

The Calendar
OF
KING'S COLLEGE,

WINDSOR, NOVA SCOTIA,

FOR THE YEAR OF OUR LORD

1857.

PUBLISHED UNDER THE DIRECTION OF THE BOARD OF GOVERNORS.

HALIFAX:
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1857.

KING'S COLLEGE,

WINDSOR, N. S.

THE Governors of King's College are reminded by the expiration of another academical year, of the pleasing duty of giving to the numerous friends and supporters of the Institution, some account of its affairs and its progress, since the publication of the last Calendar.

I: They rejoice in being able to state that the moral and religious condition of the College, and the general attention to, and advancement in the various branches of study prescribed by the Statutes, on the part of all the Students, have been such as to afford much satisfaction to the several Professors. Not a single case of improper conduct has occurred during the year among the young men, which it has been found necessary to bring under the notice of the Board. For a more detailed account of the studies pursued, and of the relative proficiency of the students, reference may be made to the particular Reports of the President, which will be found in the Appendix. The efforts of all the Professors to promote the advancement of their several classes, in every department of study, have been unwearied.

But the Governors have still to regret their disappointment, that a larger increase has not taken place in the number of those for whom such rich and varied educational advantages have been provided.

They will not enter upon the probable causes of this, but only reiterate their ardent hope that another Anniversary may find our Halls more crowded, and the Chairs of our Professors surrounded by numerous and intelligent youth from all parts of these lower Provinces. A rich literary repast is ready, and there lacketh nothing but the guests to sit down.

2. In the Scientific Department, under Professor HOW, considerable additions have been made to the appliances before on hand, and every suggestion made by him for the benefit of his classes, has met with a ready response from the Governors.

They have the pleasure of calling particular attention to the excellent paper, drawn up by the Professor, on the subject of an important mineral discovered by him in the gypsum quarries at Windsor, which was published by the Board, and has attracted much attention. (See Appendix) At the particular request of Principal DAWSON, of McGill College, Montreal, a specimen of the mineral and its analysis were sent to that distinguished naturalist.

The Governors are happy that one of their Professors has made a discovery which reflects so much credit on himself, and has added to the reputation of the University. Early in the year the Governors caused an advertisement to be inserted in several of the Colonial papers, setting forth the readiness of Professor HOW to undertake the chemical analysis of any subjects that may be sent to him, and also to form classes of students, not otherwise connected with the College, in a general course of experimental chemistry. (See advertisement on cover.)

3. A pleasing intercourse has been opened up by Prof. HENSLEY, with the Smithsonian Institute at Philadelphia, and, by request of the Directors, a system of meteorological observations has been commenced at Windsor, to be interchanged with that Institute, and to be productive, it is hoped, of much scientific advantage on both sides.

The Governors have gladly furnished the necessary means to Professor HENSLEY, for the conducting of these observations, which are now being regularly made.

4. In the last year's Calendar, the Governors had the pleasure of acknowledging an act of judicious liberality on the part of Dr. CHAS. COGSWELL, a distinguished Alumnus of the University, in the donation of £100 for the foundation of a Cricket prize. They have now the pleasure to record a similar act of honorable regard for the place of his early education, in Dr. ALMON, of this city, who has presented to the College the sum of £100, the yearly interest of which is to be appropriated to a prize to be called the Welsford Testimonial, in commemoration of Major WELSFORD, of the 97th Regt., an Alumnus of the College, who so gallantly fell at the taking of Sebastopol, in 1855.

It is with great satisfaction that the Governors record these proofs of regard for the Institution, on the part of those whose professional reputation reflects so much honor upon their College. At the special request of the Incorporated Alumni, regular College certificates, entitling each donor to a Nomination, have been granted by the Board.

5. The Governors are glad, also, to note other instances which testify a continued attachment to the Institution. The Rev. Mr. BLACKMAN, now residing in England, has made application to be allowed to proceed, without personal attendance, to the Degree of D. C. L.

The Rev. RICHARD U. BINNEY, M. A. of T. C. D., and Rector of Bangor, in Ireland, though not an Alumnus of this University, expressed an earnest desire to maintain a literary connection with his native land, by being admitted *ad eundem* at Windsor, and being allowed to proceed to the Degree of D. C. L. To both of these requests the Governors were most happy to give their cordial assent, and these gentlemen are, therefore, now enrolled among the higher Graduates of the College.

It affords the Governors much pleasure here to record another instance of high distinction attained by an Alumnus of this University, in the recent appointment of the Rev. T. SUTHER, D. C. L., to the ancient Bishopric of Aberdeen, in Scotland. It is gratifying to the feelings of all connected with King's College to reflect that, wherever the Alumni may be, or whatever their profession in life, not a year passes without some instance of honorable advancement reflecting credit on the place of their early education.

These cases are always duly commemorated by the Reverend the President, in his admirable addresses annually delivered in the College Hall.

6. The new residences erected for three of the Professors have been completed during the year, and now form a most comfortable and valuable addition to the property of the Institution, insuring likewise, the constant supervision of the Students by all the Faculty, who now reside on the spot.

7. The Collegiate Academy has always formed a very important adjunct to the University, and has furnished a considerable proportion

of its students in years gone by. The Right Reverend the Visitor has added to the inducements at the Academy, by appropriating £90 per annum, in six Scholarships of £15 each, out of the S. P. G. Fund, for the benefit of the sons of poor Clergymen. The recent examinations of the School, have given good evidence of the zeal and diligence of the Master, and the general advancement of the Scholars. Professor STIEFELHAGEN, who is so eminently qualified for the department of Modern Languages, over which he presides, continues to give a large portion of his time and attention to the pupils, and the Governors cannot but express the earnest hope that there may be, ere long, a large increase in the number of Boarders, for whose comfort every provision is made that a fond parent can desire. There is reason to suppose that the completion of railroad communication with Halifax, now confidently expected to be opened before the next Encænia, will, in this respect have a beneficial effect upon both College and School.

8. The Governors, in conclusion, desire again to commend the Institutions under their care to the earnest attention of their friends throughout these lower Colonies, in the hope that they will take pains to diffuse accurate information as to the great advantages now open, (in some instances without cost), to all who are desirous of obtaining a thorough education. Notwithstanding all that has been already done to give publicity to these advantages, there is, perhaps, a necessity for further exertions on the part of the friends of the College. The Governors, on their part, assure the friends of sound education that they and the immediate Officers of the University, will continue to devote the most anxious and unwearied attention to the youth who may resort to the Institution, which never was in a more efficient state than at the present time.

By order of the Governors,

JAMES C. COCHRAN,
Secretary.

HALIFAX, July, 1857.

APPENDIX.

KING'S COLLEGE, WINDSOR, N. S.

FOUNDED A. D. 1789. CHARTERED BY H. M. GEORGE III., 1802.

BOARD OF GOVERNORS

FOR THE YEAR 1857.

The Right Rev. HIBBERT BINNEY, D. D., Lord Bishop of Nova Scotia.

The Hon. BRENTON HALLIBURTON, Chief-Justice.

Rev. GEORGE McCAWLEY, D. D.

Hon. JAMES BOYLE UNIACKE, M. A.

Hon. Mr. Justice WILKINS, B. A.

JAMES C. COGSWELL, Esq., B. A.

JOHN W. RITCHIE, Esq.

Rev. J. W. D. GRAY, D. D., Rector of Saint John, N. B.

ANDREW M. UNIACKE, Esq., D. C. L.

