Technological Unstitute,

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HALIFAX, NOVA SCOTIA.

(Established 1877.)

SECOND ANNUAL ANNOUNCEMENT,

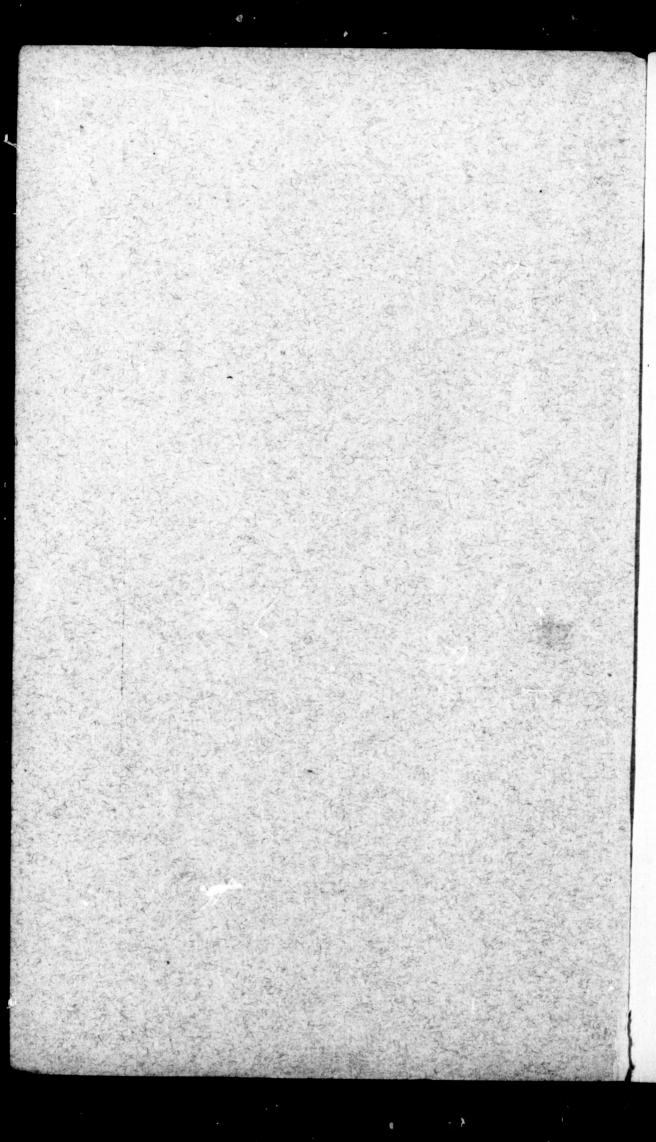
1879-80.

HALIFAX : Nova Scotla Printing Company, 1879.

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Technological Unstitute,

HALIFAX, NOVA SCOTIA.

(Established 1877.)

' SECOND ANNUAL ANNOUNCEMENT,

1879-80.

HALIFAX : Nova Scotia Printing Company. 1879. N. B.—The Course of Lectures at the Technological Institute for the year 1879-80, will commence upon Wednesday, 8th October, 1879.

All communications to be addressed to the Treasurer, Dr. Honeyman,

> Provincial Museum, Halifax, N. S.

TECHNOLOGICAL INSTITUTE.

Patrons:

HON. SIR WILLIAM YOUNG, KNIGHT, CHIEF JUSTICE OF NOVA SCOTTA.

WILLIAM J. STAIRS, ESQ., VICE-CHANCELLOR OF THE UNIVERSITY OF HALIFAX.

TECHNOLOGICAL INSTITUTE.

Office-bearers:

President,	PROFESSOR LAWSON, PH. D., LL. D., F. I. C.
Vice-President,	JOHN SOMERS, M. D.
Secretary and Treasurer,	REV. DAVID HONETMAN, D. C. L.

JOHN SOMERS, M. D. Auditors, ANDREW DEWAR, ARCHITECT.

Honorary Members:

FORSHAW DAY, PROFESSOR OF DRAWING, ROYAL MILITARY COLLEGE, KINGSTON, ONT.

HERBERT A. BAYNE, M. A., PH. D., PROFESSOR OF CHEMISTRY AND EXPERIMENTAL PHYSICS, ROYAL MILITARY COLLEGE, KINGSTON, ONT.

