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DEPARTMENT OF EDUCATION

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COURSES *of* STUDY

for the

Public, High, Technical, and Normal Schools

of

BRITISH COLUMBIA

VICTORIA, B.C.:
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1921.

COURSES OF STUDY.

COURSE OF STUDY PRESCRIBED FOR GRADED AND COMMON SCHOOLS.

Junior Grade.

1. Reading.

Beginner's Reader, Gage's Phonic Primer, First Reader and Second Reader. Recitation and Supplementary reading from authorized texts. Phonic drill to be continued to the end of the Second Reader.

2. Writing.

First Year—During the first year the pupils should be taught correct habits of posture and movement and the forms of all the small letters and figures and a few simple capitals. Letter and word formation must be taught from the blackboard before any attempt is made by the pupil to write with pencil. The lower part of the blackboard should be ruled with painted lines 2½ or 3 inches apart. By this means form, proportion, and slant are easily and quickly taught.

The first lessons should consist of instruction in position at the blackboard, motioning in the air, and "pretend" writing. This should be followed by lessons on chalk-holding and tracing of movement exercises—the direct and indirect ovals and the "push and pull" movement drills.

The aim of these lessons is to interest the pupils in blackboard-writing and to develop rhythmic movement and muscular control.

Lessons on individual letters and words as shown in Compendium No. 1 should then be taken up at the blackboard and taught by retracing methods. Form, speed, and rhythm are emphasized.

The seat-work during the first term should consist of profitable busy work of various kinds, but little, if any, pencil-writing should be done. The aim should be to develop correct writing habits. Pupils should be taught to sit in a healthful writing posture and to use a sliding-arm movement. In cases where it would seem necessary to suspend the arm to prevent finger movement, it should be raised very slightly above the desk and for a very short period in any one lesson.

During the second term, after form, rhythmic movement, posture, and pencil-holding have been thoroughly taught, the pupils should write on pencil paper with large pencils, having a soft black lead, all the letter forms and words which they have already learned at the blackboard. The sliding-arm muscular movement should be used with no separate finger movement or as little as possible. *Emphasis should be placed upon process rather than upon product.*

Compendium No. 1 of the MacLean Method of Muscular Movement Writing is to be used by the pupils during the first year. Teachers will use the Teachers' Manual as their guide.

All writing done by the pupils during the first two years should be under the supervision of the teacher. Arm movement should be used in all written work.

Second Year—During the second year Compendium No. 2 is to be used by the pupils. All new capital letters and words should be first taught at the blackboard. The writing should be the same size as that shown in the Compendium.

The transition from sliding-arm to forearm muscular movement should be treated as an individual problem, but an endeavour should be made to have all pupils writing with forearm muscular movement by the end of the second year. Pen and ink should be introduced when the child has developed a light touch and can write with a free forearm muscular movement.

Third Year—During the third year MacLean Method Compendium No. 3 is to be used. All pupils in Second Reader Classes should use forearm muscular movement in all their written work.

3. Drawing and Manual Work.

PAPER FOLDING AND CUTTING.

Beginner's Reader and Phonic Primer—To acquire dexterity and skill of hand by constructing and making objects; to gain a knowledge of the forms, triangle, square, oblong, etc.; to know right side, left side, front, back, edge, corner, angle; to know such terms as turn, fold, etc.; and, in short, to increase the vocabulary of the child and assist the language lesson.

The following book is recommended for the teacher's use: Educational Handwork, T. B. Kidner (Published by Educational Book Co.).

Suggested Syllabus from above Book.

Beginner's Reader—First folding exercises, page 18. Stars, page 25. Frames, page 26.

Beginner's Reader and Phonic Primer—Second Key form, page 30. Pattern-making, 34, 35. Cutting leaves, fruit, and objects. Cut the crosses of St. George, St. Andrew, and St. Patrick.

Phonic Primer—Constructive work, page 42. Patterns 1, 2, 3, 4, 5, 8.

Use some of these exercises for drawing lessons. None of the measurements should be less than half an inch.

Paper Folding and Cutting Materials, No. 204. For Constructive Work, No. 219z, Milton Bradley Co.

PLASTICENE MODELLING.

The modelling of a sphere, cylinder, cone, cube, prism, and pyramid; and the turning of these type models into objects having similar forms.

MAT-WEAVING.

The following book is recommended for the teacher's use: Primary Work. By Wilhelmina Seegmiller. (Published by Atkinson, Mentzer & Grover, Chicago.)

Mat-weaving paper, No. 1110. Weaving-needles, No. 395. Milton Bradley Co.

DRAWING.

Beginner's Reader—Reference books: Text-book of Art Education (Prang), Books I. and II., for use of teacher only.

Phonic Primer—Reference books: Text-book of Art Education (Prang), Books II. and III., for use of teacher only.

First Reader—Blair's Canadian Drawing Series, Book I.

Second Reader—Blair's Canadian Drawing Series, Book II.

REFERENCE BOOKS.

Text-book of Art Education, Books I. to VII.—Prang.

A Course in Water Colours for the First Eight Years in School—Prang.

Practical Notes on Colour-mixing for School Teachers—By an Expert (Reeves. Price sixpence. London, Eng.).

Monthly Magazine—The School Arts Book. (Price $1.75 post free to Canada. School Arts Co., 120 Boylston St., Boston.)

Augsburg's Drawing Series, Books I. to VIII. (New edition.)

Nature Study and Fairy Tales—C. I. Dodd (Thomas Nelson & Sons, Edinburgh).

Artistic Handwork in Paper and Cardboard—Rowland (George Philip & Son, London, Eng.).

Teachers should select from the foregoing Course what they consider best suited to the individual requirements of their classes. The full Course in Drawing must, however, be taught in all graded schools. Moreover, the work in Paper Folding and Cutting, Plasticene Modelling, and Mat-weaving must be undertaken in all city schools of the first class, and in all other graded schools where the work is recommended by the Provincial Inspector of Schools. Boards of School Trustees are expected to provide necessary materials.

4. Language Lessons.

In connection with the reading of the Junior Grade it is suggested that the pupils form oral sentences containing the new words used in the reading lessons; that there be frequent drills in enunciation, articulation, inflection, and emphasis; that oral and written spelling be begun in the Beginner's Reader classes; that the teachers hold with their classes frequent conversations growing out of observation of pictures, plants, animals, etc.; that there should be frequent oral reproduction of stories read or related by the teacher; memorization of selected passages; the correction of prevailing errors of speech at the time they are made, with drill for the formation of habits of correct expression; that the names of the days of the week and of the seasons of the year be taught as well as the abbreviations and contractions found in the readers; that pupils be taught to divide into syllables the words in their readers and to mark the accent; that pupils in the Second Reader be required to give simple written reproductions consisting of one paragraph only; that there be simple exercises in word-building; that the significance of simple prefixes and suffixes be taught as well as the common use of capitals and punctuation marks; and that there be frequent transcription and dictation exercises.

5. Arithmetic.

Smith & Roberts, Arithmetic Book I. (for use of teacher only). The following grading of the work for the Junior Grade Course is suggested:—

RECEIVING CLASS AND BEGINNER'S READER (one year)—Study of the numbers 1 to 9, inclusive; developing relation between object and symbol; oral counting to 100; placing a number of objects (not to exceed 36) into groups of twos, threes, fours, etc., and counting the number of groups; measuring with a foot rule; counting by twos to 20; combinations of numbers to 9 (this includes the teaching not only of addition, but also the application of the other three simple rules to these numbers).

PHONIC PRIMER (one term)—Reading and writing numbers to 100; combinations to 20; study of the ten-unit; counting by fives and tens; e.g., 5, 10, 15, etc., and 10, 20, 30, etc.

FIRST READER (one term)—Combinations and extensions to 100; multiplication tables to end of table of 5. Work, within number limit, given in Smith & Roberts' Arithmetic, Book I. (1921 edition), to end of page 103; *or* corresponding work in 1920 edition.

SECOND READER (one year)—Daily drill in combinations and extensions; multiplication tables. Work as outlined in Smith & Roberts (1921 edition) to end of page 123; *or* corresponding work in 1920 edition.

NOTE.—The arithmetic work of the first two years (of the first year, particularly) should be characterized by the free use of objects, constructive exercises, picture numbers, etc., in order to develop clear number ideas with the aid of sense perceptions. Throughout the Junior Grade the knowledge of numbers should be applied in many and varied concrete problems of a simple kind. These problems should be largely oral. There should also be systematic practice in mental arithmetic in the prescribed course.

Reference: School Arithmetic, Book One—Wentworth-Smith (Ginn & Co.).

6. Nature Lessons and Geography (to be correlated with the Language and Drawing Lessons).

Nature Study and Primary Geography (Special Syllabus, Department of Education).

Intermediate Grade.

1. Reading.

Third Reader and (for supplementary reading) Progressive Road to Reading, Book IIIA. Recitation and Supplementary Reading.

2. Writing.

MacLean Method Compendium No. 4 is to be used by pupils of the Intermediate Grade. Healthful posture, free rhythmic movement, and the production of better form should be emphasized in all written work. Teachers will use the Teachers' Manual as their guide.

3. Drawing.

Blair's Canadian Drawing Series, Book III.

4. Language Lessons.

Language lessons based on the reading lessons. Spelling, meaning, and pronunciation of words, with special attention to word formation.

The division of a composition into paragraphs should be studied from suitable models in the Reader, and the knowledge thus gained by the pupils applied to their own compositions, both oral and written. Special attention to oral reproduction in paragraphs. (This should precede any written composition.) Oral and written reproductions of substance of reading, geography, history, and nature lessons.

Elementary Composition—Alexander & Mowat (W. J. Gage & Co., Ltd.), Parts I. and II., with Appendix A.

Public School Speller (Western Canada Series), pages 51 to 112, inclusive.

5. Arithmetic.

FIRST YEAR—Smith & Roberts, Book I. (1921 edition), pages 124 to 195, inclusive; *or* corresponding work in 1920 edition. Work in prime factors, common factors, highest common factors, and least common multiples to be confined to small numbers.

SECOND YEAR—Smith & Roberts, Book I. (1921 edition), page 196 to end of book; *or* corresponding work in 1920 edition.

6. Geography.

1. Further study of the earth as a whole—the position of the Equator, latitude, longitude, the Tropics, the Arctic and Antarctic, the relative position of the continents and oceans reviewed.

2. NORTH AMERICA:

(*a.*) Position—
- (i.) On the globe.
- (ii.) In relation to other continents and to the oceans.

(*b.*) Size. (Comparatively.)

(*c.*) Shape. (Triangular.) Make some study of the coast-line, teaching some of the more important coast features.

(*d.*) Build—
- (i.) Teach important highlands:
  - (1.) Primary highlands.
  - (2.) Secondary highlands.
- (ii.) Teach Great Central Plain:
  - (1.) The basin of the Mackenzie.
  - (2.) The basin of the Nelson.
  - (3.) The basin of the Mississippi.
- (iii.) Teach basin of the St. Lawrence.
- (iv.) Teach Atlantic Slope.
- (v.) Teach Pacific Slope.

NOTE.—The above will be taught from the globe, the sandboard, plasticene model or relief map, and afterwards from the blackboard sketch, the pupil being frequently referred to and taught to interpret the wall maps. Memory map.

(*e.*) A series of oral lessons taking the pupils in imagination through the different districts of the continent. In these they see the people at work, learn something of the climate and products of the different districts, and learn the names and location of the great commercial centres. No attempt will be made to teach much concerning the causes affecting climate, but from observation they will learn (*a*) that nearness to the Equator (latitude) affects climate, (*b*) that nearness to a large body of water affects climate, (*c*) that height of land above sea-level affects climate. They will learn the characteristic products of the different districts—wheat on the

Canadian prairies; corn and cotton in the Mississippi Valley; lumber and fruit on the Pacific Slope, with tropical fruits farther south. In connection with these products a commercial centre will be taught. They will thus learn the location of such cities as Victoria, Vancouver, Edmonton, Regina, Winnipeg, Ottawa, Toronto, Montreal, Quebec, Halifax, St. John, New York, St. Louis, New Orleans, and San Francisco.

(*f.*) The political divisions—Canada, United States, Mexico, and Central America.

3. BRITISH COLUMBIA—A careful study of the position of the Province in the Dominion of Canada—its size—build (drainage)—a general idea of its climate, and some of the industries, the chief cities, and some of the more important transportation routes. The drawing of the map from memory.

4. SOUTH AMERICA.

5. *AFRICA.

6. *AUSTRALIA.

7. *EUROPE.

8. *ASIA.

NOTE.—In teaching these continents, follow the above order and the plan suggested for North America, omitting the political divisions. In each case the study will be comparative. Much less time will be spent on these than on North America. The pupils should, however, before leaving the Intermediate Grade, have a clear idea of the position and general build of each continent. They should know something of the great plains, and life on these plains, and be able to locate the great commercial centres of the world.

Although no formal text-book on Geography is prescribed for this grade, each Intermediate Grade teacher is supplied with a copy of "World Relations and the Continents," by Alexander McIntyre, which may be used as a basis for this work. It is not intended that this book be used as a text, but only as an aid in teaching the prescribed course.

The following Geographical Readers are recommended for the teacher's use: Carpenter's Geographical Readers (American Book Co., New York); The World and Its People (Thos. Nelson & Sons, Toronto); Reynolds' Regional Geography (Adams & Chas. Black, London).

*To be taken during the second year in the grade.

7. **History** (to be correlated with the Geography Lessons).

The objects of the teaching of History in the Intermediate Grade are: To create an interest in the subject; to cultivate a taste for reading it, and, incidentally, to make the pupil acquainted with many of the facts of History that will be of value in his work in the Senior Grade.

This method of treatment is suggested:—

1. The story told by the teacher.
2. Questioning by the teacher leading the pupil to organize and group the facts into paragraphs.
3. Oral reproduction.
4. Written reproduction.

Topics suggested for first year:—

NORTH AMERICA.

1. Indian Tribes. (Giving a picture of life in North America before the coming of the white man.)
2. Columbus. (Not to be taken before the pupil has sufficient knowledge of the relative position of the continents to enable him to understand something of the desire of the people of Western Europe to find a shorter path to Eastern Asia.)
3. John and Sebastian Cabot.
4. Cortes and Montezuma. (Not a complete account of the Conquest of Mexico, but two or three stories to give a picture of the civilization of the Aztecs and of the Spanish gold-seekers.)
5. Cartier.
6. Drake.
7. Champlain.
8. Hudson.
9. Pilgrim Fathers.
10. William Penn.
11. Jesuit Missions.

12. Marquette.
13. La Salle.
14. Verendrye.
15. Wolfe.
16. Lord Selkirk.

BRITISH COLUMBIA.

1. Capt. Cook.
2. Capt. Meares.
3. Nootka Affair.
4. Capt. Vancouver.
5. Sir Alexander Mackenzie.
6. Simon Fraser.
7. David Thompson.
8. The Gold Rush.

Topics suggested for second year:—

THE BRITISH EMPIRE.

In Africa.

1. Mungo Park.
2. The Dutch Settlements.
3. Livingstone.
4. Stanley.
5. Cecil Rhodes.
6. Lord Roberts.

In Australia.

1. Capt. Cook.
2. Explorations in Australia. (Sturt & Eyre. One or two lessons only.)

In Europe.

1. A Visit to the Early Britons.
2. The Coming of the Romans.
3. A Visit to Roman Britain.
4. The Coming of the English.
5. A Visit to an English Village.
6. The Introduction of Christianity.
7. The Vikings.
8. Alfred the Great.
9. A Visit to Normandy.
10. The Norman Conquest.
11. A Visit to a Norman Castle.
12. A Tournament.
13. Richard of the Lion Heart.

NOTE.—The teacher will find material for these lessons in "Highroads of History," Book 4; also in "The Story of the British People" (Copp, Clark Co., Toronto).

In Asia.

1. Clive.
2. Hastings.

NOTE.—No attempt will be made to deal exhaustively with the biographies and topics suggested. They must be presented in such a way as to arouse the interest of the children. In dealing with the various biographies, the aim will be, not so much to teach the facts connected with the man's life, but to present a vivid picture of the times in which he lived and thus cultivate the imagination of the child.

Throughout, wherever possible, the History and Geography of this grade must be correlated. Thus, while studying the basin of the Mackenzie River in Geography, the lesson in History will be on Sir Alexander Mackenzie, and while studying the basin of the Columbia River the History lesson will deal with David Thompson.

Although no formal text-book is prescribed for this grade, yet the use of a carefully selected supplementary Historical Reader, such as the *Highroads of History*, may be used with advantage after an interest has been aroused by the oral lessons.

The following books will supply the teacher with much of the material:—

Gateways of History (Edward Arnold, London).
Highroads of History (Nelson & Sons, London).
Canada: The Empire of the North—Laut (Ginn & Co.).
Cortes and Montezuma—Pratt (Educational Book Co.).
Johnson's French Pathfinders in North America.

8. Nature Lessons.

Nature Study and Elementary Agriculture (Special Syllabus, Department of Education).

Senior Grade.

1. Reading.

Fourth Reader complete.

2. Literature.

Scott's Lady of the Lake and the following selections from the Fourth Reader:—

Recessional; The Sermon on the Mount; The Battle of Marston Moor; The Battle of Naseby; Burial of Sir John Moore; Heroes of the Long Sault; Jacques Cartier; The Vision of Mirza; Sir Galahad; A Dirge; Westminster Abbey; In Westminster Abbey; Lead, Kindly Light; The Duty of Canadians; The Patriotic Dead; The House Fly; To a Water-fowl; The Daffodils; The Lady of Shalott; The Panthers; Pontiac; Lobo, The Wolf; The Burial of Moses; The Chambered Nautilus; The Red River Voyageur; Boadicea; The Cloud; Hamlet's Soliloquy; Portia's Appeal to Shylock; Twenty-third Psalm; Labour; In Memoriam.

MEMORIZATION—Lady of the Lake:—

Canto I.—Sections I., II., XI., XII., XIV., XV., XVIII., and XXXI.

Canto II.—Section XIX.

Canto III.—First stanza of Section I., Sections II., XIV., and XVI.

Canto V.—Section XII.

Canto VI.—Section XV.; and the last three stanzas of the Canto beginning "Harp of the North, farewell!"

Fourth Reader: Recessional; The Charge of the Light Brigade; the last eight lines of "The Sermon on the Mount"; Burial of Sir John Moore; one stanza of "Sir Galahad"; A Dirge; last nineteen lines of "In Westminster Abbey"; Lead, Kindly Light; ten lines beginning "But I hope . . . without boasting" from "The Duty of Canadians"; The Patriotic Dead; To a Water-fowl; The Daffodils; one stanza of "The Chambered Nautilus"; The Red River Voyageur; first stanza of "The Cloud"; Portia's Appeal to Shylock; Twenty-third Psalm; three lines beginning "Blessed is he who has found his work . . . follow it!" from "Labour"; New Year Eve, from "In Memoriam."

3. Writing.

Pupils of the Senior Grade use the Senior Manual of the MacLean Method. Special attention should be devoted to freedom of movement, a more finished form, and greater rapidity in writing. Optional letter forms are presented in this grade. The essentials of business penmanship should be emphasized. Forearm muscular movement should be used in all written work. The teachers will use the Teachers' Manual as their guide.

4. Drawing.

Blair's Canadian Drawing Series, Books IV. and IVA. (Third Edition).

5. Language Lessons.

British Columbia Public School Grammar (Lang).

(No formal parsing is required, nor should the analysis of greatly involved sentences be undertaken.)

Alexander & Mowat's Elementary Composition to end of Part III., with Appendix.

Compositions on topics selected from prescribed work and from other sources. (The work should be carefully discussed and planned in class before the pupils are asked to write. Unless this is done, and unless the subjects are well chosen, it is useless to expect good results.)

Pronunciation, spelling, and meaning of ordinary words of text-books, including marking of accents and vowel-sounds.

Oral and written reproductions of substance of reading, literature, geography, history, and nature lessons.

Public School Speller (Western Canada Series), pages 113 to 168, inclusive.

6. Arithmetic.

FIRST YEAR—Smith & Roberts, Book II. (1921 edition), to end of page 118 (omitting pages 99 to 108, inclusive); *or* corresponding work in 1920 edition.

SECOND YEAR—Smith & Roberts, Book II. (1921 edition), page 120 to end of book (omitting pages 160 to 168, inclusive; from beginning of section on "Quadrilaterals," page 180, to end of page 207, except problems relating to rectangles, circles, rectangular solids, and cylinders; from beginning of section on "Measures of Surface," page 211, to end of page 218. Omit also all problems in the Review Exercises not relating to principles given in the assigned limits); *or* corresponding work in 1920 edition.

7. Geography.

Dominion School Geography, B.C. Edition (Part I. should be studied and considered, as far as possible, in connection with the presentation of related matter in the lessons of Part II.).

A general knowledge of the geography of the Continents and Oceans; Geography of British Columbia and Canada more particularly. Sketch-maps of British Columbia, Canada, North America, South America, Asia, Africa, Europe, and Australia.

Great accuracy in drawing sketch-maps is not expected. The drawing of elaborately finished maps at home is of little value and can in no way take the place of the training which the teacher should provide through blackboard illustration and class-room instruction. These maps should show such matters as the chief coast features, drainage basins and divides, the locations of large seaports, and of other important centres of population. Geographical statistics might also be given. For example, the map of North America might indicate the large wheat-growing area, the corn belt, the cotton belt, and one or two other important areas, with the products for which each is noted.

8. English History.

As in the prescribed text-book, History of England for Public Schools with War Chapter (The Macmillan Company of Canada, Ltd., Toronto).

For the year 1921-22 Entrance pupils may use *either* the above *or* Symes & Wrong's History.

NOTE.—The High School Entrance Examination on this subject will be confined to the Tudor, Stuart, and Hanoverian Periods.

9. Canadian History.

As in the prescribed text-book (Gammell).

NOTE.—The High School Entrance Examination on this subject will be confined to the Period of British Rule.

Finger-posts to British History (Thomas Nelson & Sons) will be found an excellent teacher's aid in British History.

NOTE.—Care must be taken at the beginning of the work in the Senior Grade to teach the pupil how to study from the book. Up to this time his history has been entirely oral. He must now be taught the art of studying the facts for himself from a text-book.

