wholly hypothetical. Ever present in all human consciousness, "I" am still to science a mystery—an "open secret," and perhaps, from the very openness of the secrecy, a limit to the opening of secrets by man.

It has been mentioned, that Mr. Mill admits a certain imperfection in his analysis of self-consciousness. His admission amounts to this, that, while he professes to explain how the notion of self, *considered solely as the notion of a permanent something*, could arise, yet there is another element in the notion of self, and this element is not involved in the given explanation. "If," he says,* "we speak of the mind as a series of feelings, we are obliged to complete the statement by calling it a series of feelings which is aware of itself as past and future; and we are reduced to the alternative of believing that the mind or ego is something different from any series of feelings or possibilities of them, or of accepting the paradox, that something which *ex hypothesi* is but a series of feelings, can be aware of itself as a series. The truth is,

* *Examination of Sir W. Hamilton's Philosophy*, pp. 212-13.

that we are here face to face with that final inexplicability, at which, as Sir W. Hamilton observes, we inevitably arrive when we reach ultimate facts; and in general, one mode of stating it only appears more incomprehensible than another, because the whole of human language is accommodated to the one, and is so incongruous with the other, that it cannot be expressed in any terms which do not deny its truth. The real stumbling-block is perhaps not in any theory of the fact, but in the fact itself. The true incomprehensibility perhaps is, that something which has ceased, or is not yet in existence, can still be, in a manner, present; that a series of feelings, the infinitely greater part of which is past or future, can be gathered up, as it were, into a single present conception, accompanied by a belief of reality. I think, by far the wisest thing we can do, is to accept the inexplicable fact, without any theory of how it takes place; and when we are obliged to speak of it in terms which assume a theory, to use them with a reservation as to their meaning." To the cautious nature of this statement no exception might be made, were it not that on its purport depends the whole science of mind, and, if it be taken in the full extent of its admissions, the general view of mental phenomena, suggested by what Mr. Mill calls the Association psychology, must be greatly modified. If it be admitted, as it seems to be in the above statement, that in self-consciousness we come upon an absolutely ultimate fact of mind, that is, upon a fact beyond which it is impossible to proceed in the process of scientific explanation;—if the self cannot be decomposed into more elementary facts, and if this indecomposable fact is to be accepted without any theory regarding it, then Mr. Mill's previous limitation of our knowledge of self must be abandoned. It can no longer be said, in the language of Hamilton, that mind is but the name for a connected series of phenomena, or, in the language of Mr. Mill, that we can know or imagine it merely by the succession of its feeling. What I am conscious of when I use the words "I" and "me," is admitted to be incapable of explanation as an aggregation of mental states in accordance with the laws of suggestion. "I" am presented in consciousness with the same clearness and immediacy with which my "feelings" are given; my feelings are in fact "I" under particular conditions. If the consciousness of my mental states is to be regarded as the one intuition, whose certainty is the basis and the starting point of all other certainties, the consciousness of myself must be comprehended within that intuition. When we speak, therefore, of the self as an inexplicable fact, we must not sup-

pose that we do not understand what we are conscious of when we think of our *selves*. The secret of the self is an open one ; there is nothing which we can apprehend more clearly than the meaning of " I " and " me," when they are used simply to express self-hood. All that is to be understood by the incomprehensibility of the self, is its incapability of decomposition. It is thus to be accepted as one of the elementary facts, of which the mental life of man is constructed ; and as it is undoubtedly known not through the external senses, the knowledge of it may appropriately be called an *intellectual intuition*.

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The discussion of the remaining points connected with Sir W. Hamilton's doctrine of perception will occupy a subsequent paper.

THE ECLIPSE AMONG THE HINDOOS.

A writer in *Chambers' Journal* for October states that " European science has as yet produced but little effect upon the superstitious masses of India. Of the many millions who witnessed the eclipse on the 18th of August last, there were comparatively few who did not verily believe that it was caused by the dragon Rahu in his endeavours to swallow up the Lord of Day. And we ourselves, as we watched the eclipse from the flat roof of an Indian house, were struck with the poetical force of the story, when we observed, as it were, " the first bite " taken out of the sun's disc, and gazed with awe at the increasing darkness. It easily appears that the dragons Rahu and Ketu are personifications of the nodes, ascending and descending. The astrologers of Europe seem to have inherited the tradition from their Aryan progenitors, for, strangely enough, the astrological name of the ascending node is *Caput Draconis*, and of the descending, *Cauda Draconis*. In like manner, it may be noted, we, as well as the Greeks and Romans, have inherited the Indian names of the constellations and of the days of the week. * * * " There are many Hindoos," the same writer, nevertheless, in another place, says, " who are even now proving themselves no mean disciples of their European masters. Mr. Pogson, the eminent astronomer, thus writes from Madras, and his is no solitary experience : " The calculations of the eclipse for twelve important and conveniently accessible stations, situated within the limits of the totality, and of its partial phases at Madras, have all been carefully made by C. Ragonatha Acharya, the head native assistant at

the Madras Observatory; and it is simple justice to add, that the very considerable labour he has bestowed upon them was undertaken from pure attachment to science, and was accomplished solely in his leisure hours, without the slightest aid or advice from any one. The information afforded in his tabular results is all that can be required or desired for the prediction of the various phenomena of the eclipse.'” We gather from the same Journal that none of the reports yet received from India, of the total eclipse of the sun in August last, describe a perfect observation, as the monsoon was blowing at the time and clouds covered the sky. At some of the stations, however, there were breaks in the clouds, through which glimpses of the sun and moon were obtained, photographs were taken, and spectroscopic observations. Major Tennant, one of the observers, concludes, from what he saw, that the atmosphere of the sun is mainly of non-luminous or faintly-luminous gas at a short distance from the limb of the sun. And Captain Haig describes the red protuberances as “streaked flames.”

NOVEMBER METEORS.

We make the following extract from a communication of Professor Kingston to the *Toronto Globe* :

The total number during the night just completed will be found to have exceeded that of November 13th and 14th, 1867. With the exception of about one per cent., the courses of the meteors were in directions *from* the constellation of Leo; most of them were accompanied by trains, and in several cases the track remained visible from two to four minutes after the disappearance of the meteor. The majority of the meteors, particularly in the early part of the night, were extremely brilliant, and several exhibited a variety of colours. The apparent superiority of this recent display was owing to the remarkably clear state of the sky during the greater part of the night, and the absence of moonlight; whereas in 1867 the sky was overcast till 1, A.M., and subsequently, when the clouds had partially or wholly disappeared, the visibility of the meteors were greatly impaired by haze and bright moonlight. But for these causes the total number recorded last year would probably have been three times as great as in 1868.

Number of Meteors counted at the Magnetic Observatory, Toronto, on the nights of November 13, 14, 1867, 1868:

	1867.	1868.
Before midnight,	0	173
Midnight to 1 A. M. of November 14,	20	320
1 A. M. to 2 “	44	583
2 “ to 3 “	123	489
3 “ to 4 “	560	375
4 “ to 5 “	1345	572
5 “ to 6 “	195	365
Total,	2,286	2,486

CANADIAN INSTITUTE.

ANNUAL REPORT OF THE COUNCIL FOR THE YEAR 1866-'67.

The Council of the Canadian Institute have the honour to present the following Report of the proceedings of the Society for the past year, from 1st December, 1866, to 30th November, 1867:—

MEMBERSHIP.

The present state of membership is as follows:—

Members at commencement of Session, December 1st, 1866.....	384
“ Elected during Session 1866-'67.....	17
“ “ by Council during Recess, 1867.....	1
	402

Deduct

Deaths.....	4
Withdrawn.....	11
Left the Province.....	5
For non-payment of Subscription.....	8
	28

Total, 30th November, 1867.....	374
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Composed of

Honorary members.....	4
Life members.....	30
Corresponding members.....	5
Junior members.....	0
Ordinary members.....	335
	374
Total.....	374

COMMUNICATIONS.

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

1st December, 1866.—Professor D. Wilson, LL.D., “On Literary Forgeries.”

8th December, 1866.—Rev. Prof. W. Hincks, F.L.S., &c., “On some Bird Skins presented to the Institute by Mr. Gold, per the Hon. G. W. Allan, M.L.C.”

15th December, 1866.—The Annual Report of the Council was read by the Treasurer, and was unanimously adopted.

12th January, 1867.—President Prof. H. Croft, D.C.L., “The Annual Address.”

26th January, 1867.—Specimens of Animal Remains and Works of Human Art found in the gravel pits and Dordogne Caves, were exhibited, and a description of them given by Dr. Chapman, with reference to their geological position, and particularly to the question of their extreme antiquity.

Dr. Wilson discussed the question of the extent of the civilization existing among the inhabitants of these caves, and combatted the theory of the extreme degradation of man at that period from the very nature of the remains themselves.

9th February, 1867.—Dr. Wilson explained the effect that temperature of climate may have had on the human remains found in the cave in Dordogne, presented to the Institute by Dr. Thorburn.

23rd February, 1867.—Rev. J. McCaul, LL.D., "On Boys and Girls' Homes among the Ancients."

9th March, 1867.—C. B. Hall, Esq., M.D., "On Consumption."

23rd March, 1867.—Rev. Prof. W. Hincks, F.L.S., &c., "On Mollusca."
C. B. Hall, Esq., M.D., "On some Chemical Changes in the Human System."

6th April, 1867.—Prof. E. J. Chapman, Ph. D., "Journey to the Rocky Mountains of Colorado, with remarks on the Assaying of Gold and Silver."

27th April, 1867.—Rev. Prof. W. Hincks, F.L.S., &c., "Continuation of remarks on Molluscous Animals, Lammellæ Branchiatæ division."

Prof. D. Wilson, LL.D., "Notes on the North Shore of Lake Superior and the Nepigon River."

TREASURER AND AUDITORS' REPORT.

Statement of the Canadian Institute General Account, from the 1st December, 1866, to 30th November, 1867.

DEBTOR.

Cash Balance last year.....		\$105 58
“ Received from Members		495 50
“ “ for Rent.....		14 71
“ “ for Interest on Securities, &c.....		194 86
“ “ per A. E. Walker, for Building Fund.....		1 00
“ “ for sale of Journals..	{ Old Series.. \$6 91 }	26 91
	{ New “ .. 20 00 }	
Due by Members.....		1107 75
“ Journals	{ Old Series \$114 25 }	157 50
	{ New “ 43 25 }	
“ for Interest on Securities....		186 00
		<u>\$2,889 81</u>

CREDITOR.

Cash paid for Journal, 1867—Printing.....	\$196 18
“ for Postage.....	3 12
“ for Library and Museum	74 02
“ on acc't of Sundries, including Salary, Fuel, Light, Postage, &c., &c.....	539 15
“ due on account of Journal.....	240 00
“ due on account of Sundries.....	66 00
Estimated Balance	1,771 33
	<u>\$2,889 81</u>

SAMUEL SPREULL, *Treasurer.*

The TREASURER in account with the CANADIAN INSTITUTE, from the 1st December, 1866, to the 30th November, 1867.

DEBTOR.

Cash Balance last year.....	\$105 58
“ Received from Members.....	495 50
“ “ for Interest on note \$186, on current acc't \$8 86	194 86
“ “ for Rent	14 72
“ “ Donation for Building Fund.....	1 00
“ “ sale of Journal { Old Series ... \$6 91 }	26 91
{ New “ ... 20 00 }	
Securities.....	3100 00
	<u>\$8938 56</u>

CREDITOR.

Cash paid on acc't of Journal for Printing and Postage, 1867.	\$199 30
“ paid on account of Sundries for Institute	539 16
“ “ of Library and Museum	74 02
Securities	3100 00
Balance in Hand	26 08
	<u>\$3938 56</u>

SAMUEL SPREULL, *Treasurer.*

TORONTO, 7th December, 1867.

We hereby certify that we have compared the Vouchers with the Cash Book, and have found the same to agree. We also find that the Balance in the Treasurer's hands is twenty-six dollars and eight cents.

W. J. MACDONELL, }
GEORGE MURRAY, . } *Auditors.*

LIBRARIAN'S REPORT.

No changes have taken place in the disposition of the library of the Institute since the last report.

Our collection of works having reference to the early history of this continent in general, and Canada in particular, has been enriched by the addition to it of the well-known, but rather scarce, *Travels of Rochefoucault Liancourt*, especially interesting as containing an account of the state of things in the Province of Upper Canada at the close of the last century. The full description of this work is as follows:—"Travels through the United States of North America, the country of the Iroquois and Upper Canada, in the years 1795, 1796, and 1797, by the Duke de la Rochefoucault Liancourt, with an authentic account of Lower Canada. Three maps, several tables, &c. Second edition. Four vols. Royal 8vo. London: 1800."

In addition to this desirable acquisition we have the gratification of naming another of a somewhat similar character, although not so locally interesting:—"Travels in America, performed in 1806, for the purpose of exploring the Rivers Alleghany, Monongahela, Ohio and Mississippi, and ascertaining the produce and condition of their banks and vicinity, By Thomas Ashe, Esq. Three volumes in one. 12mo. London, 1803."

These are the valuable donations of Lawrence Heyden, Esq., Corresponding Secretary of the Institute.

Mr. Heyden also contributes a curious tract of thirty-seven pages, in quarto, containing a translation in Latin of the Journal of Martin Frobisher, during his explorations in the Arctic Regions in 1577. The full title is as follows:—

"I.N.J.—*Historia Navigationis Martini Forbisseri [sic passim], Angli Prætoris sive Capitani, A.C. 1577, Maio, Junio, Julio, Augusto et Septembri Mensibus, jussu Regiæ Elisabethæ, ex Angliâ in Septemtrionis et Occidentis tractum susceptæ, Ephemeridis sive diarii more conscripta et stilo, triennioque post, ex Gallico in Latinum sermonem, à Joh. Thomâ Freigio translata, et Noribergæ, ante A. 94. cum præfatione utili, observationibusque aliquot et appendice edita, denuo prodit à Museo D. Capelli, P.P. Hamburgi, sumptibus Joh. Numanni et Georgi Wolfii. Anno 1675.*" The frontispiece is a curious copperplate engraving, showing, at the top, a man in a canoe aiming a spear of three prongs at a bird in the air; at the bottom, on the left, a small map of "Forbisser's Straet," &c.; and on the right a representation of two veritable unicorns. We learn from the notes that these are inserted because their existence is analogically proved by the fact that Frobisher actually met with sea-unicorns, locally called Narwhals—the horn of which was found, by experiment, to be fatal to spiders—just as the horn of the real land-unicorn is reported to be to life generally, by reason of a certain exudation.

Mr. Heyden also presents to the Library the two following valuable and interesting works:—

"*Consuetudines Kanciæ: A History of Gavelkind and other remarkable customs in the County of Kent. By Charles Sandys, F.S.A. (Cantianus). 8vo. London: John Russell Smith. 1851.*"

"Rome: Its Ruler and Its Institutions. By John Francis Maguire, M.P. 8vo. New York: D. & J. Sadlier. 1858."

The usual reports and scientific publications of Europe and this Continent, in continuation of the several series already on our shelves, have been received: e. g. the Transactions of the Royal Irish Academy, the Linnæan Society, &c.

Especially to be mentioned, also, among these are--

"The Patent Office Reports, Parts I. and II. of the United States: 1864-'65. Full bound in sheep; the 2nd part consisting wholly of plates. Royal 8vo."

"The Smithsonian Miscellaneous Collections. Vols. VI. and VII. Royal 8vo. Unbound; and the Smithsonian Contributions to Knowledge. Vol. XIV. 4to.

"The Memoirs of the Geological Survey of India. Six parts. Published at Calcutta, with numerous beautiful copperplate engravings."

So soon as the funds of the Institute shall be in a sufficiently flourishing condition there are many volumes of serial works and other publications in parts that require to be bound.

Respectfully submitted.

December 21st, 1867.

H. SCADDING, *Librarian*.

APPENDIX.

DONATIONS OF BOOKS, &c., SINCE LAST ANNUAL REPORT.

Marked thus * not bound.

From the Royal Scottish Society of Arts, Edinburgh.

Transactions of, Vol. 7, Part I.....	VOLS. *1
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From L. Heyden, Esq., Toronto.