Hon. MATHER BYLES ALMON.

SAMUEL P. FAIRBANKS, Esq., Q. C.

Hon. ALEX. STEWART, C. B., Judge of the Admiralty.

Rev. JOHN THOMAS TWINING, D. D.

J. C. HALLIBURTON, Esq., *Treasurer.*

Rev. JAMES C. COCHRAN, M. A., *Secretary.*

FACULTY.

President of the College.

The Rev. GEORGE McCRAWLEY, D. D.

Professor of Divinity, including Pastoral Theology.

Rev. GEORGE W. HILL, M. A.

Professor of Mathematics, Natural Philosophy and Astronomy.

The Rev. JOHN MANUEL HENSLEY, M. A.

Professor of Chemistry and Natural History.

HENRY HOW, Esq.

Professor of Modern Languages, viz.: French, German, Spanish and Italian; (also qualified to instruct in Drawing.)

HENRY STIEFELHAGEN, Esq.

Librarian and Bursar.

Professor HENSLEY, M. A.

TABLE OF FEES AND DUES

FROM WHICH NOMINEES ARE EXEMPT.

	Currency.		
	£	s.	d.
Matriculation, - - - - -	0	10	0
Tuition, each Term, - - - - -	4	0	0
Modern Languages, per Term, - - - - -	1	0	0
Professor of Natural History and Chemistry, per Term, - - - - -	2	10	0
Library, per annum, - - - - -	1	5	0
Degree of B. A. - - - - -	3	0	0

THE FOLLOWING ARE PAYABLE BY ALL.

Degree of M. A., - - - - -	3	0	0
Any higher Degree, - - - - -	5	0	0
Certificates from the Register, each - - - - -	0	5	0
Every Certificate or Instrument under the seal of the University, - - - - -	1	0	0

EXPENSES.

BOARD—including three meals, which are taken in the College Hall—per week, - - - - -	0	12	6
Attendance, portorage, messenger, and sundry small services per week, in Term time, - - - - -	0	1	0
Do. when two live together, each per week, - - - - -	0	0	9
Luncheon, if required, - - - - -	0	0	3
College road-money, yearly, - - - - -	0	2	6

Students must provide lights and fuel in their own apartments, as also beds and bedding, and room furniture.

THE FOLLOWING SCALE OF FEES HAS BEEN ESTABLISHED IN CONNEXION WITH THE DEPARTMENT OF THE PROFESSOR OF CHEMISTRY AND NATURAL HISTORY.

To Individuals or Companies requiring the analysis of any substance or mineral:

	£	s.	d.
For ascertaining the <i>nature</i> of any such mineral or substance, - - - -	1	0	0
If the <i>quantity</i> , or one or two elements are to be determined, - - - -	1	15	0
If a <i>complete</i> analysis of a <i>simple</i> mineral is required,	3	0	0
If a <i>complete</i> analysis of any coal or other complex substance be required, such as soils, minerals of a mixed nature, &c., - - - -	6	0	0

PRACTICAL AND ANALYTICAL CLASS.

For the above there shall be two Terms—one from September to December 15—the other from January 15 to June 15.
Hours of attendance—from 10 to 12 o'clock.

FEES PAYABLE BY ALL, WHETHER NOMINATED OR NOT.

	Short Term.	Long Term.
Five Lectures per week, - - -	£3 10 0	£5 0 0
Four " " - - -	2 16 0	4 0 0
Three " " - - -	2 2 0	3 0 0
Two " " - - -	1 8 0	2 0 0
One " " - - -	0 15 0	1 0 0

All materials and apparatus provided by the College.

All damage, breakage, &c., to be paid for by the student at cost prices.

Additional charges for increased time.

SCHOLARSHIPS.

THE WILLIAM COGSWELL SCHOLARSHIP,

£30 per annum, open to Candidates for Holy Orders. Under the direction of the Trustees.
Scholar—OCTAVIUS M. GRINDON.

DIVINITY SCHOLARSHIPS,

Paid by the Society for the Propagation of the Gospel in Foreign Parts—open to Students for Holy Orders, actually requiring assistance—and subject to the control of the Bishop of the Diocese.
Ten in number—£30 currency, per annum, each.

PRIZES.

The McCawley Hebrew Prize of £9 sterling, open to all Members of the University who are below the standing for M. A., and who have not already gained the first premium in Hebrew.

THE BISHOP'S PRIZE of £5 in Books.

ALUMNI PRIZES.

£5 to the best Classical Scholar.

£5 to the best in Mathematics.

£5 for the best general conduct, awarded in 1857 to LEWIS BLISS, of Halifax.

£5 to the greatest proficient in Modern Languages.

DR. COGSWELL'S CRICKET PRIZE.

CHARLES COGSWELL, Esq., M. D., has made a donation of £100 to the Governors of King's College, the interest of which is to be expended in the purchase of a set of Cricket bats, balls, &c., to be given to the best player among the winning party of a Cricket match, to be contended for annually, on the College grounds, on some day in the month of September. "The object of the donation is to promote the health of the students, and encourage them in the prosecution of their studies."

DR. ALMON'S WELSFORD TESTIMONIAL.

WILLIAM J. ALMON, Esq., M. D., has endowed King's College with £100, the interest of which is to be appropriated as a prize to be competed for every June, by matriculated students, in their first year. The prize is to be presented by the President in the College Hall, on the 8th September, being the anniversary of the attack upon the Redan, in which Major WELSFORD fell—on which day, in every year, his gallant and loyal deeds are to be commemorated in Latin.

If no candidate shall be deemed deserving of the prize, it will be appropriated to the purchase of books for the College library.

EXTRACTS FROM THE STATUTES.

No Undergraduate shall resort to any inn, tavern, or public house, except for some special cause, to be approved by the President, or shall spend his time in the streets of the town.

All bills of Undergraduates are to be sent by the tradesmen with whom the debts are incurred, to the Bursar, at the end of every Term; and parents are particularly requested to refuse payment of any bills not thus sent in.

The introduction of spirituous liquors into the College, is absolutely prohibited.

The Academical year begins in September and contains three Terms, in which all scholastic exercises shall be performed, and all degrees conferred. Michaelmas Term commences on the first Monday in September, and ends on the 15th December. Lent Term commences on the first Monday after January 15, and ends the Saturday before Palm Sunday. Easter Term commences the Monday after Easter Monday, and ends June 30.

COLLEGIATE SCHOOL, AT WINDSOR,

UNDER THE CONTROL OF THE GOVERNORS OF KING'S COLLEGE.

Principal.

REV. D. W. PICKETT, B. A.

Terms.

BOARDERS—£35 per annum, everything included.

DAY SCHOLARS—£8 per annum.

Instruction in one or all of the four modern languages, by Professor STIEFELHAGEN, £3 per annum.

Vacations.

From July 1 to August 15.

From December 15 to January 15.

There are two exhibitions of £8 and £4 each, to be competed for annually. The first is open to the senior form, and the successful candidate must be qualified, though not required, to enter College. The second is open to the whole school. In both cases the competitors must be of one year's standing.

There are, in connexion with this school, 6 exhibitions, each £15 per annum, tenable for 3 years, to be given to sons of clergymen, and to those who are designed for the ministry. Three are now vacant.

The annual Alumni Prizes of £8 and £4 will be open for competition in June, 1858.

KING'S COLLEGE, WINDSOR.
CHRISTMAS, 1856.