10. Nature Study.

(*a*.) How to be Healthy.

(*b*.) Nature Study and Elementary Agriculture (Special Syllabus, Department of Education).

11. Manual Training and Domestic Science.

For High School Entrance requirements in these subjects, *see* pp. 29-34.

PHYSICAL TRAINING.

The Education Department has accepted the conditions of the Strathcona Trust for the encouragement of physical training in the Public Schools. Regular and systematic instruction in physical training, according to the syllabus laid down in the prescribed text-book (Syllabus of Physical Training for Schools, 1919, recommended by the Executive Council, Strathcona Trust), is compulsory.

Every Special Teacher or Supervisor of Physical Training must hold at least the Certificate of Physical Training Instruction issued by the Militia Department in accordance with the regulations approved by the Executive Council, Strathcona Trust. Teachers must give instruction in this subject to their classes daily.

MUSIC SYLLABUS.

The music period should be one of pleasure and enthusiasm for both teacher and pupil. A careful and wise training will inculcate a love for good music, will produce competency in sight-reading, and result in the well-rendering of songs.

A few children—far fewer than is generally supposed—have what is called a "bad ear" for music. That is, they do not readily distinguish between one musical sound and another; but it can safely be said that quite 90 per cent. of children can with patience and perseverance cultivate a "good ear" and learn to sing with pleasing voice.

Too much stress cannot be laid on the importance of "soft" singing. When the singing is soft, there is no risk of straining or injuring the voice.

Children should be trained to sing alone. It is a great mistake always to practise children collectively. If they were so taught to read and recite it would be hopeless to expect correct articulation and intelligent phrasing.

To sing intelligently it is necessary, first, to phrase correctly; secondly, to sing with expression. To phrase correctly means, roughly speaking, to take breathing in the proper places. To sing with expression children must be encouraged to put themselves into their music; for if they sing what they feel, those who listen will feel what they sing.

Receiving Class.

1. To imitate the teacher's pattern in sol-faing simple phrases of three or four notes to lah (individual work).
2. To sol-fa from the hand-signs the tones of the Doh Chord in any order, and in several keys, this to be preceded by song-sentences.
3. To sing sweetly and softly songs with and without action.
4. Rhythm to be taught by swinging, clapping, etc.
5. Singing games.
6. Little rhythmic plays.

Beginner's Reader.

1. To imitate the teacher's pattern in sol-faing simple phrases of three or four tones to lah (individual work).
2. To sing the Doh Chord by leaps and the other notes of the scale in step-wise succession by hand-signs.
3. Song-sentences, including all notes of scale (individual work).
4. Songs with and without action.
5. Rhythmic games.

Phonic Primer.

1. Voice-training.

(*a.*) Simple breathing exercises.

(*b.*) Simple voice exercises.

Exercises to be sung softly, with pure tone, careful attention to vowel-sounds and pitch. Exercises to be taken to loo, moo, noo.

2. Tune.

(*a.*) To sol-fa from the teacher's pointing on the *Modulator* and from *hand-signs* the tones of the Doh Chord in any order, and the other tones of the major diatonic scale in step-wise succession.

(*b.*) To sing *simple* exercises in the Staff Notation.

3. Time.

To know the values of the whole-note, half-note, and quarter-note. To monotone exercises to time-names and syllable "doh."

4. Time and Tune.

To sing short "study" songs to syllables, lah, and words.

5. Ear-training.

(*a.*) To recognize the notes of the Doh Chord.

(*b.*) To imitate the teacher's pattern in sol-faing simple phrases of three or four tones (individual work).

6. Song-singing.

Songs may be patterned from Modulator occasionally.

7. Rhythmic Writing.

8. Rhythmic Games and Dances.

New

First Reader.

1. Voice-training.

(*a.*) Simple breathing exercises.

(*b.*) Simple voice exercises.

Attention given to soft, sweet tone, vowel-sounds, and pitch (individual work).

2. Tune.

(*a.*) To sing to the syllable "lah" from the Modulator exercises containing the tones of the Doh Chord in any order, and the other tones of the diatonic major scale in step-wise succession.

(*b.*) To sol-fa from the Modulator exercises containing the Doh and Soh Chords in any order, and fah and lah in step-wise succession.

(*c.*) To sol-fa from the Staff Modulator exercises in various keys.

3. Time.

(*a.*) To sing to time-names and to doh, exercises containing the whole-note, half-note, quarter, eighth, and rests.

(*b.*) Time ear tests.

4. Time and Tune.

To sing to syllables and to lah, short "study" songs.

5. Ear-training.

(*a.*) To tell the name of any tone of the major scale sung to lah, the tones of the Doh Chord being first sol-faed by the teacher or by the class.

(*b.*) To imitate and sing from dictation as in First and Second Primers.

6. Theory.

To answer any question on the notation and mental effects of tones taught.

7. Songs.

To sing to words in correct tune and time, with good expression, songs in unison.

8. Rhythmic Games and Plays with Musical Interpretation. new

Second Reader.

1. Voice-training.

(*a.*) Simple breathing exercises.

(*b.*) Simple voice exercises.

These exercises should be practised daily in accordance with the principles described in First Reader.

2. Tune.

(*a.*) To sol-fa from the Modulator, and sing to "lah" exercises containing any ordinary intervals of the diatonic major scale.

(*b.*) To learn "fe" and "ta."

(*c.*) Staff Modulator drill in all keys.

3. Time.

(*a.*) To sing to time-names and to doh, time exercises containing the whole-note, half-note, quarter, eighth, and dotted quarter with eighth.

(*b.*) To have practice in putting in the bar lines to simple unbarred exercises, and in naming the time of passages sung to swinging.

(*c.*) Time ear tests.

4. Time and Tune.

To sing to syllables and to lah, short "study" songs.

5. Ear-training.

(*a.*) To tell the name of any tone of the major scale and to write it on the blackboard.

(*b.*) To imitate and sing from dictation, phrases of three or four notes.

6. Theory.

To answer questions on the notation.

7. Songs.

To sing in correct time and tune, and with good tone and expression, songs in unison.

8. Rhythmic Work.

The work of the previous classes should be carried on as far as possible. new.

Third Reader.

1. Voice-training.

(*a.*) Breathing exercises.

(*b.*) Voice exercises.

These exercises should be taken daily. The "head voice" must be encouraged; the "forced chest voice" must not be allowed. Simple exercises on the good singing vowels should be taken individually.

2. Tune.

(*a.*) Sharp Modulator practice in all keys from the Staff Modulator, using syllables and lah.

(*b.*) To sol-fa from the Modulator, exercises containing minor mode phrases introducing l se l; me ba se lah.

3. Time.

To sing to time-names and to doh, exercises containing the whole-note, half-note, quarter, eighth, sixteenth, dotted quarter with the eighth, and dotted eighth with the sixteenth.

4. Time and Tune.

Short "study" songs sung to syllables, lah, and words.

5. Ear-training.

To write or tell ear tests containing three or four tones, including easy leaps, on the tones of the Tonic Chord.

6. Theory.

Formation of scale, key, and time signatures.

7. Songs.

Unison songs to be committed to memory.
Two-part exercises introduced.

8. Major and Minor Chords.

Major	s	d'	r'	s	Minor	m'	l	t
	m	l	t	m		d'	f	s
	d	f	s	d		l	r	m

Fourth Reader.

1. Voice-training.

(*a.*) Breathing exercises.
(*b.*) Exercises on the singing vowels.
Special attention to the singing of vowels and consonants.

2. Tune.

Sharp practice on the Staff Modulator daily to "lah" in all keys.

3. Time.

A review of the work taken in the lower grades.

4. Time and Tune.

Short "study" songs for sight-reading.

5. Ear-training.

Phrases played or sung by teacher to be written in manuscript books.

6. Theory.

Written answers to questions relating to notation, key, and time signatures.

7. Songs.

Unison and two-part songs. A three-part song might occasionally be taken.

8. *Original Melodies.*

Entrance Class.

Voice-culture.

Continued practice on the singing vowels.

Songs.

Solo-singing to be encouraged.

Study.

Bass Clef to be introduced to boys (sung an octave higher than written).

Text-book.

New Educational Music Course, First Reader and Second Reader, Canadian Edition (Ginn & Co.).

Supplementary Books for Teachers' Use.

Song Time, for Junior Grade (Curwen, London).
National Song Book (Boosey, Toronto).
Rhythmic Work—K. Mortimer and G. Davies (Curwen, London).
Old English Games and Physical Exercises—Florence Kirk (Longmans, Green & Co.).
Rhythmic Games and Dances for Children—Florence Kirk (Longmans, Green & Co.).

NEEDLEWORK COURSE.

Accuracy in each step must be the ruling thought in every grade. Insist on clean hands, keeping material clean and workboxes in good order. Avoid tedious descriptions of, and reasons for, mechanical processes.

A Needlework Course should be built up from the following and be preparatory to the Course in Cookery:—

First Reader.

Even basting, uneven basting, running stitch, chain stitch, cross stitch, blanket stitch. Free cutting from paper-folding method of simple garments of various sizes—e.g., caps, bonnets, bibs, etc.

Second Reader.

Stitching, back stitch, combination stitch, hemming stitch, overhanding stitch, French seam, flat fell seam, herringbone stitch, feather stitch. Free cutting from paper-folding method of simple garments for children of different ages.

Third Reader—Junior.

Overhanding, buttonhole stitch, hem stitch, damask seam, flannel seam, making cookery outfit (pot-holder, towel, sleeves, apron, cap). Free cutting and making of garments.

Third Reader—Senior (25 hours during the school-year). (In conjunction with work in Cookery.)

A selection of exercises from the following:—

Hemstitching, buttonholes, household sewing, pillow-slips, towels, etc. Making and repairing kitchen linen. Patching, darning. Free cutting continued. Knitting.

Fourth Reader—Junior (25 hours during the school-year).

Draughting, free cutting, and making undergarments. Repairing, patching, and darning flannels, prints, and coloured goods. Knitting.

Fourth Reader—Senior (25 hours during the school-year).

Cutting and making undergarments or High School outfit. Repairing table linen, mending and darning of outer garments, gloves, etc.

LIST OF AUTHORIZED TEXT-BOOKS FOR PUBLIC SCHOOLS.

Readers, etc.

British Columbia Beginner's Reader (W. J. Gage & Co., Toronto).
British Columbia Phonic Primer (The Educational Book Co., Toronto).
British Columbia First Reader (W. J. Gage & Co., Toronto).
British Columbia Second Reader (W. J. Gage & Co., Toronto).
British Columbia Third Reader (W. J. Gage & Co., Toronto).
British Columbia Fourth Reader (W. J. Gage & Co., Toronto).
Scott's "Lady of the Lake," annotated by O. J. Stevenson (The Copp, Clark Co., Toronto).

Supplementary Readers.

Art Literature Readers, The, Primer, First and Second Books (The Educational Book Co., Toronto).
Britannia History Readers, Stories from British and Canadian History (The Copp, Clark Co., Limited).
Child Life Readers, The, Primer, First and Second Readers (The Macmillan Co., New York).
Country Readers, The, Books I., II., and III., edited by H. B. M. Buchanan (The Macmillan Co., New York).
Folk-Lore Readers, The, Primer and Book I. (W. J. Gage & Co., Ltd., Toronto).
Heart of Oak Books, Books I. and II. (W. J. Gage & Co., Ltd., Toronto).
Highroads of Literature, The, Introductory Book, and Books One, Two, Three, and Four (Thomas Nelson & Sons, London).
Hiawatha Primer, The (Houghton, Mifflin & Co., Boston).
Infant Reader, The, and the Preparatory Reader of the Progress to Reading Series (Macmillan Co., Ltd.).
Literary Readers, Teachers' Manual and Books 1, 2, and 3—Field & Young (Ginn & Co., Boston).
Literature Readers, Books I. and II. (Thomas Nelson & Sons, London).
Little Red Hen, The, Book II. (Educational Publishing Co., Boston).
Just a Little Girl, for First Reader—Alice Ashworth (Frederick Warner & Co., New York).
Progressive Road to Reading, Books I., II., III., and IIIA. (The Educational Book Co., Toronto).
Royal Prince Readers, Books I., II., III., IV., and V. (Thomas Nelson & Sons, London).
Stories from Grimm, Books I. and II. (Thomas Nelson & Sons, London).
Sunbonnet Babies' Primer (Rand, McNally & Co.).
Robin Hood Reader—Reid (Western Specialty Printing Co., Vancouver).
The Great War in Verse and Prose, edited by Wetherell (Department of Education, Toronto).

Spellers.

Public School Speller, The (Copp, Clark Co., Toronto).

Writing.

First Year: Compendium No. 1 of the MacLean Method of Muscular Movement Writing.
Second Year: Compendium No. 2 of the MacLean Method of Muscular Movement Writing.
Third Year: Compendium No. 3 of the MacLean Method of Muscular Movement Writing.
Intermediate Grade: Compendium No. 4 of the MacLean Method of Muscular Movement Writing.

Senior Grade: Senior Manual of the MacLean Method of Muscular Movement Writing.
Teachers' Manual.

Grammar and Composition.

British Columbia Public School Grammar—Lang (The Copp, Clark Co., Toronto).
Elementary Composition—Alexander & Mowat (Gage & Co., Ltd.).
The Highroads Dictionary (Thomas Nelson & Sons, London).

History and Geography.

History of Canada—Gammell (W. J. Gage & Co., Toronto).
Canadian Civics—for use of Teacher only (The Copp, Clark Co., Toronto).
History of England for Public Schools (The Macmillan Co. of Canada, Ltd.).

NOTE.—*Symes & Wrong may be used by Entrance pupils for the year 1921–22.*

Dominion School Geography, B.C. Edition (W. J. Gage & Co., Ltd.).
*Royal Atlas for Canadian Schools (Thomas Nelson & Sons, London).
†Wall Maps (W. & A. K. Johnson, London).
Recommended for teachers' use and for supplementary reading for pupils' use:—
World Relations and the Continents—McIntyre (W. J. Gage & Co., Ltd.).
Highroads of History (Thomas Nelson & Sons, Ltd., Toronto).
Gateways of History (Edward Arnold, London).
Story of the British People (Thomas Nelson & Sons, Ltd., Toronto).
Canada: The Empire of the North—Laut (Ginn & Co., Boston).
Cortes and Montezuma—Pratt (W. J. Gage & Co., Ltd.).
Flag and Fleet—Wood (Macmillan Co. of Canada, Ltd.).
French Pathfinders in North America—Johnson.
Finger-posts to British History (Thomas Nelson & Sons, Ltd., Toronto).
Geographical Readers—Carpenter (American Book Co., New York).
World and its People, The (Thomas Nelson & Sons, Ltd., Toronto).
Regional Geography—Reynolds (Adams & Chas. Black, London).
Our Home and its Surroundings (Macmillan Co. of Canada, Ltd., Toronto).
Pictures from Canadian History—MacPherson (Renouf Publishing Co., Montreal).
The Young Canadian Citizen—J. O. Miller, D.C.L. (J. M. Dent).

Arithmetic and Book-keeping.

Arithmetics, Books I., II.—Smith & Roberts (W. J. Gage & Co., Ltd.).
Recommended for teachers' use:—
School Arithmetics, Books One, Two, and Three—Wentworth & Smith (Ginn & Co.).

Nature Study and Elementary Agriculture.

How to be Healthy—(The Educational Book Co., Toronto).
Recommended for teachers' use:—
Elementary Agriculture and Nature Study—Brittain (The Educational Book Co., Toronto).
Agriculture—James (The Macmillan Co. of Canada, Ltd., Toronto).
Nature Study and Fairy Tales—Dodd (Thomas Nelson & Sons, Ltd., Toronto).
(*See also* list of books and bulletins in Department's outline of Nature Study.)

Drawing.

Blair's Canadian Drawing Series (Third Edition), Books I., II., III., IV., IVA. (The Copp, Clark Co., Toronto).
Recommended for teachers' use:—
Text-book of Art Education, Books I. to VII. (Prang).

* Optional.
† Recommended for use.

A Course in Water Colours for the First Eight Years in School (Prang).
Practical Notes on Colour-mixing for School Teachers (Reeves & Sons, London).
School Arts Book, The (monthly magazine) (School Arts Co., Boston).

Manual Arts.

Recommended for teachers' use:—
Educational Handwork—Kidner (Educational Book Co., Toronto).
Primary Work—Seegmiller (Atkinson, Mentzer & Grover, Chicago).
Artistic Handwork in Paper and Cardboard—Rowland (George Philip & Son, London).

Music.

New Educational Music Course, including the First and the Second Readers of the Canadian Edition (Ginn & Co., Boston).
Song Reader, The, Canadian Edition (Ginn & Co., Boston).

Physical Exercises.

Syllabus of Physical Training for Schools, 1919.

HIGH SCHOOL COURSES OF STUDY.

Preliminary Course, Junior Grade.

A.—English.

1. READING AND ORTHOEPY—Oral reading, with special attention to expression and pronunciation. Prescribed text, Fifth Reader.

2. WRITING AND SPELLING—Legibility and precision in writing and accuracy in spelling will be required in manuscript-work of all subjects.

3. ENGLISH LITERATURE—A careful study of the Fifth Reader; Stevenson's Kidnapped (McClelland & Stewart, Toronto).

4. COMPOSITION—High School English Composition, Western Canada Series (Copp, Clark Co.), Chapters I.–IV., inclusive.

B.—Civics.

Jenkins' Canadian Civics, British Columbia Edition (The Copp, Clark Co., Toronto).

C.—Mathematics.

1. ARITHMETIC—Pure and commercial arithmetic, as in Dominion High School Arithmetic (Gage & Co., Ltd.).

NOTE.—Ordinary High School students will complete the subject of Arithmetic at the close of the first year, but Commercial students will take a Two-years' Course.

2. ALGEBRA—The first sixteen chapters of Hall & Knight's Elementary Algebra.

3. GEOMETRY—Hall & Stevens' School Geometry (London Edition), pages 1 to 55, inclusive; and Practical Geometry, pages 69 to 85 of the same text.

D.—Classics.

Students who choose one of the science options outlined in F must take one language; all other students must take two languages.

1. LATIN—Robertson & Carruthers' Latin Lessons for Beginners, Lessons I.-XLV., inclusive.

2. FRENCH—Either Siepmann's Primary French Course, Part I.: (*a*) Lessons 1 to 14, i.e., pages 1 to 57, inclusive; (*b*) exercises on lessons 1 to 14, i.e., pages 123 to 153, inclusive; or Fraser & Squair's New High School French Grammar, Lessons I.–XXXIII., inclusive.

It is recommended that Fraser & Squair's New High School Grammar be followed in High Schools in which the teacher is not a finished French scholar, but that Siepmann's Primary French Course be adopted in cases where the teacher not only reads the language with ease, but speaks it fluently and with the correct accent.

3. GERMAN—Vandersmissen & Fraser's High School German Grammar (1912 edition), Lessons I.–XXIII., inclusive.

E.—Drawing.

Books V. and VA. of the prescribed series, Third Edition (The Copp, Clark Co., Ltd., Toronto).

NATURE DRAWING.

Flowers and plant form. Colour harmonies—primaries, secondaries, tertiaries. Conventionalizing nature forms. The design motive—scheme of colour to be made from every flower and insect drawn.

ART GEOMETRY.

Subdivision of space. Placing the mass (*a*) in border—principles: repetition; (*b*) in panel—variety, balance, symmetry. Connecting the mass—lines of growth. Contrasting features—variety.

Applied design: Using colour schemes and motives obtained in previous lessons. For practical application in stenciling; embroidery; applique; china-painting; stained wood; piercing; inlay; metal repoussé.

Object drawing for practice in reproduction (constructive); appreciation of artistic form; appreciation of tone; appreciation of texture; appreciation of colour.

Compose groups and apply to poster-work, advertisements, etc. Apply principles used in designing from plant forms.

ART APPRECIATION.

Talks on varied subjects: Art in the house; art in the street; art in the workshop and factory; picture study.

Scales and measured drawings to be carried out in conjunction with the manual work.

BOOKS FOR REFERENCE.

Drawing from Models and Objects—John Carroll (Burns and Oates, London, Eng.).

Practical Geometry for Art Students—John Carroll (Burns and Oates, London, Eng.).

Pattern Drawing and Design—John Carroll (Burns and Oates, London, Eng.).

Lessons on Decorative Design—Jackson (Chapman and Hall, London, Eng.).

Studies in Line and Mass—E. A. Branch (Ralph, Holland & Co., London, Eng.).

NOTE.—In connection with the subject of Drawing, it has been decided that the solid geometry contained in Book VA. shall be taught to the boys only, and not in the ordinary class-room, but by the manual training instructors in the manual training workshops. In lieu of this solid geometrical drawing more attention should be paid in the class-room to the development of design, and where instruction is given in Household Economics pattern-drawing should be specially emphasized.

F.—Science (Optional).

Students may substitute for one foreign language either General Science or Physics and Chemistry.

GENERAL SCIENCE—Caldwell & Elkenberry, Revised Edition. (Any twenty chapters selected at the discretion of the teacher.) Pupils should also supply themselves with the accompanying Laboratory Manual by Caldwell, Elkenberry & Pieper, and should perform the suggested experiments and keep careful notes.

Or

PHYSICS AND CHEMISTRY—Gregory & Simmons, Stages I., II., and III., with the following omissions:—

In Stage I.—Lessons VI., VII., VIII., XXXII., XXXIII., XXXIV., and XXXV.;
In Stage II.—Summary of First Stage, Lessons XII., XIII., and that part of Lesson XIV., treating with *Heat absorbed in the conversion of water into steam;*
In Stage III.—Summary of First and Second Stages, Lessons XVIII., XIX., and XX.

Advanced Course, Junior Grade.

A.—English.

1. READING AND ORTHOEPY—Oral reading, with special attention to expression and pronunciation. Prescribed text, as in English Literature.

2. WRITING AND SPELLING—As in Preliminary Course, Junior Grade.

3. ENGLISH LITERATURE—Longer Narrative Poems—Jeffries (Macmillan Co. of Canada, Ltd.); and any *two* of the following: (*a*) Specimens of the Short Story—Nettleton (Henry Holt & Co.); (*b*) Scott, Quentin Durward (Thomas Nelson & Sons, Ltd., Toronto); (*c*) Shakespeare, Julius Caesar—Stevenson (Copp, Clark Co., Ltd.).