Haculty of Enstructors:

PROFESSOR LAWSON, PH. D., LL. D., F. I. C., Lecturer in Agricultural Chemistry and Botany.

PROFESSOR DEMILL, M. A., Lecturer in English.

PROFESSOR LIECHTI, Lecturer in German, French and Spanish.

PROFESSOR MACGREGOR, M. A., D. Sc., Lecturer in Physics.

REV. DAVID HONEYMAN, D. C. L., Lecturer in Geology, Palcontology and Mineralogy.

JOHN SOMERS, M. D., Lecturer in Zoology.

HENRY S. POOLE, F. G. S.,

JOHN RUTHERFORD, M. E.,

Lecturers in Mining and Assaying. EDWIN GILPIN, M. E., F. G. S., Inspector of Mines.

R. G. FRASER, Government Analyst, Demonstrator in Industrial Chemistry.

ALEX. MCKAY, Principal, Dartmouth Schools, Lecturer in Mathematics. EMIL VOSSNACK, C. E., Lecturer in Mechanical Engineering, Naval Architecture and Mechanical Drawing.

GEORGE T. SMITHERS, Instructor in Free-hand Drawing.

E. H. KEATING, Assoc. Inst., C. E., City Engineer, Instructor in Civil Engineering.

ANDREW DEWAR, Architect, Instructor in Architectural Drawing.

TECHNOLOGICAL INSTITUTE.

§ I.-PREAMBLE.

The Technological Institute has been established for the purpose of providing instruction in those branches of science, art and literature, which are specially useful to persons desirous of qualifying themselves for engaging, either as workmen, foremen, managers, or proprietors, in the various mechanical, agricultural, mining, and chemical industries.

§ II.-SUBJECTS OF INSTRUCTION.

Instruction will be provided in—(a) Agriculture; (b)Industrial Chemistry; (c) Engineering—Civil, Mining and Mechanical; (d) Drawing and Design; (e) Architecture; (f) Natural History; (g) Mathematics; (h) Languages—English, French, German, Spanish.

The instruction imparted will, as far as is consistent with thoroughness, be of a practical nature, and the technical bec ags of the subjects taught will receive especial attention. The Courses will be illustrated by experiments, diagrams, specimens, mechanical and other models. Use of instruments and laboratory apparatus will also be granted to students.

For the present it is not intended to arrange definite Courses of Study leading to any degree in Applied Science, but Certificates of Proficiency will be granted in individual subjects to any students desirous of obtaining them, who may have attended with regularity any complete Course of Lectures, and passed a satisfactory examination upon the subjects of the same.

It is hoped that the University of Halifax may shortly make arrangements for conferring degrees in Industrial Science.

§ III.-QUALIFICATIONS FOR ADMISSION.

Pupils shall not be admitted to attendance upon the Courses of Lectures, nor to any of the privileges of the Institute, under the age of fourteen years.

Pupils seeking admission will be required (1) to possess a satisfactory acquaintance with the elementary rules of arithmetic; (2) to write a plain hand; (3) to know the rudiments of English Grammar and Composition.

Ladies will be admitted to the privileges of the Institute, in cases where the Lecturer finds it convenient to arrange for separate classes.

§ IV.-FEES, TICKETS, &c.

The Fee, per Term, for each Course of Lectures, shall be \$3, except for the Courses in Mechanical Engineering and Naval Architecture, for each of which the fee shall be \$4 per term. The annual Registration Fee shall be \$1.

Registration and Class Fees are to be paid to the Treasurer, Dr. Honeyman, at the Provincial Museum, from whom tickets entitling to attendance upon the several Courses of Lectures will be obtained.

Students are allowed the use of the larger pieces of Laboratory and other apparatus, as well as of models and diagrams; but they are expected to provide themselves with the outfit of less expensive material, which is necessary to pursue with advantage their special studies.

§ V.-TERMS.

The Institute Year commences in October, and is divided into the following Terms :--

- (a) First Term—2nd Wednesday in October to 3rd Friday in December.
- (b) Second Term—2nd Wednesday in January to last Friday in March.
- (c) Third Term-1st Wednesday in April to last Friday in June.

For the ensuing year the Terms will extend from-

Wednesday, 8th October to Friday, 19th December. Wednesday, 7th January to Friday, 27th March. Wednesday, 8th April to Friday, 26th June.