May's Constitutional History of England, Vol. 1	1
Rome; Its Ruler and Its Institutions—By John Francis Maguire, M P. New York, 1858.....	1
Martini Forbisseri Navigatio. Hamburgi, 1675	*1
Consvetvdines Kancie. By Charles Sandys, F.S.A., 1851	1
Ashe's Travels in America. Vols. 1, 2 & 3 in 1 vol. 1806; London, 1808,	1
Travels in America, by Rochefoucault, 1795, '96 & '97. Vols. 1, 2, 3 & 4..	4

From the Literary and Philosophical Society, Manchester.

Memoirs of, Vol. II., 3rd Series, Vol. XXII., old, 1865	1
Proceedings of, 1862-3 and 1863-4	*1
Do. 1864-65	*1

From the Geological Society of Dublin.

Journal of, Vol. I., Part 2, 1865-66, 2nd Session	*1
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Through the Smithsonian Institution, Washington.

Meteorologische Iaarbock Eerste Gedeelte Waarnemingen in Nederland. Uitgegeven door het Koninklijk Nederlandsch Meteorologisch Instituut Utrecht. 1865, V. I.....	1
Do. do. 1865, V. II.....	1
Mittheilungen der Kaiserlich-Koniglicher Geographischen Gesellschaft, &c. Wein, 1864.....	1

Through ditto, from University of Christiania.

Magnetismus der Erde Von Christopher Hansteen, &c. Christiania, 1819..	1
Maps.	
Magnetischer Atlas, Gehörig Zum Magnetismus der Erde Von Christopher Hansteen, Profr. Christiania, 1819	7
Resultate Magnetischer, Astronomischer und Meteorologischer Beobachtungen, &c., 1828-1830. Von Christoph. Hansteen and Lieutenant Due. Christiania, 1863	1
Sheet.	
Forelaesninger ved det Kgl. norske Frederisks Universitet i 1ste semster, 1864.....	1
Om de elliptiske Funktioners Raekkevinding af Dr. O. J. Brock, 1864....	*1

	VOLS.
Forhandlinger i Videnskab-Selskabet I. Christiania, Aar 1864	*1
Meteorologiske Jagttagelser Paa Christiania Observatorium, 1865.....	*1
Generalberetning fra Gaustad Sindssygeanstalt for Aaret 1865.....	*1
Det Kongelige norske Fredericks Universitets aars-beretning for Aaret 1864, Ezechiels Syner og Chaldeerne astrolab af C. A. Holmboe. Universitets program for Andet Halvaar, 1866	*1
Bidrag til, &c., &c. Christiania, 1865	*1
Maerker efter en Jisted I omegnen af Hardangerfjorden af S. A. Sexe, 1866,	*1
Det Kongelige norske Fredericks Universitets Aarsberetning for Aaret 1865, og Universitets budget 1860-1869.....1866.....	*1
Foreningen til norske Fortidsmindes merkers Bevaring Aarsberetning for 1865.....	*1
Norwegian Buildings from former times. Christiania, 1865.....	*1
Nyt Magazin for Naturvedenskaberne Udgives af den Fysiographiske Fore- ning Christiania, Ved. M. Sars og Th. Kjerulf, 1866	*2
Ugedruckte Umbeachtete und Wenig Beachtete Quellen, &c. Von Dr. C. P. Caspari, 1866.....	*1
Norske Forlevninger, &c., af N. Nicolaysen.....	*1
Mitthulungen der Kaiserlich-Königlichen Geographischen Gesellschaft IX. Jahrgang. Von Franz Foetterle. Wien, 1865.....	*1
Abhandlungen herausgegeben vom naturwissenschaftlichen Vereine Zu Bre- men, 1 Bd. 1 Heft., 1866	*1
Smithsonian Miscellaneous Collections, Vol. VI.....	*1
“ “ “ Vol. VII.	*1
“ Contributions to Knowledge, Vol. XIV.....	1
Verhandlungen der Kaiserlich Königlichen Zoologisch-Botanischen Gessell- schaft in Wien Jahrgang, 1865, XV. Band Wien, 1865	*1
<i>From Royal Irish Academy.</i>	
Transactions of, Vol. XXIV. Antiquities, Part 5.....	*1
“ “ “ “ 6.....	*1
“ “ “ “ 7.....	*1
“ “ Science, “ 5.....	*1
“ “ Polite Literature, Part 3	*1
“ “ Science, Parts 7 & 8	*2
Proceedings of, Vol. IX., Part IV.....	*1
<i>From the Linnæan Society.</i>	
List of the Society for 1865, 1; for 1866, 1	*2
Journal of the Society—Zoology, Vol. IX., Nos. 33, 34 & 35.....	*3
“ “ Botany, Vol. IX., Nos. 35, 36, 37, 38, 39	*5
Journal of the Proceedings of the Society—Zoology, Vol. VIII, Nos. 31 & 32,	*1
<i>From Dr. Oldham, Superintendent of the Geological Survey of India.</i>	
Memoirs of the Geological Survey of India—Wynne, A. B., on the Geology of the Island of Bombay	*1

	VOL.
Memoirs of the Geological Survey of India—Palæontologia Indica—being figures and descriptions of the organic remains procured during the progress of the Survey under the direction of Thomas Oldham, I.L.D. 8. 10-13. The Fossil Cephalopoda of the Cretaceous Rocks of Southern India (ammonitidæ), by Ferdinand Stoliczka, Ph. D.	*1
Memoirs of do. Hughes, T. W. H., on the Structure of the Sherria Coal Fields. Stoliczka, Ferd., Geological Observations in Western Tibet. . .	*1
Memoirs of do., Catalogue of the Meteorites in the Museum of Geological Survey of India, Calcutta	*1
Memoirs of do., Catalogue of the Organic Remains belonging to the Cephalopoda, in the Museum of the Geological Survey of India, Calcutta . .	*1
Annual Report of the Geological Survey of India and of the Museum of Geology, Calcutta. Tenth year, 1865-6.	*1
<i>From Hon. J. M. Brodhead, Washington.</i>	
Patent Office Reports, United States of America, for 1864-5, Parts 1 & 2. . .	2
<i>From the Office of the Provincial Secretary.</i>	
Geological Survey of Canada, Sir W. E. Logan, Director. Report of Progress from 1863 to 1866, Ottawa, 1866.	1
<i>From the Royal Geographical Society, per Mr. Rousell.</i>	
The Journal of, Vol. 33, 34, 35 & 36, years 1863-64-65-66.	*4
<i>From the Royal Asiatic Society, per Mr. Rousell.</i>	
The Journal of, Parts 3 & 4, 1863. Vol. 20.	*1
“ “ Parts 1 & 2, New Series, 1864 and 1865	*2
“ “ Parts 1 & 2, New Series, 1866.	*2
<i>From the Entomological Society.</i>	
Annual Report of the Entomological Society of Canada (Quebec Branch), read at the meeting of the Society, 9th January, 1867.	1
<i>From the Chicago Historical Society.</i>	
Collections of the Minnesota Historical Society for 1867.	1
Eleventh Annual Report of the Board of Guardians of the Chicago Reform School, 31st March, 1867.	1
Labor Extracts, Magazine Articles, and Observations relating to Social Science and Political Economy.	1
<i>From Rev. J. H. Hubbert, M.A., Ph. D.</i>	
Catalogue of Canadian Plants	1
<i>From Joel Rousell, London.</i>	
Catalogue of Second-hand Books	1
<i>From McGill College, Montreal.</i>	
Calendar of Sessions, 1867-'8.	1

From Paris, Librairie Tross.

Catalogue des Livres Anciens, 1867, No. VI.....	vols. 1
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Through the Smithsonian Institute, Washington.

Abhandlungen ausdem, &c., in Hamburg, V. Band, 1 abth. mit. 2 Tafeln, Homburg, 1856.....	1
Do. Do. IV. Band 4 abth. mit 23 Tafeln, Hamburg, 1866	1
Uibersicht der Aemter—Vertheilung, &c. Hamburg, im Jalire, 1865.....	1

From Leeds Philosophical and Literary Society.

Annual Report for 1864-'65.....	1
Annual Report for 1865-'66.....	1
Report of the Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1865-'66.....	1

From the Mechanics' Institute.

Thirty-sixth Annual Report of the Toronto Mechanics' Institute. May, 1867	1
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From the Royal Geographical Society, per Mr. Rowsell.

Proceedings of, Vol. IX., Nos. 1, 2, 3, 4, 5 and 6. 1865.....	6
“ “ X., Nos. 1, 2, 3, 4, 5 and 6. 1856.....	6
“ “ XI., Nos. 1, 3, 4 and 5. 1867.....	4

From the Geological Society, per Mr. Rowsell.

The Quarterly Journal of, Vol. 18, part 3, No. 71. August, 1862.....	1
Volume 20, part 4, No. 80. November, 1864.....	1
List of the Geological Society. 1st November, 1864.....	1
Volume 21, February, May, August, November. Nos. 81, 82, 83 and 84...	4
List of the Geological Society, 31st December, 1865.....	1
Volume 22, February, May, Aug., Nov. Nos. 85, 86, 87 and 88, 1866.....	4
List of the Geological Society. 1st November, 1866.....	1
Volume 23, February, May, August. Nos. 89, 90 and 91, 1867.....	3

In Exchange for Journal.

Journal of the Society of Arts, London (two copies), 1867.....	1
“ “ Education, Upper Canada (two copies), 1867.....	1
“ “ The Franklin Institute, Philadelphia, 1867.....	1
The Artizan (London), 1867.....	1
Silliman's Journal, 1867.....	1
Journal of the Board of Arts and Manufactures, Toronto.....	1
Proceedings of the Antiquarian Society, Boston.....	1
“ “ Academy of Natural Sciences, Philadelphia.....	1
Historical Recollections of the Essex Institute.....	1
Annales des Mines.....	1
Proceedings of Boston Natural History Society.....	1
Annals of the Lyceum of Natural History, New York.....	1

	VOLS.
Transactions of the Royal Society of Edinburgh.....	1
Bulletin de la Société Géologique de France, 11e Serie, T. XXIV.....	1
Journal Royal Geological Society of Ireland.....	1
<i>Donations for Museum. (By J. Fleming, Esq.)</i>	
Bottles of oil from the Manitoulin Islands, one refined, one crude.....	2
<i>(By James Thorburn, Esq.. M.D.)</i>	
Specimens of animal remains and works of human art found in the gravel pits and Dordogne Caves in France:—	
Flint.....	27
Bones.....	20
Teeth.....	7
Conglomerate.....	3
Stone.....	2
Total.....	<hr/> 59 <hr/>

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —MAY, 1867.

Latitude—43° 30' 4" North. Longitude—81° 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Baromet. temp. of 32°.			Temp. of the Air.			Excess of Acridity above Normal.	Tension of Vapour.			Humidity of Air.			Direction of Wind.			Resultant.	Velocity of Wind.			Inches Rain.	Inches Snow.				
	6 A.M.	10 P.M.	Mean.	6 A.M.	10 P.M.	M.E.N.		6 A.M.	10 P.M.	M.N.	6 A.M.	10 P.M.	M.N.	6 A.M.	2 P.M.	10 P.M.		Resultant.	6 A.M.	10 P.M.			M.E.N.			
																								6 A.M.	2 P.M.	10 P.M.
1	20.244	20.804	20.302	38.1	34.3	36.0	24.25	6.17	213	221	199	212	93	76	83	85	NW	NW	NW	22.5	27.5	21.5	19.94	20.90	0.235	...
2	6.699	7.798	7.902	31.3	34.3	28.4	40.25	15.28	129	101	105	110	73	50	60	65	Calm	Calm	Calm	0.0	4.2	7.8	11.39	11.45	...	...
3	80.082	80.672	80.023	26.2	37.8	53.1	63.70	13.36	110	109	138	123	77	47	72	68	E	E	E	13.4	16.0	5.4	8.85	8.97	0.055	...
4	20.305	20.636	20.080	30.3	49.0	45.7	44.28	3.13	169	168	221	194	90	47	68	—	E	E	E	8.7	6.6	3.1	3.25	3.70	...	...
5	4.920	4.414	4.414	40.6	66.5	—	—	2.53	402	—	—	—	85	77	89	85	Calm	Calm	Calm	0.0	7.0	3.0	4.07	4.78	...	...
6	6.617	6.480	6.480	46.4	49.0	41.4	44.80	3.23	269	286	232	253	85	77	89	85	W	W	W	8.39	0.0	0.0	3.65	3.70	...	...
7	4.655	4.711	4.907	47.1	49.0	42.8	43.78	4.63	187	178	227	200	81	47	68	63	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
8	4.408	4.230	4.170	25.7	38.0	40.1	48.20	2.58	193	197	223	194	81	47	68	63	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
9	1.651	1.778	2.202	21.68	43.6	54.4	46.74	2.20	178	230	185	192	62	55	60	59	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
10	3.358	3.355	3.445	38.42	39.6	42.8	48.72	0.78	157	334	195	230	68	61	70	60	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
11	4.880	5.013	5.017	5.472	39.6	57.3	42.84	2.08	181	271	160	197	73	57	68	68	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
12	7.069	7.10	—	—	—	—	—	—	161	184	—	—	53	41	57	58	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
13	6.330	4.920	4.080	41.0	45.7	40.8	44.03	5.63	232	239	234	235	90	78	74	79	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
14	1.127	1.225	1.620	43.0	51.8	45.4	40.87	4.02	273	301	235	205	95	75	72	82	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
15	1.133	1.166	2.015	43.2	49.3	46.7	46.07	5.22	227	232	230	229	81	65	76	74	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
16	3.678	4.10	4.437	42.6	57.0	47.5	49.07	2.62	218	266	255	246	80	56	71	71	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
17	3.015	3.015	3.015	42.6	57.0	47.5	49.07	2.62	218	266	255	246	80	56	71	71	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
18	7.882	7.660	7.774	45.7	55.0	47.0	49.58	2.70	221	200	192	203	72	44	57	58	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
19	7.772	6.680	6.680	46.4	52.0	—	—	1.94	258	—	—	—	61	55	—	—	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
20	6.660	6.663	6.527	42.8	46.0	46.0	47.07	5.36	260	256	239	253	90	60	80	77	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
21	4.022	4.219	4.129	26.03	46.0	54.0	47.24	3.77	256	191	310	240	76	45	65	70	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
22	6.022	6.050	6.040	46.18	46.4	40.0	40.1	47.47	4.70	230	287	278	280	82	77	87	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
23	6.040	6.166	6.373	21.80	42.8	49.7	44.1	45.08	8.88	242	257	237	246	80	71	82	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
24	6.008	6.184	6.535	52.82	42.8	57.6	46.848	6.62	213	237	233	255	77	60	83	74	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
25	6.008	6.340	6.340	38.88	40.4	51.3	46.043	6.18	257	332	249	253	70	86	93	80	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
26	6.008	6.416	6.416	46.7	50.5	—	—	2.49	200	—	—	—	81	66	—	—	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
27	6.014	6.741	7.442	7.258	43.2	63.6	48.0	40.30	5.98	217	230	207	211	77	64	59	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
28	7.227	7.595	6.533	61.20	46.1	48.0	47.548	7.05	323	270	276	272	84	81	84	79	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
29	4.70	4.525	4.892	48.6	61.6	56.8	64.07	0.08	322	217	333	303	94	70	84	84	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
30	6.553	6.547	6.011	57.16	51.1	66.3	48.62	4.23	299	320	286	300	71	67	73	73	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
31	7.722	7.777	7.602	45.7	56.2	60.8	61.22	5.33	249	316	293	291	81	70	78	77	W	W	W	14.8	10.8	20.0	20.21	20.77	...	...
M	20.485	20.401	20.483	42.40	51.69	44.92	46.55	4.93	225	250	227	233	81	63	75	72	—	—	—	6.84	11.60	7.10	—	—	...	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MAY, 1867. COMPARATIVE TABLE FOR MAY.