4. COMPOSITION—High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), Chapters I.–VIII., inclusive. The examination on this subject, besides testing the pupil's knowledge of the prescribed text, will consist of an essay on one of three specified subjects, two of which will be from the English Literature prescribed for the year. In preparation for the examination, frequent and systematic practice in essay-writing throughout the year will be imperative. The value attached to the examination paper will be apportioned by giving 25 per cent. to the questions on the work of the prescribed text and 75 per cent. to the essay.

B.—Mathematics.

1. ALGEBRA—The first twenty-two chapters of Hall & Knight's Elementary Algebra.

2. GEOMETRY.—Hall & Stevens' School Geometry, Parts I. and II., i.e., pages 1 to 138, inclusive (London Edition).

C.—Classics.

Students who choose the science options outlined in D must take one language; all other students must take two languages. Students who chose the science option in the first year should continue the language already chosen.

1. LATIN—Robertson & Carruthers' Latin Lessons for Beginners, pages 1–324 (omitting the B exercises, both Latin and English, in Lessons XLVI.–LXXX., inclusive, and Reading Lessons IX.–XV., inclusive), together with the Supplementary Reading Lessons, pages 328–334, inclusive, and pages 351–360, inclusive; also the Appendix, pages 362–377, inclusive.

NOTE.—With the view of securing uniformity of pronunciation, it is recommended that the Roman pronunciation be used.

2. FRENCH—Either Siepmann's Primary French Course, Part I.: (*a*) Lessons 1 to 30, i.e., pages 1 to 121, inclusive; (*b*) exercises on Lessons 1 to 30, i.e., pages 123 to 195, inclusive; (*c*) Bedollière's *La Mère Michel et son Chat* (Heath & Co.); or Fraser & Squair's New High School French Grammar, Lessons I.–LXVI., inclusive, together with Bedollière's *La Mère Michel et son Chat* (Heath & Co.).

It is recommended that Fraser & Squair's New High School Grammar be followed in High Schools in which the teacher is not a finished French scholar, but that Siepmann's Primary French Course be adopted in cases where the teacher not only reads the language with ease, but speaks it fluently and with the correct accent.

3. GERMAN—Vandersmissen & Fraser's High School German Grammar (1912 edition), Lessons I.–XLVIII., inclusive, together with Andersen's *Bilderbuch ohne Bilder* (Heath & Co.).

D.—Science.

Students who choose two languages must take Botany and any *one* of the following science subjects: Agriculture, Chemistry, Physics. Those taking one language must take Botany and any *two* of the following: Agriculture, Chemistry, Physics.

1. BOTANY—In this course the nature-study method of presentation should be adhered to throughout. No text-book is prescribed for use of pupils. Each pupil should have a good note-book in which to record his observations and conclusions. Careful drawings of parts studied should be emphasized.

(*a.*) Study of a mature seed-plant under the following headings:—

Habitat—Conditions under which the plant lives; nature of soil, water-supply, intensity of light, etc.

Root—Form and structure; relation to surroundings, especially soil; relation to other parts of plant.

Stem—Regions, markings, buds, branches; relation to surroundings; relation to other parts of the plant.

Leaf—Position, shape, structure; relation to surroundings, especially light; relation to one another and to other parts of the plant, especially in regard to food-manufacture.

Flower—Parts, number and shape, position; relation of parts to one another and to the plant as a whole; relation to surroundings, especially in regard to pollination; reproduction.

Fruits—Parts; the origin of each; structure of seed; importance for reproduction; seed-dispersal.

(*b.*) Similar study of at least two plants belonging to each of the following families: Liliaceæ, Ranunculaceæ, Cruciferæ, Leguminosæ, Rosaceæ, Compositæ; and of at least three plants belonging to each of the following: Coniferæ, Gramineæ, Saxifragaceæ, Violaceæ, Umbelliferæ, Ericaceæ, Labiateæ, Scrophulariaceæ.

(*c.*) Comparison of the plants studied and grouping according to structure and according to habitat.

(*d.*) Topical summary of data collected.

(*e.*) Growth of the seed and of the root and stem; buds in relation to the determination of stem form; cambium.

(*f.*) Simple experiments to illustrate osmosis, photosynthesis, and transpiration.

REFERENCE BOOKS RECOMMENDED.

Beginner's Botany—L. H. Bailey (Macmillan, 1919).
The Science of Plant Life—Transeau (World Book Co., New York).
Plant Relations—Coulter (Appleton, New York, 1905).
Flora of B.C.—Henry (W. J. Gage & Co.).

2. AGRICULTURE (FIRST YEAR).

Soil Study—Origin, formation, and classification; physical analysis; necessity and value of drainage; levels and grades.

Plant and Seed Studies—Field and laboratory studies in weeds, grasses, cereals, and forage plants; collecting and mounting of specimens; identification of noxious-weed seeds; protective legislation.

Vegetable Gardening—Choice and classification of garden varieties; preparation and management of hot-beds and cold-frames; garden practice.

Fruit-growing—Selection of varieties; methods of propagation; pruning.

Poultry—Breeds, housing, feeding, and management; incubation and brooding; common pests, diseases, and treatment.

Insect Study—Identification and life-history of field, garden, and orchard insects; remedial measures.

Bee-keeping—Relationships and life-history of the honey-bee; swarming; winter care; equipment.

3. CHEMISTRY—A Text-book for High Schools—Cornish (The Macmillan Co. of Canada, Ltd.); Chapters I. to IV., inclusive; Chapter VI., sections 56, 57, 61, and 62; Chapter VII., the substance of sections 68 and 69; Chapter VIII., section 71, the last paragraph of section 73, and section 76 to page 115; Chapter IX., sections 77, 78, 81, 82, 84, 85, and 89; Chapter X., sections 91 and 92; Chapters XI. and XII., omitting questions requiring numerical calculation.

The exercises in the Laboratory Manual in Chemistry (Cornish & Smith) covering the above work should be performed.

4. PHYSICS—Merchant & Chant's High School Physics (The Copp, Clark Co., Ltd., Toronto): Chapter I.; Chapters X. to XIV., inclusive; Chapters XXIV. to XXIX., inclusive; Chapter XXXI.

The exercises in the Laboratory Manual in Physics (Merchant & Chant) relating to the above work should be performed, with the exception of Nos. 6, 36, 37, and 39.

Junior Matriculation (School-year 1921-22).

The subjects for Junior Matriculation are as follows:—

1. English.
2. History and Historical Geography.
3. Mathematics (Algebra and Arithmetic, Geometry).
4. French, or German, or Latin.
5. Agriculture, or Botany, or Chemistry, or Greek, or Physics, or *one* of the languages in 4 not already taken.
6. *One* of the languages in 4 not already taken, or *two* of the sciences in 5 not already taken.

Greek can be taken only by students offering Latin.

The requirements in each subject will be as follows:—

English.

1. COMPOSITION AND READING—The principles of English composition as in High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), with short essays on a general subject and other subjects based on works prescribed for reading, as follows: (*a.*) Prose (two books to be selected)—Washington Irving, The Sketch Book (ed. Lichfield, Ginn & Co.); Scott, Kenilworth; George Eliot, Silas Marner (ed. Witham, Ginn & Co.); Southey, Life of Nelson (Everyman's Library). (*b.*) Poetry (one to be selected)—Shakespeare, As You Like It (Macmillan or Ginn); Tennyson, Gareth and Lynette (Macmillan or Ginn).

The editions are merely recommended, not required.

The books to be selected should be read carefully, but the student's attention should not be so fixed upon details that he fails to appreciate the main purpose and beauty of the work.

Frequent practice in composition is essential.

2. LITERATURE (FOR CRITICAL STUDY)—Shakespeare, Merchant of Venice *or* Henry V.; Poems of the Romantic Revival (Copp, Clark Co.), omitting the selections from Coleridge and Byron.

Candidates will be expected to memorize some of the finest passages.

Spelling will be tested by the candidate's papers in English. Examiners in other subjects will also take note of misspelled words and will report flagrant cases to the Board.

Two examination papers of two hours each.

History and Historical Geography.

The essentials of European history, ancient, mediæval, and modern (to the eighteenth century), as presented by Breasted and Robinson in their Outlines of European History, Part I. (Ginn & Co.).

The geography required will be that relating to the history prescribed.

One paper of two hours.

Mathematics.

1. ALGEBRA AND ARITHMETIC—Algebra: As in the first thirty-one chapters and the graphical work of Articles 411 to 428, inclusive, Hall & Knight's Elementary Algebra, omitting the articles in Chapter 29 marked with an asterisk. Arithmetic: Vulgar and decimal fractions, square and cube root, commercial arithmetic, metric system.

2. GEOMETRY—Parts I., II., III., and IV. of Hall & Stevens' School Geometry, London Edition.

Two papers of two hours each.

Physics.

The general principles of physics as given in any standard text-book of High School Physics. The examinations will be based on the following chapters of the Ontario High School Physics (Merchant & Chant), and on the Ontario High School Laboratory Manual in Physics: Chapter 1; Chapters 10–12; Chapters 18, 19, and Chapter 20 to the end of section 206, omitting sections 198 and 199; Chapters 24, 25, 26, 31, omitting section 261. The exercises in the Laboratory Manual covering the above work should be performed, with the exception of Nos. 6, 36, 37, 39. Chapter 13 (beginning at page 111) and Chapter 14; Chapters 27, 28, 29; Chapters 32, 33, 35, 36, 37, 38; Chapters 41, 42, 43, 44, 45, 46, 47, 48, omitting sections 460–462 and section 529. Exercises as in the Laboratory Manual, omitting Exercises 33, 34, 51, 52, 58, 69, 77, 78, 83, 96, 97, 99, 107.

Latin.

TEXTS—Caesar, Book IV., Chapter 20 to the end; Caesar, Book V., Chapters 1 to 23, inclusive; Virgil, Aeneid II., lines 1 to 505.

GRAMMAR—Knowledge of grammar will be tested by translation and composition, and by questions based on the specified texts.

TRANSLATION AT SIGHT FROM LATIN TO ENGLISH.

COMPOSITION—Translation into Latin of detached English sentences and easy narrative based on the prescribed portions of Caesar. Prescribed texts: Henderson & Little's Matriculation Caesar (Copp, Clark Co., Ltd.); Virgil, Aeneid, Book II. (Gage & Co. or Copp, Clark Co., Ltd., or Macmillan).

NOTE.—The Roman method of pronouncing Latin is recommended.

Greek.

Lessons 1–48 of White's First Greek Book (Ginn & Co.).

One paper of two hours.

NOTE.—This course can be covered successfully in one year.

French.

GRAMMAR—Candidates will not be required to state in writing grammatical rules or to reproduce tables of verbs, regular or irregular. They will be expected to have a thorough *practical* knowledge of French accidence and such points of syntax as are of frequent occurrence in ordinary prose style.

This knowledge will be tested by asking candidates to modify sentences given, to fill in words necessary to complete sentences, or to change infinitives to the tense required by the context. They may be asked to form sentences from the elements given.

The book recommended is Siepmann's Primary French Course, Part II. (Macmillan & Co., Canada).

TRANSLATION AT SIGHT INTO ENGLISH of a French passage of moderate difficulty, dealing with French life, trades, industries, history, travel. A knowledge of useful words is required.

TRANSLATION INTO FRENCH OF DETACHED SENTENCES—Chiefly common idioms (not rare idioms and little-used proverbs) and an easy English passage. The latter may

be a dialogue. It will be selected with a view to testing the candidate's knowledge of French, not of grammatical exceptions.

Two papers of two hours each.

German.

READING AND SPEAKING—Candidates will be expected to have a fair knowledge of German sounds and pronunciation. They must be able to read with ease German prose or verse of ordinary difficulty and to answer correctly in German simple questions based on the reading prescribed.

GRAMMAR—Candidates will be expected to have a thorough practical knowledge of German accidence and of such points of syntax as are of frequent occurrence in ordinary prose style. This knowledge will be tested by asking them to modify sentences given, to fill in words necessary to complete sentences, or to change uninflected words to forms required by context, etc.

TRANSLATION AT SIGHT INTO ENGLISH of a German passage of moderate difficulty, dealing with German life, ways, and customs. A knowledge of useful words will be required.

TRANSLATION INTO GERMAN of detached English sentences and of an easy English passage. A knowledge of simple idiomatic and colloquial German expressions will be required.

Books recommended: (*a*) Siepmann, Primary German Course (Macmillan); (*b*) Allen, German Life (Holt); (*c*) Goebel, Rubezahl (Macmillan).

NOTE.—Teachers should insist upon correct pronunciation and use the language as much as possible in class instruction.

Two papers of two hours each.

Chemistry.

As in Chemistry—Cornish, A Text-book for High Schools (Macmillan), and Cornish & Smith, A Laboratory Manual in Chemistry (Macmillan).

One paper of two hours.

Botany.

Upon application of schools giving a Matriculation Course in Botany, the following outline of the course will be supplemented by supplying lists of British Columbia plants which may be used in illustration and with specific references to sections in the books mentioned below.

Emphasis is placed upon comprehension of principles rather than mastery of detail, and upon observation rather than book knowledge.

A. PLANT STRUCTURES AND THE PART TAKEN BY EACH IN CARRYING ON LIFE PROCESSES.

1. *Root*—(*a.*) Food storage; examples of food storage in roots. (*b.*) Anchorage; forms of roots in relation to anchorage. (*c.*) Absorption of food materials from the soil; root-hairs; osmosis experiment.

2. *Stem*—(*a.*) A support of leaves and flowers; forms of stems considered in this relation. (*b.*) The conduction of food and food materials; the general structure of the stem and its relation to conduction. (*c.*) Storage of food; examples.

3. *Leaves*—(*a.*) Manufacture of food from raw food materials; experiments to illustrate; the importance of light; the light relation of leaves; leaf form and structure. (*b.*) Transpiration of water; experiments to illustrate. (*c.*) Food storage; examples.

4. *Flower*—Reproduction; the parts of a flower; the structure and rôle of each; structures related to pollination.

5. *Seed*—(*a*) Food storage; and (*b*) protection of young plant during its dormant period; the structure of the bean-seed and corn.

6. *Fruits*—(*a*) Protection; and (*b*) dispersal of seeds; classification of fruits on these bases.

B. PLANTS IN RELATION TO THEIR ENVIRONMENT.

1. *Plant Associations*—Based upon conditions of temperature, amount of available water, light, intensity, nature of soil.

2. *Modifications* in form and structure of roots, stems, and leaves in response to conditions.

3. *The Interrelation of Plants and Animals*—Insect pollination; distribution of seeds.

4. *Movement responses;* growth movements; "day and night" movements; the sensitive plant.

C. CLASSIFICATION OF PLANTS BASED ON STRUCTURE AND DEVELOPMENT; REPRODUCTION AND LIFE-HISTORIES.

1. *Thallophytes*—Recognition of algæ (green, red, brown), lichens, fungi.

2. *Bryophytes*—Moss; description of plant.

3. *Pteridophytes*—Recognition of Horsetails and Lycopods; description of a fern.

4. *Spermatophytes*—(*a.*) Gymnosperms: Conifers; at least five examples; study of leaves, cones, and general habit. (*b.*) Angiosperms: Familiarity with the local flora; particularly examples of the following families: (Monocotyledons) Graminæ, Cyperaceæ, Liliaceæ; (Dicotyledons) Salicaceæ, Ranunculaceæ, Cruciferæ, Rosaceæ, Leguminosæ, Ericaceæ, Scrophulariaceæ, Labiateæ, Compositæ. A collection is recommended.

D. ECONOMIC PLANTS OF BRITISH COLUMBIA—Weeds, medicinal and poisonous plants.

Student's reference book: Bergen & Caldwell, Practical Botany (Ginn & Co.). This book is recommended as most nearly fulfilling text-book requirements.

Teacher's reference books: Coulter, Barns & Cowles, Text-book of Botany, Vols. I. and II. (University of Chicago Press); Ganong, A Text-book of Botany (Macmillan, 1916); Curtis, Nature and Development of Plants (H. Holt, 1915); Henry, Flora of Southern British Columbia (Gage, 1915).

One paper of two hours.

Agriculture.

SOIL STUDIES—Origin and classification; water, air, and bacteria in soil; drainage; drainage surveys; physical analysis; composition; plant-foods; humus and fertilizers.

SOIL MANAGEMENT—Tillage, manuring and rotation of crops; humid and dry farming.

VEGETABLE GARDENING—Hot-beds and cold-frames; their preparation and use; selection of garden seeds; choice of varieties; cultural methods.

SMALL FRUITS—Soil and cultural requirements; standard varieties; harvesting and marketing.

LANDSCAPE GARDENING—Plans for beautifying home and school grounds; making and care of lawns, walks, and flower-beds; best adapted ornamental trees, shrubs, and flowering plants.

ORCHARDING—Location, planting, and management; harvesting and marketing; standard varieties.

INSECT STUDY—Identification and life-history of field, garden, and orchard insects; remedial measures.

FIELD CROPS—Selection, cultivation, harvesting, and disposition.

LIVE STOCK—Necessity of live stock in good farming; history, adaptability, and management of the principal classes.

POULTRY—Breeds, housing, feeding, and management.

RURAL ECONOMICS—Agricultural organizations and co-operative associations.

BEE-KEEPING—Life-history, care, and management; equipment; recognition and treatment of diseases.

One paper of two hours.

NOTE.—Fifty per cent. of the possible total in the final examination will be awarded on the written paper and 50 per cent. on term-work, including certified laboratory note-books.

Senior Matriculation (School-year 1921–22).

The subjects for Senior Matriculation are as follows:—

1. English and History.
2. Mathematics (Algebra, Geometry, and Trigonometry).
3, 4, 5. Three of the following: Chemistry, Physics, French, German, Greek, Latin.

Requirements in each subject:—

English.

1. LITERATURE—(*a.*) Chaucer's Prologue to the Canterbury Tales. (*b.*) Spenser's Faerie Queene, Book 1. (*c.*) Milton's Comus. These can be obtained in Macmillan's Pocket Classics. (*d.*) Halleck's History of English Literature, New Edition (American Book Co.), pages 1–261, with such illustrations as time may permit. Suitable illustrative material will be found in Chambers' Cyclopedia of English Literature.

2. COMPOSITION—Fundamental principles—words, sentences, paragraphs, the composition as a whole. Lomer & Ashmun, The Study and Practice of Writing English (Houghton, Mifflin & Co.), indicates the ground covered. Regular practice in Composition is essential.

History.

The evolution of modern European society as interpreted by Robinson & Beard in their Outlines of European History, Part 2 (Ginn & Co.).

Mathematics.

ALGEBRA—Hall & Knight's Elementary Algebra (omitting Chapters 40, 41, 42), or the same subject-matter in similar text-books.

PLANE AND SOLID GEOMETRY—As in Hall & Stevens' School Geometry.

TRIGONOMETRY—Hall & Knight's Elementary Trigonometry to page 210, and Chapter 19; nature and use of logarithms (Bottomley's four-figure tables).

Physics.

A general study of the principles of mechanics, properties of matter, heat, light, sound, and electricity. The course has two objects: (1) To give minimum acquaintance with physical science requisite for a liberal education to those whose studies will be mainly literary; (2) to be introductory to the courses in Agriculture, Chemistry, Engineering, and Physics. Students must reach the required standard in both theoretical and practical work and are required to submit a certified laboratory note-book.

Text-books: Ontario High School Physics and Ontario High School Laboratory Manual in Physics.

Chemistry.

1. GENERAL CHEMISTRY—This course is arranged to give a full exposition of the general principles involved in modern Chemistry, and comprises a systematic study of the properties of the more important metallic and non-metallic elements and their compounds, and the application of Chemistry in technology.

Students must reach the required standard in both theoretical and practical work and are required to submit a certified laboratory note-book.

Books recommended: Alexander Smith, General Chemistry for Colleges (Century Co.).

French.

1. LITERATURE—A general view of French Literature based on passages in Siepmann's Primary French Course, Third Part (Macmillan, Canada), 2nd Edition, 1915. Corneille, Racine, Molière, La Fontaine, Boileau, Rousseau, Voltaire, Chateaubriand, Sand, Blazac, Hugo, Lamartine, Musset.

2. LANGUAGE—The passages from the above-mentioned authors in Siepmann, Part III., and the exercises thereon, with the exception of (1) those marked V. Free Composition, pages 143–219; (2) the test papers in composition, pages 259–265; and (3) the passages for translation into French, pages 266–270. Siepmann's Short French Grammar should be used in conjunction with Part III., and special attention paid to the accidence and syntax of the verb. In using the exercises in Part III. attention will be paid to the following: Conjugation of verbs, transitive and intransitive verbs, verbs conjugated with être, agreement of verbs, ordinary uses of tenses, common uses of subjunctive, agreement of past participles, use of pure infinitive, every-day uses of infinitive with à and with de.

3. CONVERSATION—Practice in conversation will be based on Andre Laurie, Une année de collège à Paris (Macmillan). Students should procure W. E. Weber's Cahier francais de notes diverses (Cambridge University Press).

German.

1. COMPOSITION, CONVERSATION, ETC.—Pope, Writing and Speaking German, Part I. (Holt).

2. READING—Storm, Immensee (Holt); Keller, Legenden (Holt); Moser, Der Bibliothekar (Ginn); Freytag, Die Journalisten (Ginn).

Greek.

1. TEXTS—Bond & Walpole, Lucian, Extracts (Macmillan); Blakeney, Euripides, Alcestis (Bell's Illustrated Classics).

2. COMPOSITION AND GRAMMAR—White's First Greek Book (Copp, Clark Co.).

3. HISTORY—Cox, Athenian Empire (Longmans' Epoch Series).

Latin.

1. TEXTS—For 1922 and alternate years: W. J. Woodhouse, Cicero, Pro Lege Manilia (Copp, Clark Co., Ltd.); Page, Virgil, Aeneid II. and IV. (Macmillan).

For 1923 and alternate years: Warman, Cicero, De Senectute (Bell & Sons); Page, Virgil, Georgic IV. (Macmillan); Smith, Ovid, Elegiac Selections (Bell & Sons).