UNIVERSITY EXAMINATIONS.

1. The *B. A. examination* has resulted in granting the certificate *examen subisse* to Mr. P. WISWELL SMITH.
2. The *Responsions* have been passed by the following students:
MITCHELL, STERNS, RUGGLES,
UNIACKE, COWIE, MOREN.
3. The Rev. T. J. M. W. BLACKMAN, B. A. of this University, having performed the required exercises to the satisfaction of the appointed examiner in Civil Law, and having obtained a special license from the Governors, was duly admitted in Convocation D. C. L., by accumulation.
4. The *Hebrew examination* has been postponed until the last week in Lent Term, when the subjects for the Christmas examination following, will be announced as heretofore.

COLLEGE EXAMINATIONS.

MICHAELMAS TERM.

IN LITERIS HUMANIORIBUS.	IN DISCIPLINIS MATHEMATICIS ET PHYSICIS	IN THEOLOGIA.		IN SCIENTIA NATURALI.	IN LINGUIS RECENTIORIBUS.
		SCHOLARES FACULTATIS.	SCHOLARES ARTIUM.	PHYSIOLOGIA.	TEUT.
Bliss. J. J. Hill, Grindon,	Bliss, Grindon, J. J. Hill,	Gray, Almon,	Cowie,	Grindon, J. J. Hill, Bliss, Tays, Green.	Sterns, Grindon, W. H. Hill, J. J. Hill, Bliss, Ruggles, Uniacke.
Sterns, Mitchell, Uniacke, Ruggles, Moren, Cowie,	Mitchell, Cowie, Sterns, W. H. Hill, Uniacke, Moren, Ruggles,	J. J. Hill, Grindon, Sterns, Uniacke, Tays, Green, Ruggles.	Mitchell, Moren, Fraser, W. H. Hill, H. Ruggles, Van Buskirk, H. M. Gray.	<i>Chem. Org.</i> Cowie, Moren, W. H. Hill, Sterns, Uniacke.	<i>Gall.</i> W. H. Hill, Bliss, Uniacke, Sterns, Fraser, Moren, Ruggles, H. Ruggles,
Tays, Green,	Fraser, Van Buskirk, H. M. Gray, H. Ruggles.			<i>Class. Gen.</i> Cowie, Moren, W. H. Hill, Sterns, Mitchell, Ruggles, Van Buskirk, Fraser, H. Ruggles.	Cowie, Mitchell, Van Buskirk, H. M. Gray.

THEOLOGY.

I. The instruction has extended to the analytical reading of the few first and the latter chapters of Genesis, in Hebrew. The Acts of the Apostles, the Epistle to the Hebrews, and the Pastoral Epistles have been critically read in Greek, and references have been made to the Septuagint in all the quotations. The Old Testament history has been studied with care; Pearson and Burnet have been continued; and attention has been drawn to the Liturgy in its history, its substance, and the proper mode of reading it, as well as to the composition and delivery of sermons both doctrinal and practical.

CLASSICS.

II. The usual Greek and Latin classical authors assigned to each year have been read, with attention to grammatical precision, and constant reference to critical and philological sources of information. Essays and other exercises have been written during the term.

MATHEMATICS AND NATURAL PHILOSOPHY.

III. In the exact sciences, the best text books in use in the University of Cambridge continue to be employed. In addition to the solution of problems in the lecture room, the practical use of instruments in the field has engaged much attention.

NATURAL SCIENCE.

IV. In the Natural Sciences the Professor has proceeded in his comprehensive course to consider Anatomy and Physiology, and has referred to the text of Lambert in illustration of his lectures. In Organic Chemistry he has continued his references to Draper. The subjects of these lectures have embraced a great variety of useful and interesting matter, the details of which would exceed the limits of this summary. The Governors have continued to enrich this department by valuable additions of books, instruments, and apparatus.

MODERN LANGUAGES.

V. The text books lately imported and introduced into this department have been proved to be excellently adapted to their object, and have led to satisfactory results. The elements of the languages, their grammatical forms, and conversational and proverbial idioms have been minutely studied; and some of the best authors, including portions of Schiller's poetry and prose for the seniors, and of Grimm's works for the juniors, have been translated and critically analyzed.

PROFICIENCY.

VI. The Professors are of opinion, on a review of the whole work of the term, that the proficiency of the students has been in general very commendable. The same diligence and attention concentrated on fewer subjects would no doubt have led to greater individual progress in each. This point has already been considered, and will be especially attended to in arranging the next Horarium.

DISCIPLINE.

VII. The President's opinion has been corroborated by that of all the Professors, in their reports of the general good conduct and moral behaviour of the students during the past Term. If occasional violations of rule have occurred, they have been speedily met by enforcement of statute; and it is believed that a feeling of true self-respect and due submission to authority pervades the whole collegiate society.

MATRICULATION.

VIII. It is particularly to be noted by those who are preparing themselves for Matriculation, that candidates will be examined (1) in the *Grammars* of the languages separately, (2) in Latin composition, and (3) in the Latin and Greek authors read analytically. This is an important memorandum for those who desire to obtain the exhibition prize at Matriculation, creditable rank at Responsions, or any of the higher honors of the University. Mr. JEDEDIAH ANTHONY SHAW has been admitted a student in Practical Chemistry and the Natural Sciences.

LENT TERM.

XI. Lent Term will commence on Monday, January 19, and will end on Saturday, April 4th, 1857.

GEORGE McCRAWLEY,
President.



KING'S COLLEGE, WINDSOR,
EASTER, 1857.

LENT Term has closed with the usual examinations, which commenced on Monday and were continued to the end of the week.

The *Biblical Hebrew and Greek* examination embraced the life of David in Hebrew Bible and Septuagint, the Gospel of St. Luke and the Epistle to the Galatians in Greek Testament. The subjects for the ensuing year will be the book of *Deuteronomy* in Hebrew and Greek, the *first six Psalms*, and the *Epistles* of St. Paul to *Timothy*.

The *Classical* examination followed, and included portions of the principal authors of Greece and Rome, usually read in the first, second and third year. The Professors of Theology and Modern Languages took a leading part in the *oral* questioning.

The examination in *Mathematics, Natural Philosophy and Astronomy*, comprised a series of questions on the lectures of the term. The Governors have enabled the Professor to import from London some valuable instruments which were required in his department. He has commenced a register of meteorological and other phenomena, and has opened with advantage a correspondence with Scientific Societies.

The *Theological* examination extended to portions of the Greek Testament, Church History, Butler and Pearson. The questions on the Old Testament History were drawn principally from Graves, Shuckford, Prideaux and Russel. The Standard Works imported last year, have been useful auxiliaries in this course. It is to be regretted that so few students continue to reside in College during their *fourth* year to avail themselves of the important advantages of this Professorship. The Governors have sanctioned the discontinuance of the Saturday Evening Divinity Lecture.

The subjects of *Natural History* which occupied the attention of the students during the term, have been Geology and Physiology, Electricity and Magnetism, with a continuation of Chemistry. The Geological collections imported last year, and the diagrams and books lately supplied by the Governors, have enabled the Professor to furnish

the most satisfactory illustrations to his classes. It is pleasing to find that the importance of these subjects is beginning to be appreciated, and that non-residents are now availing themselves of the valuable opportunities which the College places within their reach. The Professor has submitted to the Governors an interesting paper on a Mineral he has lately discovered in a Gypsum quarry in the vicinity of the College.