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

Highest Barometer 30.003 at 8 a.m. on 3rd. } Monthly range= }
 Lowest Barometer 29.044 at midnight on 22d. } 1.049 inches.
 Maximum temperature 65°0 on 29th }
 Minimum temperature 24°0 on 3rd } Monthly range=40°4
 Mean maximum temperature 54°77 } Mean daily range=16°92
 Mean minimum temperature 30°75 }
 Greatest daily range 20°3 from a.m. to p.m. of 10th.
 Least daily range 4°0 from a.m. to p.m. of 6th.
 Warmest day 29th. Mean temperature 64°07 }
 Coldest day 2nd. Mean temperature 31°43 } Difference=23°64.
 Radiation {
 Maximum { Solar 114°6 on 20th } Monthly range=104°7
 Minimum { Terrestrial 9°8 on 3rd }
 Aurora observed on 8 nights, viz.:—1st, 2nd, 23rd, 27th, 28th, 29th, 30th, and 31st.
 Possible to see Aurora on 19 nights; impossibles on 12 nights.
 Snowing on 1 day; depth, 1.44 in.; duration of fall, 1.0 hour.
 Hail on 18 days; depth, 3.220 inches; duration of fall, 68.0 hours.
 Mean of cloudiness=0.69. Most cloudy hour observed, 4 p.m.; mean, 0.81; least do., do., 10 p.m.; mean, 0.63.

Sums of the components of the Atmospheric Current, expressed in Miles.
 North. South. East. West.
 42638.50 964.14 1107.98 3213.03

Resultant direction, N. 61. W.; resultant velocity, 3.55 miles per hour.
 Mean velocity, 8.40 miles per hour.
 Maximum velocity, 29.0 miles, from 1 to 2 p.m. of 1st.
 Most windy day, 1st; mean velocity, 20.99 miles per hour. } Difference, 18.58 miles.
 Least windy day, 29th; mean velocity, 2.41 miles per hour. }
 Most windy hour, 1 p.m.; mean velocity, 11.79 miles per hour. }
 Least windy hour, midnight; mean velocity, 5.48 miles per hour. } Difference, 6.31 miles
 2nd. Snow; last of season. 7th. Ice; last of season. 8th. Hail; bow. 9th. Lunar
 Corona. 18th. Lunar halo. 19th. Lunar halo. 24th. Heavy thunderstorm, with
 hail and rain. 25th. Hail; bow. 27th. Last recorded frost of season. 30th. Hail-
 bow. 31st. Solar halo.
 16th. Humming birds numerous. 19. May bugs and fire flies seen.

YEAR.	TEMPERATURE.			RAIN.		SNOW.		WIND.	
	Mean.	Excess above Average.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant.	Mean Velocity.
1840	53.8	+ 2.2	70.4	9	4.150	0	0.0	0	...
1841	50.5	- 1.1	74.0	17	2.350	1	Imp.	...	0.35 lbs.
1842	49.1	+ 2.5	70.8	5	1.275	0	0.0	...	0.53
1843	48.1	- 2.5	70.8	5	1.570	0	0.0	...	0.52
1844	53.0	+ 2.0	78.4	14	6.570	0	0.0	...	0.30
1845	48.6	+ 2.0	77.8	18	2.300	0	0.0	...	0.55
1846	55.5	+ 3.9	79.7	40.6	4.375	0	0.0	...	0.46
1847	54.4	+ 2.5	72.1	26.7	2.040	0	0.0	...	0.29
1848	64.1	+ 3.6	72.0	46.7	2.520	0	0.0	N 40 W 1.31	4.9, miles.
1849	49.0	- 3.6	72.0	37.9	6.115	0	0.0	N 51 E 1.97	5.33
1850	47.6	- 4.0	77.8	27.5	0.645	1	Imp.	N 04 W 2.06	6.32
1851	51.3	- 0.2	73.3	25.0	2.950	1	0.5	N 62 W 1.59	6.34
1852	61.4	- 0.3	78.4	41.3	1.125	1	Imp	S 82 W 0.99	4.00
1853	50.0	+ 0.7	78.4	32.2	4.420	1	Imp.	N 2 W 0.83	5.16
1854	52.2	+ 0.6	71.4	25.2	4.020	0	0.0	E C 40	6.38
1855	58.1	+ 1.5	77.5	33.0	4.650	0	0.0	E C 40	5.93
1856	50.5	- 1.1	82.2	51.0	2.565	2	0.9	N 1 W 2.76	9.81
1857	48.9	- 1.7	74.8	20.0	4.580	1	Imp.	N 4 E 3.99	9.83
1858	48.9	- 2.7	69.8	31.0	4.145	16	4.145	N 23 W 1.14	8.13
1859	56.2	+ 3.6	79.0	39.5	8.807	0	0.3	N 42 E 3.33	9.30
1860	55.5	+ 3.9	74.5	32.6	3.410	11	0.0	N 72 E 1.59	5.70
1861	47.5	- 4.1	73.0	28.0	1.815	0	0.0	N 20 E 2.66	7.17
1862	52.2	+ 0.6	78.5	32.4	4.20	12	3.880	0.5	47 W 3.60
1863	54.3	+ 2.7	70.0	36.4	1.427	0	0.0	N 62 W 2.80	7.87
1864	54.8	+ 3.2	79.0	32.2	3.363	1	0.1	N 50 E 0.41	5.89
1865	52.3	+ 3.7	79.0	30.0	4.070	0	0.0	N 7 W 1.86	6.64
1866	48.3	- 3.3	73.4	33.4	4.005	0	0.0	N 46 W 1.49	9.20
1867	46.0	- 5.0	65.0	24.6	3.220	1	Imp.	N 51 W 3.55	8.40
Items to 1870.	51.55	.....	76.36	30.38	45.98	0.4	0.08	N 12 W 1.59	6.67
Exc. for 1867.	- 4.08	.....	- 11.34	- 5.74	- 5.58	+	+	...	+
						+	6.41	0.002	0.60
						+	0.002	0.60	0.8

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —JUNE, 1867.
 Latitude—13° 39' 4 North. Longitude—5h. 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Excess of mean above Normal.			Tons. of Vapour.			Humidity of Air.			Direction of Wind.			Result.			Velocity of Wind.			Rain Inches.	Snow Inches.			
	6 A.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.			2 P.M.	10 P.M.	M.F.N.
	6 A.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.	2 P.M.	10 P.M.	M.F.N.	6 A.M.			2 P.M.	10 P.M.	M.F.N.
1	29.742	29.510	29.0167	50.5	50.8	50.5	50.8	0	0.07	297	302	320	308	88	53	61	67	S W	E	E N E	N 77 E	0.5	4.2	13.6	4.46	4.67	0.020		
2	386	220	228	63.3	68.0	63.3	68.0	+0.43	377	393	331	368	92	96	91	96	67	E N W	E	E N E	S 74 E	2.0	0.0	0.0	1.11	1.33	0.520		
3	148	176	203	63.3	61.6	67.0	61.6	+0.38	363	331	368	331	87	96	91	96	67	S W	E	E N E	S 72 W	1.0	4.8	10.8	7.25	7.09			
4	391	460	487	56.9	71.0	57.3	61.23	+3.38	362	407	355	360	78	54	71	69	67	Cal.	S	W D N	N 61 W	0.0	3.0	0.0	2.10	3.38			
5	681	690	683	64.4	68.4	65.3	66.13	+1.36	349	314	333	333	80	45	74	65	67	Cal.	S	Cal.	S 21 E	0.0	2.2	0.0	0.95	1.28			
6	684	478	618	64.4	71.7	63.4	64.08	+5.78	308	477	469	426	73	61	80	70	67	Cal.	S E	Cal.	S 15 W	0.0	1.8	0.0	0.69	0.92			
7	641	668	688	66.5	74.9	66.5	68.07	+9.32	547	619	300	533	70	72	85	77	67	Cal.	S W	E N W	N 62 E	0.0	3.0	5.4	2.24	4.15			
8	703	710	722	65.9	67.0	69.1	68.08	+4.92	347	274	333	290	64	41	60	61	67	E N W	E	E N E	N 61 E	5.2	5.0	3.2	4.17	4.02			
9	752	745	744	69.8	69.0	69.8	69.0	+2.22	392	432	—	—	70	61	61	61	67	N N E	S E	S E	N 77 E	3.1	2.0	1.8	1.19	1.91			
10	778	791	744	77.17	64.8	69.1	62.00	+1.90	370	399	300	344	72	65	60	62	67	E S E	E S S	N E	N 76 E	1.8	5.8	6.0	3.21	3.37			
11	770	613	687	67.3	64.8	66.3	66.93	+7.92	357	326	278	321	70	63	57	60	67	Cal.	E S S	Cal.	S 79 E	0.0	8.5	0.0	2.99	3.15	0.080		
12	686	684	695	68.46	67.0	70.0	68.18	+7.60	410	369	478	472	86	42	64	69	64	Cal.	S W	W N W	S 40 W	0.0	0.8	6.6	2.55	3.31			
13	656	650	684	66.28	63.7	70.0	64.5	+4.00	479	418	434	438	81	46	60	64	64	Cal.	S W	N	S 60 E	0.0	5.0	2.8	0.92	2.83			
14	714	693	699	69.5	64.1	63.7	64.83	+7.65	408	447	452	458	77	76	70	74	69	E N E	S W	S W S	N 19 W	0.8	8.2	1.2	1.88	3.25			
15	643	492	488	60.6	61.7	65.6	68.78	+1.56	440	618	454	495	61	92	30	71	69	Cal.	S W	N E W	N 88 E	0.0	3.2	4.3	1.35	2.30			
16	621	683	625	64.8	60.0	64.1	64.17	+2.52	569	408	—	—	92	30	71	69	69	E N W	E S S	Cal.	N 88 E	2.2	5.6	0.0	1.80	2.55	1.05		
17	685	623	628	69.4	62.8	64.1	64.22	+2.27	614	678	665	640	83	38	64	63	64	Cal.	E N W	N W W	N 66 W	4.7	21.5	4.8	11.32	11.40			
18	657	688	763	64.07	65.0	72.8	65.1	+7.80	410	314	278	378	80	42	79	68	70	Cal.	S W	Cal.	S 20 W	0.0	10.2	0.0	3.27	3.51			
19	811	768	760	77.93	62.6	70.2	68.0	+0.78	300	314	382	359	76	42	69	68	70	Cal.	S W	N E E	N 65 E	0.5	6.2	4.2	3.00	4.63			
20	802	834	830	82.45	63.7	66.5	66.73	+1.72	425	428	402	416	87	63	73	71	68	Cal.	N E E	Cal.	N 85 E	1.4	6.2	0.0	3.69	3.99			
21	882	821	787	81.86	69.8	67.0	66.5	+0.86	392	422	335	394	76	63	73	71	68	Cal.	N E E	Cal.	S 70 E	0.0	0.0	0.0	1.54	1.65			
22	791	713	673	71.90	69.8	67.0	66.17	+3.22	428	516	460	469	83	67	82	74	68	Cal.	S W	Cal.	S 83 E	0.0	5.8	1.4	1.01	1.78			
23	659	619	618	69.3	76.3	65.3	69.03	+6.58	608	554	—	—	78	63	63	63	67	Cal.	S E	N N E	N 83 E	0.0	2.8	0.8	3.60	3.82			
24	582	547	504	67.0	70.4	65.5	69.93	+7.40	539	609	480	580	81	62	70	72	68	Cal.	E N W	E N W	N 85 E	0.0	2.8	0.8	3.60	3.82			
25	460	467	480	68.30	70.0	74.0	68.70	+2.17	640	633	649	668	73	74	78	75	76	Cal.	E N E	E N E	N 73 E	8.2	12.4	9.2	8.69	8.76	1.110		
26	543	555	576	66.07	71.7	64.5	66.05	+4.20	402	617	650	568	86	79	65	68	68	Cal.	N E E	E N E	N 83 E	6.5	4.5	5.0	3.34	3.42			
27	569	476	483	61.20	65.2	73.8	61.68	+4.10	460	617	460	553	88	75	76	80	73	Cal.	E N W	Cal.	N 10 E	1.0	0.0	0.0	1.02	6.73	0.050		
28	641	721	703	71.05	59.0	69.0	67.3	+2.42	380	460	346	353	73	63	73	69	69	Cal.	S W	Cal.	S 68 W	0.6	6.2	0.0	2.32	4.39			
29	706	651	626	61.22	58.3	72.8	61.6	+2.23	367	382	403	419	75	48	81	65	65	Cal.	S W	S W	S 24 W	0.0	9.2	4.0	6.46	7.16			
30	406	278	—	67.0	80.1	—	—	+5.12	729	—	—	—	77	58	—	—	—	Cal.	S W	W B S	N 88 W	8.6	17.0	3.3	5.26	9.20			
Mean	29.0126	29.6069	29.0175	60.44	70.09	61.18	64.50	+3.27	416	440	410	430	79	60	75	71	60	—	—	—	—	2.02	6.063	3.07	—	—	4.130	8.85	

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JUNE, 1867. COMPARATIVE TABLE FOR JUNE.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from 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.

Year	TEMPERATURE.					RAIN.			SNOW.			WIND.	
	Mean	Excess above average	Maxi. num.	Mipi. num.	Range	No. of days.	Inches.	No. of days.	Inches.	Resultant Direction.	Resultant Velocity.	Mean Velocity	
1840	59.8	0	76.9	36.7	39.2	11	4.860	...	...	...	...	0.36 Ms
1841	58.6	+ 4.2	83.1	45.3	47.8	9	1.569	...	...	...	...	0.31
1842	56.6	+ 6.8	80.2	28.1	52.1	15	5.755	...	...	...	...	0.27
1843	58.4	+ 3.0	85.3	28.2	55.1	12	4.565	...	...	...	...	0.19
1844	59.9	+ 1.6	83.3	33.2	50.1	9	3.535	...	...	...	...	0.27
1845	61.0	+ 0.4	84.6	38.5	45.1	11	3.716	...	...	...	...	0.32
1846	63.3	+ 1.9	81.2	39.1	45.1	10	1.925	...	...	...	...	0.30
1847	68.4	+ 3.0	77.8	30.7	41.1	14	2.625	...	...	...	...	1.90
1848	62.9	+ 1.8	82.0	37.4	54.6	8	1.810	...	...	...	...	0.40
1849	63.2	+ 1.8	84.4	35.2	49.2	7	2.025	...	...	...	...	0.38
1850	64.3	+ 2.9	85.0	34.2	51.4	10	3.347	...	...	...	...	0.54
1851	59.2	+ 2.2	79.2	37.0	42.2	11	2.655	...	...	...	...	1.26
1852	60.8	+ 0.6	80.1	37.2	48.9	10	3.160	...	...	...	...	4.42
1853	65.5	+ 4.1	80.5	30.2	46.3	9	1.550	...	...	...	...	1.49
1854	64.1	+ 2.7	92.5	35.2	57.3	9	1.480	...	...	...	...	3.73
1855	60.9	+ 1.5	91.5	36.2	55.3	17	4.070	...	...	...	...	4.15
1856	56.9	+ 0.7	80.2	42.0	55.3	13	3.200	...	...	...	...	5.70
1857	56.9	+ 4.5	70.0	35.0	47.2	13	3.200	...	...	...	...	5.30
1858	60.2	+ 4.8	80.2	42.5	47.1	12	9.009	...	...	...	...	1.16
1859	58.3	+ 3.1	86.4	32.2	54.2	16	4.085	...	...	...	...	7.90
1860	63.2	+ 1.8	81.6	49.2	52.4	14	1.131	...	...	...	...	1.95
1861	61.3	+ 0.1	87.8	41.6	46.2	13	2.329	...	...	...	...	3.13
1862	60.5	+ 0.9	85.4	39.4	46.6	13	1.007	...	...	...	...	7.11
1863	63.0	+ 1.3	84.8	37.4	47.4	13	1.662	...	...	...	...	6.98
1864	63.0	+ 1.0	83.4	34.8	58.2	5	0.575	...	...	...	...	2.26
1865	64.5	+ 1.2	80.5	43.0	47.2	7	2.005	...	...	...	...	1.72
1866	60.2	+ 2.9	88.0	44.0	50.5	15	2.721	...	...	...	...	4.06
1867	64.5	+ 2.9	88.0	44.0	44.6	8	0.885	...	...	...	...	5.13
Result to 1862.	61.41	...	86.03	37.57	48.46	11.52	2.829	...	...	...	...	6.19
Excess for '67	+ 2.89	...	+ 2.57	+ 0.43	— 3.81	3.52	1.944	...	...	...	...	1.06

Highest Barometer 29.870 at 8 a.m. on 21st } Monthly range =
 Lowest Barometer 29.143 at 6 a.m. on 3rd } 0.727 inches.
 Maximum Temperature 86.0 on 30th } Monthly range =
 Minimum Temperature 44.0 on 1st } 44.0
 Mean Maximum Temperature 73.288 } Mean daily range =
 Mean Minimum Temperature 55.991 } 17.075
 Greatest daily range 28.90 from a.m. to p.m. of 20th.
 Least daily range 1.922 from a.m. to p.m. of 27th.
 Warmest Day 25th Mean Temperature 70.95 } Difference = 14.907
 Coldest Day 1st Mean Temperature 60.88 }
 Radiation { Solar 130.90 on 27th and 30th }
 { Terrestrial 31.50 on 1st } Monthly range = 0.870
 Aurora observed on 5 nights, viz. 1—3rd, 20th, 21st, 22nd, and 25th.
 Possible to see Aurora on 23 nights; impossible on 7 nights.
 Snowing on days; depth inches; duration of fall hours.
 Raining on 8 days; depth 0.885 inches; duration of fall 19.0 hours.
 Mean of Cloudiness = 0.45.
 Most cloudy hour observed 8 a.m.; Mean, 0.49; least cloudy hour observed midnight;
 Mean, 0.59.