2. COMPOSITION—Mitchell, Latin Composition (Macmillan, Canadian School Series).

3. HISTORY—Pelham, Outlines of Roman History to 133 B.C. (Rivingtons).

Two papers of three hours each.

COMMERCIAL COURSE FOR HIGH SCHOOLS.

First-year Course.

1. Reading and Orthoepy.

Oral reading, with special attention to expression and pronunciation. Prescribed text, Fifth Reader.

2. Penmanship.

The Commercial Edition of the MacLean Method of Muscular Movement Writing is to be used. Emphasis should be placed upon small, legible, rapid writing. Forearm muscular movement is to be used in all written work. Special attention should be given to the writing of business forms, as shown in the Manual. The teachers will use the Teachers' Manual as their guide.

3. Spelling.

Words in common use, technical terms of financial, commercial, manufacturing, and transportation business. Smith's Cumulative Speller (Shorthand Edition), first fifty lessons.

4. English Literature.

A careful study of the Fifth Reader; Stevenson's Kidnapped (McLelland & Stewart, Toronto).

5. Composition.

High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), Chapters I.–IV., inclusive.

6. Civics.

Jenkins' Canadian Civics, B.C. Edition (The Copp, Clark Co., Toronto).

7. Arithmetic.

Pure and commercial arithmetic, as in Dominion High School Arithmetic (Gage & Co., Ltd.).

8. Book-keeping and Business Forms.

Principles and practice of double entry, notes, drafts, cheques, invoices, bills and accounts, receipts, due bills, credit notes, deposit slips, requisitions, and bank drafts.

9. Typewriting.

Principles of touch system; speed, a rate of fifteen words a minute. Smith's Touch System.

10. Shorthand Theory.

Pitman's Short Course.

Second-year Course.

1. Reading and Orthoepy.

Oral reading, with special attention to expression and pronunciation. Prescribed text, as in English Literature.

2. Penmanship.

Principles and practice of muscular movement continued as in the Commercial Edition of the MacLean Method of Muscular Movement Writing.

3. Spelling.

Words in common use, technical terms of financial, commercial, manufacturing, and transportation business. Smith's Cumulative Speller (Shorthand Edition).

4. English Literature.

Longer Narrative Poems—Jeffries (The Macmillan Co. of Canada, Ltd.); and any *two* of the following: (*a*) Specimens of the Short Story—Nettleton (Henry Holt & Co.); (*b*) Scott, Quentin Durward (Thomas Nelson & Sons, Ltd.); (*c*) Shakespeare, Julius Caesar—Stevenson (Copp, Clark Co., Ltd.).

5. Composition.

High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), Chapters I.–VIII., inclusive. Letter-writing; special attention to business and social forms and correspondence. Essays and themes. The examination on this subject, besides testing the pupil's knowledge of the prescribed text, will consist of an essay on one of three specified subjects, two of which will be from the English Literature prescribed for the year. In preparation for the examination, frequent and systematic practice in essay-writing throughout the year will be imperative. The value attached to the examination paper will be apportioned by giving 20 per cent. to the questions on the work of the prescribed text, 30 per cent. to letter-writing, and 50 per cent. to the essay.

6. Arithmetic.

(*a.*) General principles of arithmetic and mensuration, application to common problems of the arts and trades, estimates in carpenter work, lathing, plastering, roofing, fencing, excavating, masonry, paving, painting, papering, carpeting, time sheets, pay sheets, percentage, commission, duties and customs taxes, insurance, interest, bank discount, trade discount, brokerage, exchange, partnership, settlements, partial payments, equation of payments, stocks and investments, debentures and sinking funds, annuities certain, tabular and graphical statistics, Dominion High School Arithmetic, and Hamblin Smith's Arithmetic, revised edition, pages 1–204. The Metric System.

(*b.*) Rapid calculation.

7. Book-keeping.

Keeping of accounts, training in principles and practice of debit and credit, double entry book-keeping, with use of ledger and the preparation of financial statements therefrom, the journal as a classifier of entries, the introduction of cash book, bill book, invoice book, sales book, bank book, and the use of special columns as devices to secure better classification of records and to secure accuracy and save time and labour, subdivision of the ledger, principles of self-balance, monthly and annual statements, working account, profit and loss, assets and liabilities, special devices in special lines of business, merchandising, wholesale and retail, commission, manufacturing, single ownership, partnership and corporation, auditing.

8. Laws of Business.

Law, its divisions, the British North America Act, distribution of legislative powers, contracts, Statute of Limitations, negotiable papers, endorsement and consequent liability, discharge, dishonour, protest, negotiability, assignability, accommodation, chattel mortgages, mortgages, agency, laws relating to partnership and Joint-stock Company organization, guarantee and suretyship, receipts and releases, landlord and tenant, banks and banking.

9. Typewriting.

Touch system, use of various typewriters, copy work, plain and tabular, transcription of shorthand notes, speeding, a rate of forty words per minute, manifolding, use of letter press, filing and indexing.

10. Stenography.

Principles of Isaac Pitman's phonography, dictation, speed, transcription, writing of legal forms and business correspondence at a rate of one hundred words per minute, and transcription at a rate of fifteen words per minute.

Third-year Course.

1. Penmanship.

Continuation of the principles and practice of muscular movement; engrossing.

2. English Literature.

As prescribed for the Junior Matriculation Examination by the University of British Columbia.

3. Arithmetic.

(*a.*) General review of commercial arithmetic; annuities, debentures, equation of accounts; logarithms; interest tables; mensuration.

(*b.*) Rapid calculation.

4. Business Correspondence.

Parts of a business letter; margins and spaces in typewriting; punctuation; various types of a business letter; circular letters; form letters and follow-up

systems; manifolding and filing systems; telegrams, cablegrams. Text-book: Business Letter Writing (Warner).

5. Accountancy.

(*a.*) THEORY—Classification of accounts; reserve and reserve funds; realization and liquidation accounts; suspense accounts; goodwill and depreciation; apportionments in partnership and executors' accounts; bonds, debenture and sinking funds accounts; cost accounts and division of costs between manufacturing, trading, and executive accounts; departmental and branch trading.

(*b.*) PRACTICE—Joint-stock accounts; various systems of cost accounts in manufacturing, contracting, milling, shipping and transportation, publishing; use of columnar cash-books and synoptic journals adaptable to various systems of accounts; self-balancing ledgers, and branch department accounting; loose-leaf, bill and charge, and duplication voucher; filing systems. Text-books: Expert Book-keeping (Fleming); Ontario High School Book-keeping (Ward).

6. Laws of Business.

Course of second year reviewed and extended to include laws of real property; laws of personal property; the Conditional Sales Act; laws of interest and Money Lenders Act; landlord and tenant; Land Titles Act and Torren's system of registration; Mechanics' and Wage Earners' Lien Act; suits, attachments, and garnishments; wills, descent of property, laws of inheritance; Probate and Surrogate Court; the clearing-house system. Text-book: Digest of Commercial Law (Anger).

7. Statute Law.

Bills of Exchange Act; Dominion and British Columbia Companies Acts.

8. Elementary Economics and Civics.

Laws of supply and demand; growth of trade; production; land and natural forces; capital and labour; co-operation and business organization; distribution; money and mechanism of exchange; climate and topography and their influence on life; social conditions; manufacturing facilities; transportation facilities; financial conditions; various commercial products, natural and manufactured, of each country; markets and trade routes of the world; the Government, national, provincial, municipal; the franchise; the party system; the judicial system; parliamentary procedure.

9. Typewriting.

Speed practice up to sixty words a minute; legal documents; financial statements.

10. Shorthand.

Speed practice up to one hundred and thirty words a minute; legal and mercantile terms; evidence-taking and newspaper reporting.

Books prescribed for the Commercial Course in High Schools.

Arithmetic, New Method (Commercial Text Book Co., Toronto).
Book-keeping, Single and Double Entry (Commercial Text Book Co., Toronto).
Dictation Course in Business Literature—Raigner (H. M. Rowe Co., Baltimore).
Penmanship—Commercial School Edition of the MacLean Method of Muscular Movement Writing.
Shorthand, Century Edition—Isaac Pitman.

Books prescribed for the Use of Commercial Teachers in High Schools.

Business English—Hotchkiss & Drew (American Book Co., New York).
Effective Business Letters—Edward Hall Gardner (Ronald Press Co., New York).
Touch Typewriting, A New Practical Course in—G. M. James, B.A., LL.B. (Ontario Publishing Co., Belleville, Ont.).

Books recommended for Teachers.

Accountants, Manual for—Eddis.
Accountants, Joint Stock Co.—Hoskins.
Accounting, Municipal—MacPherson.
Accounting and Auditing, Corporation—Keister.
Accounting in Theory and Practice—Lisle.
Arithmetic, High School (The Macmillan Co. of Canada, Toronto).
Auditors, Duties of—MacPherson.
Auditing—Dicksee.
Book-keeping—Dicksee.
Book-keeping, High School—McLean (The Copp, Clark Co., Ltd., Toronto).
Money and the Mechanism of Exchange—Jevons.
Negotiable Instruments—Johnson.
Shareholders' and Directors' Manual—Warde.
Statutes of British Columbia.
Statutes of Canada.

Books recommended for Use of Pupils.

Accountant, Canadian—Johnson.
Dominion High School Arithmetic (Gage & Co., Ltd., Toronto).
Arithmetic—Hamblin Smith (W. J. Gage & Co., Toronto).
Book-keeping, Expert—Fleming.
Book-keeping, Ontario High School—Ward.
Book-keeping, Joint Stock Co.—Johnson.
Business Letter Writing—Warner.
Mercantile Law, Digest of Canadian—Anger.
Shorthand (1907)—Pitman.
Speller, Cumulative—Smith.
Spelling, Practical (Practical Text Book Co.).
Touch Tpyewriting, A Practical Course in—Charles E. Smith.
Typewriting (Practical Text Book Co.).

COURSES OF STUDY AND REGULATIONS FOR MANUAL TRAINING SCHOOLS.

1. Where Manual Training Schools are established, attendance is compulsory and must be continuous throughout the school-year, with one-half day's attendance per week for each child. The hours of instruction shall be as defined in Article 1 of the Rules and Regulations for the Government of Public Schools. Boys from distant schools in attendance at the morning session may be dismissed at 11.45 a.m.

2. Manual Training Instructors shall be subject to the same general regulations as Public School Teachers.

3. The Principal of the Public School at which a Manual Training Centre is situated shall have supervision over the general discipline of all classes in attendance at that centre.

4. Instruction shall be given to Intermediate and Senior Grade pupils only.

5. Attendance registers, visitors' book, and stock book must be kept and be open for inspection at all times.

6. A three-years' course of woodwork shall be taken in the Public Schools (compulsory), and in the High Schools a two-years' advanced course in wood or other material (not compulsory).

7. Where the pupil enters the High School before completing the Public School Course, he must, if required by the teacher, complete that course before commencing the High School Course.

8. In all school districts where there is more than one Manual Training Teacher employed, one of these shall be in charge.

9. Each teacher shall design and submit for the approval of the Department of Education a course of models based on the group scheme given below. The models should be arranged to suit the locality—urban or rural—as well as the equipment at the disposal of the boys.

10. An exhibit showing the finished course with working drawings should be on view at each centre, together with the following:—

(*a.*) A liberal number of alternative problems.
(*b.*) Projects showing stages of construction.
(*c.*) Teaching apparatus.
(*d.*) Illustrations of wood shrinkage, seasoning, etc.
(*e.*) Diagrams for teaching purposes, etc.

Public School Manual Training Syllabus.

1. Drawing.

Plans and elevations; section-drawings; scale drawings; isometric drawing; copying of drawings; producing complete working drawings from dimensioned sketches; making drawings from models.

Measuring blank drawings when the scale is given.

Ruled and freehand sketching.

Supplying additional views.

Lettering. Graded thus: (1) Lower-case letters in script, slanting; (2) capitals, slanting; (3) vertical lettering.

Lessons in design, proceeding in easy stages, as applied to the outline and the construction of models.

The designing of complete models should rarely be attempted before the end of the Fourth Group.

2. Woodwork.

(1.) The exercises or tool operations in each group shall be covered by the models in that group and all the tools indicated shall be used.

(2.) The operations should be carefully graded and the progression should be very easy, especially in Groups 1, 2, and 3.

(3.) In designing the models, provision should be made for ample repetition, the aim being to repeat each new exercise in the two following models at least.

(4.) Easy progressive steps must also be observed in the Drawing lessons, and the models should be designed with that aim also in view.

(5.) The first group may be preceded by a simple preliminary course, such as strip-work, where in the opinion of the teacher such is necessary.

(6.) During the course, lessons should be given on grinding and sharpening chisels, plane irons, and saws.

GROUP SCHEME OF WORK.

Group 1, Models 1 to 6.

Rule: Measuring.
Knife: Marking out, chamfering.
Try-square: Squaring and testing.
Saws: Hand-saws for cutting out stock; tenon for fine sawing (squaring).
Plane (jack): Medium planing surface 2 to ¾ inches; narrow planing, surface ¾ inch down; shooting ends.
Gauge (marking): Marking width and thickness.
Chisel: Vertical chiselling; horizontal chiselling.
File: Filing curved outline (end).

Brad-awl: Boring holes.
Brace and bits: Boring holes; bits not to include those mentioned in Group 3.
Glass-paper.
Nails: Nailing and setting (simple).

Group 2, Models 7 to 12. (Simple tool operation.)

Knife: Long cut, cross cut, concave and convex cut.
Saws: Bow-saws (curves).
Plane (jack): Broad planing 2 to 4 inches; planing cylinder.
Smoothing-plane.
Chisel: Cross paring (notching).
Gouge (inside): Scribing (vertical).
File: With grain, shaped outline, profile.
Spoke-shave: Profile.
Glue: Gluing, not necessarily a joint.
Joints: Half-lap; open housing.

Group 3, Models 13 to 18.

Planes: Wider planing, 4 inches and upwards; end planing; oblique planing; chamfering.
Gouge (outside): Horizontal (open ends).
Spoke-shave: Modelling.
Brace and bits: Countersink; expansion; Forstner.
Knife: Modelling.
Screws: Fixing with screws.
Other operations: Trenching.

Group 4, Models 19 to 25.

Gauge (mortise); In joint.
Gouge: Modelling (scooping).
Other operations: Glued and rubbed joint; mortise and tenon joint; stopped housing joint.

Group 5, Models 26 to 30.

Gauge (cutting): Easy dovetailing; mitreing; rabbeting; keying; more advanced mortise and tenon construction; more advanced dovetailing; more advanced exercises already mentioned.

3. Theory.

Lessons of general information on materials used with the object of encouraging observation.
Recognition of common trees by their leaves, flowers, and fruits.
Recognition of common woods by their markings, weight, smell, etc.
Growth of trees.
Seasoning and marketing of timber.
Products of trees; enemies of trees.
Material used in the construction of tools.

4. Practice.

(1.) Boys should provide themselves with aprons or overalls and should be encouraged in good habits of workmanship.

(2.) The working drawings should be kept by each pupil in a folder until the three years' course is completed.

(3.) Mistake sheets should be carefully filled in and kept until entering High School. Due regard should be paid to penmanship and spelling.

(4.) Models and drawings should have a maximum of 10 marks each.

(5.) Tests in Theoretical work should also be given and marks awarded.

(6.) Both the English and the Metric system of measuring are to be used.

(7.) The boy may be allowed to submit an alternative model, provided it embodies the required exercises.

High School Manual Training Syllabus.

First and Second Years' Woodwork (where there is not provision for Metalwork), or a combined course of wood and other material.

A scheme of work to be submitted approaching the technical side of the subject based on the exercises taken in the Public School Course, but including larger and more complicated models, some of which might be class-work.

Wood-turning to be introduced. Grinding and sharpening of bench and lathe tools.

Metalwork.

A scheme of work to be submitted, based on the following:—

Models to be made, embracing—

(*a.*) Soldering.

(*b.*) Brazing.

(*c.*) Etching in copper, copper modelling, or kindred artistic treatment of metals.

(*d.*) Forge-work.

(*e.*) Bent-iron work.

(*f.*) Chipping and filling.

(*g.*) Turning.

Diplomas for Manual Training.

1. Diplomas will be awarded by the Department of Education to pupils who obtain 66⅔ per cent. of the 600 marks possible in the woodwork and drawing of the Public School Course and have completed the first four groups of same. The percentage of marks gained in Woodwork, Drawing, and Theory will be entered on the diploma.

2. Male candidates for the High School Entrance Examinations from schools in which instruction has been given in Manual Training must hold Manual Training Diplomas or fulfil departmental requirements as to attendance and work.

DOMESTIC SCIENCE.

Rules relating to Domestic Science Centres.

1. Where Domestic Science Centres are established, attendance is compulsory and must be continuous throughout the school-year. The hours of instruction in Domestic Science shall be as defined in Article 1 of the Rules and Regulations for the Government of Public Schools. Girls from distant schools in attendance at the morning session may be dismissed at 11.45 a.m.

2. A three-years' course of Domestic Science should be taken in the Public Schools.

3. All pupils in the Entrance class and in the two classes below the Entrance class shall take Domestic Science. Classes doing parallel work in other subjects shall do parallel work in Domestic Science.

4. When the forenoon and afternoon periods vary in length, the senior classes *must* take the longer period.

5. Attendance registers, records of lessons, an inventory of equipment, and a visitors' book must be kept open for inspection at all times.

6. Expense sheets for food and other materials, exclusive of heating, lighting, and permanent equipment, should be sent to the Secretary of the Board at the end of each month, also an attendance sheet.

7. Only one course of work will be recognized for all the schools in any one city.

8. Domestic Science Instructors shall be subject to the same general regulations as Public School Teachers.

9. The Principal of the Public School at which a Domestic Science Centre is situated shall have supervision over the general discipline of all classes in attendance at that centre.

10. Plans for Domestic Science buildings must be submitted to the Department of Education for approval.

11. All courses of work in Domestic Science must be submitted to the Education Department for approval. Needlework to Intermediate Grade and Senior Grade pupils must be included in the course.

The following is a suggested outline of work:—

First-year Course for Public Schools.

Needlework.

If previous sewing lessons have not been taken, *see* Needlework Course.

If the pupils have been taking needlework in the previous grades as suggested in the Needlework Course, see that the cap, apron, sleeves, towel, and pot-holder are completed, then follow on with:—

HOUSEHOLD SEWING—Pillow-slips, towels, etc. Making and repairing kitchen linen. Hemstitching, button-holes, patching, darning, knitting. Free cutting continued from previous grades.

Preparatory Lessons in Home Management and Personal Hygiene.

Washing dishes and saucepans. Care of white wood. Care and cleaning of metals in daily use. Care, cleaning, and disinfecting of sink. Waste and its removal. Construction, management, and cleaning of kitchen range, with simple study of combustion and use of wood and coal respectively. Sweeping and cleaning. Laying the table. Personal cleanliness, care of teeth, nails, hair.

Practical Cookery.

Definitions, tables, and rules of cookery to be taught by simple lessons selected from the following methods: Boiling, steaming, baking, roasting, shallow frying, sautéing, stewing, etc.

Theoretical Cookery.

As "practical application is the only mordant which will set things in the memory," principles should be taught in conjunction with the practice of cookery. Reasons for cooking food; effect of applying heat to food. Food principles; use of food to the body. Fuel foods and tissue-building foods. Carbohydrates, proteids, fats, mineral matter.

Reviews to take the forms of simple meals; for example, breakfasts for a tray. Develop quick, free, independent action in all lessons. Cooking must be active work, giving the child an ability to do. Explanations should articulate the lessons as closely as possible to those done in other departments of the school. All written lessons should be short, carefully executed, and mistakes corrected by the teacher.

Second-year Course for Public Schools.

Needlework.

Draughting: i.e., free cutting and making undergarments. Repairing, patching, darning flannels, prints, and coloured goods, knitting.

House Management.

Household brooms and brushes—choice, cost, and care. Cleaning painted, varnished, and polished wood. Various cleansing agents—use, economy, cost. Ventilation—value of fresh air, chimneys, doors, windows. Choice, cost, and care

of linoleum and oilcloth. Water—source of supply, pipes, cisterns, storage, etc. Drainage—where pipes go, simple tests for faulty drains. Table setting and service.

Practical Cookery.

Recapitulation of the methods taught during the first year, with additions. Boiling, steaming, simmering, roasting, baking, broiling, stewing, sautéing, deep and shallow frying, braising, pot-roasting. Reviews to take the form of simple meals.

Theoretical Cookery.

More theory than in the first year. Foods and their use to the body. The perfect food. Proteids, carbohydrates, fats, mineral matter. Importance of mixed diets, well balanced and varied. Need for forethought in planning meals. Planning, purchasing, cooking, and serving a luncheon for a family of four. Economy of the larder. Care of the meat-safe, cost, fixture, inexpensive substitutes.

Laundry-work.

Arrangement of household washing—washing, boiling, and plain ironing of household linens and underwear. Removal of stains and bleaching. Consideration of water, soap, soap powders, soda, borax, starch, and laundry blue.

Third-year Course for Public Schools.

Needlework.

Draughting: i.e., free cutting and making undergarments, or preparing High School outfit. Repairing table linen, mending and darning of outer garments, gloves, etc.

House Management.

Practical revision of two former years.

Practical Cookery.

Recapitulation of methods taught in the second year, with the addition of the following: Preservation of food. Reasons. Different Methods. Dried foods and their value. Pickling, canning, preserving. Salads with simple dressing. Fruit salads. Marmalade. Poultry—choice, trussing, cooking. Beef cuts. Bread-making. Table service and table setting. Reviews to take the form of meals; for example, dinners.

Theoretical Cookery.

Emphasis to be placed on food values and the necessity for a well-balanced and varied diet. Digestion—its meaning, foods easy and difficult to digest. Digestion in the mouth, hard and soft foods, condition of teeth. Digestion from the alimentary canal to intestines. Suitable food for child from birth to dentition. Good and bad types of feeding-bottles. Cleansing of bottle. Sterilizing and pasteurizing milk, whey. The child under two years. Vegetarian diet, advantages and disadvantages.

Laundry-work.

Washing and finishing flannels, coloured garments, wool, cotton, linen, muslin, silk, and lace. The management of a small family wash. Soap-making from kitchen grease, soaps, acids, alkalies. Simple methods of softening water. Making and use of starch.