§VI,-HOURS AND PLACES OF LECTURES,

For the convenience of the classes for whom the instruction provided by the Technological Institute is especially intended, the Lectures will be delivered mainly in the evening, from 7 to 10 o'clock. In some subjects Lectures will be held between 4 and 6 p. m. The Lectures will be held, in part, at the Institute

Rooms, Stairs' Building, 74 Bedford Row; in part at Dalhousie College, and at the Halifax Medical College. The Provincial Museum and the Horticultural Gardens are also at the disposal of the Institute for the purposes of Instruction.

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Courses of Lectures for ensuing Year, 1879-80.

I.-MATHEMATICS.

ALEX. MCKAY, Principal, Dartmouth Schools, Halifax.

(a) ARITHMETIC.

Fractions, Decimals, Proportion, Square and Cube Roots.

(b) ALGEBRA.

Elementary Rules, Fractions and Equations.

(c) GEOMETRY.

Euclid-Books 1st, 2nd, 3rd and 4th, with exercises.

(d) TRIGONOMETRY.

Solution of Plane Triangles and application to problems in heights and distances, Land Surveying, &c.

Lectures during the first and second terms of the Institute year.

Text Books: Arithmetic, Hamblin Smith's; Algebra, Hamblin Smith's; Geometry, Hamblin Smith's; Trigonometry, &c., Chambers's Practical Mathematics, Hamblin Smith's Trigonometry.

2.-PHYSICS.

JAMES GORDON MACGREGOR, M. A., D. Sc.

Dynamics; Heat; Light; Sound; Electricity; Meteorology. Lectures during the First and Second Terms.

Text Books: To be recommended at the opening of the course.

3.--MECHANICAL ENGINEERING, NAVAL ARCHITECTURE, AND INSTRUMENTAL DRAWING.

EMIL VOSSNACK, C. E., Member of American Association of Civil Engineers.

I.-MECHANICAL ENGINEERING.

 (a) Resistance of Materials; (b) Construction of Machine Parts and Simple Machines; (c) Arrangement of Steam Boilers, Engines, Furnaces and Heating Apparatus, Calculations of their power, &c.; (d) Dams and Water Conduits, Hydraulic Motors (water-wheels, turbines and hydraulic machinery); (e) Gas, Hot-air and Electric Engines.

II .- NAVAL ARCHITECTURE.

(a) Elementary Principles, Statical Stability, Dynamical Stability, Calculations of Loci of Centre of Buoyancy, Metacentre and Centre of Flotation; (b) Designing of Wooden and Iron Ships; (c) Masting and Rigging.

III.-INSTRUMENTAL DRAWING.

(a) Descriptive Geometry; (b) Designing of Machine Parts, Roofs and Bridges; (c) Drawing of Machines from sketches made on excursions, and from Models; (d) Graphostatic.

4.-DRAWING.

GEORGE T. SMITHERS.

(a) DRAWING.

Free-hand; Linear Drawing; Light and Shade; Object Drawing; Art application of Botanical Drawing; Principles and appli-cation of Design; Designing from historic data; Landscape Drawing.

(b) PRACTICAL PERSPECTIVE.

Comprising elementary principles of Projection; Projection of pyramids, circles, cylinders, &c.; Projection of buildings, and of shadows.

(c) COLOUR.

Principles and Laws of Harmonious Colouring.

Instruction during the first, second and third terms of the Institute year.

Text Books: To be announced at the opening of the class.

5. MODERN LANGUAGES.

PROFESSOR LIECHTI.

(a) FRENCH. (Translation and conversational exercises.

(c) SPANISH. Dictation and composition.

Instruction during the three terms of the Institute year.

Text Books :

FRENCH-French Principia, Parts I, II, III; Selections from Scribe and Molière ; Selections from English authors for translation into French.

GERMAN-Otto's German Conversation Grammar; Adler's Reader; Selections from works of Schiller, Goethe, Lessing; Selections from English authors for translation into German.

SPANISH-To be announced at opening of session.

6. ENGLISH.

PROFESSOR DEMILL, M. A.

(a) ENGLISH LANGUAGE AND COMPOSITION.

(b) ENGLISH LITERATURE.

(c) MODERN HISTORY.

Text Books in this Department will be announced at the commencement of course.

7.-AGRICULTURAL AND INDUSTRIAL CHEMISTRY.