A brief description and analysis are subjoined in the Professor's words:

"The mineral Natro-Boro-Calcite may be known by its occurring in the body of the plaster-rock, in the form of nut or egg-like masses, which on being broken open shew an opaque white surface of a silky texture. It is tasteless, and not soluble in water; it contains in 100 parts, by analysis.

Soda	7.21
Lime	14.20
Water	34.49
Boracic Acid.....	44.10
	<hr/>
	100.00

These ingredients are considered to shew a volcanic origin for the mineral and the plaster-rock, and will certainly make such a substance valuable if found in large quantity."

The examination in *Modern Languages* evinced the care with which the niceties of pronunciation and style have been attended to, both in French and German. Parisian conversations were carefully analyzed and explained, and portions of the best German tragedies and lyrical poems translated with intelligence and grammatical accuracy. The "*agrotant*" towards the close of term (with the Physician's certificates) have been numerous, and interfere with the publication of the usual lists.

Candidates for *The Lord Bishop's Prize* are reminded, that the subject announced is "*Contrast of Scripture Prophecy with the Oracles and Divinations of the Heathen.*" No prize will be given unless there be at least *three* candidates, and the Essays must be given in on the 9th May at latest.

DEGREES.—The Rev. RICHARD BINNEY, M. A., Incumbent and Rural Dean of Bangor, County Down, Ireland, *ad eundem* from Trinity College, Dublin, has been admitted to the degree of D. C. L.

Entrances during the term have been Mr. MACK from Liverpool, as a student in Science, and Mr. CLARKE, who has been *matriculated* after a creditable examination from the tuition of Rev. Mr. MULHOLLAND, of Halifax.

The Rev. J. W. D. GRAY, D. D., and Rev. J. ROBERTSON, L. L. D., with J. C. COGSWELL, Esq. B. A., have been appointed *University examiners*.

Easter Term will commence on 20th April, inst.

GEORGE McCAWLEY,

President.



KING'S COLLEGE, WINDSOR,

JUNE 30, 1857.

The usual University Acts appointed for Midsummer have been statutablely performed. The *B. A. examination* was entrusted to the Rev. J. W. D. GRAY, D. D., the Rev. J. ROBERTSON, L. L. D., and J. C. COGSWELL, Esq., B. A., who, after three days' careful attention, granted the Certificate *Satisfecit* to Mr. L. H. BLISS.

The *Terminal Examination* furnished the following tabular results in the respective departments of study:

IN LITERIS HUMANIORIBUS.	IN DISCIPLINIS MATHEMATICS ET PHYSICIS.	IN THEOLOGIA.	IN SCIENTIA NATURALI.		IN LINGUIS RECENTIORIBUS.
			PHYS. ANAT. ET ZOOLOG.	BOT.	TEUT.
Hill, Grindon,	Grindon, Hill,	Almon,	VanBuskirk, Sterns, Mitchell,	Grindon, Sterns, Ruggles,	Sterns, Grindon,
Sterns, Mitchell, Uniacke, Ruggles,	Mitchell, Sterns, Ruggles, Uniacke,	Grindon, Hill, Tays, Uniacke, Sterns, Ruggles, H. Ruggles,	Fraser, Uniacke, Ruggles, Mack, H. Ruggles,	Hill, Mitchell, H. Ruggles, VanBuskirk, Mack, Uniacke.	Hill, Uniacke, Ruggles, <i>Gall.</i>
Fraser, Gray,	Fraser, H. Ruggles, Gray, Mack, VanBuskirk.	Fraser, Mitchell, Gray, VanBuskirk, Mack.	<i>Chem.</i> Fraser, VanBuskirk, Ruggles, Mack,		Sterns, Fraser, Uniacke, Ruggles,
Moren, ægrot.			<i>Geol.</i> Hill, Grindon.		Mitchell, H. Ruggles.

The *Hebrew Prizes* were awarded to W. GRAY and H. P. ALMON, as *third classmen* in this department.

The Testimonial for *good conduct* was adjudged to L. H. BLISS. Honorary Scholar.

Dr. ALMON's *Welsford Testimonial* will be assigned to J. FRASER.

The *Matriculation exhibition* has been given to C. J. UNIACKE, and the Second prize to J. A. KAULBACH.

On Wednesday, June 24th, the Associate Alumni met in the College Hall, and elected Honorable Judge STEWART, C. B., and Rev. J. T.

TWINING, D. D., to be Governors in place of Rev. Professor HILL, M. A., and Rev. W. BULLOCK, retiring in rotation.

On Thursday, 25th, at 10 A. M., the whole Collegiate body moved in procession to the Parish Church, where Divine Service was held by the Rector, assisted by Rev. E. E. B. NICHOLS, M. A., and Rev. H. L. YEWENS. The Rev. Dr. GRAY then ascended the pulpit, and preached an eloquent sermon before the University. At noon the Convocation assembled in the Public Hall, and the Benefactors of the University were commemorated. The Professor of Chemistry and Natural History delivered a lucid and instructive discourse on the Natural Sciences, which in a moderate compass comprised a large amount of important information, communicated in pleasing style and manner.

The Rev. D. W. PICKETT, B. A., read as the exercise for his degree an historical Essay, on the means employed by Divine Providence in diffusing the truths of Christianity.

The Grace and Supplications were then proposed and passed, and the following degrees were conferred, two being subjoined which were unavoidably deferred until a subsequent Convocation held next day.

MASTERS.

Rev. T. MAYNARD, B. A., Rector of Windsor.

“ D. W. PICKETT, B. A., Head Master, Collegiate School.

“ W. STUART, B. A., Harrow.

A. W. SAVARY, B. A., St. John, N. B.

BACHELORS.

Rev. T. D. RUDDLE, B. A. (T. C. D.) *ad eundem gradum.*

C. MCCOLLA.

H. P. ALMON.

W. S. GRAY.

R. T. BRAINE.

P. W. SMITH.

S. P. FAIRBANKS, Esq. Q. C., a Governor of the College, and senior member of the Institution, in a very gratifying speech, proposed that a vote of thanks should then be given to the Rev. Dr. GRAY, for his excellent sermon. This motion was seconded by HARRY KING, Esq. D. C. L., and being put to Convocation, passed with unanimous applause, and was appropriately acknowledged.

A. M. UNIACKE, Esq., D. C. L., President of the Alumni, then addressed to the students many timely and useful observations with reference to the prizes, and the Convocation was dissolved.

The Governors afterwards met and passed a resolution requesting the publication of Dr. GRAY'S sermon.

MATRICULATIONS.

E. ANSELL. C. J. UNIACKE.

The report of the Professors relative to the examination of the Collegiate School, declaring the evident improvement of the pupils during the last half year, was inspected and approved.

GEORGE McCAWLEY,
President.



CURRICULUM, OR COURSE OF STUDY, &c.

CLASSICS.

THESE consist of Historians, Orators, Poets and Philosophers. Portions of the Standard Greek and Latin authors under each of these denominations, are studied.

In the First Year.

Homer's Iliad or Odyssey.
Xenophon's Cyropaedia or Anabasis.
Demosthenes' select Orations.
Horace Satires and Epistles.
Livy, first or third decade.
Cicero de Officiis and Orations.

In Second Year.

Herodotus, Thucydides, Euripides.
Virgil's Georgics, Terence occasionally.
Tacitus: Germania, Agricola.
Juvenal and Persius.

In Third Year.