Diplomas for Domestic Science.

1. Diplomas will be awarded by the Department of Education to pupils who complete the Course prescribed for Domestic Science.

2. Female candidates for High School Entrance Examinations from schools in which instruction has been given in Domestic Science must hold Domestic Science Diplomas or fulfil departmental requirements as to attendance and work.

Text-books and Books of Reference for Teachers.

Elements of Cookery—Williams and Fisher (The Macmillan Co., New York).
Dietetics—Alex. Bryce, M.D. (T. C. & T. E. Jack, London).
The Chemistry of Cookery—W. Mattieu Williams (Chatto & Windus, London).
Food and Dietetics—Hutchison (Wm. Wood & Co., London).
Ontario Sewing Manual—Department of Education, Toronto.
Bulletin No. 23, Clothing for the Family—Federal Board of Vocational Education, Washington, D.C.
Hints and Helps on Home Nursing—Cosgrave.

First-year Course for High Schools.

Dietetics, Cookery, and Table Service (Practical and Theoretical).

The science of nutrition, physical and chemical changes in matter. Chemical formulæ and equations. Air and combustion. Heat and cooking. Discussion of gas, coal, electricity. Paper-bag and fireless cookery. Classification of foods—carbohydrates, fats, protein. Inorganic food—water, mineral matter. Food preservation. Bread-making. Invalid cookery. Home nursing and hygiene. Table service.

Work to be correlated to general science. Air and ventilation. Barometer, thermometer, graphic readings, expansion of gases, etc.

Physiology.

The systems of the body and their functions. First aid to the injured.

Needlework.

Draughting and making underclothing. Estimating costs. Textiles relating to underclothing. History of their manufacture and development.

Second-year Course for High Schools.

Dietetics and Cookery (Practical and Theoretical).

Heat measurements. Heat and work. The calorimeter. Daily requirements as regards muscle-building. Energy-furnishing and body-regulator materials.

Balancing, occupation, climate, sex, age, etc., considered. Children's diets and special normal diets considered. Meals planned and worked out to meet requirements in food values, at varying costs.

Serving meals as worked out in dietary study. Work to be correlated to High School General Science (Chemistry and Physics).

Physiology.

Home nursing and home hygiene. Recapitulation of first aid to the injured.

Needlework.

Cotton skirts. Middies. Smocks and outergarments. Household linen and furnishing. Estimated costs. Textiles relating thereto.

Third-year Course for High Schools.

Dietetics and Cookery (Practical and Theoretical).

Revise work of the second year.

Food and its functions. Digestion of foods, foods of vegetable origin and animal origin. Meals planned and worked out to meet requirements in food values at varying costs.

All work to be correlated to High School General Science (Chemistry and Physics).

Household Chemistry.

Organic radicles, hydrocarbons, and alcohol; esters and fats, hydrolysis of esters; saponification; soaps—commercial soaps, foreign ingredients in commercial soaps,

special soaps, and scouring powders. Solution and emulsification of fats. The cleaning of fabrics, chemistry of textiles, bleaching, bluing, and dyeing.

Household Physics.

Heat capacity, specific heat, latent heat; application of latent heat; refrigeration; freezing mixtures; artificial-ice machine; steam heating; steam cookers, distillation; evaporation; dew-point; boiling-point; why clothes dry; causes of cloud, rain, snow, and dew; changes in boiling-point.

Electricity in the home; household electrical appliances; electric bulbs; magnetism and electromagnet; the electric motor in the home; electric heating; cooking and lighting appliances; electric iron, coffee percolator, oven, etc.; the incandescent lamp. Electrical terms and measures; the ampere, ohm, volt, watt.

Light in the home; arrangement of lighting fixtures in the home; intensity of illumination; nature of light.

Reflection and refraction of light; laws of reflection; laws of refraction; lenses and optical instruments.

Colour: Composite nature of white light; the rainbow; theory of colour vision; pigments.

Sound: How sound is produced; nature of sound-waves; noises and musical sounds; pitch, music, and musical instruments.

Physiology.

Recapitulation of previous year's work in home nursing, home hygiene, and first aid to the injured.

Needlework.

Draughting, cutting, and making up dresses, etc. Millinery. Estimating costs. Textiles relating to personal wear. The personal budget. History of costume.

Text-books and Books of Reference.

A Text-book of Domestic Science for High Schools—Matilda G. Campbell (The Macmillan Co.).
The Boston Cooking School Cook Book—F. M. Farmer (Little, Brown & Co., Boston).
The Chemistry of Cookery—W. Mattieu Williams (Chatto & Windus).
Food and Dietetics—Hutchison (Wm. Wood & Co.).
Food and Feeding—Sir Henry Thompson (F. Warne & Co.).
The Laws of Life and Health—Alex. Bryce, M.D. (Melrose, London).
Food and its Functions—Knight (Blackie & Sons, London).
Diet in Relation to Age and Activity—Sir Henry Thompson (F. Warne & Co.).
Common Sense Cookery—Col. Kenny-Herbert (Arnold).
Fifty Breakfasts, Fifty Luncheons, Fifty Dinners—Col. Kenney-Herbert (Arnold).
Essentials of Health—Stowell.
Hints and Helps on Home Nursing—Cosgrave.
First Aid to the Injured—Dr. J. Cantlie.
Practical Domestic Hygiene—J. Lane Notter, M.A., M.D.
Physics of the Household—Lynde (The Macmillan Co.).
A Laboratory Course in Physics of the Household—Lynde (The Macmillan Co.).

HIGH SCHOOL TECHNICAL COURSE.

While the main object of this three years' course is to train students for specialized technical courses during the fourth, fifth, and succeeding years in the Technical School, yet students should have the privilege of being prepared for the University Matriculation Examination. These students, however, should be taught in a separate class, for while the content of both technical and matriculation courses may be similar during the first year, yet it is obvious that in the second and more especially the third year the subjects must be arranged in a different manner.

First Year.

English.

READING AND ORTHOEPY—As prescribed for Preliminary Course, Junior Grade.

WRITING AND SPELLING—As prescribed for Preliminary Course, Junior Grade.

LITERATURE—As prescribed for Preliminary Course, Junior Grade.

COMPOSITION—As prescribed for Preliminary Course, Junior Grade.

SUPPLEMENTARY READING—Biographies of Men of Science; Inventors and Captains of Industry; Short Stories from Modern Authors.

Citizenship and Economics.

As in prescribed text-book, Jenkins' Canadian Civics.

Reference books: Outlines of Economics—R. E. Nelson (G. Bell & Sons); How we pay each other—Wood (Macmillan & Co.).

French (for students taking the course leading to Matriculation).

As prescribed for Preliminary Course, Junior Grade.

Mathematics.

ARITHMETIC—Simple rules; square root; fractions and decimals; weights and measures; rectangular areas. Board measure; metric system of units; mensuration of rectangular solid, circle, and cylinder; percentage and its applications; profit and loss; trade discount; duty taxes; fire insurance commission; simple and compound interest.

Text-book: Dominion High School Arithmetic.

ALGEBRA—Simple rules; use of brackets; simple equations; simultaneous equations; simple binomial factors; square root; geometric representation of formulæ.

Text-book: Hall & Knight's Algebra.

GEOMETRY—Definitions and terms; measurement of lines and angles; congruity of triangles; angles of a triangle of 180 degrees; construction of angles and triangles; bisection of an angle; erecting perpendiculars; dividing a line into equal parts; parallels and parallelograms; measurements of areas; practical work on Theorem of Pythagoras.

The work is mainly practical, with logical deduction of the geometric truths required in the work.

Text-book: A School Geometry—Hall & Stevens.

BOOKS OF REFERENCE.

Mathematics, Science and Drawing—Castle (Routledge & Son, London).

An Introduction to Practical Mathematics—Saxelby (Longmans & Co.).

Elementary Treatise on Graphs—Gibson (Macmillan).

Vocational Mathematics—Dooley (D. C. Heath & Co.).

Mechanics.

As far as possible the principles of mechanics should be obtained by the students themselves in a series of well-graduated exercises, and no attempt should be made to introduce formulæ in the first year except such as are discovered by carefully trained students. Every note-book should show under the headings "Experiments" and

"Observations" that a student knows what he is doing and what he sees, but the inferences to be drawn from such experiments may well be given as the result of careful summarization of the individual work of the student by the teacher. Illustrations in extension of principles may well serve as the basis of oral lessons by the teacher, but no attempt need be made in the first year to allow of the use of a text-book by the student, the object in all parts of the subject being training and not the acquisition of facts.

(*a.*) STATICS—Force-work, horse-power; easy numerical examples. Levers; experiments with the three orders; mechanical advantage. Principle of moments; easy practical applications—viz., pincers, clawhammers, cantilevers, etc. The wheel and axle; velocity ratio; the principle of work; first and second system of pulleys; the triangle of forces; inclined plane without friction, with pull (*a*) parallel to plane, (*b*) parallel to base, to be treated at first graphically—i.e., apply triangle of forces. Wedge, application of the principle of the triangle of forces. Screw, application of the principle of the triangle of forces.

(*b.*) DYNAMICS—Kinematics, time, space, change of position, relative motion, uniform and variable velocity. Relation between velocity, distance passed over, and time. Numerous diagrams will be made by pupils to enable them to educe necessary formulæ. Acceleration, relation between time, distance, and acceleration shown by acceleration graphs. Formulæ derived from diagrams.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Elementary Mechanics—Morley & Inchley (Longmans, Green & Co.).
Applied Mechanics—Jamieson (Griffin & Co., London).
Theoretical Mechanics—J. Edward Taylor (Longmans, Green & Co.).

Physics.

Matter—nature of; molecules; molecular theory; states of matter. Properties of solids—tenacity; malleability; plasticity; elasticity; tempering and annealing. Properties of liquids—capillarity; buoyancy; surface tension; Archimedes' principle; flotation; Pascal's principle; hydraulic jack; hydraulic elevator and lift-lock. Properties of gases—expansive force; weight; buoyancy; principle of the dirigible; pressure of the air; the barometer.

Metric System.

Specific gravity and density of solids and liquids—laboratory work. Easy hydrostatics—fluid pressure at a point; total pressure on an area; cause of pressure—pumps, siphons, valves, air-pumps, exhaust and force. Compressed-air appliances—the door-check; pneumatic tires; air-cushions.

Heat.

What it is. Sources—friction; electricity; compression; percussion; chemical action; the effects, expansion of solids, liquids, and gases; coefficient of expansion; application of expansion. Thermometers, their scales and conversion; metallic thermometer; thermostat; rivets; boiler-plates; steam-pipes and expansion-joints; air thermometer; Charles' Law; change of state; fusion; vaporization; latent heats; specific heats; heat measurement, calorie, B.T.U.; laws of fusion and vaporization; crystallization; heat transference and application in the range, boiler, warm-air and hot-water furnaces, heating plants; exhaust steam; mechanical equivalent of heat; radiation and absorption.

TEXT-BOOKS AND BOOKS OF REFERENCE.

General Science—Caldwell & Eikenberry (Ginn & Co.). Price $1.
Laboratory Manual for same. Price 50 cents.
Elementary Practical Physics—Watson (Longmans, Green & Co.).
The Ontario High School Physics.
Laboratory Manual for same.

Drawing and Design.

(*a.*) FREEHAND SKETCHING—To develop free and quick execution.

(*b.*) GEOMETRICAL DRAWING—To master the instruments and learn the fundamentals of mechanical drawing.

(*c.*) ORTHOGRAPHIC PROJECTION, SECTIONS, AND THE DEVELOPMENT OF SURFACES—To make working drawings.

(*d.*) LETTERING—The cultivation of a clear, well-formed, rapid style.

(*e.*) ELEMENTS OF DESIGN—To see beauty in line, form, and colour.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Studies in Line and Mass—E. A. Branch (Ralph Holland & Co., London).
Lessons in Decorative Design—Jackson (Chapman & Hall, London).
Furniture Design—Crawshaw (Manual Arts Press).
Geometry for Art Students—Carroll (Burns & Oates, London).
Blair's Drawing Book V. and VI.
Geometrical Drawing for Schools and Colleges—C. H. McLeod, M.E. (Foster, Brown & Co., Montreal).

Shop-work.

(1.) WOODWORK—Students will be expected to have completed the Public School Manual Training Course and have obtained a diploma in woodwork. They should then proceed with problems calling for exact draughtsmanship and the translation of the drawing into material of wood or metal.

Those students who have not had previous training in woodwork should follow an equivalent course which will permit them to proceed as rapidly and thoroughly as possible.

(*a.*) *Bench-work*—The course should consist of such problems as will call for that fundamental knowledge which is expected in industrial life; draughtsmanship, craftsmanship, and taste.

Problems may consist of articles of furniture made by individual students or may be community problems carried out by groups of pupils. Such experimental apparatus as may be useful in emphasizing scientific principles may be made in this lesson period, provided the work does not conflict with the objects of the course.

(*b.*) *Making Working Drawings*—It is desirable that all drawings should be made in accordance with good drawing-office practice, that parts should be lettered or numbered, and that schedules showing the name symbol, materials, and other particulars as necessary should be made on the drawings. The systems in vogue should be discussed by the teacher and the importance of symbols and scheduling in connection with costing and workshop procedure should be pointed out.

(*c.*) *Wood-turning*—The fundamental exercises in lathe-work should first be taught in order that manipulative skill in correct handling of tools may be acquired. Skill in hand and eye are demanded from the wood-turner, and the student should aim at dexterous handling of the tools and at an appreciation of subtle form. The practice models can usually be put to valuable use in the work on mechanics. For instance, cylinders may be cut obliquely for examples in stability; long- and short-cut exercises when completed may be made very useful as examples in conic sections; parting-tool exercises may readily furnish many pieces which can afterwards be used as reels for resistance coils, etc.

REFERENCE BOOKS.

Problems in Wood-turning—Crawshaw (Manual Arts Press). Price $1.
Furniture Design for Schools and Shops—Crawshaw (Manual Arts Press). Price $1.75.
Handcraft in Wood and Metal—Hooper & Shirley (Batsford). Price $2.50.

(2.) SHEET-METAL WORK.

(*a.*) *Practice*—Objects involving the development of the cylinder, rectangular prism, cone, and splayed work, introducing the following methods of fastening: Butt, lap, and lock seam joints. Soldering by means of soldering-copper. Simple wiring in the flat. The following machines may be used: Burring, turning, folding, and forming.

(*b.*) *Theory*—Solder, its composition and manufacture; fluxes, kinds and choice. Manufacture of tinplate and galvanized iron. Grades, cost, calculation of stock. Mensuration of all objects constructed. Capacity of all containers. Designing containers to hold a given quantity of material. Cost of material and labour.

Text-book: Essentials of Sheet-Metal Working—Daugherty (Drake & Company).

(3.) FORGE-WORK.

The Forge—Description; types; the proper building and care of the forge fire. Kinds of fuel; effect of excessive blast; scaling; oxidizing.

Projects—Numerous exercises in drawing out and bending, using stock not heavier than ⅝-inch round. Practice in tool manipulation. Stakes, staples, eyebend, double eye, meat-hook, gate-hook, ring-bend, and such similar articles. Drawing-out exercises—square to square, square to round, round to round, round to cone.

A simple weld in ¼-inch round stock makes an interesting change and one easily within the range of a boy at the end of his first year. A chain-link is suggested as suitable.

Calculations for stock are most important and the exercises suggested afford every opportunity for the teaching of workshop mathematics. To find the cost of the object by calculating the time and material should form part of the instruction in this work.

Text-book: Exercises for Forge Shop Practice (Buffalo Forge Co., Buffalo, N.Y.). Price 50 cents.

REFERENCE BOOKS.

Hand Forging—Wrought Iron—Googerty (Popular Mechanics Co., Chicago).
Forging of Iron and Steel—Richards (Van Nostrand).

(4.) MACHINE-SHOP WORK.

(*a.*) *Workshop Drawing*—(1.) Instrumental drawings, use of different lines and their meaning. (2.) Notations—method of using and importance. (3.) Titles—various methods used; relation of component parts in detail drawings to assembly drawing.

(*b.*) *Shop Science*—Spark tests for metals; the theory of polishing; methods of polishing; methods of fastening metals together; lathe and shaper mechanisms briefly outlined; threads—methods of representing, external, internal, right and left hand.

(*c.*) *Shop Organization and Methods*—(1.) Simple outline of modern production methods. (2.) Making of simple chucking diagrams.

(*d.*) *Machine-work*—Drilling: (1.) Locating holes in thin metal and drilling same. (2.) Simple countersinking. (3.) Drilling deep holes in round stock in lathe and drill-press.

Lathe-work: Straight chuck turning to one diameter, rough and finish turning; chuck turning to various diameters; knurling; polishing (use of polishing-head); drilling in lathe.

Limit measuring $^1/_{64}$"+ – – steel rule.

(*e.*) *Bench-work*—Filing: Rough filing; filing to a line; filing to an angle (template); draw-filing.

Drilling, tapping, and reaming: Laying out holes; tap-drill sizes; tapping with taper tap and tap-wrench; threading with stocks and dies; simple reaming in thin metal to enlarge holes.

Riveting: Fastening parts together with countersunk rivet.

Bending: Cold bending over mandrel.

Shop science: Methods of locating centres for cylindrical work; analysis of shaper mechanism; hardening and tempering for duplication; cutting compounds; friction, its effect on lathe centres.

Shop organization and methods: (1.) Types of gauges used to standardize production. (2.) Methods employed to duplicate parts.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Machine Sketching and Drawing for Night School Students (Copp, Clark Co.). Price 37 cents.

Machine Shop Practice—Kaup (Wiley & Sons).

Principles of Machine Work—Smith (Industrial Education Book Co., Boston).

Machine Construction and Drawing—Ingham (Routledge & Sons, London).

A Manual of Machine Drawing and Design—Low & Bevis (Longmans, Green).

Machine Drawing, Books I. and II.—T. Jones and T. G. Jones (Heywood, Manchester, Eng.).

A Primer of Engineering Science—Ewart S. Andrews (James Selwyn & Co., London).

Second Year.

English.

READING AND ORTHOEPY—As prescribed for Advanced Course, Junior Grade.

WRITING AND SPELLING—As prescribed for Advanced Course, Junior Grade.

LITERATURE—As prescribed for Advanced Course, Junior Grade.

COMPOSITION—As prescribed for Advanced Course, Junior Grade.

SUPPLEMENTARY READING—First-year Course continued.

Citizenship and Economics.

First-year Course continued.

PROVINCIAL AFFAIRS—The Provincial Government. Municipal Government. Courts of Law. Education.

RIGHTS AND DUTIES OF THE CITIZEN.

Text-book: Jenkins' Canadian Civics.

REFERENCE BOOKS.

Outlines of Economics—R. E. Nelson (G. Bell & Sons).

How we pay each other—Wood (Macmillan & Co.).

French (for students taking the course leading to Matriculation).

As prescribed for Advanced Course, Junior Grade.

Mathematics.

ARITHMETIC—Commercial arithmetic; bank discount and interest; partial payments; present worth of stocks and bonds; exchange. Mensuration extended to the cone sphere and pyramid. Trigonometric ratios of sine, cosine, and tangent, and application of angles of 45 degrees, 30 degrees, and 60 degrees. Dominion High School Arithmetic.

ALGEBRA—Factors; H.C.F. and L.C.M. fractions; problems in simple and simultaneous equations; quadratics; simultaneous quadratics; simple graphs and interpolation use of logarithms. Hall & Knight's Elementary Algebra.

GEOMETRY—Theoretical treatment of the work of Parts 1 and 2 of Hall & Stevens School Geometry, on angles, triangles, and quadrilaterals; loci. The circle; symmetry, chords; angles in a segment; tangents, to page 178. Hall & Stevens' School Geometry.

REFERENCE BOOKS.

An Introduction to Practical Mathematics—Saxelby.

A Course in Practical Mathematics—Saxelby (Longmans & Co.).

Applied Mechanics.

Experiments and observations should precede the explanations, thus giving the pupils an opportunity of drawing their own conclusions without suggestion or anticipation. Neat sketches of the apparatus used should accompany the notes taken. The inferences or explanations will follow in proper sequence.

More difficult questions dealing with work and horse-power; diagrams for variable loads; levers; compound, bent, inclined forces; systems of parallel forces; centre of and resultant of parallel forces; couples. The different wheel and axle, Weston pulley, mechanical advantage, velocity ratio, mechanical efficiency, and theoretical advantage; revise inclined plane, screws, forms of screw-threads, right and left hand, single and double thread; screw and lever in combination, practical examples; worm and worm-gear, differential screw, conversion of motion and transmission of power, belts open and crossed, fixed and loose pulleys, friction-wheels, tooth-gears. The laws of friction, machine analysis.

GRAPHIC STATICS—Forces in simple frames.

HYDROSTATICS—The pressure of water, principle of Archimedes; Pascal's Law, examples; machines for raising water, pumps, lift-pumps, force-pumps.

PNEUMATICS—Diving bells, caissons, the barometer, Boyle's and Charles' Laws.

DYNAMICS.

(*a.*) *Kinematics*—Revision and amplification of first-year work.

(*b.*) *Kinetics*—Newton's three laws, with a special emphasis on the second one. The unit of force—dynamical and gravitational. The fundamental kinetic equation $P = mf$. Energy; potential, kinetic.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Applied Mechanics—Cryer & Jordon.*

Applied Mechanics—Jamieson (Chas. Griffen & Co., London).

Elementary Mechanics—Morley & Inchley (Longmans, Green & Co.).

Theoretical Mechanics—J. Edward Taylor (Longmans, Green & Co.).

Physics.

SOUND—How produced; periodic and aperiodic vibrations; music *vs.* noise; transmission, wave theory; rate of transmission in solids, liquids, and gases; intensity and laws governing it; amplitude, reflection; echoes; speaking-tubes; acoustical requirements for auditoria; pitch, musical scales, vibrations of strings; plates, rods, and organ-pipes, with the production of overtones or harmonies; the guitar, violin, flute, cornet, French horn, bugle, clarinet, trombone, the human ear, the human voice.

