REPORT

ON THE

SCHOOL SYSTEM OF ONTARIO AND OTHER PROVINCES.

———:o:———

BY PROFESSOR ODLUM.

To the Honourable James Baker,
Provincial Secretary, Victoria, B.C.

HONOURABLE SIR,—I beg to enclose the following for your consideration. While east in Ontario, I had the opportunity of studying the working of the system of education of that Province, and some of the special institutions of learning.

Ontario stands at the head, perhaps, of the world for the perfection, comprehensiveness, adaptability, and flexibility of its Educational System.

The School of Practical Science, in Toronto, a purely Provincial institution, is one of the latest phases of that system, and, although only in operation for a short time, is wonderfully efficient.

There are five departments of instruction, in each of which a diploma is granted. These are as follows :—

1. Civil Engineering (including Sanitary Engineering).
2. Mining Engineering.
3. Mechanical and Electrical Engineering.
4. Architecture.
5. Analytical and Applied Chemistry.

The aim is to give a perfect knowledge of the principles underlying the practice in each of these departments.

Three years' attendance is required for a diploma in any one of the five. That those who wish to become more fully master of the branches taught in his department, a fourth year's course is established, during which the student has free access to the engineering, chemical, and assaying laboratories

Students who fulfil the requirements of the fourth year are eligible for the degree of Bachelor of Applied Science (B.A.Sc.).

REGULATIONS.

The internal management and discipline of the school is vested in a Council consisting of the Professors, Lecturers, and Demonstrators appointed by the Lieutenant-Governor in Council on the staff.

The Academic Year consists of two terms, extending from October 1st to December 23rd, and from January 8th to May 1st. A Diploma is granted to each student who completes, to the satisfaction of the Council, the Regular Course in any of the above-mentioned Departments, having spent three years in the Course.

A Matriculation Certificate from any of the Universities in Her Majesty's Dominions or the High School Leaving Examination of Ontario will admit a Student to the Regular Course. Entrance can be secured also by presenting a certificate of having had one year's experience in some recognized engineering, architectural, or manufacturing work or business, and passing an examination in the following subjects :—Arithmetic (through square root, percentage, and interest) ; Mensuration ; Algebra (through quadratics of one and two unknown quantities) ; Euclid (Books I., II., and III., deductions) ; English (dictation and composition).

Special arrangements may be made to suit particular cases, as the Council may think proper.

All regular students are required to attend during the whole term, unless specially exempted.

The examination for entrance begins at 9 a.m. on or about September 26th.

The candidate for entrance must give a week's notice of his intention to write at the examination.

Sessional fees, dues, and deposits are payable in two instalments, one each term.

1st year. Total amount paid as follows:—
- A. Civil Engineering, $50.
- B. Mining Engineering, $50.
- C. Mechanical and Electrical Engineering, $51.
- D. Architecture, $50.
- E. Analytical and Applied Chemistry, $51.

2nd year. Totals, A, $63.50.
B, 63.50.
C, 61.50.
D, 61.00.
E, 63.50.

3rd year. Totals, A, $70.00.
B, 70.00.
C, 70.00.
D, 69.00.
E, 73.00.

4th year. Total, $62.00.

FELLOWSHIPS.

There are the following fellowships open to graduates of the school:—Civil Engineering, Mechanical Engineering, Electrical Engineering, Surveying, Metallurgy and Assaying, Analytical and Applied Chemistry. Each fellowship is of the value of $500 per annum.

The Fellows are required to take such portions of the work of instruction as may be assigned to them by the Council.

There are exact and comprehensive regulations respecting the examinations, approved by the Council of the school.

CURRICULUM OF THE COURSE.

First Year of Civil Engineering.

Mathematics.—Euclid, Algebra, Plane Trigonometry, Analytical Plane Geometry.

Drawing.—Copying from the flat, Lettering, Topography, Graphics, Descriptive Geometry in its application to plane sided solids, Orthographic and Oblique Projection, Original Surveys.

Chemistry.—Elementary Chemistry, with laboratory work.

Mechanics.—Statics and Dynamics.

Surveying.—Field and Office Work, Chain and Compass Surveys, Topography, Preliminary Work with Transit-Theodolite, Plotting, Mensuration.

Second Year, Civil Engineering.

Mathematics.—Differential and Integral Calculus, Spherical Trigonometry, Plane Astronomy.

Drawing.—Subjects of first year continued, Colouring and Shading applied in both Topographical and Construction Drawing, Descriptive Geometry, Machines and Structures.

Chemistry.—Chemistry with special reference to industrial applications, Practical Chemistry.