PROFESSOR LAWSON, PH. D., LL. D. R. G. FRASER, Government Analyst.

(a) THEORETICAL AND PRACTICAL AGRICULTURE, embracing

(a) Varieties of Soils, Cultivation of Soils; (b) Fertilizers; (c) Farm Crops; (d) Feeding; (e) Breeds of Cattle, Sheep, Pigs, &c.; (f) Dairy Manufactures.

The course will be accompanied by laboratory instruction in the chemical examination of soils, artificial fertilizers, dairy produce, &c.

Lectures during the second term.

Text Book: Tanner's Agriculture.

N. B.-This course of Lectures will be prefaced by an outline of the " principles of Inorganic Chemistry.

(b) INDUSTRIAL CHEMISTRY.

Metals and their extraction from the ores.

Raw Materials and products of chemical industry; Soda, Potash, Salt-petre, Powder, Ammonia, Soap, Alum, Ultramarine, &c.

Glass, Clay, Lime, Mortar, Gypsum. Vegetable and Animal Materials, and their technical applications; Chemistry of Tanning. Colouring Matters, Paints, Dyeing and Bleaching processes. Photography, Gilding and Silvering by galvanic process. Lighting and Heating Materials.

Laboratory work in analysis of commercial products and of foods, drinks, &c.

Instruction during first, second and third terms.

Text Book: To be recommended at opening of course.

N. B.-This course will be preceded by a few introductory lectures on Inorganic Chemistry. Pupils who have not previously worked in a Chemical Laboratory will receive preliminary instruction in manipulation.

8-NATURAL HISTORY

JOHN SOMERS, M. D.

(a) BIOLOGY, COMPARATIVE ANATOMY AND PHYSIOLOGY.

(b) CLASSIFICATION OF ANIMALS.

(c) VEGETABLE MORPHOLOGY, ANATOMY AND PHYSIOLOGY.

(d) SYSTEMATIC AND PRACTICAL BOTANY.

Instruction in Zoology will be given during the First and Second Terms, in Botany during the Third Term. The application of the microscope to the practical study of animal and plant life will form part of the course.

Text Books: Nicholson's Zoology; Agassiz & Gould's Comparative Anatomy and Physiology; Gray's How Plants Grow.

9-GEOLOGY, PLAZONTOLOGY, AND MINERALOGY.

REV. DAVID HONEYMAN, D. C. L.

GEOLOGY-(a) LITHOLOGICAL.

Rocks, Stratification, Structure, &c.

(b) HISTORICAL.

Formation of Rocks, their succession and characteristic distinctions.

(c) PHYSIOGRAPHIC.

Contour lines, Heights, &c.

PALEONTOLOGY.

Systematic, Typical, Analogical.

MINERALOGY.

Formational, Economic, Systematic.

Course fully illustrated by museum collections.

Geological excursions during summer months.

Lectures during second and third terms.

Text Books: Dana's Text Book of Geology; Dana's Manual of Mineralogy.

IO .- DEPARTMENT OF MINING.

HENRY S. POOLE, F. G. S., Associate of the Royal School of Mines. JOHN RUTHERFORD, M. E.

EDWIN GILPIN. M. E., F. G. S., Inspector of Mines.

I.-MINING AND MINING ENGINEERING.

Knowledge of the deposits of useful Minerals in seams, streamworks, lodes, irregular masses, etc.

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Boring with rods, rope, diamond drills. Tools used in hard and soft ground in collieries and metallic mines. Blasting ;- Lighting mines with open and safety lamps. Employment of labour.

Sinking shafts and driving levels. Securing excavations by timbering, masonry, and tubbing and constructing dams. Exploitation, the working away of veins and strata. Carriage of Minerals underground.

Raising Minerals in shafts and machinery required. Pumping and draining.

Ventilation, its principles and practice. Dressing ores.

Lectures during first and second terms.

Text Books:

Principles of Mining Iron, Coal, Collins' Science Series.

Book of Reference :

Haswell's Colliery Management.

This course will be one which would prove of much value, not merely to those engaged in mining operatious, but also to junior members of mining firms and to law students.

II.-ASSAVING.

Laboratory instruction in Practical Assaying, both in the wet and dry way.

Processes of Calcination, Roasting, Reduction, Fusion, Solution, Cupellation, &c.