Sophocles, Æschylus, Longinus.
Aristophanes occasionally.
Tacitus and Juvenal, continued.
Lucretius occasionally.

Variations in this Course are sometimes admitted; and other authors, such as portions of Pindar, of Plato and of Aristotle's Ethics

and Poetics, under favorable circumstances, are read; but the Degree subjects are usually Euripides, Sophocles, Æschylus, Longinus, Tacitus, and Juvenal.

In *Logic*, Aldrich's treatise with reference to Whateley and others.

In *Rhetoric*, Aristotle, Quintilian or Cicero de Oratore with reference to Whateley and others.

Suitable Exercises, Themes and Essays are required.

HEBREW.

The Grammar is carefully studied, and references to the best Subsidiary aids are constantly made.

Portions of the old Testament are critically read and carefully compared with the variations in the Septuagint, and examination papers frequently written.

GEORGE McCAWLEY.



THEOLOGICAL DEPARTMENT.

PROFESSOR HILL.

First Year.

Gr. Testament: (Bloomfield) St. Matt. St. Mark.
 Old Testament History; with Horne's Analysis
 of Historical books.
 Burnet on the Articles.
 Liturgy, Texts with Wheatley.

Second Year.

Gr. Testament: St. John. Acts.
 Jewels' Apology, (Latin.)
 Burnet on the Articles.
 Liturgy. Wheatley.
 Old Testament History.

Third Year.

Gr. Testament: Epistles.
 Grotius de Ver. Rel. Christianæ.
 Ecc. History: Mosheim.
 Pearson on the Creed.

Fourth Year.

PREPARATION FOR ORDERS.

Gr. Testament: Epistles.
 Pearson on the Creed.
 Hooker's Ecc. Polity.
 Butler's Analogy.
 Potter on Church Government.
 Magee on the Atonement.
 Composition of Sermons.

MATHEMATICAL COURSE.

PROFESSOR HENSLEY.

First Year.

Arithmetic.—COLENZO.
 Algebra.—COLENZO.
 Euclid I to VI.
 Elements of Plane Trigonometry.—GOODWIN.

Second Year.

Algebra.—COLENZO.
 Plane Trigonometry applied.
 Spherical Trigonometry, with its application.—HALL.
 Euclid XI.
 Conic Sections.—GOODWIN.
 Statics.—GOODWIN.

Third Year.

Dynamics.)
 Hydrostatics.) GOODWIN.
 Optics.)
 Astronomy.)

This is the usual course, though occasionally varied if required.

LECTURES IN CHEMISTRY & NATURAL HISTORY

PROFESSOR HOW.

First Year.

Chemistry and Mineralogy.
 Powers of Matter.
 Attraction, Heat, Light.
 Electricity, Chemical Attraction.
 Elements, Minerals.

Second Year.

Organic Chemistry.
 Human Physiology.
 Botany in Summer Season.

Third Year.

Zoology and Geology.
 Botany in Summer Season.

TEXT BOOKS.

Chemistry.—DRAPER'S *Chemistry*.
 Mineralogy.—WALE'S *Mineralogy*.
 Physiology.—LAMBERT'S *Physiology*.
 Geology.—LOOMIS'S *Principles of Geology*.

The above is, as nearly as may be, the course of instruction.

LECTURES IN MODERN LANGUAGES.

 PROFESSOR STIEFELHAGEN.

FRENCH.

First Year.

Ollendorff's Grammar, combined with a systematic course of the pronunciation and the regular and irregular verbs. In this year the scholars read the reading-pieces in *Pinney's First Book of French*, because I find them excellent to practise the pronunciation.

Second Year.

Continuation of *Ollendorff's Grammar*. The scholars begin to read and learn by heart the "*Causeries Parisiennes, by Peschier*," a book which I find better adapted for my purpose than any I ever met with. They are supposed to finish OLLENDORFF'S Grammar in two years, at latest. If it is finished sooner, I begin my course of Syntax, &c., which is generally reserved for the third year, in the second.

Third Year.

In this year, I go through a regular course of Syntax, partly as a repetition, and partly to supply the wants of OLLENDORFF'S system. The scholars are then supposed to be familiar with all the leading rules of Syntax from OLLENDORFF'S Grammar, and, in going through them again, I call their attention to the niceties, dictate rules on them, and cause the class to practise them, by writing exercises after *my own dictation*, principally consisting of *letters* and *conversations* on *topics of general interest*, &c. In this year I have, moreover, constant *verbal* exercises in conversation, and the scholars are obliged to speak French as much as possible. They read *Christomathie Francaise, par Boniface*, an excellent book, containing all the varieties of style to be found in French authors.

GERMAN.

First Year.

OLLENDORFF'S Grammar, combined with a regular course of the pronunciation and the regular and irregular verbs. *Adler's Reader*.

Second Year.

Continuation of OLLENDORFF'S Grammar. The scholars continue to read *Adler's Reader*, and begin SCHILLER'S *Lyrical Poems*, and one of his *Comedies* in prose.

Third Year.

In this year I follow the same plan as in French. The scholars read one or more of SCHILLER'S Tragedies, besides one of the Comedies in prose, by the same author.



DEGREES CONFERRED

SINCE THE CALENDAR FOR 1856 WAS ISSUED.

D. C. L.

T. J. M. W. BLACKMAN, 1856. | R. BINNEY,.....1857.

M. A.

T. MAYNARD,1857. | W. STEWART,1857.
D. W. PICKETT,1857. | A. W. SAVARY,1857.

B. A.

T. D. RUDDLE, *ad eun*, 1857. | W. S. GRAY,1857.
C. MCCOLLA,1857. | R. T. BRAINE,1857.
H. P. ALMON,1857. | P. W. SMITH,1857.

MATRICULATIONS AND ENTRANCES FOR ELECTIVE STUDIES.

H. L. RUGGLES, E. S., 1856. | H. N. CLARKE,1857.
T. A. SHAW, E. S., 1857. | E. ANSELL,1857.
J. F. MACK, E. S., 1857. | C. J. UNIACKE,1857.

HOURS OF PRAYER 7.30 A. M., 3.30 P. M.
HOURS OF MEALS Breakfast 8, Dinner 3.50, Tea 7.30.
EVENING BELL 10 P. M.

KING'S COLLEGE, WINDSOR,
March 31, 1857.

NOTE ON AN INTERESTING MINERAL RECENTLY FOUND IN THE GYPSUM OF NOVA SCOTIA.

The following note contains the result of a chemical examination I have just made, in the laboratory of this College, of a mineral found, a short time since, in the Clifton gypsum-quarry, lately the property of Judge HALIBURTON, now in the possession of J. PELLOW, Esq., of this town. I make known these results, and at the same time offer a few remarks upon the interest which attaches to the mineral, as I imagine they may prove acceptable to the lovers of natural history and the promoters of its study. It is not impossible, moreover, that the mineral may be found to have some little commercial importance, for reasons which I will presently mention.

The substance I refer to was observed by the quarry-men, along with another mineral, the Glauber-salt, and both differ so distinctly from the plaster-rock in which they occur, as at once to have attracted notice; but the Glauber-salt, from its "ice-like" appearance, was the one the most remarked, and, as it has the property of crumbling down by exposure to air, so as, to the uneducated eye, to resemble the other, the first mineral was taken by the workmen for the second altered by exposure, and they were both called, indiscriminately, "salts."