Engineering and Surveying.—Statics and Dynamics, Strength and Elasticity of Materials, Experimental Work in Engineering Laboratory, Transit-Theodolite Surveying, Levelling, Railway Location Curves, &c., Hydrographic Surveying.

Mineralogy and Geology.—Elements of these Sciences, Blowpipe Practice, Determination of Minerals.

Metallurgy.—Iron and Steel.

Physics.—Hydrostatics, Optics.

Experimental Physics.—Light, Use of Lenses and Mirrors, Calculation of Focal Lengths, the Prism and Spectroscope, Goniometer and Heliostat.

Vacation Work.—Special.

Third Year, Civil Engineering.

Drawing.—Subjects of previous year continued, Descriptive Geometry, Shades and Shadows, Stone Cutting, Perspective Drawing, Original Designs—Bridges, Roofs, Floors, &c.

Chemistry.—Thermo-Chemistry, Combustion, Fuel, Explosives, Artificial Lightning, Photography.

Engineering and Surveying.—Statics and Dynamics, Strength and Elasticity of Materials, Theory of Construction, Practical Designs—Bridges, Roofs, Floors, Arches, Retaining Walls, Foundations, &c.; Thermodynamics and Theory of Steam Engine; Hydraulics, Sewerage, Water Supply, Sanitary Plumbing, Heating and Ventilation, Experimental Work in Engineering Laboratory, Levelling, Profiles, Cross Sections, Field Work and Plotting, Computation of Quantities, Mathematical Theory of Surveying Instruments, Trigonometrical and Barometrical Levelling, Geodesy and Practical Astronomy.

Mineralogy and Geology.—Economic Geology, Blowpipe Analysis, and Determinative Mineralogy.

Experimental Physics.—Heat, Specific Heat, Latent Heat, Expansion of Air, Air Thermometer, Method of Least Squares.

Vacation work, special, which is of the highest utility in applying the knowledge gained in regular course. Here, in a more definite way, the student is thrown on his own resources, and his real ability and originality are fully tested.

No part of the Ontario educational system is more valuable and important than the School of Practical Science. It has a place, a niche, and just meets the demand in a very efficient manner, and is a popular institution amongst all who know of its utility.

ROOMS OF THE SCHOOL OF PRACTICAL SCIENCE.

Ground Floor.—Assaying Laboratory, Ore Dressing Room, Hydraulic Apparatus and Experimental Steam Engine Room, Dynamics, and Smaller Rooms.

First Floor.—Rooms for Theoretical Chemistry, Lecture Preparation Laboratory, Professor of Chemistry, Professor of Metallurgy and Assaying, Chemical Laboratory, Library and Reading Room, Engineering Lecture Room, Electrical Engineering, Machine Shop, Hydraulic Apparatus, Torsion-testing.

Second Floor.—Qualitative Chemistry, Quantitative Chemistry, Chemical Lecture Room, Applied Chemistry, Chemical Specimens, Engineering Lecture Room, three Drawing Rooms, Smaller Rooms.

Third Floor.—Assembly Hall, Architectural Lecture Room, Drawing Room, Museum, Sanitary Chemistry, Toxicological Laboratory, Mineralogy and Geology, Lectures in Architecture.

TORONTO TECHNICAL SCHOOL.

This most valuable institution has been undertaken and maintained by the City of Toronto.

The school is situated on College Avenue, in the old Wycliffe Hall.

There are two terms, the first from October 1st to December 22nd; the second from January 8th to April 30th.

The subjects taught are Mathematics, Chemistry, Descriptive Geometry, Mechanics, Physics, and Drawing.

The hours of lectures are from 7:45 to 9:45 p.m.

There is no fee charged, the object being to furnish technical education to all who may desire such training free of charge.

For the management of the institution there is a Board, Finance Committee, School Management Committee, Printing and Supply Committee, Property Committee, and Teaching Staff.

The staff consists of five teachers, one each for Mechanics, Chemistry and Physics, Mathematics, Descriptive Geometry and Drawing, Demonstration of Applied Chemistry.

To show how fully this school is appreciated the attendance for the year 1893-4 may be given :—

Between the ages of	12	and	17	there were	190	students
"	"	18	" 23	"	270	"
"	"	24	" 29	"	88	"
"	"	30	" 35	"	44	"
"	"	36	" 41	"	19	"
"	"	42	" 55	"	10	"
Ages not given					11	"
Total in attendance					632	"

This is a splendid showing, and speaks volumes for the liberality and enterprise of Toronto. Those who attend, ranging in age from 12 to 55, represent almost every kind of occupation.