Stems of the components of the Atmospheric Current, expressed in Miles,
 North. East. West.
 South. West.
 798.31 1288.97
 129.46 942.22
 Resultant Direction S. 84° E.; Resultant Velocity 0.48
 Mean Velocity 4.13 miles per hour.
 Maximum Velocity 22.5 miles, from 8 to 4 p.m. of 18th.
 Most Windy day 18th; Mean Velocity 11.40 miles per hour.
 Least Windy day 6th; Mean Velocity 0.92 miles per hour.
 Most Windy hour 3 p.m.; Mean Velocity 0.89 miles per hour.
 Least Windy hour 3 a.m.; Mean Velocity 1.65 miles per hour. } Difference 6.23 miles,
 Difference 5.23 miles.
 2nd, Solar halo.
 1st, Windy halo.
 5th, Thunder.
 6th, Lightning. 7th, Solar halo.
 8th, Solar halo. 12th, Lunar halo. Thunder and Lightning.
 16th, Rainbow. Lunar halo.
 16th, Solar halo. 17th, Thunder and Lightning.
 22nd, Lightning. 24th, Lightning. 25th, Lightning,
 21st, Lightning. 29th and 30th, Lightning.

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JULY, 1867.
 Latitude—43° 39' 4" North. Longitude—81° 17' min. 33 sec. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.		Temp. of the Air.		Excess of Mean above Normal.		Tension of Vapour.		Humidity of Air.		Direction of Wind.			Velocity of Wind.		Regulant.	Inches Rain		
	0 A.M.	10 P.M.	0 A.M.	10 P.M.	0	10	0	10	0	2	10	0 A.M.	2 P.M.	10 P.M.	0 A.M.			2 P.M.	10 P.M.
	0 A.M.	10 P.M.	0 A.M.	10 P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	0 A.M.	2 P.M.	10 P.M.			0 A.M.	2 P.M.
1	29.563	29.508	—	—	—	—	380	373	—	—	—	N E	B	N W	5.0	6.7	1.02	5.00	
2	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
3	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
4	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
5	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
6	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
7	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
8	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
9	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
10	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
11	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
12	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
13	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
14	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
15	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
16	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
17	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
18	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
19	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
20	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
21	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
22	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
23	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
24	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
25	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
26	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
27	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
28	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
29	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
30	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
31	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	
10/20	29.563	29.508	—	—	—	—	384	363	—	—	—	N W	B	Calm	1.0	6.5	2.76	3.12	

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JULY, 1867.
COMPARATIVE TABLE FOR JULY, 1867.

YEAR.	TEMPERATURE.			RAIN.		SNOW.		WIND.	
	Mean.	Excess above average.	Range.	No. of days.	Inches.	No. of days.	Inches.	Direction.	Mean velocity.
1840	65.8	0	82.3	6	5.276	6	5.276	0	0.27 lbs.
1841	65.0	-2.0	80.0	10	8.150	10	8.150	...	0.33
1842	64.7	-2.3	81.0	4	3.050	4	3.050	...	0.44
1843	64.5	-2.5	80.8	8	2.816	8	2.816	...	0.19
1844	66.0	-1.0	88.8	12	2.195	12	2.195	...	0.30
1845	68.2	-0.8	95.0	7	2.889	7	2.889	...	0.29
1846	68.0	+1.0	94.8	9	3.355	9	3.355	...	0.19
1847	68.0	+1.0	87.0	8	3.415	8	3.415	...	0.164
1848	65.5	-1.5	82.2	10	3.355	10	3.355	...	0.753
1849	68.4	+1.4	88.6	4	3.276	4	3.276	...	0.584
1850	68.0	+1.0	85.2	12	3.025	12	3.025	...	0.884
1851	68.0	-2.0	82.7	12	3.025	12	3.025	...	0.243
1852	66.8	-0.2	90.1	8	4.025	8	4.025	...	0.374
1853	65.6	-1.4	91.3	10	0.915	10	0.915	...	0.243
1854	72.5	+5.5	98.0	9	4.805	9	4.805	...	0.374
1855	67.9	+0.9	92.8	13	3.245	13	3.245	...	0.736
1856	69.9	+2.9	95.6	8	1.120	8	1.120	...	1.575
1857	67.8	+0.8	80.6	15	3.475	15	3.475	...	0.814
1858	67.9	+0.9	85.0	13	3.072	13	3.072	...	1.135
1859	66.9	-0.1	88.0	12	2.611	12	2.611	...	1.485
1860	63.9	-3.1	88.0	13	4.337	13	4.337	...	2.157
1861	65.4	-1.6	84.5	16	2.635	16	2.635	...	1.434
1862	60.7	-0.3	85.5	15	5.344	15	5.344	...	1.445
1863	67.6	+0.6	85.5	16	3.408	16	3.408	...	0.403
1864	69.7	+2.7	90.2	8	1.332	8	1.332	...	2.230
1865	65.0	-0.2	80.0	11	2.470	11	2.470	...	2.285
1866	70.4	+3.4	94.0	15	6.390	15	6.390	...	0.944
1867	68.2	+1.2	94.0	12	1.965	12	1.965	...	1.135
Results of 1867.	67.04	.....	86.86	10.52	3.508	10.52	3.508	...	0.724
Ex. for 1867.	+1.10	.....	+5.71	+2.51	+2.63	+1.48	+1.64	...	0.50

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

Highest Barometer 29.935 at 6 a.m. on 14th. } Monthly range=
 Lowest Barometer 29.292 at 2 p.m. on 23th. } 0.643.
 Maximum temperature 94.0 on 24th. } Monthly range=
 Minimum temperature 48.0 on 10th. } 46.0
 Mean maximum temperature 77.963 } Mean daily range=
 Mean minimum temperature 58.945 } 19.018
 Greatest daily range 29.02 from a.m. to p.m. of 3rd.
 Least daily range 7.01 from a.m. to p.m. of 5th.
 Warmest day 24th... Mean temperature 80.45 }
 Coldest day 13th... Mean temperature 60.908 } Difference=20.97.
 Maximum { Solar 135.00 on 24th } Monthly range=0.064
 Irradiation { Terrestrial 38.06 on 8th }
 Aurora observed on 3 nights, viz.: 21st, 23th, and 29th.
 Possible to see aurora on 22 nights; impossible on 9 nights.
 Raining on 12 days; depth, 1.955; duration of fall, 21.5 hours.
 Mean of cloudiness=0.48.
 Most cloudy hour observed, 2 p.m.; mean, 0.58; least cloudy hour observed, 6 a.m.; mean, 0.42.

Sums of the components of the Atmospheric Current, expressed in Miles.
 North. 1792.15
 South 1024.52
 East. 806.22
 West. 1609.51

Resultant direction, N. 42° W.; Resultant Velocity, 1.13.
 Mean velocity, 6.45 miles per hour.
 Maximum velocity, 26.2 miles, from noon to 1 p.m. of 29th.
 Most windy day, 29th; mean velocity, 18.20 miles per hour } Difference, 11.33 miles.
 Least windy day, 25th; mean velocity, 1.96 miles per hour }
 Most windy hour, 1 p.m.; mean velocity, 9.20 miles per hour. }
 Least windy hour, 1 a.m.; mean velocity, 3.03 miles per hour. } Difference, 6.17 mile-g.

4th July. Thunder storm. 8th. Solar halo. 10th. Solar halo; rainbow at 5 p.m. 21st. Rainbow at 7.30 p.m. 28th. Thunder storm.
 Fog recorded on 7th, 9th, 13th, and 27th. Dew recorded on 7 occasions. Lightning recorded on 3rd, 5th, 6th, 10th, 11th, 21st and 28th. Grasshoppers very numerous. Dragon flies very numerous.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, -- AUGUST, 1867.
 Latitude--43° 39' North. Longitude--5h. 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Date	Barom. at temp. of 32°			Temp. of the Air.			Excess of Mean Above Normal.			Tens. of Vapor.			Humidity of Air.			Direction of Wind.			Result. Direction.			Velocity of Wind.			Rain in Inches.	Snow in Inches.		
	6 A.M.	9 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	M.E.N.	M.E.N.	M.E.N.	6 A.M.	2 P.M.	10 P.M.	M.N.	M.N.	M.N.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 P.M.	10 P.M.	M.P.M.			M.P.M.	M.P.M.
1	29.511	29.488	29.420	20.4697	64.8	65.2	67.0	0.65.15	0	0.82	503	550	594	553	81	88	89	86	S	S S W	S E E	S E E	S E E	S E E	S E E	0.145	...	
2	433	.455	.541	4837	73.8	74.1	75.1	0.67.16	0	0.25	521	449	473	465	93	54	78	71	Cal.	N N W	N W N	N W N	N W N	N W N	N W N	0.145	...	
3	612	.675	.729	6905	69.4	71.0	72.0	0.64.37	2.45	388	432	476	372	74	57	51	61	Cal.	S W	S W	S W	S W	S W	S W	...	...
4	701	.761	7806	7806	68.3	68.5	68.8	73.97	7.17	500	602	501	586	78	51	72	89	Cal.	S W	S W	S W	S W	S W	S W	...	...
5	806	.767	721	7418	69.9	73.1	73.2	70.42	3.65	607	527	527	612	89	64	76	83	Cal.	S W	S W	S W	S W	S W	S W	...	...
6	751	.732	721	7248	67.4	70.2	70.2	72.076.08	6.92	617	487	586	593	91	40	75	73	Cal.	S W	S W	S W	S W	S W	S W	...	...
7	767	.727	685	7248	67.4	70.2	70.2	72.076.08	6.92	617	487	586	593	91	40	75	73	Cal.	S W	S W	S W	S W	S W	S W	...	...
8	716	.654	630	6606	67.4	70.2	70.2	72.076.08	6.92	617	487	586	593	91	40	75	73	Cal.	S W	S W	S W	S W	S W	S W	...	...
9	629	.605	567	5956	68.1	85.0	85.0	72.475.75	9.26	637	676	697	682	88	56	88	78	Cal.	S E	S E	S E	S E	S E	S E	...	...
10	692	.722	709	7388	70.2	80.0	80.0	67.472.58	6.02	523	352	363	406	71	34	54	53	Cal.	N W	N W	N W	N W	N W	N W	...	...
11	553	.530	380	3603	69.8	74.2	74.2	68.170.76	4.45	681	922	561	516	74	48	80	69	Cal.	N W	N W	N W	N W	N W	N W	...	...
12	679	.600	380	3760	65.6	76.4	76.4	64.568.06	2.05	571	599	457	540	91	65	76	78	Cal.	N W	N W	N W	N W	N W	N W	...	...
13	287	.356	460	3760	65.6	76.4	76.4	64.568.06	2.05	571	599	457	540	91	65	76	78	Cal.	N W	N W	N W	N W	N W	N W	...	...
14	565	.638	693	6268	60.9	75.3	75.3	64.167.98	1.73	429	626	469	459	79	60	83	73	Cal.	N W	N W	N W	N W	N W	N W	...	...
15	729	.752	715	7337	61.6	75.3	75.3	65.668.68	2.53	381	324	327	343	69	37	51	50	Cal.	S E	S E	S E	S E	S E	S E	...	...
16	660	.565	526	5760	61.0	78.0	78.0	69.970.68	4.62	364	394	397	382	69	54	61	51	Cal.	N W	N W	N W	N W	N W	N W	...	...
17	468	.427	358	4242	64.5	81.4	81.4	72.472.95	6.95	376	606	526	508	62	56	66	61	Cal.	N W	N W	N W	N W	N W	N W	...	...
18	367	.316	316	3697	65.6	93.3	93.3	61.974.62	4.92	317	462	317	317	77	20	20	20	Cal.	N W	N W	N W	N W	N W	N W	...	...
19	567	.617	634	5697	62.3	70.2	70.2	61.974.62	1.12	468	380	403	386	61	72	66	66	Cal.	N W	N W	N W	N W	N W	N W	...	...
20	693	.663	631	6567	66.2	72.2	72.2	62.866.06	0.66	369	631	458	462	79	65	73	71	Cal.	N W	N W	N W	N W	N W	N W	...	...
21	655	.615	585	6200	69.0	74.2	74.2	62.866.06	1.25	439	486	484	450	88	57	77	70	Cal.	N W	N W	N W	N W	N W	N W	...	...
22	488	.560	513	6485	68.3	74.2	74.2	63.767.63	2.25	401	443	452	454	82	52	70	68	Cal.	N W	N W	N W	N W	N W	N W	...	...
23	488	.426	308	4337	60.9	76.7	76.7	60.270.62	4.77	441	622	636	548	52	50	80	67	Cal.	N W	N W	N W	N W	N W	N W	...	...
24	468	.511	649	6570	61.6	70.4	70.4	68.765.32	0.37	386	356	327	366	62	30	67	57	Cal.	N W	N W	N W	N W	N W	N W	...	...
25	747	.763	651	7073	63.3	74.2	74.2	63.321.325	3.12	325	312	325	312	70	38	49	49	Cal.	N W	N W	N W	N W	N W	N W	...	...
26	772	.713	651	7073	64.4	77.5	77.5	68.167.08	2.55	287	467	510	422	67	49	76	63	Cal.	N W	N W	N W	N W	N W	N W	...	...
27	611	.497	365	4892	65.2	78.9	78.9	75.373.97	9.66	563	676	614	643	90	68	70	69	Cal.	N W	N W	N W	N W	N W	N W	...	...
28	304	.294	456	3585	68.1	81.4	81.4	59.870.06	6.92	622	647	258	503	91	51	69	69	Cal.	N W	N W	N W	N W	N W	N W	...	...
29	641	.495	597	5565	63.6	68.8	68.8	52.968.27	6.56	519	276	306	316	78	38	70	66	Cal.	N W	N W	N W	N W	N W	N W	...	...
30	693	.771	785	7606	47.5	64.1	64.1	48.263.22	10.47	272	287	264	264	84	39	85	76	Cal.	N W	N W	N W	N W	N W	N W	...	...
31	486	.570	486	5841	46.3	63.0	63.0	57.357.26	6.07	242	366	438	359	80	63	93	68	Cal.	N W	N W	N W	N W	N W	N W	...	...
M	6000	29.584	29.580	29.580	61.35	75.49	75.49	18.68.00	2.33	445	478	469	476	80	53	74	68	Cal.	N W	N W	N W	N W	N W	N W	...	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR AUGUST, 1867. COMPARATIVE TABLE FOR AUGUST.