My attention was drawn to the Glauber-salt by Mr. VAN BUSKIRK, a gentleman studying here, and he kindly obtained me specimens, upon which I at once saw two minerals were present. I hastened to the spot, and procured sufficient of both for my purpose, and the workmen informed me they had found the "salts" "in bowlfuls," but let it go with the plaster, and also that they had before met with the same substance.

The Glauber-salt has, indeed, been recognized by Dr. HARDING, as agreeing perfectly with the sulphate of soda of commerce, so-called; but I believe he has never met with specimens of the natural product so beautiful as those obtained on this occasion, among which I saw crystals one inch and a half in diameter.

Upon examining—by its physical properties and chemical analysis—the other mineral, I found it to correspond closely, in character and composition, with one found in Peru, and, till the present time, only in that locality, and I feel warranted in pronouncing them essentially identical. The substance is called "Tiza," by the Peruvians, and I was familiar with its appearance, from having seen it in the laboratory of Dr. ANDERSON, in Glasgow, to whom it was sent for examination. This acute chemist proved it to be a mineral of remarkable composition, and singular interest from the geological formation in which it occurs. It was originally examined by Dr. HAYES, of Boston,

who overlooked an important ingredient, and subsequently by a European chemist named ULEX, who gave it the name of Natro-Boro-Calcite, to indicate that it consisted of borax and borate of lime; or a combination of water, soda, lime and boracic acid. My analyses lead me to the same conclusion with regard to the Clifton mineral.

I refrain from giving numerical details, which I reserve for communication to the scientific journals of England and the United States, but may mention that I found all the constituents in the quantities characteristic of the above mineral, and of these boracic acid formed upwards of forty parts in the hundred.*

The points to which I will confine myself as having an especial interest here, are these: First—the rarity of the mineral, it having hitherto been found only in Peru, and there in no large quantity. Secondly—the novelty of the geological position in this Province. So far as is known, the Tiza is met with only in the nitrate of soda beds in Peru, which are superficial upon the soil in certain districts in that country, while with us it occurs in the solid body of a rock some thirty feet below the surface. Thirdly—the nature of the substance, the boracic acid it contains having, as yet, been found abundantly only in volcanic regions—a character belonging, it is believed, to the nitrate of soda beds in Peru. This fact suggests some speculations as to the origin of the gypsum here, into which the fear of being too prolix forbids me entering. There is, however, a fourth point to which I would allude: it is the practical value of such a mineral as I have described. Borax might very readily be obtained from it, and this is a salt employed to a considerable extent in some arts, and which would probably be more used but for its somewhat high price, the commercial supplies being mainly drawn from Thibet, where the source is by no means very plentiful.†

If now the mineral Natro-Boro-Calcite should prove abundant in the gypsum—and it is clear, from the statements of the quarry-men, that it has been met with before, and thrown away as useless—it would be far more profitable than plaster, and I think the owners of plaster would do well to direct the attention of their workmen to its occurrence. It is easily recognized by its silky texture, in which it differs strikingly from the changed Glauber-salt, and from common plaster. I have placed specimens in the mineralogical collection of King's College, for reference.

In conclusion, I would just advert to the obvious propriety of having, in educational establishments, the means of recognizing the various productions of nature, which may form, as in this case, upon their being met with, very pertinent illustrations to students, and afford valuable additions to our somewhat imperfect knowledge of the Natural History of the Province.

HENRY HOW.

A DISCOURSE ON THE NATURAL SCIENCES,

DELIVERED BY PROFESSOR HOW, AT THE ENCENIA, KING'S COLLEGE, 1857.

I HAVE been requested by the Rev. the President of this University, to make a few observations on the branches of study with whose conduct I am charged in the plan of education here pursued. The object of any remarks made in respectful compliance should be, as I understand it, to state as clearly as lies in my power the names and nature of those branches of study—their uses as elements of education, and as directly applying to the business of active life—and the general tendency of such studies in contributing to the real welfare of those who undertake them. It is under such heads that I propose arranging the few sentences put together with a view of accomplishing that object.

The Chair of which I have now to speak is entitled in the Book of Statutes that of Chemistry and Natural History, with Botany, and as no precise details are given of the duties, and as many persons have no very settled notions of the many events of subjects generally held to make up the above departments of study, it may not be uninteresting to inquire a little into the facts of the case, and see if there exist in Universities in various countries, any one plan of grouping these subjects. I shall be able to show that no such plan exists, and that the same names include very different things in many places in the same country, so that it is not surprising if one country holds an opinion varying from that of another.

With regard to Chemistry, it is perhaps universally and correctly considered to be that science which teaches the materials of which all earthly things are composed, the nature of these matters in their separate condition, their natural affinities, and the general principles upon which they unite and are held together, constituting that vast assemblage of objects which, in the aggregate, are called the World. It is held peculiarly to have to do with building materials and the modes in which, according to certain laws of combination, these are made to construct the substance of all created things, whether they have life, or are without it. Hence it follows that if we are to study any object of which we take cognizance by our senses, any thing that we see or touch, or taste or smell, we must, in order to understand it thoroughly, necessarily consider it in the first place in a chemical light—we must look to its chemistry—learn what it is made of, and how it is made, of what it consists. On this point there is no difference of opinion in the places, whose number is constantly increasing from the resistless demands of mankind in this age for useful instruction, where Chemistry is taught and valued.

* These details appear in Silliman's Journal, September 1857.

† In a letter sent to Mr. Pellow from England in consequence of this notice being seen there in a Canadian journal by some gentleman connected with the Potteries, the writer mentioned that Borax would be worth £35 or £40 Sterling a ton, shipped to Liverpool.

The subject of Botany is less rigidly defined. It is, of course, generally held to be the study of the vegetable kingdom, but the mode in which it is discussed varies according to the aspect in which it is viewed. In Medical Schools, *e.g.* attention is particularly directed to the properties of plants, and the subject of structure is gone into only sufficiently far to enable medical men to discriminate between such plants as are useful as remedial agents, and such as are not so; such as are poisonous, and such as are harmless. This, though an important, is but one of the partial modes of studying Botany, and the plan pursued in places where it is taken up as a science, is to view the vegetable kingdom as a unity, to consider in their relative importance, the composition of plants, the functions and structure of their parts, and their properties as seen in their uses to, or ill effects upon, animals, and hence to deduce philosophical rules, by which the multiplied forms of vegetables may be classed as one great department of nature for the convenient study of man, in what direction soever he may seek to apply his knowledge.

If any thing like a correct idea of the objects of Botany has been conveyed in the few preceding words, we are at once in a position to see that difficulty may arise, when *it* is made something apart from Natural History, as to what the latter term includes. It is upon this point that, as I have already observed, there is found very considerable diversity of opinion, and we have only to look at the groups into which natural objects almost spontaneously fall, in order to see that the history of nature must be read, as it were, in different chapters, each of which shall treat of some particular set of things; and the difficulty appears to lie in deciding which of these chapters should go together, if all are not taken into consideration, in order to present the least imperfect idea of the entire subject.