LIGHT—Nature; how propagated; reflection from plane mirrors; concave and convex mirrors; images; photometry; candle-power; intensity of illumination; candle foot; Bunsen's and Rumford's photometers. Refraction; index of refraction; total reflection; prisms, lenses, prismatic reflectors, luxfer prisms; images produced by lenses, real and virtual; determining focal length of lenses; the simple microscope; compound microscope; the camera; principles and practice of photography; human eye, binoculars, terrestrial and astral telescopes, dispersion, colour, colour values, spectroscope and its use; polarimeter and polarized light—principles involved.

MAGNETISM—Natural and artificial magnet; permanent and temporary magnets, polarity, magnetic field; induced magnetism and methods of induction; retentivity, magnetic attraction and repulsion; terrestrial magnetism, mariner's compass, geographic and magnetic poles, inclination and declination, the dipping needle, isogonic and isoclinic lines.

ELECTRICITY—Voltaic cells, simplest forms, current flow, nature of electrical current; conductors and non-conductors; polarization and methods of depolarization; some of the most common types of cell and the probable chemistry of these; galvanoscope; field of force about a conductor; galvanometer, electromagnet; electric bell;

telegraph signals; voltmeter, ammeter; chemical effect of the current; electrolysis, electrolytes, electroplating, electrotyping, electrometallurgy; secondary and storage cells; electrical measurements, ohms, volts, amperes; tangent galvanometer; Wheatstone bridge and modifications; voltameters; heating effect; incandescent lamp; arc lamp; electric furnace; induced currents; laws of induction; induction-coil; spark-coil; direct-current dynamo; making models of same; the telephone, transformer; grouping cells and generators; problems.

TEXT-BOOKS AND BOOKS OF REFERENCE.

The Ontario High School Physics (Copp, Clark Co., Ltd.).
Elementary Practical Physics—Watson (Longmans, Green & Co.).
A Laboratory Course of Practical Electricity—Archbold (Macmillan & Co.).
Elementary Lessons in Electricity and Magnetism—Silvanus Thompson (Macmillan & Co.).
Library of Practical Electricity—Tyrell Croft (McGraw Hill Book Co.). Price $14 per set.

Chemistry.

Solution, crystallization, filtration, saturation, natural waters, air in water, solids in water.

AIR—Oxygen and nitrogen, mixtures and compounds, combustion, effect of plant-life on atmosphere, effect of combustion and animal life on air.

WATER—Hydrogen, preparation and properties, chemical composition of pure water.

Drawing and Design.

(*a.*) Workshop sketching of machine parts.
(*b.*) Tracing and blue-printing.
(*c.*) Geometrical drawing.
(*d.*) Othographic projection, sections, and the development of surfaces.
(*e.*) Lettering.
(*f.*) Design.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Furniture Design—Crawshaw (Manual Arts Press).
Studies in Line and Mass—E. A. Branch (Ralph Holland & Co., London).
Copper Work—Rose (The Davis Press, Worcester).
Descriptive Geometry—H. F. Armstrong.
Geometrical Drawing for Schools and Colleges—McLeod (Foster Brown, Montreal).

Shop-work.

(1.) WOODWORK—Individual projects of a more difficult nature than in first year. Community work on a larger scale. The problems should call for draughtsmanship, design, craftsmanship of a higher order than heretofore, and cost of material and time should be carefully calculated.

Lathe-work—Projects which call for more modelling than in the first year. Face-plate and chuck turning. Finishing and polishing.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Furniture Design for Schools and Shops—Crawshaw (Manual Arts Press).
Handcraft in Wood and Metal—Hooper & Shirley (Batsford).
Carpentry—Griffith (Manual Arts Press).
Problems in Wood-turning—Crawshaw (Manual Arts Press).

(2.) SHEET-METAL WORK.

(*a.*) *Practice*—Continue work of the first year, but with objects of increasing difficulty in development and construction; for instance, pipe-work involving intersec-

tions of cylinders at various angles. Conic sections should be studied. The following machines may be used: Wiring, setting-down, double-seamer.

(*b.*) *Theory*—Solders and fluxes; calculation of stock; mensuration of all objects constructed; cost of material and labour.

Text-book: Essentials of Sheet-Metal Working—Daugherty (Drake & Company).

(3.) FORGE-WORK—A little heavier stock may now be introduced, and in addition to first-year exercises, upsetting, punching, bending, twisting, and welding should be taken up, and a beginning made in tool-making.

(*a.*) *Upsetting*—In preparation for bending in rectangular stock such as bracket; in preparing scarf for welding, etc.

(*b.*) *Punching*—Expanded ring, clamps, etc.

(*c.*) *Twisting*—Ornament for light tools such as scriber, brace for bracket.

(*d.*) *Welding*—Several welds which do not require much tool manipulation, such as ring-weld, welded eye, pile or faggot weld.

(*e.*) *Tool-steel*—Emphasis on careful handling and why; hardening and tempering of some light articles, such as punch, scriber, screw-driver.

Time and material should always be calculated in order to arrive at the cost of the article.

Text-book: Exercises for Forge Shop Practice (Buffalo Forge Co., Buffalo, N.Y.). Price, 50 cents.

(4.) MACHINE-SHOP WORK.

(*a.*) *Practice*—Lathe-work; rough and finish turning between centres; taper turning with compound rest; turning with automatic hand-feed; knurling; simple forming to template.

Limit measurements, $^1/_{128}''$ + (Vernier gauge).

(*b.*) *Shaping*—Planing parallel sides to thickness in vice attachment; squaring ends; use of automatic feed.

(*c.*) *Drilling*—Locating and drilling holes accurately placed; use of centre drill and reamer.

(*d.*) *Bench-work*—Accurately laying out metal and centre dotting; removing thin stock with chisel and vice; sawing a deep slot accurately; riveting by reducing; loose riveting; tapping and use of stock and dies on long threaded work.

(*e.*) *Workshop Drawing*—Limit systems of dimensioning; use of various finish symbols; detail and assembly drawings.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Principles of Machine Work—Smith (Industrial Education Book Co., Boston).
Machine Shop Practice—Kaup (Wiley & Sons).

Third Year.

NOTE.—Students who desire to pass the Junior Matriculation Examinations will take the regular course prescribed by the University of British Columbia.

English.

LITERATURE—Same as for Junior Matriculation.

COMPOSITION—Same as for Junior Matriculation.

SUPPLEMENTARY READING—Heroes of Science, published by Society for Promoting Christian Knowledge; Short Stories from Modern Authors.

Citizenship and Economics.

NATIONAL AFFAIRS—The Empire, the Dominion and Provinces, how laws are made, how Parliament does business, the Premier and Council, political parties, how elections are held, departments of government, taxation, money and banks.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Canadian Civics—Jenkins.
Outlines of Economics—R. E. Nelson (G. Bell & Sons).
How we pay each other—Wood (Macmillan).

Mathematics.

ARITHMETIC—Contracted methods; approximations with small values; mensuration, using logarithms; commercial arithmetic.

Text-books: Saxelby's Introduction to Practical Mathematics; Dominion High School Arithmetic.

ALGEBRA—Use of formulæ, quadratic equations, indices, surds, arithmetic and geometric progressions, ratio and variation, logarithms.

Graphs—interpolation, graph of quadratic and cubic functions, graphic solution of problems, maxima and minima, the linear law, polar co-ordinates, area of curves, mean ordinate.

Text-books: Hall & Knight's Elementary Algebra; Saxelby's Introduction to Practical Mathematics.

GEOMETRY—The circle—tangency, constructions on the circle, circles and rectilineal figures, rectangles in connection with circles. Geometrical equivalents of algebraical formulæ, graphic solution of quadratics, proportion, similar triangle, problems, similar polygons, proportion applied to areas.

Text-book: Hall & Stevens' School Geometry (London Edition).

TRIGONOMETRY—Trigonometrical functions, graphs of functions; the right-angled triangle, solution of triangles, compound angles, logarithms, solution of triangles.

Text-books: Playne & Fawdry's Practical Trigonometry.

BOOKS OF REFERENCE.

Harrison & Baxandall's Practical Plane Geometry.

Palmer's Practical Mathematics for Home Study.

Hawkes, Luby, and Touton's Second Course in Algebra.

Applied Mechanics.

The whole of the matter appearing in applied mechanics by Morley & Inchley, together with the matter enumerated below not appearing therein, including principle of work and its application to machines. Friction, static and kinetic, coefficient. Angle of repose, work absorbed by friction, friction usefully applied by clutches and brakes. Dynamometers—Kelvin and Proney brake. Screws, belt-gears, tooth-gearing, various motions—quick returns, cams, ratchets, links.

The type of work undertaken should provide an opportunity for the student to turn his knowledge of mathematics to practical use.

Practice in machine analysis should be afforded.

STRENGTH OF MATERIALS—Stress, strain, elasticity, Hook's Law, modulus of elasticity, factor of safety, strength of cylindrical vessels to resist fluid pressure, riveted joints.

GRAPHIC STATICS—Perfect, deficient, and redundant frames, Bow's notation, reciprocal diagrams of roof-trusses, cranes and frame structures. Bending moment and bending-moment diagrams.

HYDRAULICS—The fundamental principles of hydrostatics, water-pressure on dams, sluices, etc.

HYDRAULIC PRESS—Accumulators, lifts, cranes; buoyancy, hydrodynamics, orifices, head, energy, flow, water-wheels, turbines, Pelton wheels, reciprocating pumps.

HEAT ENGINES—Historical, Hero's, Savery's and Newcomen's engines, Watt's single and Watt's double-acting engine. Description of a double-acting engine. The D. slide-valve eccentric, etc. Relative positions of these parts. Lap, lead, angle of advance. Diagram of work. The indicator, I.H.P., Boyle's Law, Stephenson's link motion. Heat—specific heat, water equivalent, mechanical equivalent of heat, properties of steam, sensible and latent heat; wet, dry, and superheated steam. Internal-combustion engines; the four and the two cycle.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Elementary Mechanics—Morley & Inchley (Longmans, Green).

Applied Mechanics—Cryer & Jordon.

Applied Mechanics—Jamieson (Chas. Griffen & Co., London).
Theoretical Mechanics—J. Edward Taylor (Longmans, Green).
Heat Engines—Ripper (Longmans, Green).
Gas Engine Principles—Whitman (Appleton & Co.).

Physics.

Taken with Mechanics and Electricity. Work done by heat. Work done by steam. Co-efficient of expansion of solids, liquids, and gases. Charles' Law. Gas thermometer. Absolute temperature. Measurement of heat. Thermal capacity—specific heat. Change of state. Determination of the heat of fusion of ice. Determination of heat of vaporization of water.

Electricity.

In addition to the topics taken in the first- and second-year courses the following new work will be included. The recapitulatory work, whilst under the same heads, will of necessity be of an advanced character and will lead to problems of a practical nature—e.g., in dealing with calculations under Ohm's Law, instead of confining the problems to continuous current, alternating-current problems dealing with both resistance, reaction, and capacity will be undertaken.

NEW TOPICS—Electromagnets, generator and motor fields, D.C. and A.C. magnets—calculations on same; Watt and power equations and problems. Electrical horse-power; kilowatt and kilo-volt; ampere.

Conductors; sizes, calculations, line drop. Line calculations, transmission and transmission lines.

Watt meters, indicating and integrating; single and polyphase meters; construction and use.

Magnets; permeability, induction, flux density, hysteresis, saturation, hysteresis losses. Induction, inductance, Lenz's Law.

Back E.M.F. computations of inductances. Transformers in detail.

Cycle, frequency, A.C. generators, meaning of the terms instantaneous, mean, average, and root-mean-square, voltages. Current in A.C. circuits. Ohm's Law in A.C. circuits—power factor. Lag and lead.

Alternating-current calculations, vector diagrams, circle diagrams.

Distribution, high and low tension, single and polyphase. Induction and synchronous motors.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Ontario High School Physics and Laboratory Manual.
Library of Practical Electricity—Tyrell Croft (McGraw Hill Book Co., New York).
Elementary Lessons in Electricity and Magnetism—Silvanus Thompson (Macmillan).

Chemistry.

Carbon, carbon dioxide, carbon monoxide, coal, charcoal, coke, coal-gas, flame. Chalk, lime. Salt—common, sodium, and chlorine. Properties of spirits of salt. Bleaching-powder. Sulphur dioxide and sulphurous acid. Sulphur trioxide and sulphuric acid. Acids, alkalies, and bases.

Drawing and Design.

Workshop sketching, scale-drawing, tracing, blue-printing, tinting, drawing machine parts.

DESIGN—Principles of design, spacing, proportion, appropriateness. Designs for wrought metal, sheet metal, terra cotta, wood construction, decoration of woods.

ART GEOMETRY—Pattern-drawing and planning out designs.

DESCRIPTIVE GEOMETRY—Orthographic projection of points, lines, solids, sections, intersections of planes.

LETTERING—A clear, well-formed style.

Lessons in art appreciation.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Descriptive Geometry—H. F. Armstrong.
Art Geometry—Carroll.
Lessons in Decorative Design—Jackson (Chapman & Hall).
Studies in Line and Mass—E. A. Branch (Ralph Holland, London).
Practical Wood-carving—Rowe (Batsford, London).
Artistic Craft Series (published by John Hogg, London).
Heraldry, bookbinding, silverwork and jewellery, wood-carving, wood-block printing, writing and illuminating, stained glass.
Principles of Design—Batchelder (Inland Printing Co., Chicago).

Shop-work.

(1.) BENCH WOODWORK—Application of principles in mechanics carried out in carpentry and joinery. Problems seen in framing a wooden building. Walls and partitions. Roof-framing. Construction of trussed girders and roof-trusses. Methods of calculating strains and stresses. Models constructed to scale. Use of the steel square as shortcut. Methods to geometrical results.

(*a.*) *Draughting.*—Problems in roofing solved geometrically. Orthographic projection and sections of solids—the ellipse, parabola, and hyperbola.

(*b.*) *Mensuration of Carpentry and Joinery*—Revise square root. Areas. Graphical solutions. Figures bounded by curved lines, cubic measure.

(*c.*) *Mechanics of Carpentry and Joinery*—Resultant of two or more forces. Parallelogram of forces. Triangle of forces. Inclined forces on one plane, but not acting through one point. Parallel forces. Loaded beams. Stress diagrams for roof-trusses. Stress and strain. Shearing stresses. Methods of arranging beams. Bending moments. Calculation of the transverse strength of wooden beams. Deflection pulleys. Specific gravity.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Modern Framed Structures, Vol. I.—Johnson, Bryan & Turneaure (Wiley).
Carpentry—Griffith (Macmillan).
Carpentry and Joinery—J. W. Riley (Macmillan).

(2.) SHEET-METAL WORK—Greater technical skill with the tools should now be demanded and flared articles involving triangulation should be introduced.

During the two previous years projects in tin have been developed and constructed, but in the third year articles may be made in copper and decorated by repoussé or etching.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Metal Craft—P. Wylie Davidson.
Copper Work—Rose (Manual Arts Press, Peoria).

(3.) FORGING—More difficult operations than in the second year, but involving the same exercises. Shaping heavier articles, requiring the employment of a striker. Use of such tools as flatter, fuller, and set-hammer. Articles such as grab-hook, tongs, and small hammer-head may be attempted. Welds requiring manipulative skill, such as split weld. Welded ring on welded eye. Straight weld. Three- or four-link chain.

(*a.*) *Tool-making.*—Cold chisel, cape chisel, punches, etc. Brazing, case hardening. Calculation of time and material in order to obtain cost as in previous years.

(*b.*) *Art Metalwork*—Additional projects demanding an exercise of taste and refinement should be undertaken. Twisting, scroll-work, spindle shape spiral, interlacings, leaves and other ornamentations.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Art Metalwork with Inexpensive Equipment—Payne (Manual Arts Press).
Practical Forging and Art Smithing—Googerty (Bruce Publ. Co., Milwaukee).

(4.) MACHINE-SHOP.

(*a.*) *Lathe-work*—Turning various diameters to .002" limit (micrometer); cutting external and internal threads; boring with boring-bar; forming to template, concave and convex; use of jigs for holding work.

(*b.*) *Shaping*—Planing surfaces at right angles parallel and to .002" limit; angular planing; hexagonal planing, use of jig.

(*c.*) *Drilling*—Drilling holes in thick metal; holes accurated, located, in alignment, and properly spaced.

(*d.*) *Sawing*—Student will use hand and power saw.

(*e.*) *Grinding*—Student will grind and drill by hand. Student will grind chipping-chisels, lathe and planer tools.

(*f.*) *Bench-work*—Chipping—use of cape and chipping chisel; cutting a keyway and chipping to a line. Fitting—filing and accurately fitting a key. Scraping a surface flat to a master-plate.

(*g.*) *Workshop Drawings*—Belting and mechanical diagrams; further use of notations and shop standards. Student should be able to make a responsible working drawing calling for all necessary operations, using component reference numbers and title.

(*h.*) *Shop Science.*—Student can set up any simple or compound train on engine lathe; knowledge of functions of any part of lathe or shaper and name the parts; calculation of setover for taper-work; cutting speeds and feeds; principles of tool-grinding for lathe tools, planer tools, and twist drills; heat treatment of metals; the properties and recognition of common metals.

(*i.*) *Shop Organization and Methods*—Limit system of production; standardization; the use of the special machine in rapid production; systems of inspection.

Text-book: Advanced Machine Work—Smith (Industrial Education Book Co., Boston).

HIGH SCHOOL HOUSEHOLD SCIENCE COURSE.

First Year.

I. English and Civics.

READING AND ORTHOEPY—As prescribed for Preliminary Course, Junior Grade.
WRITING AND SPELLING—As prescribed for Preliminary Course, Junior Grade.
LITERATURE—As prescribed for Preliminary Course, Junior Grade.
COMPOSITION—As prescribed for Preliminary Course, Junior Grade.
CIVICS—As prescribed for Preliminary Course, Junior Grade.

II. Latin *or* French.

As in Preliminary Course, Junior Grade.

III. (*a.*) Algebra.

As prescribed for Preliminary Course, Junior Grade.

(*b.*) **Arithmetic and Mensuration.**

As in Dominion High School Arithmetic (Gage & Co.). General principles of Arithmetic and Mensuration; application to common problems of the arts and trades. Book-keeping, business forms and usages; bills, receipts, cheques, household budgets and accounts; collection of accounts.

HOUSEHOLD PROBLEMS THAT REQUIRE A GIRL'S ATTENTION.

Enough practical measuring and weighing to be able to recognize quantities referred to in avoirdupois, liquids, dry and linear tables.

To quickly change one denomination or one fraction to another.

Capacity of household appliances—hot-water bottles, kettles, pails, baskets, coal-bins, jars, etc.; capacity and areas of rooms.

Wholesale and retail cost of materials; computation of lesson, cost per class, per pupil, etc.

Percentage discounts.

Comparison of cost of different fuels; reading of meters and familiarity with terms.

Insurance—house, life, accident, and industrial.

Comparison of foods; meats and their substitutes; home and factory produced foods.

Problems relating to customs duties; express parcel post; freight.

Household budgets and apportionment of income; keeping household accounts.

Various standard widths of common textiles considered in terms of cost as width varies.

Questions relating to floors, walls, and roofing; covering walls with paint and paper, floors with carpets and linoleums.

City problems—cost of street-cleaning, lighting, etc.

The metric system; weights and measures; standard units; household measurement.

IV. Chemistry and Physics.

(*a.*) Work in Chemical Laboratory.

(*b.*) Work in Cookery Laboratory.

Two periods per week (50 minutes each).

1. WEIGHTS AND MEASURES—Use of balance and principles of measuring.

2. (*a.*) AIR—Occupies space, has weight, exerts pressure. The barometer. Readings of and construction. Warm air lighter than cold. Convection in air and water. Heating and refrigeration (convection currents). Ventilation and ventilators. Vacuum, sealing of fruit-jars and mechanical devices to assist same. Vacuum cleaner.

2. (*b.*) AIR—Its relation to fire, draughts, coal-range or gas-range. Usual impurities—dust, bacteria. The microscope and a very simple history of bacteriology. Bacteria, yeasts, moulds, and sterilization in relation to food preservation. Harmful and harmless preservation of food, wood, metal, etc. Effect of fresh air, sunshine, drying, and cold storage.

3. (*a.*) HEAT—Effects of heat—changes in size, state, temperature in solids, liquids, gases. The thermometer; boiling and freezing points, variation in boiling-point due to altitude (pressure).

3. (*b.*) Temperatures in moist and dry heat in cooking processes.

4. (*a.*) WATER—Density and how determined. Buoyancy. Lactometer. Water as a solvent (solids, liquids, gases). Other solvents. Chemical and physical change. Matter held in suspension. Filtering and decanting. Saturation. Crystals and crystallization. Evaporation. Solids in water, rain-water. Condensation. Distillation. Maximum density of water. Freezing. Latent heat of water and steam. Calorie and calorimeter.

4. (*b.*) WATER—Its relation to cookery, cleanliness, and health.

Laboratory practice to prove theories taught.

TEXT AND REFERENCE BOOKS.

Physics and Chemistry, Books I., II., III.—Gregory & Simmons.

Physics of the Household—Lynde.

Elementary Household Chemistry—Snell.

The Science of Common Life—Coppock (Allen & Co., London).

The Chemistry of Housecraft—Hall & Grünbaum (Blackie & Co.).

V. Physiology (including Hygiene, Child-welfare, and Home-nursing).

Study of the structure and function of the systems of the human body and their relation to one another.

STRUCTURE—The cell. The digestive, circulatory, and respiratory systems. The proper care of each to maintain a normal condition of health.

FOOD—Its general composition and how it is used in the body.

As much practical and laboratory work as possible.

TEXT AND REFERENCE BOOKS.

Essentials of Health—Stowell.
Anatomy and Physiology—Kimber.
The Human Mechanism—Haigh & Sedgewick.
Personal Hygiene—Pyle.

VI. Dietetics and Cookery.

MARKETING—Foodstuffs, sources and preparation; varieties; cost; choice and tests; visits to market, grocery and meat stores, dairies and manufactories.

FOODS—The food essentials. Food value. Weighing and measuring commercial food quantities and reduction to kitchen quantities in order to lead up to providing meals at certain costs.

Practice in the application of the principles of cookery to as wide a range of problems as possible in house quantities.

Personal responsibility in use of equipment, ovens, etc. Fireless cookery.