Year.	TEMPERATURE.						RAIN.			SNOW.		WIND.	
	Mean.	Excess above average.	Max. mum.	Min. mum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant.			
										Direction.	Velocity.		
1840	64.7	0	1.3	82.4	47.7	12	2.965	...	...	0	...	...
1841	64.4	-	1.6	84.8	45.7	9	6.170	...	...	...	...	0.10 lbs
1842	65.7	-	0.3	81.8	43.0	6	2.500	...	...	...	...	0.30
1843	66.4	+	0.4	83.1	44.0	4	4.860	...	...	...	...	0.12
1844	64.8	+	1.7	86.8	43.5	17	Imp.	...	...	...	...	0.16
1845	67.0	+	1.9	84.8	41.5	41	1.725	...	...	...	...	0.19
1846	65.1	-	0.4	80.4	49.5	36	9	1.770	...	...	...	0.17
1847	68.1	-	2.0	82.6	44.6	38	10	2.140	...	...	...	0.19
1848	69.2	+	3.2	87.0	48.7	38	8	0.855	...	...	...	0.98
1849	69.3	+	0.3	79.0	49.0	30	10	4.970	...	...	...	0.60
1860	66.8	+	0.8	76.0	41.0	44	13	4.356	...	...	...	0.35
1851	63.6	-	2.4	79.8	42.0	37	8	1.390	...	...	...	0.40
1852	65.0	-	0.1	81.2	45.8	35	4	9	2.695	...	...	0.56
1853	68.6	+	2.6	94.9	42.5	52	4	11	5	2.575	...	0.30	
1854	68.0	+	2.0	90.2	45.6	53	6	5	0.455	...	...	1.78
1855	64.1	-	1.9	83.5	47.0	43	6	7	1.465	...	...	1.04
1856	63.6	-	2.4	82.7	41.5	41	12	12	1.680	...	...	2.88
1857	65.3	-	0.7	88.2	46.0	42	2	13	5.265	...	...	1.51
1858	67.0	+	1.0	84.0	44.0	40	0	11	3.900	...	...	1.57
1859	66.6	+	1.6	82.2	45.8	36	4	11	3.900	...	...	1.62
1860	64.5	-	1.5	87.0	46.8	40	2	14	3.405	...	...	1.83
1861	65.5	-	0.5	85.2	47.0	38	...	...	...	...	...	0.46
1862	67.6	+	1.6	89.5	42.8	46	7	15	3.953	...	...	1.57
1863	66.6	+	2.6	88.0	42.4	45	6	12	2.205	...	...	1.80
1864	68.6	+	2.6	94.0	47.0	47	0	16	6.030	...	...	1.38
1865	65.2	-	0.8	87.8	44.4	43	4	8	1.990	...	...	1.55
1866	60.8	-	5.2	77.0	42.4	34	6	14	4.457	...	...	2.58
1867	68.1	+	2.1	95.2	42.2	63	0	...	2.440	...	...	1.25
Monthly to 1866	65.97	85.48	44.63	40.85	10	7	3.045	N 66 W	1.05
Excess for 1867	+ 2.13	- 0.72	- 2.43	12.15	0	7	0.605

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

Highest Barometer 29.839 at 6 a.m. on 11th } Monthly range = 0.652 inches.
Lowest Barometer 29.287 at 6 p.m. on 18th }
{ Maximum Temperature 95.2 on 18th } Monthly range = 53.0
{ Minimum Temperature 42.2 on 30th } Mean daily range = 19.88
{ Mean Maximum Temperature 78.7 }
{ Mean Minimum Temperature 58.85 }
{ Greatest daily range 31.7 from a.m. to p.m. on 18th. }
{ Least daily range 10.2 from a.m. to p.m. of 1st. }
Warmest day 9th. Mean Temperature 75.75 }
Coldest day Mean Temperature 53.22 } Difference = 22.53
Maximum { Solar 18.40 on 18th } Monthly range = 10.24
Radiation { Terrestrial 32.0 on 31st }
Aurora observed on 4 nights, viz.: 3rd, 5th, 21st, and 30th.
Possible to see Aurora on nights; impossible on nights.
Snowing on days; depth, inches; duration of fall hours.
Raining on 10 days; depth 2.440 inches; duration of fall 34.7 hours.
Mean of Cloudiness = 0.50.
Most cloudy hour observed 4 p.m.; Mean = 0.58; least cloudy hour observed 12 p.m.; Mean = 0.39

Sums of the components of the Atmospheric Current, expressed in Miles.
North, South, East, West.
1147.56 420.67 1332.22

Resultant Direction N. 76° W.; Resultant Velocity 1.25
Mean Velocity 4.62 miles per hour.
Maximum Velocity 21.4 miles; from 2 to 3 p.m. of 18th.
Most Windy day 10th; Mean Velocity 10.98 miles per hour.
Least Windy day 7th; Mean Velocity 0.23 do
Most Windy hour 2 p.m.; Mean Velocity 8.20 do
Least Windy hour 5 a.m.; Mean Velocity 1.82 do

1st, Lightning at 10 p.m. 3rd, Very chilly.
5th, Hot and oppressive; Thunder storm. 6th, Thunder storm.
18th, Hot and oppressive; incessant Lightning at night.
23rd, Thunder storm at night.
26th, Thunder storm during night. 27th, Night very oppressive.
31st, Solar halo.

Difference 10.75 miles.
Difference 6.38 miles.

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—SEPTEMBER, 1867.
Latitude—43° 39' 4" North. Longitude—5h. 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°			Temp. of the Air.			Excess of Air above Normal.	Tension of Vapour.			Humidity of Air.			Direction of Wind.			Resultant.	Velocity of Wind.			Rain in Inches.	Snow in Inches.		
	0 A.M.	10 P.M.	Mean.	0 A.M.	2 P.M.	10 P.M.		0 A.M.	2 P.M.	10 P.M.	0 A.M.	2 P.M.	10 P.M.	0 A.M.	2 P.M.	10 P.M.		0 A.M.	2 P.M.	10 P.M.			Ro. supt. -M.N.	
1	29.426	29.536		58.0	60.5	0	0					68		N E	N W	N 10 W	4.2	11.2	5.5	8.32	8.38	...	...
2	29.718	29.687		54.6	61.7	59.055-73	0		452.300			80		N E	N W	N 10 W	4.6	7.2	3.8	4.09	4.43	...	...
3	30.000	29.520	29.580	57.55	65.1	62.7	2.30		235.362	415	340	67	83	Cal.	E	N E	4.0	7.0	1.5	3.43	3.93	0.170	...	
4	29.693	29.674	29.685	60.8	65.5	63.350-28	2.83		313.389	367	363	62	76	W B N	S E	S W	2.0	3.0	1.0	1.41	2.31	...	...
5	29.610	29.582	29.592	55.4	62.7	64.563-7.0	1.87		394.641	646	496	89	71	W B N	S E	S W	2.2	2.0	2.0	2.38	3.15	...	...
6	29.422	29.516	29.472	63.17	66.6	62.7	0.68		545.389	213	368	83	68	N W	E	N W	5.0	16.0	5.0	6.26	9.02	.010	...	
7	29.875	29.824	29.850	63.48	65.1	64.957-23	3.92		320.229	262	318	86	52	Cal.	E	Cal.	7.0	10.4	0.0	3.37	5.00	...	...
8	29.975	29.864	29.920	60.8	64.6	62.7	3.02		202.442			70	73	N E	E	E	5.8	9.6	2.1	4.51	4.57	...	...
9	29.632	29.493	29.563	62.7	63.8	67.064-53	4.18		530.574	358	452	93	68	S	S W	S W	1.8	12.4	13.5	5.02	8.62	...	...
10	29.631	29.693	29.745	70.93	61.5	61.6	6.63		339.191	212	241	92	34	N W	N W	N W	4.4	10.0	0.0	5.52	6.73	...	...
11	29.760	29.674	29.717	60.8	65.5	63.350-28	2.83		313.389	367	363	62	76	W B N	S E	S W	2.0	3.0	1.0	1.41	2.31	...	...
12	29.508	29.494	29.501	50.98	47.5	73.1	62.362-18	2.56		294.393	432	369	89	48	Cal.	S W	S W	0.0	15.6	1.0	6.27	6.32
13	29.410	29.639	29.524	61.40	58.3	62.3	63.957-37	1.48		448.440	310	386	92	70	Cal.	N W	N W	0.0	15.0	0.0	4.43	7.47
14	29.888	29.925	29.947	62.73	61.4	63.6	48.248-40	0.93		178.194	245	209	67	47	N E	E	E	5.6	7.0	2.5	4.81	6.52
15	29.921	29.851	29.886	63.8	61.9	63.8	48.248-40	0.93		295.342			67	47	N E	E	E	5.6	7.0	2.5	4.81	6.52
16	29.780	29.739	29.759	76.80	68.7	69.0	64.864-58	7.07		373.942	528	508	75	88	Cal.	S W	S W	0.0	8.4	0.0	3.06	3.32
17	29.808	29.773	29.790	64.6	63.2	69.972-12	16.12		596.099	650	646	99	60	W	S W	W	1.6	11.8	0.0	1.82	1.86	...	...
18	29.785	29.698	29.741	74.62	65.2	84.3	70.272-33	15.72		600.084	608	658	95	58	W	S W	W	0.0	10.0	10.0	3.97	6.20	.280	...
19	29.854	29.727	29.790	76.75	63.4	68.1	61.264-05	7.93		493.498	410	464	82	73	W	N W	N W	0.0	4.6	4.0	1.81	2.20
20	29.690	29.590	29.640	67.00	61.2	69.0	62.061-52	5.92		524.350	842	430	87	49	W	N W	N W	0.0	32.0	0.0	6.25	7.60	.020	...
21	29.776	29.817	29.796	85.02	60.4	67.4	51.156-93	1.82		397.320	328	31	59	85	Cal.	S W	W	0.0	5.0	0.0	0.76	1.75
22	29.770	29.673	29.721	62.6	63.4	63.4	62.6		342.944			80	50	N	N W	N	0.0	19.8	8.9	6.72	8.42	...	...
23	29.655	29.657	29.656	42.4	52.6	45.046-82	7.40		198.195	221	109	73	48	N	N W	N	0.0	3.5	3.0	2.12	2.96	...	...
24	29.992	29.924	29.958	62.5	61.1	64.1	62.5		418.362	434	302	82	64	N	N W	N	0.0	6.0	6.0	2.22	2.42	...	...
25	29.622	29.670	29.646	69.235	62.8	61.2	61.2		454.290	294	200	77	42	W	N W	N W	0.0	23.0	8.2	13.60	14.33	...	...
26	29.882	29.825	29.853	81.95	30.6	55.8	43.947-52	5.22		210.190	244	223	57	43	N	N W	N W	0.0	8.5	3.0	4.51	4.73
27	29.740	29.637	29.688	66.63	47.4	57.0	47.040-57	2.65		196.308	301	287	64	50	N	N W	N W	0.0	8.0	1.8	2.14	3.49
28	29.620	29.602	29.611	62.23	43.8	70.0	63.859-07	7.23		403.401	390	370	53	80	N	N W	N	0.0	12.0	6.0	6.22	6.49
29	29.364	29.538	29.451	50.8	54.7	50.8	50.8		335.233			90	53	N	N W	N	0.0	19.0	6.0	9.91	10.04	.070	...	
30	29.875	29.821	29.848	62.73	61.8	64.7	59.640-93	0.98		136.160	139	73	40	61	N	N W	N	2.0	7.8	7.2	3.77	4.94
M	29.720	29.640	29.711	29.714	31.50	65.47	55.5037-92	0.43		330.369	362	300	86	58	N	N W	N	2.40	10.96	3.42	5.43	1.226

METEOROLOGICAL REGISTER.

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR SEPTEMBER, 1867. COMPARATIVE TABLE FOR SEPTEMBER.

YEAR.	TEMPERATURE.						RAIN.		SNOW.		WIND.	
	Mean.	Excess above average.	Maxi. mum.	Mini. mum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant.		
										Direction.	Velocity.	
1840	64.0	4.0	79.6	59.2	20.4	4	1.380	...	...	...	...	...
1841	61.8	3.3	80.2	54.2	26.0	9	3.340	...	...	...	...	...
1842	66.7	2.3	83.8	27.9	55.9	12	6.130	...	...	...	...	...
1843	59.1	1.1	89.0	32.2	56.8	10	9.760	...	...	...	...	...
1844	58.6	0.6	81.0	28.2	53.6	4	Impur.	...	...	...	...	...
1845	56.6	2.0	79.6	34.0	45.0	16	6.245	...	...	...	...	...
1846	63.0	5.6	84.3	37.3	47.0	11	4.595	...	...	...	...	...
1847	55.0	2.4	74.6	35.0	39.6	15	6.665	...	...	...	...	...
1848	54.2	3.8	80.4	32.1	48.3	11	3.115	...	...	N 71 W	2.38	5.81 mls
1849	58.2	0.2	80.1	32.7	47.4	9	1.484	...	...	N 75 W	0.69	4.23
1850	56.5	1.5	76.0	29.5	46.5	11	1.735	...	...	S 65 W	1.02	4.78
1851	60.0	2.0	80.3	32.0	54.3	9	2.665	...	...	N 14 E	1.03	5.45
1852	57.5	0.5	81.8	35.8	46.0	10	3.630	...	...	N 77 W	0.63	4.60
1853	58.8	0.8	85.5	33.9	51.6	12	5.140	...	...	N 77 W	1.06	4.33
1854	61.0	3.0	93.0	35.8	57.2	14	5.375	...	...	N 22 W	1.33	4.04
1855	59.5	1.5	82.0	33.0	49.0	13	4.105	...	...	N 20 E	1.29	7.61
1856	57.1	0.9	78.4	35.0	43.4	13	4.165	...	...	S 79 W	1.93	6.53
1857	58.6	0.6	82.0	34.1	47.9	11	2.640	...	...	N 68 W	1.61	5.55
1858	59.1	1.1	81.4	35.6	45.8	8	0.735	...	...	N 74 W	1.53	5.69
1859	55.2	2.8	75.4	35.7	39.7	15	3.525	...	...	N 44 W	1.60	6.36
1860	55.3	2.7	75.8	28.7	47.1	14	1.950	...	...	N 71 W	2.62	5.79
1861	59.1	1.1	78.8	37.1	41.7	17	3.607	...	...	N 71 W	1.89	4.81
1862	59.6	1.6	79.4	39.0	40.4	9	2.844	...	...	N 59 W	1.97	5.11
1863	55.9	2.1	80.0	31.4	48.6	8	1.255	...	...	N 16 W	0.92	8.46
1864	56.4	1.6	73.0	37.8	35.2	11	2.508	...	...	N 38 W	1.89	7.06
1865	64.5	6.5	90.5	42.0	48.5	12	2.456	...	...	S 56 E	0.47	4.12
1866	55.2	2.8	80.0	34.4	45.6	15	5.687	...	...	N 33 W	1.45	4.63
1867	57.9	0.1	87.0	31.8	55.2	9	1.226	...	...	N 37 W	1.48	5.43
Result to 1866.	57.99	...	81.03	33.73	47.30	11.19	3.755	...	...	N 55 W	1.08	5.42
Excess for 1867.	0.09	...	5.97	1.93	7.90	2.19	2.529	...	...	...	...	...

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

Highest Barometer 30.117 at 11 a.m. on 23rd } Monthly range= }
 Lowest Barometer 29.364 at 6 a.m. on 20th } 0.763 inches.
 Maximum Temperature 87° 50 on 18th } Monthly range= }
 Minimum Temperature 31° 08 on 30th } 68° 2. }
 Mean Maximum Temperature 68° 75 } Mean daily range= }
 Mean Minimum Temperature 40° 48 } 10° 32 }
 Greatest daily range 29° 7 from a.m. to p.m. of 11th.
 Least daily range 8° 2 from a.m. to p.m. of 25th.
 Warmest day 18th. Mean Temperature 72° 33 }
 Coldest day 30th. Mean Temperature 40° 33 } Difference=31° 04
 Maximum { Solar 131° 5 on 18th } Monthly range= }
 Radiation. { Terrestrial 21° 4 on 30th } 110° 1 }
 Aurora observed on 13 nights, viz.: 2nd, 9th, 13th, 17th, 19th, 20th, 21st, 22nd, 23rd, 25th, 26th, 28th and 29th.
 Possible to see Aurora on 28 nights; impossible on 2 nights.
 Snowing on days; depth inches; duration of fall hours.
 Raining on 9 days; depth 1.228 inches; duration of fall 13.2 hours.
 Mean of Cloudiness=0.29.
 Most cloudy hour observed 8 a.m.; Mean=0.38; least cloudy hour observed midnight; Mean=0.14

Sums of the components of the Atmospheric Current, expressed in Miles.
 North. East. West.
 1844.08 996.86 744.30
 1391.54

Resultant Direction N. 37° W.; Resultant Velocity 1.48
 Mean Velocity 6.43 miles per hour.
 Maximum Velocity 32.0 miles, from 1.30 to 2.30 p.m. of 20th.
 Most Windy day 26th; Mean Velocity 14.33 miles per hour.
 Least Windy day 16th; Mean Velocity 1.29 do
 Most Windy hour 1 p.m.; Mean Velocity 11.33 do
 Least Windy hour midnight; Mean Velocity 2.34 do
 6th, Thunder storm.
 11th, First frost of the season. 14th, First ice of the season. Solar halo.
 14th, Lunar halo. 18th, Thunder storm.
 21st, Solar halo. 24th, Hoar frost.
 25th, Thunder storm. 27th, Hoar frost. 30th, Hoar frost.
 Lightning recorded on 3rd, 4th, 5th, 7th and 18th.
 Fog recorded on 8 occasions during month. Heavy dew on 9 occasions.