The objects we meet with in nature on the surface of the globe, either have or have not life; those which live must be either vegetables, and be discussed in Botany, or else animals, and must be studied in what is called Zoology. Natural objects without life are minerals and rocks, and their particular study is therefore divided into Mineralogy, and, in a partial sense, Geology, or more correctly Petralogy. If we penetrate below the surface of the earth we find no life, but we meet with abundant evidence that it has once existed, and in very different forms from those now possessed on our globe; the study of these forms, and the causes which have placed them where we find them, and given the present conditions to our earthly habitation, of sea and land, with the arrangement of its mineral contents within, and the surface distribution of its animals and vegetables, is properly termed Geology; and a moment's reflection shows that this term, used in its right sense, really means Natural History—neither more nor less; this meaning, however, has only recently been given to Geology, which has been held to be the separate study of rocks and fossils. In proof of what I said of the difference of opinion on these subjects, I may mention that in Edinburgh and Glasgow Natural History includes Zoology, Mineralogy and Geology, to the exclusion of Botany;

while in the Queen's Colleges in Ireland it includes Zoology and Botany, but excludes Mineralogy and Geology. Oxford, Cambridge and Dublin, ignore the term Natural History, but recognize Mineralogy and Botany, to the exclusion of Zoology. I could cite numerous other instances, but these names are wearisome to listen to, and I will only add further on this subject a few remarks of Dr. FLEMING, Professor in the New College in Edinburgh, which have been considered of value throughout Great Britain, as clearly expressing the true manner in which those studies should be subordinated. He says to this effect:

“Before proceeding to the examination of any of the branches usually included under the term Natural History, the student should prepare for the task by attending to Natural Philosophy and Chemistry; for the intelligent inquirer in the present day seldom restricts himself to observation—he also experiments, and calls to his aid the balance, the crucible and the microscope. In proceeding to contemplate the different branches of Natural Science, an obvious division presents itself into inorganic and organized beings—the dead and the living—the laws regulating each being essentially different. Viewing the lifeless kingdom in all its bearings, we would propose the successive study of the air, the waters, the minerals, the rocks, which together may be called Mineralogy, and which should be studied after Chemistry, for this science must, in the very first step of the process, make us acquainted with the nature of the materials and their state of combination, before the building up of the object can be contemplated. For instance, the inquirer may soon learn to call a mass of rock *granite*, as he might designate a plantation a clump of *trees*; but, if he was not acquainted with the materials, and the condition of arrangement in the three minerals—quartz, felspar and mica—and the difference between the force which constructed the individuals, and that which united the three very different species into one mass, he has proceeded but a short way in the study. The living kingdom, while obviously consisting of plants and animals, presents a field which may be regarded as common to both subjects, involving the consideration of the laws of life, by which chemical combinations, as existing in dead matter, are modified, the development of organisms, and the distribution of species. Botany, then, would include the study of recent and extinct plants; Zoology of recent and extinct animals—each having to do with a physiology, or study of functions. In this way Geology, instead of being regarded as a separate branch of knowledge, is really identical with Natural History. To justify this remark, I would take leave to state that, in order to peruse intelligently any of the most popular treatises on Geology, the reader would require to be conversant, to some extent, with Natural Philosophy, Chemistry, Mineralogy, Petralogy, Botany and Zoology. The truth seems to be that every writer on Geology, aware of the indefinite character of his subject, thinks himself justified in bringing in

every conceivable if readable matter, while the lecturer thinks he can fairly employ every thing speakable. It may here be asked, How is this tolerated? Why is the subject so popular? In answer, we simply refer to the well-known fact that the majority of readers and hearers of scientific subjects treated in a popular way, are delighted to wade in waters beyond their depth, and this occasions no alarm, because they have always sufficient floating power to keep them at the surface."

He concludes his remarks by apologizing for the somewhat decided tone in which they are expressed, which he was led to adopt because, in a long experience, he had found persons eager to study Mineralogy before they had attended to Chemistry—to study rocks before they knew simple minerals—and to become acquainted with Paleontology before they had begun to study recent plants and animals.

I confess I was pleased to meet with the paper from which I have just quoted, because the ideas there expressed coincided with my own on these subjects, and confirmed me in continuing the plan I had sketched out for my own course. This has been to devote the first portions of time given to my department, entirely to Chemistry and Mineralogy, and after this to consider the principles of animal and vegetable Physiology and Structure, and finally to take up Geology as a grouping together of previously acquired knowledge, with a view of learning by what agencies the present state of our globe has been produced.

If, now, we leave these perhaps too arid details of names descriptive of certain studies, and turn to the things to which they refer, in order to see of what direct use a knowledge of them is in the active concerns of man's life, we are met by a mass of facts which render it unnecessary for us to deal in vague generalities.

In the first place, man carries so many chemical operations about with him, and is so unceasingly dependent upon chemical processes for the continuance of his life, that, from the first hour in which he was placed upon the earth till now, he has had necessarily to resort to the practice of Chemistry, in the earliest ages pursued in total ignorance of its principles, in order to sustain his existence. The constant dealing with material objects, and the continual witnessing of changes the effect of his operations, could not fail to awaken his instinctive curiosity as to what would be the effect of modifications of these processes, and their application to things less commonly met with than those which subserved his daily purposes of common life.

Of these first attempts no record has descended to us, and it is not among their results, therefore that we are to hope to find the origin of Chemistry even as an art, but the striking effects of the doubtless few operations carried on of old furnished illustrations which were not lost sight of by observers, for SOLOMON tells us that, "As vinegar upon nitre, so is he that sings songs to

a heavy heart," (Prov. xxv. 20.) Nor, perhaps, are we justified in thinking that, because the word Chemistry is probably derived from an Egyptian root, this people had any knowledge of the composition of things, for the word *chems*, to which I refer, is said to mean obscure or dark, and possibly shows us rather how mysterious all such processes were to them.

It is not, indeed, till a much later period in the earth's history, and when a settled purpose had dawned upon men's minds, that we can observe any thing like an application of chemical knowledge of the properties of objects. At first this was seen in the most dreaming and visionary schemes, when in the seventh century of our era the Alchemists began to try and make gold from lead and other base metals—to discover the elixir which was to give a long life, prevailing over the statute of death—and the universal solvent, which was to reduce all things to a fluid state. There was an enduring twilight, and it was only in the beginning of the seventeenth century that the glimmer seemed to grow into something like clear light, and reason began to direct the efforts of man upon more fixed principles, to the discovery of what was useful to him in health, and beneficial in sickness. Cheering as it dispelled the mists of ignorance, and revealed the countless wonders these had concealed, the increasing light illumined the minds of votaries constantly growing in number and power, and in the beginning of this century came DAVY, who may be said to have been the very chief of those who fairly established Chemistry as a science—no longer a dark mystery nor a clumsy art, but a truly inductive science, founded upon the accurate observation of facts, and the tracing of them to their proximate causes.

To enumerate the material benefits man has derived from the diffusion and application of this kind of knowledge, would be to enter into a minute history of every thing we eat, drink, wear, live in, or come in contact with in daily life; and so thoroughly to compare our own improved earthly condition with that of those who lived before it was possessed by man. I need only mention the manufacture of gas, the beautiful arts of Photography and of dyeing, to bring this home to the mind of the most careless observer. And among countless other gifts of pure and mixed Chemistry to mankind, the physician has received his quinine, his morphia, his ether and his chloroform, to lessen and assuage the sufferings of humanity, and the farmer his guano and other fertilizers, to convert his barren land into teeming soil.

