

ways commend themselves by their very good quality of resisting injury from early frost, the Othello being improved a little by a "nip" from that icy breath. This is a valuable quality for our short summers and uncertain autumns.

AGRICULTURAL EDUCATION.

The Council of the Agricultural and Arts Association of Ontario, believing that a more general study of the science of agriculture by those engaged in the active work of the farm would prove beneficial to those engaging in such studies, and conducive to the progress of agriculture in Canada, have decided to inaugurate a scheme of annual examinations in subjects bearing directly upon the work of the farm, accompanied by the granting of certificates of merit to all whose examination papers shall come up to a predetermined standard of merit, somewhat similar to those already in vogue in England and Scotland, and which have been followed by the most beneficial results in these countries.

The consent of the Minister of Education having been obtained thereto, the first of these examinations will be held at the same time, at the same places, and subject to the same rules, regulations and supervision as the High School Intermediate Examinations of July next, and of the place and date of which due notice will be given through the local press.

The examination papers therefor will be prepared by persons appointed by the Council, subject to revision by a special committee appointed for that purpose. Every precaution will be taken during their preparation, printing and distribution, to keep a knowledge of their contents from intending candidates until they are placed before them by those in whose presence the examination is conducted, and the candidates' answers returned to the examiners appointed by the Council of the Association, who will be kept in ignorance of the names of the candidates whose papers they are examining.

Intending candidates are required to send in their names, accompanied with a statement as to whether they have ever attended any agricultural school or college in Canada or elsewhere, and also of the place at which they desire to present themselves for examination, to the secretary of the Association at Toronto, before the 1st April, 1884.

At the first examination only second and third-class certificates will be issued, and for these the following course of reading is required:

COURSE OF READING FOR THIRD-CLASS CERTIFICATES.

1. Different kinds of soils; their properties; variations in their composition, texture and condition; essential differences between good and poor soils. Substances found in plants; and sources whence they are obtained. Exhaustion of land; causes; how prevented; best modes of restoring exhausted lands. Necessity for manure; production and waste of farm-yard manure, use of artificial manures; lime, salt, gypsum, bone dust, and mineral superphosphates as manures.

2. Tillage Operations.—Ploughing, harrowing, rolling, etc.; respective advantages and disadvantages of deep and shallow, fall and spring ploughing; sub-soiling; fallowing; drainage, where necessary and how done; effects of thorough tillage on lands; times and methods of sowing; after cultivation; harvesting.

3. The crops which each kind of soil is best adapted to produce; succession or rotation of crops; importance and necessity of rotation; rotation suitable to different soils and climates in Ontario; good courses of cropping; bad courses of cropping.

4. Live Stock.—Best kinds of stock for various farms and localities; summer and winter management; economy of good management; general rules for guidance in breeding; conditions and circumstances favourable to cattle farming, sheep farming, dairy farming, and mixed husbandry.

5. Food.—Chemical elements and compounds found in the most important kinds of feed and fodder which can be successfully grown in Ontario; different materials necessary for growth, maintenance of heat, and laying on flesh; feeding and fattening of animals.

COURSE OF READING FOR SECOND-CLASS CERTIFICATES.

1. The Food.—Relations of the mineral, vegetable, and animal kingdoms to each other; nature and sources of

plant food; composition of the most important crops grown in Ontario; period of highest nutritive value; chemical changes in the ripening of fruit, grain, and fodder crops; influence of climate on perfection of growth.

2. The Soil.—Physical and chemical properties of soils; classification of soils as determined by these properties; comparative fertility of different varieties of soil; active and dormant ingredients of soils; best means of converting dormant into active.

Chemical and physical conditions affecting the barrenness and fertility of soils, causes of unproductiveness; power of different soils to hold manures; influence of frost, aspect, elevation, and climate on the productiveness of soils.

3. Manures.—Production, management and application of farm-yard manure; conditions which influence its quality, comparative values of cattle, sheep, and horse manures; green crop manuring; composts.

Properties and uses of artificial manures—lime, plaster, salt, bone-dust and mineral superphosphates as manures; circumstances under which each should and should not be used; times and modes of application; how to avoid the waste of such manures in the soil; their action on seeds and young plants; favourable and unfavourable action at different stages in the growth of crops; action of nitrates and ammoniacal manures on cereals, roots and grasses; special action of salt when used alone, and also in connection with other manures.

Night soil and animal manures; combination of manures for certain purposes; manures which impoverish the soil; quantities of manures to be used on various soils with different crops; general principles regulating the selection of manures.

4. Tillage Operations.—Deep and shallow ploughing, fall and spring ploughing, sub-soiling, rolling, fallowing, etc.; advantages and disadvantages of each; preparation of land for different crops, as fall wheat, spring wheat, barley, oats, peas and maize, differences in cultivation of light and heavy soils.

5. Seed and Sowing.—Quality of seed; importance of using clean and pure seed; effect of age on the character of crop, its rapidity of growth, and liability to disease; quantity of seed per acre; methods and depths of sowing; change of seed, why necessary.