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —OCTOBER, 1867
 Latitude—43° 39'4 North. Longitude—81° 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom. at temp. of 32°.			Temp. of the Air.			Excess of Mean above Normal.	Tension of Vapour.			Humidity of Air.			Direction of Wind.			Height.	Velocity of Wind.			Rain Inches.	Snow Inches.					
	U. A. M.	2 P. M.	10 P. M.	U. A. M.	2 P. M.	10 P. M.		6 A. M.	2 P. M.	10 P. M.	6 A. M.	2 P. M.	10 P. M.	6 A. M.	2 P. M.	10 P. M.		6 A. M.	2 P. M.	10 P. M.							
1	29.770	29.589	29.441	20.5873	32.7	60.9	0.18	157	277	300	248	85	51	78	68	8 W	8 W	8 W	2.5	14.5	0.0	5.06	5.78	inap	...		
2	28.5	29.212	29.407	30.022	55.1	67.4	0.78	375	353	285	335	80	52	71	68	8 W	8 W	8 W	4.0	14.0	11.0	8.10	10.25	0.075	...		
3	28.62	29.016	29.652	30.620	45.4	52.6	0.22	263	131	141	131	83	33	56	57	8 W	8 W	8 W	5.0	3.0	3.5	4.79	5.90	...	...
4	27.5	29.702	29.607	30.748	35.2	54.0	0.62	154	208	338	246	80	50	92	72	8 E	8 E	8 E	11.8	11.6	8.22	9.11	1.070	...	...
5	28.336	29.397	29.724	30.515	50.8	49.7	1.10	356	278	210	287	96	77	72	86	8 E	8 E	8 E	5.0	17.0	9.5	9.66	10.35	0.095	...		
6	29.150	29.130	30.112	30.1313	38.3	48.3	0.78	195	139	—	—	85	33	49	79	8 W	8 W	8 W	1.4	17.6	1.7	8.77	7.94	...	...
7	29.057	29.912	29.702	30.8908	33.4	53.3	0.42	163	207	256	214	85	50	74	66	8 W	8 W	8 W	2.0	2.6	0.0	4.45	2.24	...	...
8	29.591	29.822	29.276	30.820	44.6	55.1	0.27	264	353	342	336	90	82	91	85	8 E	8 E	8 E	0.0	0.0	0.0	1.56	1.80	...	...
9	29.161	29.051	29.134	30.1133	55.6	52.6	0.87	381	363	255	331	86	92	77	86	8 W	8 W	8 W	10.4	8.2	0.0	5.82	7.27	2.85	...		
10	29.180	29.201	29.371	30.2807	47.5	55.1	0.8	306	331	359	329	93	76	90	88	8 W	8 W	8 W	0.0	3.0	2.8	1.35	2.68	0.005	...		
11	29.419	29.600	29.002	30.5177	49.3	50.4	2.45	313	299	288	297	80	81	91	87	8 W	8 W	8 W	10.0	16.5	10.0	2.77	3.03	0.035	...		
12	29.615	29.610	29.610	30.6156	42.8	59.0	—	240	380	—	—	87	70	81	76	8 W	8 W	8 W	7.5	7.4	1.0	4.09	5.00	...	...
13	29.667	29.633	29.673	30.6156	39.2	58.9	0.53	216	293	294	280	90	58	81	76	8 W	8 W	8 W	5.0	14.8	2.4	6.30	6.62	...	...
14	29.663	29.615	29.797	30.6192	44.6	59.6	0.48	253	241	227	238	86	46	81	69	8 W	8 W	8 W	0.8	5.8	0.0	1.29	2.72	...	...
15	29.806	29.742	29.686	30.7398	39.0	60.1	0.52	183	376	369	308	77	72	91	80	8 W	8 W	8 W	13.6	13.6	1.1	6.51	7.48	...	...
16	29.842	29.484	29.467	30.5218	53.3	60.3	0.27	400	461	428	441	82	70	77	81	8 W	8 W	8 W	0.0	6.0	4.2	4.86	5.43	...	...
17	29.514	29.488	29.412	30.608	54.0	71.8	0.55	367	320	337	340	88	42	76	69	8 W	8 W	8 W	5.0	3.0	2.5	6.65	2.43	...	...
18	29.651	29.630	29.610	30.6403	56.2	68.8	0.17	25	394	403	333	81	65	65	72	8 W	8 W	8 W	4.8	3.0	4.2	2.86	3.33	...	...
19	29.717	29.763	29.763	30.6440	54.7	65.2	—	403	445	—	—	94	71	65	65	8 W	8 W	8 W	3.6	8.6	6.2	3.85	6.98	0.030	...		
20	29.666	29.752	29.878	30.7795	51.7	62.6	0.39	324	379	434	403	91	55	80	77	8 W	8 W	8 W	14.0	12.6	0.0	9.43	9.80	...	...
21	29.001	29.040	29.084	30.0497	36.0	49.0	0.47	41.22	1.53	180	205	170	182	55	69	65	8 W	8 W	8 W	7.8	6.2	1.51	4.15	...	...
22	29.132	29.100	29.080	30.0905	33.0	45.0	0.5	43.6	42.2	0.12	157	191	194	181	82	60	68	8 W	8 W	8 W	3.2	8.6	4.8	4.1	4.04
23	29.084	29.052	29.012	30.0443	36.3	52.2	1.13	165	232	127	174	78	59	48	67	8 W	8 W	8 W	4.6	5.4	4.8	2.44	4.33	...	...
24	29.980	29.968	29.960	30.0782	37.0	53.3	0.7	179	230	180	194	70	58	70	65	8 W	8 W	8 W	2.6	3.5	4.2	0.77	3.62	...	...
25	29.941	29.967	29.941	30.0782	37.4	55.1	—	179	230	—	—	80	65	—	—	8 W	8 W	8 W	5.0	3.7	5.3	3.12	4.02	...	...
26	29.844	29.874	29.844	30.8877	46.8	52.0	0.78	264	321	326	262	82	40	64	60	8 W	8 W	8 W	8.5	12.4	4.7	7.01	7.87	0.035	...		
27	29.702	29.617	29.695	30.6342	46.8	57.6	0.48	251.42	252	235	236	82	40	64	64	8 W	8 W	8 W	0.8	5.4	10.0	4.27	7.95	inap	...		
28	29.564	29.480	29.468	30.4923	44.3	54.7	0.85	230	273	272	252	79	64	72	70	8 W	8 W	8 W	0.8	2.2	6.2	4.27	6.23	...	...
29	29.524	29.643	29.748	30.6527	43.0	46.8	2.80	218	198	183	207	75	61	80	72	8 W	8 W	8 W	12.2	16.2	0.0	7.74	8.65	...	...
30	29.6707	29.6462	29.6677	30.6647	44.71	56.45	4.86	262	282	208	272	84	61	77	73	8 W	8 W	8 W	5.16	8.46	3.07	5.73	1.970	...	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR OCTOBER, 1867.

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 residuals for the wind are from hourly observations.

Highest Barometer 30.184 at 8 a.m. on 7th } Monthly range =
 Lowest Barometer 29.051 at 2 p.m. on 10th } 1.133 inches.
 { Maximum Temperature 75.94 on 18th } Monthly range =
 { Minimum Temperature 31.50 on 1st } 44° 4
 { Mean Maximum Temperature 68.25 } Mean daily range =
 { Mean Minimum Temperature 42.51 } 16° 24
 { Greatest daily range 31° 8 from 8 a.m. to p.m. of 1st.
 { Least daily range 3° 1 from 8 a.m. to p.m. of 5th.
 Warmest Day 19th. Mean Temperature 61.003
 Coldest Day 7th. Mean Temperature 41.597 } Difference = 19° 96
 Maximum { Solar 117.95 on 17th }
 Radiation. { Terrestrial 209.90 on 1st. } Monthly range = 97° 5
 Auroras observed on 5 nights, viz.—2nd, 3rd, 5th, 24th, and 29th.
 Possible to see Aurora on 20 nights; impossible on 11 nights.
 Snowing on days; depth inches; duration of fall hours,
 Running on 11 days; depth 1.970 inches; duration of fall 40.2 hours.
 Mean of Cloudiness = 0.48.
 Most cloudy hour observed 4 p.m.; Mean, 0.56; least cloudy hour, 8 a.m.; Mean, 0.42.

Sums of the components of the Atmospheric Current, expressed in Miles.
 North. East. West.
 1914.64 856.29 1643.16

Resultant Direction N. 45° W.; Residual Velocity 1.61,
 Mean Velocity 5.73 miles per hour.
 Maximum Velocity 21.4 miles, from 8.30 to 4.30 p.m., of 5th.
 Most Windy day 5th; Mean Velocity 10.35 miles per hour.
 Least Windy day 8th; Mean Velocity 1.89 miles per hour.
 Most Windy hour Noon; Mean Velocity 8.47 miles per hour. } Difference 6.46 miles.
 Least Windy hour 10 p.m.; Mean Velocity 3.64 miles per hour. } Difference 4.83 miles.
 2nd October, Thunderstorm.
 9th, Lightning in S. E. p. m.
 10th, Thunderstorm, 1 p. m.
 11th, Solar halo.
 19th, Lightning at night.
 20th, Lightning at night.
 19th to 23rd and 25th, 26th and 27th, had every appearance of being "The Indian Summer."

COMPARATIVE TABLE FOR OCTOBER.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.			
	Mean.	Excess above ave. &c.	Max. num.	Min. num.	Range.	No. of days.	Inches.	No. of days.	Inches.	Direction.	Velocity.	Mean Velocity.
1840	44.4	9.3	73.0	23.0	50.0	13	1.864	3	...	0	...	0.41 lbs
1841	41.6	4.1	59.7	27.5	39.1	6	1.366	2	...	...	...	0.35
1842	45.1	0.6	63.6	20.6	41.1	8	5.175	0	...	...	...	0.64
1843	41.8	3.9	68.0	24.2	43.8	12	3.796	4	2.5	...	...	0.43
1844	43.3	2.4	71.0	15.9	55.7	7	1.764	1	1.2-0	...	...	0.26
1846	44.6	1.1	70.1	19.7	44.3	11	1.764	1	1.2-0	...	...	0.41
1847	44.0	1.7	64.6	20.4	49.4	14	4.186	2	1.2-0	...	...	0.19
1848	46.3	0.0	61.8	24.5	37.5	11	1.550	0	...	N 54 W	1.24	4.66mils
1849	45.4	0.3	66.7	24.2	34.7	13	5.963	1	1.2-0	N 12 W	1.27	7.75
1850	45.4	0.3	66.7	22.4	44.3	10	12.085	0	...	N 66 W	1.10	5.30
1851	47.4	1.7	66.2	25.2	41.0	10	1.688	0	0.3	S 72 W	1.06	4.39
1852	48.0	2.3	70.7	23.8	46.9	12	5.284	0	...	N 5 E	1.19	4.47
1853	44.4	1.3	64.7	23.4	41.1	10	0.873	2	1.2-0	S 88 W	1.74	4.77
1854	40.6	3.8	75.4	26.4	40.4	12	1.438	3	1.2-0	N 45 W	1.52	4.57
1855	45.4	0.3	68.0	22.6	45.4	14	12.48	5	0.8	N 82 W	4.91	9.88
1856	45.4	0.3	68.0	23.5	46.4	10	0.875	2	0.1	N 70 W	2.15	6.07
1857	45.4	0.3	68.0	24.5	37.4	10	1.044	2	0.2	N 19 W	2.93	6.24
1858	48.8	2.7	69.5	31.5	44.8	17	1.707	1	1.2-0	N 34 W	0.38	5.06
1859	43.0	2.1	63.5	22.3	47.1	11	0.943	4	1.2-0	N 68 W	5.04	8.12
1860	47.3	1.6	68.0	25.4	30.1	15	1.618	1	1.2-0	N 9 W	2.00	6.93
1861	48.7	3.0	71.0	29.0	42.1	15	1.954	1	1.2-0	N 61 W	1.06	6.06
1862	48.7	3.0	70.6	26.2	50.4	19	2.684	2	0.5	N 78 W	2.89	6.55
1863	45.0	0.2	66.4	30.5	25.9	16	2.624	0	...	S 71 W	0.48	6.18
1864	48.2	0.5	67.0	28.0	39.1	22	3.321	1	1.2-0	N 64 W	3.17	6.06
1865	44.5	1.2	71.4	21.6	49.1	17	2.766	3	4.5	N 30 W	3.55	7.26
1866	49.1	3.4	71.0	31.8	39.1	11	2.471	1	1.2-0	N 29 W	0.84	5.23
1867	40.9	4.2	75.4	31.0	44.4	11	1.971	0	...	N 45 W	1.51	5.73
Residuals to 1866	45.73	...	68.33	24.57	43.71	12.07	2.534	1.8	0.87	N 57 W	1.77	6.01
Excess for '67	4.17	...	7.07	6.43	0.64	1.67	0.504	1.8	0.87	...	...	0.23