Fluxes-metallic and non-metallic, and use of reagents in oxidising, reducing, sulphurising and desulphurising. Use of the Blowpipe.

Volumetric Analysis.

Assay of Coal and Metallic Ores ;—Iron, Copper, Lead, Manganese, Antimony, Silver, Gold, &c.

Instruction during first and second terms.

Text Books :

Rammelsberg's or Thorpe's Quantitative Analysis.

Elderhorst's Blowpipe Analysis.

Book of Reference :

Mitchell's Manual of Practical Assaying.

II-CIVIL ENGINEERING AND SURVEYING.

E. H. KEATING, Assoc. Inst., C. E., City Engineer.

Surveying and levelling.

Setting out works of construction, including use of Field Engineering Instruments. Plotting. Plan drawing.

N. B.—Pupils desirous of entering this class will be required to serve for a term of at least one year in the City Engineer's Office, after having passed through the necessary preliminary classes in the Institute. Two or three pupils only can be taken.

12.-ARCHITECTURAL DRAWING.

ANDREW DEWAR, Architect.

Plan-drawing to scale, designing, perspective, the five orders, style mouldings and ornaments, drawing from casts, drafting frames for wooden buildings—and, in general, practical drawing useful for mechanics in the building trades.

Courses in each Term of ensuing Year, 1879-80.

1ST TERM.

2ND TERM.

Oct., Nov., Dec.

Mathematics.

Physics.

English.

Zoology.

Mining.

Assaying.

Architecture.

Jan., Feb., March.

Mathematics. Physics Mechanical Engineer'g. Mechanical Engineer'g. Drawing. Modern Languages. Drawing. Modern Languages. Agricultural Chemistry Industrial Chemistry. Industrial Chemistry. Zoology. Geology. Mining. Assaying.

Architecture.

3RD TERM.

April, May, June.

Mechanical Engineer'g. Drawing. Modern Languages. English.

Industrial Chemistry. Botany. Geology.

A Schedule indicating hours and places of Lectures will be published at the beginning of the October Term.

Students in attendance at the Technological Institute During the Year 1878-79.

Gentlemen.

Austen, James Barnes, Charles Barss, W. L. Baxter, Robert Beckwith, Mayhew Bowles, F. G. Brunton, John Built, James W. Caldwell, J. W. Cameron, Charles S. Campbell, J. Carew, George Carter, H. Chambers, R. E. Chetwynd, Robert Cecconi, — Cotter, T. B. Creighton, C. A. Croskill, G. H. Croskill, W. H. Day, Forshaw, jr. Douglas, Peter Duffus, W. L. Dustan, W. M. Fairbanks, E. B. Faulkner, G. E. Forbes, W. H. Forbes, Ed. Forquade, A. J. Gabriel, J. Geldert, J. Gisborne, Hartley Grey, J. H. Griffin, John P. Henderson, James Henderson, George Hicks, Lieutenant. Hughes, John Humphrey, Robert H. Jack, Andrew M. Keizer, D. H. Longard, George Longard, C. Macdonald, S. D. Macdonald, R.

Macguire, James Mackay, Alex. McKerron, A. G. MacLean, Charles MacLeod, John R. MacLeod, Robert Malcom, John Mandell, F. Maxwell, F. Moir, Albert Morrow, Robert Morrow, James Moseley, Robert Muir, Andrew Murray, Hugh Nicols, J. B. O'Hearn, Peter Pauley, F. H. Ray, Frederic Reardon, T. Richey, M. H., jr. Ritchie, George Russell, B. Sandford, F. Schaeffer, Julius Scott, J. Seymour Shore, Rev. Godfrey Smallwood, A. Smith, J. G. Smith, Nicholas Spence, Thomas Stairs, Herbert Stimpson, A. W. H. Ternan, William Ternan, william Thorburn, Thomas Twining, H. E. Vereker, John M. Walker, Henry Walker, Archibald Walters, W. H. Warner, Arch. Warner, Arch. Wellner, H. Wetmore, Stewart Woolrich, L. Wong Kien Shoon.

Miss Emma Adams. Miss Lynch. " Mary Adams. " Annie M. Alexander. Mrs. D. M. Brown. " McGlennon. Miss Elizabeth Creelman. Mrs. Doane. Miss Mary Donovan. Cassie Graham. " " Haliday. " Annie Hamilton. J. Hedley. Kate F. Hill. Alie Honeyman. " " " " Robina Honeyman. Anna Honeyman. Bella Humphrey. Mary A. Johns. Jessie W. Lawson. " " " " " Florence Lordley.