Total receipts for 1893-4	$8,144 90
Total expenditure for 1893-4	7,480 09
Balance for 1893-4	664 81

THE EDUCATIONAL SYSTEM OF THE PROVINCE OF ONTARIO.

This system comprises the Public Schools, High Schools, Collegiate Institutes, Model Schools, Normal Schools, School of Pedagogy, and University, to which may be added Kindergartens, Mechanics' Institutes and Art Schools, School of Practical Science, Ontario Agricultural College, Schools for Deaf and Dumb, Teachers' Institutes, Industrial Schools, the Law Society, College of Physicians and Surgeons, College of Dentistry, College of Pharmacy.

PUBLIC SCHOOLS.

There are five forms provided for the Public Schools proper, the work of the fifth being very similar to that of the first form in the High Schools.

Public School Leaving Examinations are held each year at the same time as the High School Entrance Examination. Only those who have pssed the entrance examination are eligible for the leaving examination, which is on the fifth form work. The Department authorizes the several text-books required in the various forms. The Separate Schools may be considered as part of the Public School system. The term "Separate Schools" applies to Protestant and coloured persons as well as to Roman Catholics, although as a matter of fact the latter alone use them. The work done in these schools is under the control and supervision of the Education Department. The Boards of Separate Schools are elected by the supporters of the system.

The pupils are required to pass the same entrance examination to the High Schools.

HIGH SCHOOLS AND COLLEGIATE INSTITUTES.

A district containing a population of 3,000 may establish a High School, which must meet the following requirements :—

(1.) No connection with a Public School as regards premises :

(2.) A site of at least half an acre in extent, well fenced, well drained, planted with shade trees, and suitably provided with walks in front and rear :

(3.) A play-ground and all other necessary provision for physical exercise :

(4.) A well or other means of supplying pure drinking water :

(5.) Water-closets for the sexes, separate and in separate yards, and properly screened from observation :

(6.) A building large enough to provide ample accommodation for every pupil in attendance, with all necessary provision for light, heat, and ventilation, and two entrances with covered porches :

(7.) Suitable separate cloak-rooms for boys and girls, furniture, desks, blackboards, maps, apparatus, and library of reference of the maximum value recognized for schools with two masters :

(8.) A principal and at least two assistants.

Collegiate Institutes must have have at least five teachers, physical and chemical apparatus, gymnasium, maps, and globes.

The number of trustees varies with the school district.

There is one entrance examination in the year, about the first of July.

The entrance Board of Examiners consists of the Public School Inspector, Principal, and two qualified teachers.

In the High Schools and Collegiate Institutes there are four forms.

The pupils in Forms III. and IV. take, for the most part, the work for matriculation into the Universities of the Province or the Learned Societies of Ontario.

On examination into the High School and Collegiate curricula, one is forced to admire the high standard set, and the efficiency of the advanced pupils.

The examinations are most valuable--

1st. In aiding teachers and students in relation to the manner in which the work should be taken up during session.

2nd. In making suitable tests for promotion.

3rd. And in allotting certificates, not only to show the standing of the student but to give an official and legal claim for their use in after life.

Passing the examinations for Forms I. and II. secures High School Primary Certificates ; passing for Form III., High School Junior Leaving Certificates or University Matriculation Certificates ; and Form IV., Senior Leaving Certificates or University Matriculation Certificates with honours.

For the training of teachers, there are the Kindergartens, Model Schools, Normal Schools, Teachers' Institutes, and School of Pedagogy.

I.—NORMAL KINDERGARTEN SCHOOLS.

There are two Normal Kindergarten Schools, one at Toronto and one at Ottawa. The teacher, after a year at one of these schools, may hold a Director's Certificate, and is eligible to take charge of a Kindergarten in any part of the Province.

II.—COUNTY MODEL SCHOOLS.

To begin teaching in any Public School in Ontario, it is necessary to obtain what is called a Third Class Certificate from a County Board of Examiners, and only those are eligible for the examination who have attended a session at a County Model School. To enter this school, one must have passed the High School Primary Examination. The Board of Examiners consists of the Public School Inspector and two other persons appointed by the County Council, holding First Class Certificates and actually engaged in teaching. There is one such at least in each County for the training of Third Class Teachers.

There are fifty-nine Model Schools in Ontario at the present time.

III.—NORMAL SCHOOLS.

To have a permanent qualification for teaching in a Public School, it is necessary to obtain a Second Class Certificate, which cannot be had without attendance at the Normal School, either in Toronto or Ottawa.

There are two sessions each year, and only those who have passed the High School Junior Leaving Examination are admitted, having taught successfully one year as Third Class Teachers. In these Normal Schools they observe how teaching is done, and have to take charge of classes under the supervision of trained educators.