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO, —NOVEMBER, 1867.
 Latitude—43° 39' 4" North. Longitude—81. 17m. 33s. West. Elevation above Lake Ontario, 109 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.			Resultant.	Velocity of Wind.			Rain in Inches.	Inches in Rain.				
	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.						
	Mean.			M.S.	M.S.	M.S.		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.	M.S.		M.S.	M.S.	M.S.			M.S.			
1	29.313	29.313	29.313	55.6	58.2	52.0	+12.15	226.	281.	206.	255.	63	S	W	S	W	S	W	8.0	21.0	10.5	12.08	12.26	...		
2	.618	.280	.501	51.8	53.0	42.8	+8.85	280.	147.	168.	240.	61	W	S	W	S	W	W	3.6	27.5	0.0	9.57	10.78	0.020		
3	.521	.180	...	43.2	45.4	...	...	254.	283.	...	...	91	N	E	...	...	...	...	4.5	14.0	20.3	5.19	16.01	.795
4	.801	.587	.810	40.3	34.2	37.0	-1.87	159.	176.	168.	164.	63	W	S	W	S	W	W	18.0	11.0	5.0	7.93	8.24	...		
5	.889	.767	.702	40.3	36.0	38.5	-0.98	165.	130.	137.	143.	69	W	S	W	S	W	W	11.0	10.5	22.8	12.86	14.21	...		
6	.902	.894	.922	37.8	30.6	32.2	-6.65	162.	148.	131.	141.	80	W	S	W	S	W	W	3.0	0.0	3.0	3.40	0.66	...		
7	.785	.610	.525	39.9	37.0	37.5	-1.45	151.	185.	169.	180.	75	E	S	E	S	E	W	11.5	14.8	11.0	11.00	11.25	...		
8	.422	.324	.306	40.7	57.3	54.0	+11.86	213.	303.	325.	283.	84	E	S	E	S	E	W	8.8	10.5	1.0	3.18	4.00	.030		
9	.252	.352	.502	53.6	58.3	45.4	+12.98	189.	213.	...	...	92	S	W	S	W	S	W	8.8	10.4	0.0	6.42	6.67	...
10	.565	.541	...	45.4	61.5	...	...	...	...	...	...	64	S	W	S	W	S	W	1.3	8.2	7.1	4.84	6.09	...
11	.610	.570	.602	38.1	42.8	32.0	-0.66	195.	119.	135.	143.	85	W	S	W	S	W	W	0.0	1.0	3.4	2.99	3.41	...		
12	.644	.656	.664	33.4	35.3	30.9	-4.83	141.	146.	142.	139.	74	W	S	W	S	W	W	7.5	20.8	6.8	9.25	9.68	...		
13	.513	.548	.504	27.5	34.5	30.2	-6.98	137.	137.	146.	136.	92	W	S	W	S	W	W	0.0	20.0	0.0	4.15	4.33	0.3		
14	.168	.302	.335	28.4	41.0	39.2	-4.09	142.	119.	101.	121.	90	W	S	W	S	W	W	0.0	23.0	10.0	10.51	11.22	...		
15	.797	.803	.602	21.0	33.4	39.2	-4.40	105.	134.	210.	147.	89	W	S	W	S	W	W	21.2	23.0	9.0	15.55	16.10	0.1		
16	.304	.548	.654	38.1	34.3	29.8	-2.40	187.	109.	147.	142.	81	W	S	W	S	W	W	2.0	19.0	9.5	10.11	12.67	...		
17	.498	.302	...	35.3	33.0	23.7	-14.60	175.	119.	...	...	88	W	S	W	S	W	W	2.0	1.0	13.0	5.03	5.82	...
18	.703	.685	.703	15.0	23.0	29.8	-9.92	117.	109.	...	...	63	W	S	W	S	W	W	3.8	8.0	6.2	5.16	5.50	...
19	.826	.804	.769	7.033	14.1	20.8	-9.92	117.	109.	...	...	60	W	S	W	S	W	W	5.9	14.2	0.5	5.79	6.72	...
20	.617	.526	.726	6.337	35.6	45.1	+3.56	178.	144.	165.	186.	85	W	S	W	S	W	W	2.0	7.6	3.8	4.06	4.09	...		
21	.844	.783	.742	7.907	32.7	35.0	+0.97	183.	187.	213.	188.	92	W	S	W	S	W	W	0.0	2.0	0.0	0.33	0.33	...		
22	.070	.026	.082	6.403	34.2	42.8	+4.73	172.	232.	227.	208.	87	W	S	W	S	W	W	0.0	0.0	1.5	0.67	0.97	...		
23	.656	.650	.707	6.785	39.6	48.2	+7.30	227.	277.	225.	235.	94	W	S	W	S	W	W	4.8	4.4	0.7	1.01	1.59	...		
24	.687	.680	...	39.0	50.4	...	...	...	...	...	...	82	W	S	W	S	W	W	4.8	4.4	0.7	1.01	1.59	...
25	.558	.380	.315	40.0	47.2	48.13	+15.17	333.	288.	310.	308.	90	W	S	W	S	W	W	1.4	6.0	8.4	6.30	8.50	.095		
26	.501	.710	.802	17.75	39.2	41.0	+6.16	131.	149.	163.	143.	54	W	S	W	S	W	W	10.4	14.6	2.9	7.38	7.46	...		
27	.844	.721	.633	7.317	33.4	39.2	+7.87	163.	173.	100.	170	85	W	S	W	S	W	W	0.0	0.0	1.4	0.63	0.63	...		
28	.020	.042	.624	6.223	36.7	41.0	+4.23	197.	218.	207.	210.	85	W	S	W	S	W	W	0.0	0.0	0.0	0.0	0.0	...		
29	.385	.28.295	.055	1.220	41.4	42.1	+4.12	221.	259.	204.	191.	85	W	S	W	S	W	W	9.4	7.0	33.2	11.04	18.37	.590		
30	.300	.29.575	.813	5.903	15.0	12.9	-18.78	076.	051	059.	052	84	W	S	W	S	W	W	14.4	9.2	6.8	10.69	12.07	...		
31	29.5715	29.5025	29.0055	20.5844	31.69	40.89	+0.71	179.	173.	174.	173.	84	W	S	W	S	W	W	5.39	11.18	6.89	7.761	835.	0.9

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR NOVEMBER, 1897. COMPARATIVE TABLE FOR NOVEMBER.

YEAR.	TEMPERATURE.					RAIN.		SNOW.		WIND.	
	Mean.	Excess above average.	Maximum.	Minimum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant.	Mean Velocity.
1840	35.9	1.0	56.8	14.0	42.2	5	1.220	8	...	...	...
1841	35.0	1.0	63.8	8.5	55.3	8	2.450	10	...	...	0.91 lbs.
1842	33.3	2.0	60.8	8.1	48.7	9	5.310	5	...	...	1.22
1843	33.5	2.4	52.6	14.1	38.5	7	4.765	1-2	...	...	0.58
1844	34.9	3.0	60.0	12.1	43.9	8	Imp'r.	4	...	...	0.48
1845	36.8	0.1	60.5	8.1	51.4	7	1.105	4	...	...	0.53
1846	41.3	4.4	65.0	18.0	37.6	12	3.805	2	...	...	0.84
1847	38.6	1.7	67.9	8.7	49.2	14	3.155	3	...	...	0.36
1848	34.5	2.4	49.0	15.9	33.1	9	2.020	3	...	...	4.81 miles.
1849	42.0	6.7	60.4	20.5	29.9	10	2.815	2	...	...	1.56
1850	38.8	1.9	62.8	11.0	51.8	7	2.965	1	...	...	1.43
1851	32.0	4.0	60.2	13.8	36.4	5	3.885	6	...	...	1.25
1852	32.0	0.9	60.4	18.2	32.2	7	1.775	3	...	...	1.68
1853	38.7	1.8	65.0	12.8	42.8	15	2.425	6	...	...	5.52
1854	36.8	0.1	65.4	13.8	41.6	13	1.115	4	...	...	7.54
1855	38.0	1.7	60.2	15.6	43.7	8	4.690	6	...	...	3.18
1856	37.4	0.5	66.4	18.8	37.6	10	1.375	9	...	...	10.81
1857	33.5	3.4	68.2	3.5	61.7	14	3.235	9	...	...	2.05
1858	34.2	2.7	55.0	15.3	37.7	12	3.879	13	...	...	1.54
1859	38.9	2.0	62.0	21.8	40.8	12	5.193	9	...	...	3.39
1860	37.9	1.0	64.5	13.2	51.3	12	2.569	8	...	...	1.02
1861	37.1	0.2	62.4	23.0	44.4	14	4.294	8	...	...	1.04
1862	35.0	1.3	67.0	16.2	41.8	11	2.205	11	...	...	3.00
1863	39.1	2.2	67.0	17.8	49.2	13	3.656	6	...	...	3.50
1864	36.9	0.0	60.2	21.0	39.2	11	3.765	8	...	...	3.82
1865	38.0	1.7	63.2	23.6	39.6	5	0.975	7	...	...	2.98
1866	38.4	1.5	54.2	21.8	32.4	13	2.903	4	...	...	3.06
1867	36.9	0.0	60.4	9.0	50.8	8	1.835	9	...	...	1.02
Results to 1866	36.88	.....	57.32	15.14	42.18	10.15	3.058	6.1	3.00	N 79 W	2.49
Exc. for 1897	-0.02	.....	+3.08	-5.54	+8.62	2.16	1.223	2.92	10	...	0.29

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to midnight, are derived from six observations daily, namely, at 8 A.M., 11 A.M., 2 P.M., 5 P.M., 8 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer 29.930 at 8 a.m. on 6th. } Monthly range = 1.096 inches.
 Lowest Barometer 28.843 at 6 p.m. on 20th. }
 Maximum temperature 60°4 on 3rd } Monthly range = 60°8
 Minimum temperature 9°6 on 30th }
 Mean maximum temperature 45°40 } Mean daily range = 12°00
 Mean minimum temperature 32°41 }
 Greatest daily range 23°7 from a.m. to p.m. of 19th.
 Least daily range 4°0 from a.m. to p.m. of 29th.
 Warmest day 1st ... Mean temperature 52°62 } Difference = 10°32.
 Coldest day 30th ... Mean temperature 12°30 }
 Maximum { Solar 95°0 on 9th } Monthly range = 01°0
 Radiation { Terrest'nl. 4°0 on 19th }
 Aurora observed on 1 night, viz. :—30th.
 Possible to see Aurora on 12 nights, impossible on 18 nights.
 Snowing on 9 days; depth, 9.9 inches; duration of fall, 17.4 hours.
 Raining on 8 days; depth, 1.835 inches; duration of fall, 26.7 hours.
 Mean of cloudiness = 0.75. Most cloudy hour observed, 12 p.m.; mean, 0.70; least do., do., 9 a.m.; mean, 0.70.

Sums of the components of the Atmospheric Current, expressed in Miles.

North.	South.	East.	West.
1474.85	1310.24	729.35	3624.72

Resultant direction, N. 87° W.; resultant velocity, 4.02 miles per hour.
 Mean velocity, 7.76 miles per hour.
 Maximum velocity, 34.8 miles, from 11 p.m. to midnight on 29th.
 Most windy day, 29th; mean velocity, 18.27 miles per hour. } Difference, 17.04 miles.
 Least windy day, 22nd; mean velocity, 0.33 miles per hour. }
 Most windy hour, noon; mean velocity, 11.45 miles per hour. } Difference 6.65 miles.
 Least windy hour, 6 a.m.; mean velocity, 5.40 miles per hour. }

- 3rd, Thunder at 2 p.m.
- 11th, Solar halo
- 14th, Grand display of periodic meteors.
- 24th, Very dense fog, a.m.
- 30th, Heavy gale of wind at night.

METEOROLOGICAL REGISTER.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—DECEMBER, 1867.
 Latitude—43° 39' 4 North. Longitude—5h. 17m. 33s. West. Elevation above Lake Ontario, 108 feet.

Day	Barom at temp. of 32°.				Temp. of the Air.				Tension of Vapour.				Humidity of Air.				Direction of Wind.				Resultant.				Velocity of Wind.				Rain Inches.	Snow Inches.				
	6 A.M.		2 P.M.		6 A.M.		2 P.M.		6 A.M.		2 P.M.		6 A.M.		2 P.M.		6 A.M.		2 P.M.		6 A.M.		2 P.M.		6 A.M.		2 P.M.				6 A.M.		2 P.M.	
	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.	6 A.M.	2 P.M.			6 A.M.	2 P.M.	6 A.M.	2 P.M.
1	29.827	29.787	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	0.1			
2	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
3	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
4	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
5	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
6	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
7	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
8	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
9	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
10	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
11	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
12	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
13	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
14	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
15	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
16	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
17	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
18	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
19	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
20	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
21	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
22	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
23	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
24	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
25	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
26	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
27	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
28	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
29	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
30	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
31	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1
1st	29.602	29.564	29.641	29.602	10.1	24.1	34.2	31.55	0.74	0.93	0.74	0.93	72	75	70	W	SW	SW	SW	SW	SW	SW	11.6	10.43	11.00	...	...	...	...	0.1

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR DECEMBER, 1867. COMPARATIVE TABLE FOR DECEMBER, 1867.

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

Highest Barometer 30.228 at 10 p.m. on 30th. } Monthly range==
 Lowest Barometer 28.768 at 4 p.m. on 6th. } 1.460.
 { Maximum temperature 49°5 on 25th. } Monthly range==
 { Minimum temperature -12°8 on 13th. } 62°3
 { Mean maximum temperature 29°41 } Mean daily range==
 { Mean minimum temperature 15°30 } 14°11
 { Greatest daily range 30°0 from a.m. to p.m. of 9th.
 { Least daily range 4°0 from a.m. to p.m. of 30th.
 Warmest day 27th...Mean temperature 38°37 } Difference==43°89.
 Coldest day 12th...Mean temperature -5°02 }
 Maximum { Solar 77°0 on 26th } Monthly range==92°5
 Radiation { Terrestrial -15°5 on 13th }
 Aurora observed on 1 night, viz.: 30th.
 Possible to see aurora on 10 nights; impossible on 21 nights.
 Snowing on 21 days; depth, 13.0 inches; duration of fall, 70.5 hours.
 Raining on 7 days; depth, 1.408 inches; duration of fall, 36.5 hours.
 Mean of cloudiness=0.78.
 Most cloudy hour observed, 2 p.m.; mean, 0.80; least cloudy hour observed, 6 a.m.; mean, 0.76.

Sums of the components of the Atmospheric Current, expressed in Miles.

North, 790.83 East, 847.33 West, 3019.84

Resultant direction, S. 81° W.; Resultant Velocity, 4.82.

Mean velocity, 10.32 miles per hour.

Maximum velocity, 36.8 miles, from 7 to 8 p.m. of 6th.

Most windy day, 22nd; mean velocity, 18.72 miles per hour

Least windy day, 4th; mean velocity, 5.61 miles per hour

Most windy hour, 1 p.m.; mean velocity, 12.08 miles per hour } Difference, 13.11 miles.
 Least windy hour, 8 p.m.; mean velocity, 5.59 miles per hour }

2nd December. Solar halo. 4th. Lunar halo. 6th. Lunar halo. 6th. Very hoary gale of wind. 11th. Solar halo and Lunar halo. 11th. Toronto Bay frozen over. 12th. Lunar halo. 12th. Solar halo, very cold day, the coldest on the records of the Observatory during the month of December. 18th. East thrumke felt in Toronto at 8 a.m.

YEAR.	TEMPERATURE.				RAIN.		SNOW.		WIND.	
	Mean.	Excess above Average.	Maximum.	Minimum.	Range.	No. of days.	Inches.	No. of days.	Inches.	Resultant. Direction. Velocity.
1840	24.3	-1.0	42.1	-8.6	50.7	3	Inap.	18	...	...
1841	28.7	+2.5	46.1	3.1	41.0	7	6.000	6	...	... 1.33lbs
1842	24.7	+1.5	40.5	3.2	37.3	3	0.880	17	...	... 0.61
1843	30.0	+3.8	48.5	3.1	45.4	6	1.040	6	8.1	... 0.53
1844	28.2	+2.0	48.5	1.6	43.9	6	Inap.	6	4.2	... 0.40
1845	21.1	-5.1	39.7	2.4	42.1	2	Inap.	12	4.7	... 0.57
1846	27.5	+3.0	49.5	3.9	45.3	5	1.216	6	6.0	... 0.87
1847	30.1	+2.9	48.8	0.8	49.3	7	1.185	8	6.8	... 0.55
1848	29.1	+2.9	48.8	1.1	47.7	7	2.750	7	10.5	... 6.44 m.
1849	26.5	+0.3	40.8	6.5	47.5	5	0.840	12	9.6	... 82 W 2.56 6.23
1850	21.7	-4.5	48.8	-0.0	57.8	2	0.190	18	20.5	... N 44 W 4.00 7.37
1851	21.5	-4.7	44.0	-14.8	58.8	6	1.076	19	10.7	... N 82 W 4.00 7.37
1852	31.9	+0.7	51.0	13.2	37.8	7	3.905	10	20.1	... S 69 W 1.03 6.54
1853	25.3	-0.9	46.4	8.4	54.8	4	0.625	13	22.3	... N 35 W 2.39 4.98
1854	21.9	-4.3	44.8	7.0	61.8	5	0.500	12	17.2	... N 44 W 4.80 8.56
1855	20.8	+0.6	47.0	5.2	52.2	6	1.846	10	29.5	... S 88 W 5.29 11.38
1856	22.9	+0.3	42.2	-0.1	51.3	7	1.790	20	16.3	... S 87 W 4.69 11.50
1857	31.9	+1.7	45.0	4.7	41.3	7	3.265	14	9.0	... S 80 W 2.50 6.84
1858	27.4	+1.2	45.4	4.2	41.2	11	1.657	18	10.4	... N 78 W 1.66 9.30
1859	17.9	-8.3	64.8	0.0	60.8	3	1.035	23	37.4	... N 53 W 4.29 10.79
1860	24.0	-2.2	39.0	7.0	46.0	8	1.362	21	13.5	... S 62 W 4.06 10.14
1861	31.1	+2.6	55.2	5.6	49.7	5	0.560	8	6.8	... N 73 W 3.50 7.96
1862	28.8	+0.6	50.1	3.4	53.5	5	1.945	8	10.4	... N 72 W 3.17 7.58
1863	27.0	+0.8	63.4	-1.5	54.9	10	2.960	17	7.1	... N 41 W 1.61 9.40
1864	24.7	+1.5	51.4	-10.4	60.8	9	2.046	19	27.1	... S 82 W 4.94 9.98
1865	27.7	+1.5	54.2	5.7	48.5	7	1.727	11	5.2	... S 81 W 3.07 7.33
1866	25.1	-1.1	51.0	-5.0	56.0	7	2.790	13	15.6	... S 88 W 4.98 9.51
1867	21.5	-4.5	49.5	-12.8	62.3	7	1.408	21	13.6	... S 81 W 4.82 10.22
Monthly for 1867.	26.21	.....	47.31	-2.03	49.34	5.74	1.680	13.0	14.33	... N 74 W 3.06 8.35
Excess for 1867.	-4.61	.....	+2.19	10.77	12.95	+	1.26	0.282	8.0	... + 1.97

GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1867.