Bessie Macgregor.
E. McPherson.
C. McKnight.
Annie McPhail.
Alice Mason.
Mitchall Anna Mitchell. " Minnie Mitchell. Minnie Mitchell. Minnie S. Neal. Laelia Schaeffer. Florence Seeley Florence Seeley. " Smith. " Bessie Stratton. " Bessie Strate. Mrs. Sumichrast. Miss Alice Thomson. " H. Twining. " Whidden.

Ladies...... 37

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Classes Attended.

CLASS OF FORSHAW DAY,

IN FREE-HAND DRAWING.

Gentlemen's Class.

Arthur H. Stimpson. James Buist. Harry E. Twining. Julius Schäfer. Thomas Thorburn. Stewart Wetmore. T. Reardon. F. Sandford.

James Macguire. James J. Henderson. Albert F. Woodbridge. William Ternan. C. McWhidden. Henry Walker. Archibald Walker. J. B. Nicols.

Ladies' Class.

Mrs. D. M. Browne. Miss Jessie W. Lawson. "Florence Lordly. " Kate F. Hill. Allie R. Honeyman.

- "
- " Minnie Mitchell.
- "
- Bella Humphrey. "
- Anna M. Honeyman. 66
- Robina R. Honeyman. "
- J. Hedley.

- Miss Elizabeth Creelman. "
 - Bessie McGregor. "
 - Florence Seeley.
 - " McGlennon.
- Mrs. Doane.
- Miss Katie McKnight. "Alice Thomson. "Smith. "H Twining. "Whidden.

Ladies.

CLASSES OF EMIL VOSSNACK, C. E.,

IN MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE.

I.-Mechanical Engineering. Junior Class.

9	o unitor Ciuso.
Joseph Nichols.	C. McQueeney.
Peter Douglas.	J. Ross.
L. Woolrich.	J. W. Crockett.
E. Phelan.	A. A. Smallwood.
E. Muir.	G. Matson.
A. J. Forquade.	Ch. E. Warner.
loseph S. J. Hughes.	William Devan.
John Hughes.	Charles Mason.
J. G. Smith.	E. P. Forbes.
Robert McLeod.	John Malcom.

Senior Class.

Noel Forbes. Robert Chetwynd. Walter Luke. George Ritchie. George Greenhill. Clarence C. Longard. William Longard. Alexander Moir. William Wells.

Arch. Warner. Rufus Bayers. Howard Symonds. Adam McKay. Douglas Stevens. S. T. Larkin. Thomas T. Spence. H. Carter.

11.-Naval Architecture.

R. E. Chambers. Frederic Ray.

D. H. Keizer.

CLASS OF REV. DR. HONEYMAN,

IN GEOLOGY, PALGONTOLOGY AND MINERALOGY.

Hartley Gisborne. John R. McLeod. Wong Kien Shoon.

Alexander McKay. Lieutenant Hicks. George Carew.

CLASS OF MR. ANDREW DEWAR,

IN ARCHITECTURAL DRAWING.

John Brunton. Thomas Thorburn.

Ernest George Wiswell.

CLASS OF PROFESSOR LAWSON, IN AGRICULTURAL CHEMISTRY.

Herbert Stairs. Andrew M. Jack. Lieutenant Hicks.

M. H. Richey, jr. W. H. Walters. Chas. S. Cameron.

CLASS OF DR. BAYNE,

IN INORGANIC CHEMISTRY.

J. R. McLeod. Andrew M. Jack. George Croskill. Hartley Gisborne. Robert Baxter. F. G. Bowles.

Peter O'Hearn. George Henderson. S A. McDonald. William Duffus. Nicholas Smith.

CLASS OF PROFESSOR DEMILL,

IN ENGLISH COMPOSITION AND LITERATURE.

Hugh Murray. T. B. Cotter. Robert Moseley. Wm. H. Croskill.

James Austen. Charles Barnes. Charles McLearn.

CLASS OF PROFESSOR LIECHTI,

IN FRENCH AND GERMAN.

French.

J. Gabriel. J. E. Faulkner. H. Wellner. F. H. Pauley. J. Campbell. W. L. Barss. J. W. Caldwell. Mayhew Beckwith. R. McDonald.