THE SCHOOL OF PEDAGOGY.

The highest positions in the teaching profession are open only to graduates of this school. In it are trained the First Class Public School Teachers, the Assistants and Principals of High Schools and Collegiate Institutes, and the Public School Inspectors. The graduates of this institution are the teachers of the teachers in the Public Schools. To enter, one must have at least a High School Senior Leaving Certificate. Many of its students are graduates of the Universities.

Like the Normal School, the course of study is chiefly professional.

Notwithstanding the high grade teaching and training in the School of Pedagogy, those who wish to be specialists in Collegiate Institutes must first pass the non-professional examinations required at the University.

About one hundred students attend during each session. The staff consists of eleven eminent educators.

TEACHERS' INSTITUTES.

The Educational Association of Ontario has existed over thirty years, meets during the Easter holidays for the reading and discussion of papers relating to educational questions, and may be looked upon as a kind of Educational Parliament.

The High and Public School Trustees have organized a Provincial Association, which is a section of the general "Educational Association."

In each County or Inspectoral District there is a Teachers' Institute, for the purpose of imparting instruction in methods of teaching, and discussing educational matters. A small Legislative grant is given to each Institute. The Public School Inspectors are supposed to take an active part in making these Institutes efficient.

From time to time, they are visited by a Director of Institutes.

STATISTICS.

Kindergartens—Number	66
Pupils	6,375
Teachers	160
Average Salary	$ 342
Legislative Grant	3,000
Public Schools—Inspectors	76
School population	615,781
Pupils registered	491,741
Average attendance	257,642
School-houses	5,876
Teachers	8,336
Legislative Grants	$ 289,610
Municipal Grants	3,168,498
Other receipts	1,313,203
Total	4,771,311
Paid to teachers	2,722,116
Separate Schools—Number	289
Teachers	639
Pupils	36,168
Expenses	$278,687
Collegiate Institutes—Number	35
High Schools—Number	93
Total	128

STATISTICS.—*Concluded.*

Pupils enrolled	22,230	
Average attendance	13,448	
Teachers	484	
Matriculated	413	
Joined learned professions	400	
Entered mercantile life	1,202	
Agriculture	974	
Teachers	1,605	
Legislative Grants	$ 99,693	
County Grants	98,104	
Fees	89,886	
Municipalities	402,527	
County Model Schools	60	
Students	1,323	
Provincial Model Schools—		
Toronto, 1	100	pupils.
Ottawa, 1	100	"
Provincial Normal Schools—Toronto, Ottawa.		
School of Pedagogy, Toronto.—Students	100	
Staff	11	
Public School Inspectors	76	
Separate School Inspectors	2	
County Model School Inspectors	1	83
Director of Teachers' Institutes	1	
High School Inspectors	2	
Inspector of Normal Schools	1	
Mechanics' Institutes and Libraries—Number	215	
Readers	67,398	
Evening Classes	72	
Reading Rooms	138	
Newspapers and Periodicals	4,091	
Volumes in Libraries	426,966	
Volumes issued	1,129,436	
Total Receipts	$173,066	
Total Assets	$653,310	
Certificates granted	4,793	

Re SCHOOL LANDS IN MANITOBA AND THE NORTH-WEST TERRITORIES.

There are two sections of every township set apart for school purposes. These lands are sold at stated times by public auction, a minimum price being fixed. The sales of 1892 and 1893, respectively, averaged $7.90 and $7.10 per acre.

In Manitoba the money bearing interest now amounts to over $600,000, and there are yet nearly 2,000,000 acres of school lands for sale. It is estimated that when all these lands are sold the capital amount will reach from $12,000,000 to $15,000,000.

The capital is invested in securities in Canada, and the interest alone is used for school purposes. By this means the fund remains permanent and unimpaired.

By a Dominion Act of Parliament one-eighteenth of all the unsold Dominion lands are set apart for school purposes. If these funds and lands are in the future handled as wisely and ably as in the past, the taxes required for school purposes will be comparatively light. If out of the comparatively small area of Manitoba about 2,000,000 acres are set apart for education, surely the Province of British Columbia could set apart 5,000,000 acres for the general school fund. This in the future would form not only a most valuable asset to the Province, but would give an annual income that would almost do away with the necessity of a school tax.

There never was, nor can there be in the future, a better time to arrange this matter and secure the foundation of a splendid education fund than at the present time.

VICTORIA, B. C.:
Printed by RICHARD WOLFENDEN, Printer to the Queen's Most Excellent Majesty.
1894.