GENERAL METEOROLOGICAL

MAGNETICAL OBSERVATORY,

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

	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.
Mean temperature	17·59	28·91	26·61	39·46	46·55	64·30	68·22
Difference from average (27 years)...	- 5·70	+ 5·96	- 3·31	- 1·73	- 5·03	+ 2·89	+ 1·18
Thermic anomaly (lat. 43° 40')	-15·21	- 5·79	-13·49	-10·74	-11·55	- 0·30	- 0·48
Highest temperature	43·8	44·0	46·8	65·5	65·0	88·6	94·0
Lowest temperature	- 4·8	0·2	3·0	25·4	24·6	44·0	48·2
Monthly and annual ranges.....	48·6	43·8	43·8	40·1	40·4	44·6	45·8
Mean maximum temperature	23·23	34·32	33·89	47·73	54·77	73·36	77·63
Mean minimum temperature	11·61	21·59	21·11	33·79	39·75	55·61	58·45
Mean daily range.....	11·62	12·73	12·78	13·93	15·02	17·75	19·18
Greatest daily range	31·6	27·6	27·6	27·2	26·3	28·0	29·2
Mean height of the Barometer	29·5676	29·6582	29·7123	29·6277	29·4772	29·6175	29·6054
Difference from average (26 years)...	-0·822	+·0315	+·1206	-0·721	-1·091	+·0476	+·0066
Highest barometer	30·046	30·332	30·127	29·958	30·093	29·870	29·935
Lowest barometer	28·920	28·799	28·912	28·930	29·044	29·143	29·292
Monthly and annual ranges.....	1·126	1·533	1·215	1·028	1·049	0·727	0·643
Mean humidity of the air.....	82	81	78	73	72	71	66
Mean elasticity of aqueous vapour.....	0·086	0·132	0·116	0·181	0·233	0·429	0·458
Mean of cloudiness.....	0·73	0·82	0·72	0·62	0·69	0·45	0·48
Difference from average (14 years)...	+·01	+ 0·10	+ 0·10	+·06	+ 0·16	- 1·07	0·00
Resultant direction of the wind.....	N 55 W	N 57 W	N 34 W	N 51 W	N 51 W	S 84 E	N 42 W
“ Velocity of the wind	3·27	1·58	2·12	2·68	3·55	0·48	1·13
Mean velocity (miles per hour)	6·98	8·85	8·52	7·89	8·40	4·13	5·45
Difference from average (19 years)...	- 1·20	+ 0·46	- 0·31	- 0·18	+·1·73	- 1·06	+ 0·50
Total amount of rain.....	Inapp.	1·328	0·617	2·147	3·220	0·885	1·965
Difference from average (26-27 years)...	-1·266	-0·342	+1·012	-0·315	-0·004	-1·944	-1·543
Number of days rain	1	8	6	12	13	8	12
Total amount of snow	42·0	13·4	33·4	7·2	Inapp.	...	...
Difference from average (21 years)...	+27·07	- 4·55	+23·97	+ 4·91	- 0·03	...	...
Number of days snow	21	13	14	5	1	...	...
Number of fair days	9	9	13	14	12	22	19
Number of auroras observed	0	0	1	2	8	5	3
Possible to see aurora (Nc. of nights)...	10	7	11	15	19	23	22
Number of thunderstorms	0	0	0	1	1	5	7

REGISTER FOR THE YEAR 1867.

TORONTO, ONTARIO.

Lake Ontario, 108 feet. Approximate elevation above the Sea, 342 feet.

AUG.	SEPT.	OCT.	NOV.	DEC.	Year 1867.	Year 1866.	Year 1865.	Year 1864.	Year 1863.	Year 1862.	Year 1861.
68.09	57.92	49.93	36.86	21.63	43.84	43.51	44.92	44.70	44.57	44.35	44.22
+ 2.12	- 0.07	+ 4.20	- 0.02	- 4.58	- 0.34	- 0.67	+ 0.74	+ 0.52	+ 0.39	+ 0.17	+ 0.04
- 0.41	- 3.58	- 3.87	- 6.34	- 14.37	- 7.16	- 7.49	- 6.08	- 6.30	- 6.43	- 6.65	- 6.78
95.2	87.0	75.4	60.4	49.5	95.2	94.0	90.5	94.0	88.0	95.5	87.8
42.2	31.8	31.0	9.6	- 12.8	- 12.8	- 14.0	- 10.0	- 15.0	- 19.8	- 5.2	- 20.8
53.0	55.2	44.4	50.8	62.3	108.0	108.0	100.5	109.0	107.8	100.7	108.6
78.73	68.75	58.85	45.40	29.41	...	...	...	...	...	...	...
58.85	49.43	42.51	32.41	15.30	...	...	...	...	...	...	...
19.88	19.32	16.34	12.99	14.11	15.47	14.99	15.43	14.57	14.73	14.43	14.42
31.7	29.7	31.8	23.7	30.0	31.6	40.8	30.9	37.4	39.6	37.0	33.3
29.5920	29.7143	29.6647	29.5844	29.6468	29.6140	29.6216	29.6330	29.5596	29.6536	29.6248	29.6008
- 0.14	+ 0.539	+ 0.208	- 0.283	- 0.091	- 0.035	+ 0.041	+ 0.165	- 0.579	+ 0.361	+ 0.073	- 0.167
29.839	30.117	30.184	29.939	30.228	30.332	30.940	30.354	30.327	30.502	30.469	30.330
29.267	29.354	29.051	28.843	28.768	28.768	28.807	28.707	28.671	28.704	28.805	28.644
0.552	0.783	1.131	1.096	1.460	1.564	2.183	1.647	1.656	1.798	1.664	1.686
68	73	73	75	77	74	75	75	76	77	77	78
0.475	0.369	0.272	0.173	0.101	0.252	.248	.250	.263	.266	.262	.262
0.50	0.29	0.48	0.75	0.78	0.61	0.61	0.61	0.65	0.61	0.63	0.62
+ 0.03	- .21	- 0.14	+ 0.01	+ 0.04	0.00	0.00	0.00	+ 0.04	0.00	+ 0.02	+ .01
N 76 W	N 37 W	N 45 W	N 87 W	S 81 W	N 60 W	N 73 W	N 66 W	N 76 W	N 41 W	N 48 W	N 56 W
1.25	1.48	1.51	4.02	4.82	2.05	2.83	1.98	2.49	1.34	2.03	2.11
4.52	5.43	5.73	7.76	10.32	7.00	7.41	6.78	7.40	7.13	7.33	7.47
- 0.65	+ 0.01	- 0.28	+ 0.29	+ 1.97	+ 0.11	+ 0.52	- 0.11	+ 0.51	+ 0.24	+ 0.44	+ 0.58
2.440	1.226	1.970	1.835	1.408	19.041	34.209	26.599	29.486	26.483	25.629	26.995
- 0.605	- 2.539	- 0.564	- 1.223	- 0.231	- 10.942	+ 4.226	- 3.384	- 0.497	- 3.500	- 4.454	- 2.985
10	9	11	8	7	100	126	111	132	130	118	136
...	...	...	0.9	13.6	110.5	52.1	63.3	74.6	62.9	85.4	74.8
...	...	- 0.87	- 2.10	- 0.73	- 47.62	- 10.78	+ 0.42	+ 11.72	+ 00.2	+ 22.32	+ 11.72
...	...	...	9	21	84	69	68	70	74	72	76
21	21	20	15	6	181	180	201	180	181	189	165
4	13	5	1	1	43	44	55	34	44	48	43
23	28	20	12	10	202	209	201	158	182	176	180
2	4	2	1	0	23	24	17	20	24	24	27

TEMPERATURE.

	1867.	Average of 27 years.	Extremes.	
Mean temperature of the year.....	43.84	44.18	46.36 in '46.	42.16 in '56.
Warmest month	July.	July.	July, 1854.	Aug. 1800.
Mean temperature of the warmest month	68.22	67.04	72.47	64.46
Coldest month	January.	February.	Jan. 1857.	Feb. 1843.
Mean temperature of the coldest month	17.59	22.95	12.75	26.60
Difference between the temperatures of the warmest and the coldest months	50.63	44.09	...	...
Mean of deviations of monthly means from their respective averages of 27 years, signs of deviation being disregarded.....	3.07	2.35	3.62 in 1843.	1.33 in 1864.
Months of greatest deviation, without regard to sign	February.	January.	Jan 1857.	...
Corresponding magnitude of deviation.....	5.96	3.8	10.5	...
Warmest day	July 24.	...	July 12, '45.	July 31, '44.
Mean temperature of the warmest day.....	80.45	77.55	82.32	72.75
Coldest day	Dec. 12.	...	Feb. 6, '55.	Dec. 22, '42.
Mean temperature of the coldest day.....	-5.02	-1.23	Jan. 22, '57.	...
Date of the highest temperature.....	Aug. 18.	...	-14.38	9.57
Highest temperature	95.2	90.7	Aug. 24, '54.	Aug. 19, '40.
Date of the lowest temperature	Dec. 13.	...	99.2	82.4
Lowest temperature	-12.8	-12.3	Jan. 26, '59.	Jan. 2, '42.
Range of the year	108.0	103.0	-26.5	1.9
			118.2	87.0

BAROMETER.

	1867.	Average of 26 years.	Extremes.	
Mean pressure of the year	29.6140	29.6175	29.6670 in 1849.	29.5602 in 1864.
Month of highest mean pressure	September	September	Jan. 1849.	June, 1864.
Highest mean monthly pressure	29.7143	29.6604	29.8046	29.6525
Month of lowest mean pressure	May.	June.	March, 1859.	Nov. 1849.
Lowest mean monthly pressure	29.4772	29.5699	29.4143	29.5886
		Average of 27 years.		
Date of highest pressure in the year.....	Feb. 11, 6 a.m.	...	Jan. 8, '66.	Oct. 22, '45.
Highest pressure.....	30.332	30.385	30.94	30.242
Date of lowest pressure in the year	Dec. 6, 4 p.m.	...	Mar. 19, '59.	Mar. 17, '45.
Lowest pressure	28.768	28.687	28.286	28.939
Range of the year	1.564	1.698	2.133 in 1866.	1.303 in 1845.

RELATIVE HUMIDITY.

	1867.	Average of 20 years.	Extremes.	
Mean humidity of the year	74	78	82 in 1851.	73 in 1858.
Month of greatest humidity	January.	January.	Jan. 1857.	Dec. 1858.
Greatest mean monthly humidity	82	83	89	81
Month of least humidity	July.	May.	Feb. 1843.	April 1849.
Least mean monthly humidity	66	72	58	76

EXTENT OF SKY CLOUDED.

	1867.	Average of 14 years.	Extremes.	
Mean cloudiness of the year.....	0.61	0.61	0.65	0.57
Most cloudy month	February.	November.	...	...
Greatest monthly mean of cloudiness	0.82	0.74	0.83	0.73
Least cloudy month	September	August.	...	...
Lowest monthly mean of cloudiness	0.29	0.47	0.29	0.50

WIND.

	1867.	Result of 19 years.	Extremes.	
Resultant direction.....	N. 60° W.	N. 61° W.	...	...
Resultant velocity in miles	2.05	1.89	...	...
Mean velocity, without regard to direction.....	7.00	6.89	8.55 in 1860.	5.10 in 1853.
Month of greatest mean velocity	December.	March.	Mar. 1860.	Jan. 1848.
Greatest monthly mean velocity.....	10.32	8.83	12.41	5.82
Month of least mean velocity	June.	July.	August, 1852	Sept. 1860.
Least monthly mean velocity	4.13	4.95	3.30	5.79
Day of greatest mean velocity.....	May 1.	...	Mar. 19, '59.	Dec. 2, 1848.
Greatest daily mean velocity	20.99	23.05	31.16	15.30
Day of least mean velocity	Aug. 7.	...	...	...
Least daily mean velocity.....	0.28	...	...	...
Hour of greatest absolute velocity.....	Dec. 6.	...	Dec. 27, '61.	Mar. 14, '53.
Greatest velocity	7 to 8 p.m.	...	9-10 a.m.	11 to noon.
	36.8	40.02	46.0	25.6

RAIN.

	1867.	Average of 27 years.	Extremes.	
Total depth of rain in inches	19.041	29.983	{ 43.55 in 1843.	21.505 in 1856.
Number of days in which rain fell.....	110	109	130 in 1861.	80 in 1841.
Month in which the greatest depth of rain fell	May.	September	Sept. 1843.	Sept. 1848.
Greatest depth of rain in one month.....	3.220	3.755	9.760	3.115
Month in which the days of rain were most frequent.....	May.	October.	Oct. 1864.	May, 1841.
Greatest number of rainy days in one month...	18	13	22	11
Day in which the greatest amount of rain fell	April 4.	...	Sept. 14, '43.	Sept. 14, '48.
Greatest amount of rain in one day	1.155	2.088	3.455	1.000
Hour of heaviest rain	Sept. 18.	...	...	...
Greatest amount of rain in one hour.....	{ 3 to 4 p.m. 0.245	...	...	...

SNOW.

	1867.	Average of 24 years.	Extremes.	
Total depth in the year in inches	110.5	62.9	{ 99.0 in 1855.	{ 38.4 in 1851.
Number of days in which snow fell	84	59	87 in 1859.	33 in 1848.
Month in which the greatest depth of snow fell	January.	February.	Feb. 1846.	Dec. 1851.
Greatest depth of snow in one month	42.0	18.0	46.1	10.7
Month in which the days of snow were most frequent.....	January.	January.	Dec. 1859.	Feb. 1848.
Greatest number of days of snow in one month	December.	December.	Jan. 1861.	...
Days in which the greatest amount of snow fell	21	13	23	3
Greatest amount of snow in one day	{ Jan. 20. Mar. 21.	...	Feb. 5, 1863.	Jan. 10, 1857.
Greatest fall of snow in one day	15.0	8.2	16.0	5.5

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CONTENTS.

	PAGE.
I. CHRISTIAN EPITAPHS OF THE FIRST SIX CENTURIES. By the Rev. JOHN McCAUL, LL.D., <i>Conclud.</i>	1
II. MOLLUSCOUS ANIMA. By the Rev. WILLIAM HINCHMAN, LL.S., etc.....	29
III. ON METONYMS, OR TRANSLATED PERSONAL NAMES. By the Rev. DR. SCADDING, Hon. Librarian to the Canadian Institute....	35
IV. SIR WILLIAM HAMILTON'S PHILOSOPHY; AN EXPOSITION AND CRITICISM. By the Rev. J. CLARK MURRAY, Professor of Mental and Moral Philosophy, Queen's College, Kingston.....	57
V. THE ECLIPSE AMONG THE HINDOOS	85
NOVEMBER METEORS	86
PROCEEDINGS OF CANADIAN INSTITUTE:	
Annual Report of the Council for the year 1866-'67.....	87
Communications	87
Treasurer and Auditors' Report	88
Librarian's Report	90
Appendix	92
Meteorological Table for Toronto	i.
Remarks on "	ii.
Meteorological Table for Toronto.....	iii.
Remarks on "	iv.
July Meteorological Table for Toronto	v.
Remarks on "	vi.
August Meteorological Table for Toronto	vii.
Remarks on "	viii.
September Meteorological Table for Toronto	ix.
Remarks on "	x.
October Meteorological Table for Toronto	xi.
Remarks on "	xii.
November Meteorological Table for Toronto	xiii.
Remarks on "	xiv.
December Meteorological Table for Toronto	xv.
Remarks on "	xvi.
Mean Meteorological Results at Toronto for the year 1867.....	xviii.

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