Canning of fruits, vegetables, meats, etc.

HOME MANAGEMENT—Care of kitchen, pantry, and equipment. Dining-room, table-setting, decoration, and service.

LAUNDRY-WORK—General care of kitchen linen.

TEXT AND REFERENCE BOOKS.

Food Study—Wellman.
Successful Canning, Preserving—Powell.
The Boston Cooking School Book—Farmer.
Housewifery—Balderson.
Good Housekeeping Magazine.

VII. Needlework—Garment-making and Textiles.

(*a.*) PROJECT: NIGHTDRESS.

Practical Work—Measures; study of pattern; draughting; cutting; pinning; tracing; basting; machine and hand stitching; rolling hem; joining and sewing on lace.

Thought Content—Habits of neatness and accuracy; care and use of tools; care and use of machines; comparison between hand and machine stitching.

Materials: Choice of material; cotton or linen; suitability; durability.

Trimmings: Suitability; quality; width and name; amount required.

Selection of pattern: Qualities of material; washing and laundering.

(*b.*) PROJECT: PRINCESS SLIP.

Practical Work—Taking measures; cutting from pattern; fitting; tracing; marking and folding hem; simple original design in embroidery; finishing placket.

Thought Content—Talks on the manufacture of clothing; hygiene in connection with underwear; knowledge of cotton cloth; material suitable for underwear, widths and prices; increase in ability to sew neatly; comparison between factory-made and home-made garments.

(*c.*) PROJECT: LINEN CASES FOR TABLE-LINEN.

Practical Work—Button-holes; initial embroidery.

Thought Content—Economy in buying and cutting; study of cotton.

(*d.*) PROJECT: CURTAINS.

Practical Work—Hemstitching and hanging.

Thought Content—Production and manufacture.

(*e.*) PROJECT: BED-LINEN FOR HOSPITAL BED.

Practical Work—Folding and stitching hems and marking linen.

Thought Content—Care in construction of garments; different ways of finishing off the tops of garments.

(*f.*) PROJECT: TOWELS.

Practical Work—Folding narrow hems.

Thought Content—Neat and accurate work; economy of time.

(*g.*) PROJECT: CORSET-COVER OR DRAWERS.

Practical Work—Cutting from standard pattern; cutting and joining bias strips; placing bands.

Thought Content—Different ways of joining lace and embroidery; study of cotton fibre; its growth and manufacture.

TEXT-BOOKS.

Dressmaking—Jane Fales (Scribner, New York).
Dresscutting and Making—E. & M. Wallbank (Pitman, London).
French Pattern Modelling for Professionals—Amy J. Reeve (Longmans, Green & Co.).

VIII. Drawing, Design, and Household Art.

Work to be correlated with that of the Sewing and Dressmaking classes, as well as that of the care and decoration of the home.

Consideration to be given to the economic value of beauty and to the development of a reliable taste and appreciation of colour, form, and arrangement.

TEXT AND REFERENCE BOOKS.

Practical Geometry for Art Students—John Carroll (Burns & Oates, London).
Lessons on Decorative Design—Frank G. Jackson (Chapman & Hall).
Drawing for High Schools—Prang.
Needlecraft in the School—M. Swanson.
Needlework in School—Swanson & McBeth (Longmans, Green & Co.).

IX. Vocal Music.

VOICE-CULTURE—The voice, its use and preservation; breathing and breathing rules and exercises. Vowels and consonants, their treatment. Rhythm, expression, interpretation, phrasing. Vocal exercises for daily practice for the attainment of agility and evenness of tone. Sight-singing and ear-training. Knowledge and use of the modulator and stave. Songs, two- and three-part. Criticism and appreciation of the work of the great masters.

X. Physical Culture.

Second Year.

I. English.

READING AND ORTHOEPY—As prescribed for Advanced Course, Junior Grade.
WRITING AND SPELLING—As prescribed for Advanced Course, Junior Grade.
LITERATURE—As prescribed for Advanced Course, Junior Grade.
COMPOSITION—As prescribed for Advanced Course, Junior Grade.

II. Latin *or* French.

As prescribed for Advanced Course, Junior Grade.

III. (*a.*) Algebra.

As prescribed for Advanced Course, Junior Grade.

(*b.*) **Arithmetic and Mensuration.**

As in Dominion High School Arithmetic.

Review problems of the first year; metric system; measures and equivalents.

Measurements of temperature, percentage, interest, discount, banking, household accounts, fractions.

IV. *Chemistry and Physics.*

(*a.*) Work in Chemical Laboratory.

(*b.*) Work in Cookery Laboratory.

Two periods per week (50 minutes each).

(*a.*) Composition of air. Composition of water. Decomposition and combination. Preparation of oxygen and hydrogen. Properties of hydrogen and oxygen. Combustion. Relation to heat. Heat of combustion. Spontaneous combustion. Fuels—solids, liquids, gases. Light and illuminants—gas, acetylene, electric lighting.

Acids and salts, acid salts, alkalies, bases and basic oxides. Reaction of acids with bases and with basic oxides.

Metals, rusts, rust-stains on fabrics.

Ionization, strong and weak acids and bases. Hydrolysis of salts. Hard and soft water and water-supply. Softening of water. Ammonia; the ammonium radicle.

(*b.*) Methods of lightening flour mixtures. Baking-powder and laboratory practice to prove theories taught.

TEXT AND REFERENCE BOOKS.

Physics and Chemistry, Books I., II., III.—Gregory & Simmons.

Physics of the Household—Lynde.

Elementary Household Chemistry—Snell.

The Science of Common Life—Coppock (Allen & Co., London).

The Chemistry of Housecraft—Hall & Grünbaum (Blackie & Co.).

V. Physiology.

Recapitulation of first-year work.

Introduction to First Aid and Home-nursing begun in problems relating directly to the following: Choking, drowning, and common accidents.

Continuation of study of muscular, skeletal, and nervous systems. Excretions.

Simple laboratory-work on the organs of animals.

TEXT AND REFERENCE BOOKS.

As in first year, with addition of:—

Practical Nursing—Pyle.

VI. Dietetics and Cookery.

MARKETING—Continued as in first year whenever possible.

COOKERY—Heat measurements. Heat and work. The calorimeter and one hundred caloric portion. Daily requirements—fuel, protein and protective foods considered for muscle-building, energy-furnishing, and body-regulating material.

Meals planned and served to meet above requirements at varying costs. Students as guests. Table decoration and service.

HOME MANAGEMENT—When no servant possible. Laundry-work—general care of the household linen. Consideration of water, soaps, removal of stains, etc., as taught in the course on Chemistry.

TEXT AND REFERENCE BOOKS.

Food Study—Wellman.

Chemistry of Food and Nutrition—Sherman.

Table Service—Allen.

The Newer Knowledge of Nutrition—McCallum.

Pure Food Magazine.

VII. Clothing—Dressmaking, Millinery, and Textiles.

(Students supply their own materials subject to the approval of the Instructor.)

(*a.*) PROJECT: FALL OR WINTER HAT.

Practical Work—Taking measures; making paper patterns; cutting buckram; different stitches used in millinery; cutting and sewing-on of wire; covering, trimming; making folds, ruches, and simple hand-trimmings.

Thought Content—Good lines; good colour combinations; study of lines of face in their relations to lines of hats; good taste in hats; choice of trimming; choice of style; economy in buying and cutting; durability of different kinds of trimming; neat and accurate work; care and use of tools; care of work.

(*b.*) PROJECT: DRAFTING.

Practical Work—Taking measures; drafting shirtwaist and skirt; developing dress from draft.

Thought Content—Accuracy in execution; lines and form studied; hygienic nature of dress; appropriateness; necessity of economy in clothing.

(*c.*) PROJECT: SIMPLE WOOLLEN DRESS.

Practical Work—Sponging; cutting; fitting; stitching; pressing; finishing; application of trimming; braid or embroidery.

Thought Content—Textile study in relation to choice of materials for dress; adulterations in wool; economy in buying good material; good taste in colour and design; choice of style; suitability; use of pattern; care in cutting, marking, making; finishing and pressing; neat, accurate work; economy of time and material through wise planning.

(*d.*) PROJECT: COTTON DRESS.

Practical Work—Made from standard pattern; alterations made if necessary; designing; buying; cutting; fitting; finishing and trimming.

Thought Content—Texture of material; suitability; durability; amount of goods required; comparison of ready-to-wear and garments made at school or at home; relation of money spent for dress to that of other clothing; ethics of shopping; keeping accounts and cost of wardrobe; wool and woollen fabrics, collection of samples, widths, and prices.

(*e.*) PROJECT: HOUSEHOLD DECORATION—MAKING AND HANGING DRAPERIES.

Practical Work—Selection of material and trimming; cutting; folding; embroidering bands; hanging.

Thought Content—Colour scheme for curtains, draperies, and rugs; good designs, suitability and cost; artistic and hygienic draperies.

VIII. Drawing, Design, and Household Art.

Designing and the making of patterns. Embroidery, applique, stencilling, etc. Artistic principles involved in the clothing of the person; the proportions of the human form; true use of line, form, texture, colour, harmony, contrast, in obtaining effects.

Study of historical styles in dress. Costume-designing.

IX. Vocal Music and Elocution.

MUSIC—More advanced training than first year, with increased difficulty in part songs, glees, and madrigals.

ELOCUTION—The elements of elocution. The voice as a musical instrument. The breath; breathing and gesture exercises; nose-breathing; breath-pauses and throat-rests; the breath-sounds of speech; phonation; vocal consonants; vowels; resonance; voice-production exercises; register; flexibility; distinctness; selections for declamation.

Musical and dramatic appreciation; consideration of the work of the great masters.

X. Physical Culture.

XI. Botany.

As prescribed for Advanced Course, Junior Grade.

Third Year.

I. English and History.

READING AND ORTHOEPY—As prescribed for Junior Matriculation.
LITERATURE—As prescribed for Junior Matriculation.
COMPOSITION—As prescribed for Junior Matriculation.
HISTORY—As prescribed for Matriculation.

II. Latin *or* French.

As prescribed for Junior Matriculation.

III. (*a.*) Algebra.

As prescribed for Matriculation.

(*b.*) Arithmetic and Mensuration.

Problems in measures and equivalents. Measurements of temperature, percentage, interest, discount, banking, household accounts, fractions.

IV. Chemistry and Physics.

(*a.*) Work in Chemical Laboratory.
(*b.*) Work in Cookery Laboratory.
Four periods per week (50 minutes each).

(*a.*) Organic radicles. Hydrocarbons and alcohols. Esters and fats. Hydrolysis of esters. Saponification. Soaps—commercial soaps, foreign ingredients in commercial soaps, special soaps and scouring-powders. Solution and emulsification of fats. The cleaning of fabrics. Chemistry of textiles. Bleaching, bluing, dyeing. The general composition of foods—carbohydrates.

(*b.*) The function of food; the digestion of foods; foods of vegetable origin and of animal origin.

PHYSICS—Elementary electricity and magnetism. Application to household appliances—lighting, heating, electric toaster, percolators, iron, stove, electric bell. Fuse-plugs. Meter and reading of meter. Telephone. Electric motor. Light—reflection and refraction. Laws of reflection and refraction. Composite nature of white light. The lens and optical instruments.

Laboratory practice to prove theories taught.

V. Physiology (including Hygiene, Child-welfare, and Home-nursing).

FIRST AID—Common injuries to the muscular and bony system and the skin. Simple bandages and their use.

HOME-NURSING—The sick-room; bed-making; baths; taking temperatures, pulse and respiration. Symptoms and treatment of common diseases—application of poultices, etc. Invalid diet.

CHILD-WELFARE AND CARE OF THE BABY—Care of food and dress of the infant and small child. Visit to hospitals.

TEXT AND REFERENCE BOOKS.

First Aid to the Injured—Cantlie.
Home Nursing—Cosgrave.
The Care and Feeding of Children—Holt.

CONSIDERATION OF THE HOME—Design, construction, decoration, and care. Work to be correlated to the courses given in Art and Science. The construction of a house, from the standpoints of site, foundation, materials. Convenient and inconvenient arrangement of space. Water-supply and drainage. Finishing and decoration of floors, walls, and ceilings.

Labour-saving equipment for the home.

LAUNDRY-WORK—From the hygienic standpoint. Visits to commercial laundries.

As much practical work as possible.

TEXT AND REFERENCE BOOKS.

The Care of a House—Clarke.
House and Community Hygiene—Broadhurst.

VI. Dietetics and Cookery.

MARKETING—As much as possible, visits to markets, stores, factories, etc. Written reports on market.

FOODS—Costs, fuel value, protein balance, and vitamine content of foods. Criticism of food advertisements, recipes, etc.

Meals planned and served to paying guests. Invalid and children's diets. The lunch-box.

Home management and the duties of servants. Laundry-work carried out in conjunction with the lessons in Chemistry.

As much practical work as possible.

TEXT AND REFERENCE BOOKS.

As in second year, with addition of:—
Housewifery—Balderson.
Home Economics Journal.

VII. Clothing—Dressmaking, Millinery, and Textiles.

(*a.*) PROJECT: WINTER COAT OR TAILORED CLOTH DRESS OR SUIT.

Practical Work—Choice of style; choice of material; cutting; marking; tailor basting; fitting; pressing; setting in pockets; finishing seams; shrinking and placing of canvas finishings.

Thought Content—Selection of material; choice of colour; suitability to wearer; suitability to other dress; general utility coat; simplicity in style emphasized and care in buying; texture and durability to be considered; comparison to be made with ready-to-wear coats; good lines and careful, neat finishings; adjustment of sleeves, collars, and lining.

(*b.*) PROJECT: DRAFTING.

Practical Work—Measurements and drafting of tight-fitting waist.

Thought Content—Proportions of human figure; lines of draft; fitting, where and how; appearance of properly fitted garment; economy of time; economy of buying and cutting.

(*c.*) PROJECT: SPRING OR SUMMER HAT.

Practical Work—Making wire frame, use of tie-wire; shaping hat; covering; sewing braids; covering with lace or net; making bows, flowers, etc.; renovating silk, ribbon, or velvet.

Thought Content—Choice of design, colour, and trimming; harmonizing with the dresses to be worn; straws or braids, their prices and wearing qualities; effect of sun on the hat; simplicity; power to do original thinking and planning in reference to trimming.

(*d.*) PROJECT: SIMPLE EVENING DRESS.

Practical Work—Buying; cutting; drafting; fitting; making; finishing.

Thought Content—Economy in dress; economy in buying; economy in time, in planning of work; simplicity; good lines; beautiful colour combination and suitability to wearer; healthful, comfortable clothing; care of clothing; cleansing of silk and woollen goods; study of silk fibre; samples of different kinds, widths, and prices; personal budget; cost of High School girl's wardrobe for three years.

(*e.*) PROJECT: BABY'S DRESS OR SLIP.

Practical Work—Cutting; fitting; making; finishing.

Thought Content—Use of patterns; construction of garments; hygienic qualities and suitability; cost of child's wardrobe; good lines and careful, neat finishings denote the beauty of dress.

VIII. Drawing, Design, and Household Art.

Designing and the making of patterns.
Work of the second year amplified.

IX. Vocal Music and Elocution (Voice Exercises).

MUSIC—Solos, part-songs, glees, madrigals.

ELOCUTION—Development of ease, freedom, and distinctness in articulation; flexibility of the organs of speech; creative processes as opposed to imitative methods; stimulation as opposed to coaching; literary appreciation *versus* technical analysis.

Musical and dramatic appreciation; consideration of the work of the great masters.

X. Physical Culture.

NATURE STUDY COURSE IN FOODS.

FOR RURAL SCHOOLS WHERE THE COOKING OF HOT LUNCHES IS UNDERTAKEN.

Forty half-hour lessons during the school-year—A to be followed by B the same week. To be given in a class-room as an ordinary lesson.

Equipment.

Set of 15 food charts (Superintendent of Documents, Washington, D.C., U.S.A.)	$1 00
Registry of Foods, by R. W. Goldsbury (Whitcomb & Barrows, Huntington Chambers, Boston, U.S.A.)	1 10
1 enamel plate	10
1 small spirit-stove or oil-stove	35
1 enamel cup and saucer	25
1 small enamel saucepan and lid	25
1 vegetable-knife	10
1 tablespoon, 1 teaspoon, 1 fork	15
	$3 30

Many of these the students might donate to save expense, also flour-bags to act as dish-towels. A bowl for washing up would be a convenience.

Samples of the following would greatly assist: Tea, fermented and unfermented, of different grades; coffee, similarly, and cocoa; cereals of all kinds, whole and ground, etc.; dried fruits, sugars of all kinds; milk in its component parts.

The price of all food materials used should always be discussed, including the relative cost of 1 cup of flour, sugar, oatmeal and other cereals, butter, etc.

A.—Water.

Sources; appearance; taste; hard and soft; detergent power; impurities; different forms (ice, etc.). (Sugar, salt, cold water.)

B.—Water.

Amount needed per day; uses in body; how taken; foods rich in water; effect of heat on water; simmering and boiling; boiling as a means of purifying and softening; water rate in local city; country and city water supplies. (Saucepan, cold water, heat to turn all water to steam, examine residue.)

A.—Tea.

Source; where grown; how prepared for sale; various kinds and varieties; cost. (Tea of various kinds and preparation.)

B.—Tea Infusion.

Method of preparing; properties of infusion; when well and ill prepared; use of tea in dietary, people for whom suitable; tea infusion on leaves 3, 6, and 12 minutes, respectively, to be tasted and results noted. (Tea; boiling water.)

A.—Milk.

Milk as a food for babies and calves; food principles illustrated by milk and chief use of each; separated or skim milk, its food value; cost of milk, separated milk; cream; absorbability of milk; diseases from milk; care of milk in dairy, transit, and home. (Milk, onions, milk exposed to dust, milk in its component parts.)

B.—Milk and Junket.

Review—composition and food value; digestibility of milk; illustrate by babies; explain rennet and its action on milk, compare with processes in human stomach; make junket; deduce why milk should be sipped slowly, not taken quickly. (Milk, sugar, junket tablet, nutmeg.)

A.—Cocoa.

Source; nature; how prepared for sale; composition; food value; chocolate and cocoa prepared; pictures of cocoa trees, pods, and cocoa powder in process of manufacture. (Cocoa samples.) Price.

B.—Cocoa (Beverage).

Review composition; method of preparing cup of cocoa; need for boiling; comparison of tea and cocoa for food value and preparation. (Cocoa, sugar, milk, boiling water.)

A.—Fruits (Acid and Salt-supplying).

Classification; test for sugar, water, cellulose, and acids; dietary value; three methods of preserving fruits. (Fresh fruits, dried fruits, canned fruits, jam, jelly.)

B.—Fruits.

Review composition; digestibility of raw and cooked; cellulose; effects of cooking; methods of preparing and cooking fresh and dried; prepare an orange; stew prunes previously soaked. (Orange, six prunes, water, sugar, lemon, or fruit salad.)

A.—Cereals (Quick Fuel-supply).

Name explained; kinds; sources; products; test for starch (sugar when chewed); cellulose; use of cereals to the plant. (Samples of whole grain, ground—coarse and fine—grains, other preparations of grains; a whole ear of corn or barley; plate with small samples of flour, salt, cornmeal, baking-soda, corn-starch, etc., and iodine.)

B.—Cereals.

Review composition; explain digestion of starch; need for long cooking; make lumpy and smooth porridge, turn on to a plate and compare; make smooth last and continue to cook same for ½ hour, compare for taste with that cooked 5 minutes; methods of preparing and cooking. (Fine oatmeal, boiling water, salt.)

A.—Starch.

Sources; nature, use in body; effect in cold and boiling water; use in laundry-work. (Starch, cold water, boiling water.)

B.—Starch Sauces (Fuel Foods).

Review porridge; three methods of separating starch grains; thickening properties; make three sauces of varying thickness; effect of boiling; time to boil, need of boiling, sweet and savoury sauces. (Starch, sugar, butter, cold and hot water.)

A.—Wheat (Fuel, Muscle and Bone Builder).

Part of plant; storehouse; structure of grain; various grades and kinds of flour; food value of these (whole wheat and various kinds of flour from it.)

B.—White Flour.

Test for starch and gluten; nature, use in diet, use in bread-making of gluten. (Flour, cold water, starch from flour, a good gluten-ball, well cooked.)

A.—Sugar (Fuel Food).

Sources; manufacture; kinds; use in body; effect of too much sugar on appetite. (Pictures of sugar cane and beets; or various grades of sugars.)

B.—Sugar.

Review composition and uses; effect of heating to charring point; make small quantity of fudge; discuss when candy to be eaten; home-made *vs.* bought candy. (Brown sugar, milk, butter, flavouring.)

A.—Cheese (Fuel Food and Tissue-builder).

How prepared; various kinds; value in diet. (Rennet, sour milk, different kinds of cheese.)

B.—Cheese.

Composition; food value; digestibility; effect of dry and moist heat on cheese; methods of cooking; make cottage cheese. (Sour milk, salt, pepper, cheese-cloth.)

A.—Eggs (Tissue-builder).

Seven parts of an egg; food value of an egg; illustrate by little chick (2 eggs); cause of eggs decaying; preservation of eggs.

B.—Eggs.

Review composition; effects of heating out of shell by dry heat and moist; eggs cooked in shell three ways; deduce directions for cooking eggs (4 eggs).

A.—Vegetables (Salt-supplying).

Classification as to parts of plant; food value; test for starch; test for sugar; test for cellulose and water. (Vegetables of all kinds.)

B.—Fresh Vegetables (Salt-supplying).

Review composition and uses; preparation of various kinds for cooking; methods of cooking discussed. (Carrots, turnip, beet, onion, cabbage, green beans.)

A.—Dried Vegetables (Tissue-builders).

Legumes; storehouse of food; composition; food value; contrast with greens and roots; cost of legumes; foods to combine with legumes. (Legumes of various kinds.)

B.—Potatoes (Salt and Fuel-supplying).

Composition; food value; methods of preparing and cooking; cooked in skin and without; test water for starch. (Two potatoes, boiling water.)

A.—Green Vegetables (Salt-supplying).

Composition and value in diet; discuss vegetable gardens; kinds which may be grown. (All kinds of greens, wild and cultivated.)

B.—Salads.