James Morrow. B. Russell. Robert H. Humphrey. A. G. McKerron. Andrew Muir. Nicholas Smith. John M. Vereker. J. McLellan. J. Geldert.

J. Seymour Scott. Rev. Godfrey Shore. J. Campbell. J. Geldert.

C. A. Creighton. F. Maxwell. W. L. Barss. B. Russell.

Ladies' Class.

German.

Miss Catherine McKnight. "Lynch. "Mary Adams.

Mrs. Sumichrast. Miss Haliday. "Twining.

CLASSES OF MR. ALEXANDER McKAY, IN MATHEMATICS.

Gentlemen's Class.

Hartley Gisborne. W. H. Forbes. E. Forbes. Thomas Spence.

Forshaw Day, jr. Edward B. Fairbanks. Robert Moseley.

Ladies' Class.

Miss Annie Hamilton. "Mary Donovan. "Mary A. Johns. "Anna Mitchell. "Bessie Stratton. "Laelia Shaffer. "Anna McPhail. "Alice Mason.

- Miss Cassie Graham. "Minnie S. Neale. "Emma Adams. "Annie M. Alexander. "E. McPherson. "Charlotte McKenna. "Sarah A. Findlay.

Statement of Treasurer.

TECHNOLOGICAL INSTITUTE in account with REV. D. HONEYMAN, D.C.L., Treasurer.

1878-79. By Balance.....\$111 26 \$850 26 To Paid to Lecturers\$595 00 \$850 26

Donations to the Institute.

Cheque for \$100, Sir Wm. Young, Knight, Chief Justice, &c. Anonymous, \$20.

Class-room accommodation, gas-fitting, gas and light—W. J. STAIRS, Esq. Drawing-tables for Institute room—S. M. BROOKFIELD, Builder. Models of shafting, hangers, couplings, &c.—Messrs. Poole & HUNT, Baltimore, Maryland.

Model of a turbine-wheel-Messrs. T. H. RISDON & Co., Mount Holly, N.J.

Electro-plating of same-STARR MANUFACTURING Co., Dartmouth. Specimen collection of paints-Messrs. REARDON & WALKER, Halifax.

Class-room accommodation with gas and light has also been given by the Governors of Dalhousie College, and other facilities and aid offered by the Medical College, the Commissioner of Mines, the City Council, and the Commissioners of the Public Gardens. Drawing T squares were furnished at cost price to the students of Mechanical Drawing by the firm of Gordon & Keith.

Presented to the Library of the Technological Institute, through E. Vossnack, C. E., by KARL SCHURZ, Secretary of the Interior of the U. S. A., 28 volumes Patent Office Register; by WILLIAM G. LEDUE, Commissioner of Agriculture of the U. S. A., 8 volumes Reports of the Department of Agriculture.

The collection of models in the Mechanical Engineering Class has been increased this year by presentation and loan of-7

models for Descriptive Geometry and Projection.

Stone Cutting; an Arch. "

Screw Joint. "

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Connecting Rod, stub end. Cross Head for Steam Engine. "

Section of a Consending Beam. Steam Engine.

" Parallel Motion.

" Twist Belt.

14 Sheets Machine Construction.

1 Glass Case for Models.

Presented through E. Vossnack, C. E., by Babcock & Wilson, Engineers, New York City.

1 Steam Engine Governor.

" Cross Head. "

Eccentric Strap. "

Metallic Stuffing Box Packing.

1 Chain Sheave.

2 Oil Cups.

2 pieces Chain Wheel Chain. 1 Safety Valve.

1 Railroad Axle Box.

By R. T. Sturtevant, Boston, Mass. 1 Silent Pressure Blower.

By William Sellers & Co., Philadelphia.

1 Giffard Injector for Steam Boilers in Section.

By the Stow Flexible Shaft Company, Philadelphia. 1 Flexible Shaft with Drill-head and Drills.

ON LOAN.

By Knowles Steam Pump Works, Boston, Mass.

1 Knowles Steam Pump, No. 00.

By James W. Stairs, Halifax.

1 Double High Pressure Steam Engine, with Steam Boiler complete.

Through the kindness of Hon. S. Creelman, Commissioner of Works and Mines, the class in Naval Architecture had the use of Ship Models in the Provincial Museum.