On comparing the acquirements of the present age—our comforts, our sanitary regulations—with the state of things even in the last century, it may with truth be said that human life has actually gained in duration, while its enjoyments have increased a thousand fold. Modern Chemistry has not attempted to convert lead into gold, but it has converted masses of comparatively useless matters into heaps of gold and better things. Millions of pounds sterling have been added to the wealth of England alone, and thousands upon thousands of individuals derive their subsistence from the direct

and indirect prosecution of chemical industry. These facts seem to me worthy the consideration of those countries which do not encourage the study of Chemistry, for, according to HUMBOLDT, "An equal appreciation of all parts of natural knowledge is an especial requirement of the present epoch, in which the material wealth and the increasing prosperity of nations are in a great measure based on a more enlightened employment of natural products and forces. Those States which remain behind in general industrial activity, in the selection and preparation of natural substances, in the application of Mechanics and Chemistry, and in which a due appreciation of such activity fails to pervade all classes, must see their prosperity diminish, and that the more rapidly as neighboring States are meanwhile advancing both in science and the industrial arts, with, as it were, renewed and youthful vigor." These remarks, to the truth of which, I think, every one will assent, prepare us for setting a due value on Natural History; which deals with exactly those substances of which mention has been made. The services of Mineralogy in this respect have been so obvious that it has for a long time maintained a respectable position in most countries favoured with civilization and more or less rich deposits of minerals; and this has also been the case with Geology, since it began to be understood, although it is a much younger science than the other. A knowledge of the forms in which things so valuable to man as lime, sulphur, lead, tin, gold, iron and coal exist as minerals, in order that they may be recognized, and the learning whether they are, from the circumstances of the case, likely to repay the trouble and expense of working, are among the teachings of Mineralogy and are sufficient evidence of its direct or indirect utility. Geology, for its part, tells us where to look for the minerals just named, and while an acquaintance with its principles has led many a man to wealth, an ignorance of them has involved not a few others in ruin, from a fruitless expenditure of time, money and labor in the search for valuable minerals in localities where from the geological formation no such things could, so far as we know, possibly be found. In one of the cases on record in England, a sum not less than £20,000 was wasted in a search for coal where it could not exist. The same science too, instructs the Civil Engineer in what direction he may most profitably make his roads, and it now forms part of his professional education; it points out to the settler where to select a site for his farm, and benefits the agriculturalist, who from an acquaintance with the nature and chemical composition of strata, is at once able to see his way to the best mode of cultivation. In the all important subject of drainage a knowledge of the strata of a district is of the first consequence, as it is also in the sinking of wells. As the study of rocks, Geology is a sure guide in the choice of fit building materials, where wood is not the only requisite for such purposes; and in the selection of a site for dwellings; in either case, the clean dry soil, clear air and pure water of certain districts, as compared with moisture, malaria and impure waters of others, being circum-

stances known and appreciated by medical men, and those who have studied the subject. The direct uses of Botany are seen in the selection of plants proper for the food of man, or such as yield him valuable timber, cordage, matting, materials for useful and ornamental household furniture, condiments and medicines; and of late years great acquisitions have been made in this way, by men, scientifically instructed, who have travelled through remote regions, with the especial mission of seeking such vegetable productions as might prove serviceable to the civilized world in any of these respects.

The study of Zoology and Animal Physiology has been of the most immediate benefit to mankind, as seen in the improved modes of dealing with all animals domesticated for their use, and in the artificial stocking of rivers with fish valuable as food; but it is perhaps through the Physician that the greatest blessings have been conferred by attention to these sciences. Physiology has gone hand in hand with morality and religion in pointing out the danger of using intoxicating liquors; it has thrust upon men's attention the necessity of caring for ventilation and cleanliness; the application of its laws to the treatment of insanity has effected a total revolution in the modes adopted, and been the means of restoring many a sadly afflicted person to the world, fit to discharge its responsible duties, who would, under the old system, have passed away bereft of reason. Indeed, by the very proper stress which has been of late laid upon the study of these sciences in Medical Schools, the whole art of Medicine may be said to have been raised from empiricism towards the rank of the true sciences.

It requires, I think, but a consideration of the benefits directly showered upon mankind by Chemistry and Natural History, and a general view of the widely extending scope of their objects, to convince every one that an acquaintance at least with the principles of these sciences is necessary to enable us to understand the nature of the age in which we live, and that to omit any attention to these principles in a system of instruction is to forfeit entirely the claim to entitle such a system, a scheme of Liberal Education. If it be objected that so vast a subject cannot be taught completely in so brief a time as can be afforded, I would answer that the idea is never entertained of completely exhausting these subjects in a college course, but there *is* time for obtaining such a general acquaintance with the principles as shall enable a diligent student on leaving this place to stand upon fair terms in any society, and advantageously pursue any special or professional study. I know it is said, that

"A little knowledge is a dangerous thing,
Drink deep or taste not the Pierian spring:"

and I agree with the poet if he means a little ill-assorted knowledge; but I think a little well-arranged knowledge may, when properly used, become a great blessing. Our knowledge gained in the season devoted entirely to its acquisition may be elementary, but it need not be shallow. What man who

has entered upon the duties of professional life, does not know how great a part of his mental property has been amassed since he left the place of his education, and who does not feel grateful, if on reflection he finds he has been well taught to learn, and will not be willing to extend to others the benefits he has himself received, though the voice of the world may bid them take a different shape. As regards the world's opinions on these matters, it is worthy of notice that in most Universities now a choice of these subjects is open to candidates for degrees, as it is with us, while in some a competent knowledge of certain branches is imperatively required as a qualification in the faculty of Arts; and in examinations of candidates for offices in several departments of civil service of Great Britain, the East India Company, and other high places, these studies of Chemistry and Natural History are held of great importance.

When we turn our attention to the tendencies of these studies, we have no reason to despise them, or to be afraid of them. We feel that it is our duty to acquire knowledge to fit us for the purposes of our Creation, and in the words of the Rev. W. Kirby, "there are two principal avenues to knowledge,—the study of words and the study of things." Words are, however, only the arbitrary signs of ideas, and have no value independent of those ideas, further than what arises from congruity and harmony, the mind being dissatisfied when an idea is expressed by inadequate words, and the ear offended when their collocation is inharmonious. To account the mere knowledge of words therefore as wisdom, is to mistake the casket for the gems. We should think of this because the knowledge of words is often extolled beyond its just merits, and put for all wisdom; while knowledge of things, especially of the productions and forces of nature, is derided as if it were mere folly, and an easily acquired source of amusement. We should recollect that God hath condescended to instruct us by both these ways, and that therefore neither of them should be depreciated. He hath set before us His word and His world. The former is the great avenue to truth and knowledge by the study of words, and, as being the immediate and authoritative revelation of His will, is entitled to our *principal* attention; the latter leads us to the same conclusion, though less directly, by the study of *things* which stand next in rank to that of God's word, and before that of any work of man! And whether we direct our eyes to the planets rolling in their orbits, and endeavor to trace the laws by which they are guided through the vast of space—whether we analyze those powers and agents by which all the operations of nature are performed—or whether we consider the various productions of this our globe, from the mighty cedar to the microscopic mould—from the giant elephant to the invisible mite—still are we studying the works and wonders of our God! The book of nature, to whatever page we turn, is written by the finger of Him who created us, and in it, provided always our minds be rightly disposed, we may read His eternal verities. And

the more accurate and enlarged our knowledge of His works, the better we shall be able to understand His word; and the more practised we are in His word, the more readily shall we discern the truth in His works; for proceeding from the same great author they must, when rightly interpreted, mutually explain and illustrate each other, and in the Word we are expressly told: "The works of the Lord are great, sought out of them that have pleasure therein; He hath made His wonderful words to be remembered."—
PSALM cxi.