Kinds of vegetable cold salads, cooked and uncooked, their preparation; prepare a simple salad and dressing. (Salad material, cream, sugar, vinegar, salt, pepper.)

A.—Meat (Tissue-builder).

External structure; rules for selecting; care of meat; tender and tough meat, where found. (Diagram of ox and sheep; borrow a good joint, if possible.)

B.—Meat.

Internal structure of lean meat; contents of meat-tubes; connective tissue; apply dry heat to meat. (Scraped meat in cold water, piece of boiled meat, heat meat-juice.)

A.—Fish (Tissue-builder).

Classification; local kinds available; structure; compare with meat; cost compared with meat; rules for selecting; care of fish. (A whole fresh fish.)

B.—Fish.

Composition; compare with meat for food value and digestibility; soak fish in water; apply dry heat to fish and boil a piece of fish; compare with meat; discuss methods of cooking; steam small piece of fish. (Small piece of cooked meat, raw fish.)

A.—Yeast (Raising Agent).

Nature; growth; activity; four essentials for growth; result of growth; use of yeast in bread-making; test for good compressed yeast. (Dry and compressed yeast, fruit-juice fermenting.)

B.—Yeast.

Review former lesson; three forms of yeast; perform eight experiments to show the best conditions for fermentation by yeast-plant in bread-making. (Yeast, flour, sugar, cold and hot water, boiling water, salt.)

A.—Soda and Cream of Tartar (Raising Agent).

Sources; nature; manufacture; texture; cost; effect of uniting and adding moisture; baking-powder. (Soda, cream of tartar, cold and hot water.)

B.—Soda and Acids.

Review their effect on each other; use of carbonic-acid gas in cookery; six experiments to illustrate how to use to produce most CO_2. (Soda, cream of tartar, sour milk, molasses, vinegar, cold and hot water.)

A.—Table-setting.

Things required for general and personal use for dinner; how to set table; illustrate on blackboard. (Ask students to bring these for next lesson.)

B.

How to set and wait at table; table etiquette; how to clear away after a meal. (Table linen, silver, cutlery, china, flowers.)

A.—Menus.

Directions as to the choice of dishes for one day's meals.

B.—Flowers arranged for Table Decoration.

(High and low vases for long and short-stalked flowers, wild and cultivated.)

NOTE.—A preliminary course might be given on the above plan dealing with choice, manufacture, cost, at one lesson, and cleaning and care at the next lesson of the following: Sink, floor, windows, silver, cutlery, white wooden utensils, finished woodwork, tin, enamel, and aluminium ware, furniture, hair and household brushes, kitchen range, soap, scouring agents.

PROMOTION.

Public Schools.

There must be in all Public Schools a general classification at the end of each term. Pupils should be transferred to a higher or lower class whenever it appears that their individual interests require it, without regard to the periodical reorganization of classes.

Examinations held for the purpose of classifying the pupils of a graded school shall be oral for classes below the Intermediate Grade, but in all classes the judgment of the teachers who have respectively taught the pupils during the preceding term should chiefly determine the promotion list.

The Department will hold annual examinations on the work of the Senior Grade, and will issue certificates of High School admission to candidates who obtain at least 34 per cent. on each subject and not less than an average of 50 per cent. on all subjects.

These examinations for admission to High Schools will be held on Monday, Tuesday, Wednesday, and Thursday preceding the last Friday of June at all places where High Schools are in operation, and at such other centres as will be determined and announced by the Department from year to year.

Pupils of Public Schools in a school district having a High School, after passing a satisfactory examination and being declared eligible for promotion from a Public School to a High School, shall not be received as pupils in the graded schools of such district.

All pupils of British Columbia schools (both public and private) must hold High School Entrance Certificates before being eligible for admission to a High School. Any pupil holding a High School Entrance Certificate from another Province, or any pupil who can produce satisfactory proof of having done High School work elsewhere, may be admitted to a High School on probation, subject to the approval of the Department.

High Schools.

The principals of all High and Superior Schools shall hold promotion examinations at the end of the school-year or during the school-year, or both. These examinations should take the form of either oral or written tests. The promotion lists should, however, be largely determined by the assistant teachers who have taught the pupils. Students who wish to enter the Normal School or to secure non-professional standing for teachers' certificates must write off an examination set by the Department of Education.

Towards the end of June each year the Department will conduct examinations for promotion from the Preliminary Course, Junior Grade, to the Advanced Course, Junior Grade, and from the Advanced Course, Junior Grade, to the Matriculation year. These examinations are obligatory in the case of pupils attending Superior Schools, but not in the case of pupils attending High Schools. Private School pupils who pass the Departmental First-year Examinations may enter Second-year classes of a High School and those who are successful in the Departmental Second-year Examinations will be admitted to Matriculation classes.

Written examinations will also be given by the Department on the following courses: Junior Matriculation, Senior Matriculation, Third-year Commercial, Third-year Household Science, and Third-year Technical. Examination time-tables will be forwarded to each examination centre early in June.

In the High School Examinations candidates to be successful must make at least 40 per cent. on each subject and not less than an average of 50 per cent. on all subjects.

TEACHERS' CERTIFICATES.

The designation and validity of Teachers' Certificates shall be as follows:—

(*a.*) Academic Certificate, valid for life, shall entitle the holder to teach in any position in a Public School or in a High School:

(*b.*) First-class Certificate, valid for life, shall entitle the holder to teach in an ungraded public school or in any position in a graded school or superior school:

(*c.*) Second-class Certificate, valid for life, shall entitle the holder to teach in an ungraded public school or in any position in a graded public school:

(*d.*) Third-class Certificate, valid for life, shall entitle the holder to teach in an ungraded public school or to fill the position of assistant in any graded public school:

(*e.*) Temporary Certificate, valid until the next examination of teachers, shall entitle the holder to teach temporarily in any school.

The qualifications for Teachers' Certificates of the various grades follow:—

Academic Certificate—

(*a.*) A degree in Arts, in Science, or in Literature of recognized British, Canadian, or Colonial Universities:

(*b.*) A Diploma of the Provincial Normal School, or of other Normal School or Training College approved by the Council of Public Instruction.

First-class Certificate—

(*a.*) A Senior Matriculation Certificate of the University of British Columbia or first-year standing in Arts or in Science of the University of British Columbia:

(*b.*) A Diploma of the Provincial Normal School, or of other Normal School or Training College approved by the Council of Public Instruction.

Second-class Certificate—

(*a.*) A Junior Matriculation Certificate of the University of British Columbia:

(*b.*) A Diploma of the Provincial Normal School, or of other Normal School or Training College approved by the Council of Public Instruction.

Third-class Certificate—

(*a.*) An Advanced Course, Junior Grade Certificate, or a Third-class Non-professional Certificate issued by the Department of Education for British Columbia:

(*b.*) A Diploma of the Provincial Normal School or of other Normal School or Training College approved by the Council of Public Instruction.

NOTE.—After June, 1922, Third-class Certificates will no longer be issued.

Holders of the following certificates obtained in other Provinces of Canada, who give evidence of satisfactory knowledge of the "Schools Act" and of the Rules and Regulations of the Council of Public Instruction, and also show that they are familiar with the Courses of Study prescribed for our public schools, will be granted Interim First-class Certificates for this Province:—

Alberta—First-class Professional Certificate.
Saskatchewan—First-class Professional Certificate.
Manitoba—First-class Professional Certificate.
Ontario—First-class Professional Certificate.
Quebec—Academy Diploma (McGill).
New Brunswick—Grammar School or Superior Licence.
Nova Scotia—Superior First-class Licence.
Prince Edward Island—First-class Licence.

Commercial Teachers.

Teachers of Commercial subjects in High Schools must hold British Columbia Certificates of Qualification. These certificates will be granted to applicants holding Commercial Specialist Certificates from other Provinces of the Dominion, or to those having approved professional standing and who hold certificates from any recognized institution in either the United States or the United Kingdom. An Assistant's Commercial Certificate will be granted to an applicant who holds a British Columbia Third-year Course Commercial Diploma together with a Diploma from a British Columbia Normal School or other approved Normal School or Training College. Every application for a certificate must be accompanied with the usual fee of $5 and a satisfactory testimonial certifying to the good moral character of the applicant.

Domestic Science Teachers.

Every Instructor in Domestic Science must hold a British Columbia Instructor's Certificate of Qualification. Each applicant for this certificate must have had approved training and must hold a diploma from the training class for Domestic Science teachers in British Columbia, or from one of the recognized training colleges in Canada, the United States, or the United Kingdom; and also hold a Public School Teacher's Certificate or have had other approved professional standing. Every application for a certificate must be accompanied with the usual fee of $5 and a satisfactory testimonial certifying to the good moral character of the applicant.

Manual Training Teachers.

Every Instructor in Manual Training must hold a British Columbia Instructor's Certificate of Qualification.

The following Instructors' Certificates are granted by the Department of Education:—

(*a.*) Temporary Certificate, valid until June 30th next after date of issuance.
(*b.*) Permanent Certificate to teach in Elementary Schools, valid for life.
(*c.*) Permanent Certificate to teach in High Schools, valid for life.

Every applicant for a Temporary Certificate must have had approved experience in manual work and hold a Public School Teacher's Certificate or have had other approved professional training.

Every applicant for a Permanent Certificate to teach in Elementary Schools must hold a First-class Manual Training Certificate and must hold a Public School Teacher's Certificate or have had other approved professional training. Every applicant for a Permanent Certificate to teach Manual Training in High Schools must possess the British Columbia Manual Training Teacher's Diploma and hold a Public School Teacher's Certificate or have had other approved professional training. Every application for a certificate must be accompanied with the usual fee of $5 and a testimonial certifying to the good moral character of the applicant.

Certificates from institutes similar to the following will be recognized for the Permanent Certificate to teach in Elementary Schools:—

Swedish Diploma (Nääs).
German Diploma (Leipsic).
City and Guilds of London Institute (England).
Guelph College (Ontario).
Macdonald College (Quebec).

Further practical tests will be required from holders of such certificates who desire the British Columbia Diploma qualifying them to teach in High Schools.

A training class is conducted by the Department of Education for men who desire to become Manual Instructors in Elementary Schools and who wish to obtain the Public School Teacher's Manual Training Certificate.

SYNOPSIS OF HOURS.

Craftsmen.	Hours.	Public School Teachers.	Hours.
A.—1. General Education or proof of accomplishment.....	200	A.—2. Proof of training and successful teaching experience.....	275
B.—1. Craftsmanship or proof of same.....		B.—2.	
C.—1. Bench-work Course in Manual Training—Woodwork.....	75	C.—2. Bench-work Course in Manual Training—Woodwork.....	
D.—1. Drawing—Lettering.....			
Plane Geometry.....			
Solid Geometry.....	120	D.....	120
Developments.....			
Design.....			
Blackboard.....			
E.—1. Theory—Education—General.....			
Manual Training.....		E.—2. Manual Training Teaching Methods...	
Teaching Methods.....	60	Management.....	60
Manual Training.....		Tools and apparatus.....	
Class-matagement.....			
F.—Lighter Forms of Hand-work.....	60	F.....	60
G.—Manual Training Practice.....	60	G.....	60
Complete three years' course in Manual Training, projects to be drawn and made.....	200	.....	200
	775		775

REQUIREMENTS FOR A MANUAL TRAINING TEACHER'S DIPLOMA TO TEACH IN HIGH SCHOOLS OF BRITISH COLUMBIA.

The course, which may be completed in 700 hours' training, embraces the following:—

Sheet-metal Work—Developing patterns, cylindrical, conical, cubical, showing various intersections, triangulation, etc.

Bench-work—Soldering, riveting, wiring, and constructing above developments in sheet metal.

Design—Decorating above projects by repoussé, etching, etc.

Woodwork—Designing and making projects of an advanced nature. Cabinet-making.

Wood-turning—Spindle and face-plate work.

Forge-work—Mastering the various manipulations of the metal.

Art Teachers and Supervisors.

Every Instructor in Drawing must hold a British Columbia Instructor's Certificate, Grade A or B.

Qualifications for Grade A Certificate—

(*a.*) A Public School Teacher's Certificate or other approved professional training.

(*b.*) An Art Master's Certificate of Great Britain or its equivalent from any institution recognized by the Department of Education.

Qualifications for Grade B Certificate—

(*a.*) A Public School Teacher's Certificate or other approved professional training.

(*b.*) An Art Teacher's Certificate of Great Britain or its equivalent from any institution recognized by the Department of Education.

Every application for a certificate must be accompanied with the usual fee of $5 and a recent testimonial certifying to the good moral character of the applicant.

Music Teachers and Supervisors.

Every Instructor in Music must hold a British Columbia Instructor's Certificate of Qualification. This certificate will be granted to applicants who have the following qualifications:—

(*a.*) A Public School Teacher's Certificate or other approved professional training.

(*b.*) A satisfactory diploma from a recognized training college in Canada, the United States, or Great Britain.

Every application for a certificate must be accompanied with the usual fee of $5 and a satisfactory testimonial certifying to the good moral character of the applicant.

Teachers of the Deaf and Blind.

Every teacher must hold a British Columbia Certificate of Qualification. These certificates will be granted to applicants holding Specialists' Certificates from approved training institutions in Canada, the United States, or Great Britain.

Every application for a certificate must be accompanied with the usual fee of $5 and a satisfactory testimonial certifying to the good moral character of the applicant.

All applicants for Teachers' Certificates must be at least eighteen years of age. A registration fee of $5 must be forwarded with the application for a certificate.

FORM OF APPLICATION FOR TEACHER'S CERTIFICATE.

(Post-office Address.)
(Date.)

SIR:

Being of the full age of eighteen years, I hereby make application for a British Columbia First (*or as the case may be*) Class Teacher's Certificate.

I enclose herewith certificate of moral character and fee of $5, and under separate cover am forwarding to your address my High School and Normal School Certificates.

I am,
Yours truly,

.....
(Name in full.)

To the Superintendent of Education,
Victoria, B.C.

PROVINCIAL NORMAL SCHOOLS.

Location and Establishment.

Provincial Normal Schools are situated in Vancouver and Victoria. The Normal School in Vancouver was established in 1901, and that in Victoria in 1915.

Attendance at Normal School.

In the matter of attendance the Province is divided into two districts. All students whose home is east of Yale or whose home is on Vancouver Island shall attend the Provincial Normal School at Victoria. Students from other parts of the Province shall attend the Provincial Normal School at Vancouver. In both cases exception may be made when students have relatives with whom they may live while attending Normal School.

Admission.

For the year 1921–22 admission is granted to a student who holds a Third-class Non-professional Certificate or any higher certificate issued by the Department of Education. In September, 1922, and until further notice candidates for admission will be required to hold a Junior Matriculation Certificate of the University of British Columbia or its equivalent.

Students from other Provinces or countries who have non-professional standing equivalent to at least Junior Matriculation of the University of British Columbia will be admitted to our Normal Schools, and upon successful completion of the Normal training course will be granted Teachers' Certificates of Qualification.

Each applicant for admission is required to pass a medical examination by an officer appointed by the Department of Education before being finally accepted.

Application for admission must be made on a form obtained from the Principal. This form must be filled in and returned to the Principal at least ten days before the commencement of the session, and must be accompanied by a satisfactory certificate of good character dated within three months of the time of application.

Length of Session.

The session has a continuous duration of thirty-six school weeks. It commences in September on the Tuesday after Labour Day and extends till the last Friday in May.

The holidays during the session, the Christmas and the Easter vacations are the same as provided by the Rules and Regulations of the Council of Public Instruction for the schools of the Province.

All students are required to attend for the complete session from September to May inclusive, but, if deemed worthy by the Principal and staff, University graduates may be granted Normal School Diplomas on the completion of four or five months' attendance.

Government Assistance to Students.

Books issued by the Free Text-book Branch, Education Department, are provided for use of students.

There are no fees for admission, tuition, or Normal Diploma.

Travelling expenses of students at the Normal Schools, calculated at the rate of 5 cents per mile to and from the institution, will be paid to them by the Superintendent of Education at the completion of the session on the certificate of attendance and mileage signed by the Principal.

Management.

1. The regulations of the Education Department shall apply to the teaching staff of the Normal School, subject to any changes that may be made by the Council of Public Instruction from time to time.

2. The Principal of the Normal School shall be responsible for the discipline and management of the students. He shall prescribe the duties of the staff, subject to the approval of the Council of Public Instruction. The staff shall carry out the instructions of the Principal with regard to discipline, management, methods of study, and all matters affecting the efficiency of the Normal School and the progress of the students.

3. The Principal of the Normal School shall have supervision over the methods employed in the Model School in teaching the course of study prescribed by the Education Department.

4. Students shall attend regularly and punctually throughout the session and shall submit to such discipline and direction as may be prescribed by the Principal.

5. Students shall take all examinations prescribed by the Principal. Such examinations will be conducted by the staff of the Normal School. The examiners shall have power to reject any candidate who shows deficiency in scholarship.

6. The students of the Normal School shall be required to supply themselves with a complete set of the books authorized for use in the Public Schools of the Province (except those issued by the Free Text-book Branch), in addition to the special text-books prescribed for use in the Normal School.

7. No student shall lodge or board at any house disapproved of by the Principal.

8. If, in the judgment of the Faculty of Instructors, the capacity, attainments, or progress of any student are not such as to warrant his or her longer attendance at the Provincial Normal School; or if in their judgment the manners, habits, temperament, sentiment, or character of the student are not such as to fit him or her to have charge of children, it shall be the duty of the Principal to report such judgment to the Superintendent of Education, who, on being satisfied of its correctness, may require such student to withdraw from the institution.

Standards for Awarding Diplomas.

Diplomas are not awarded solely upon the ability of those in training to pass written examinations, although they may be required to satisfy any such tests from time to time. Each member of the Faculty shall observe closely and record the general behaviour, attitude, attendance, scholarship, progress, and aptitude of each teacher-in-training. An accurate record shall be kept of criticisms made by the Normal School staff and by teachers of the affiliated Public Schools on lessons taught by those in training.

Upon all these standards the Faculty of the Normal School shall base its recommendations to the Department of Education for the awarding of diplomas.

Even though a diploma be awarded, the Principal and staff may recommend to the Department of Education that a Permanent Teacher's Certificate be not awarded to any teacher-in-training until such teacher-in-training has proven his or her efficiency in actual teaching.

Teachers' Certificates.

A Teacher's Certificate may be granted by the Department of Education on presentation of:—

(1.) A Normal Diploma.

(2.) Non-professional certificates satisfactory to the Department of Education.

(3.) A certificate of good moral character, and a fee of $5.

NOTE.—A more complete syllabus of Regulations and Courses of Study for the Normal Schools of the Province is issued in pamphlet form.

NIGHT SCHOOLS.

(UNDER SECTIONS 127, 128, AND 129, "PUBLIC SCHOOLS ACT.")

A portion of the instruction provided in any school district may, if deemed desirable by the Board of School Trustees, be through the medium of night schools, subject to the following regulations:—

1. Night schools are public schools under the immediate charge of the Board of School Trustees, just as are the day schools, except that the sessions are held at night. No night schools shall be started by a School Board, however, without the approval of the Council of Public Instruction, nor where they will directly or indirectly interfere with the efficient administration of the day schools. The regulations for the government of day schools shall, as far as possible, apply to night schools established under sections 127, 128, and 129, "Public Schools Act."

2. Night schools shall be for the instruction of persons of the age of fourteen years and upwards who may be debarred from attendance at the day schools. No person shall be admitted who could conveniently attend a day school.

3. Any such night school shall be in session two hours. The prescribed register shall be kept, and the regular monthly and annual reports made in the form directed by the Superintendent of Education.

4. Night schools shall be graded according to the attainments of the pupils, but owing to the diversified attainments of the persons likely to seek admission, the Council of Public Instruction does not think it expedient to lay down a precise course of study.

5. No portion of the cost of maintaining night schools shall be paid from the Provincial Treasury, unless taught by the holders of Provincial Certificates or other certificates acceptable to the Council of Public Instruction. In all cases the Council would greatly prefer that the teachers of night schools should be other than teachers of day schools; but where this may not be practicable, the Board of School Trustees may permit the teacher of a day school to teach two evenings in the week.

6. For further information respecting the operation of night schools, application should be made to the Organizer of Technical Education, Education Office, Victoria.

CORRESPONDENCE COURSES IN ARITHMETIC, COAL-MINING, AND SURVEYING.

For some years past the Department of Education has conducted night schools for men engaged in the coal-mining industry in order to provide the requisite training for the examinations held by the Department of Mines.

The conditions of the shift system under which miners work have hitherto militated against the complete success of the venture. With a view to overcome this difficulty, as well as to bring the opportunity of advancement within reach of a greater number of men, it has been decided to conduct the classes through the medium of correspondence.

The proposed courses of study will, as before, consist of subjects having a direct bearing on the work which must be mastered by those who seek certificates as shotlighters, overmen, and mine-managers.

A preparatory course leading up to the examinations referred to will also be provided for boys who have just left day school to engage in work at the mines. It is thus hoped during the waiting or probationary period, which closes at the age of twenty-three, not only to give these lads valuable training, but also to foster their ambition for promotion to responsible posts.

Six courses are provided, as follows:—

No. 1. Preparatory Mining Course for boys who have left school.

Section A, " B, " C, " D, " E - - - $5 per section.
" F - - - $10.

No. 2. Preparatory Course in Arithmetic $10
No. 3. Course for Fireboss, Shiftboss, or Shotlighter's papers (Third Class) 15
No. 4. Course for Overman's papers (Second Class)..... 25
No. 5. Course for Mine Manager's papers (First Class)..... 35
No. 6. Course in Mine Survey work 35

All fees payable in advance. For full particulars write for Bulletin No. 2, Department of Education, Technical Branch.

CORRESPONDENCE COURSES IN ELEMENTARY SCHOOL SUBJECTS.

In June, 1919, the Department of Education organized a Correspondence Course children living in isolated districts beyond the reach of a Public School.

he purpose of this course is to give such children assistance in all the subjects ht in the Junior, Intermediate, and Senior Grades.

sons are sent to each pupil to be worked, and on completion are then returned Instructor for correction.

on is free; also school-books issued by the Free Text-book Branch are free of charge.

NOTE.—A

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Elementary, High, Technical, and Normal Schools

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