6. Roots.—Cultivation of roots and tubers—turnips, mangolds, carrots, beets, and potatoes.

7. Green Fodders.—Oats and peas, tares, lucerne, sainfoin, prickly confrey, clovers, etc.; their comparative values; the management most appropriate for each; management of pastures.

8. Rotation of Crops.—Crops which each kind of soil is adapted to produce; succession or rotation of crops; importance and necessity of rotation; principles underlying it; rotations suitable to different soils, climates, and system of farming in Ontario; their effects on the land.

9. Drainage.—Principles of drainage; effects on soil and sub-soil; laying out and construction of drains.

10. Exhausted Lands.—Causes of exhaustion; how avoided; best means of restoring and enriching impoverished land.

11. Breeding of Animals.—Principles for guidance in stock-breeding; reproductive powers—how strengthened or weakened; pedigree influence—how intensified or reduced; loss of size in pedigree stock; how to control good or bad qualities; maintenance of constituted vigour; common causes of barrenness in male and in female; special aptitudes of certain breeds for different conditions of soil and climate; principles which regulate special peculiarities, such as early maturity, rapid production of flesh, production of milk, growth of wool, etc.

Horses.—Most valuable breeds of horses for this Province; the leading characteristics of each; type of horse required for farm work; breeding, feeding, and general management; common diseases and their treatment.

Cattle.—Characteristic points—merits and demerits of Shorthorns, Herefords, Polled Angus, Ayrshires, Jerseys, Devons, Galloways, and Holsteins; in and in breeding; cross breeding; breeding in the line; results of each system; grade cattle; milk cows—points of a good milk cow; general management, economy of good management; conditions affecting quantity and quality of milk. Common diseases and remedies.

Sheep.—Characteristics of different breeds; long-woolled, medium-woolled, and short-woolled sheep; crosses between different breeds compared; influence of breed, climate, food, soil, and shelter on the quantity and quality of wool—evenness, lustre, yield, fineness of fibre, felting power, etc.; feeding; winter and summer management; management of ewes before, during, and after lambing season; rearing of lambs.

Pigs.—Characteristics of the most important breeds of pigs; management of sows and stores.

12. Food and Feeding.—Composition and properties of the most important varieties of feed and fodder available to the Ontario farmer; classification of foods; chemical results in the use of different foods; "heat-producing" and "flesh-forming" ingredients in food; best methods of combining these in feeding, so as to secure desired results; points to be observed in order to obtain the full value of natural and artificial foods, increase of value by preparation of food, shelter and warmth as means of economizing food; "good and bad systems of feeding."

13. Diseases of Crops.—When plants are most liable to disease; causes of disease; chlorosis; fungoid diseases, as blight, smut, rust and mildew; remedies.

14. Orchard.—Planting, cultivation, pruning, grafting, etc.; best varieties of fruit-trees for different soils and climates of Ontario; diseases and insect pests.

15. Forestry.—Planting and cultivation of forest trees, shade and ornamental trees, etc.

16. Entomology.—Common insects injurious to vegeta-

tion; their habits, and the best means of checking and preventing their ravages.

Besides the certificates already mentioned, the following money prizes will be paid by the Association, viz.:

1st. To the three candidates for second-class certificates obtaining the greatest number of marks, \$25, \$20, and \$15, respectively.

2nd. To the three candidates for second-class certificates who have never attended any agricultural school or college in Canada or elsewhere, obtaining the greatest number of marks, \$25, \$20, and \$15, respectively.

3rd. To the four candidates for third-class certificates who have never attended any agricultural school or college in Canada or elsewhere, obtaining the highest number of marks, \$30, \$25, \$20, and \$15, respectively.

As the object of the Association is to promote the development of a taste for reading and the acquisition of valuable information on the subjects mentioned in the syllabus, the examination questions will not be based on any particular book or books, nor are text-books on any of the subjects prescribed. They, however, for the convenience of candidates, subjoin the following lists of books of reference which contain a few of the works that may be studied with advantage, and from which a selection can easily be made which will meet their present requirements. List No. 1 is for all candidates, and No. 2 for those intending to write for second-class certificates:

1. "First Principles of Agriculture" (Tanner); "Hand Book of Agriculture," embracing soils, manures, rotation of crops and live stock (Wrightson); "Canadian Farmer's Manual of Agriculture" (Whitcombe); "Soil of the Farm" (Sir J. B. Lawes and others); "Catechism of Agricultural Chemistry and Geology" (Johnston)—new edition by Cameron.

2. "New American Farm Book" (Allen); "Talks on Manures" (Harris); "Chemistry of the Farm" (Warrington); "Elements of Agricultural Chemistry and Geology" (Johnston & Cameron); "Stock-Breeding" (Miles); "The Complete Grazier" (Yount & Burn); "American Cattle" (Allen); "Manual of Cattle-Feeding" (Armstrong); "The Shepherd's Own Book" (Yount, Skinner and Randall); "Treatise on the Pig" (Harris); "Veterinary Adviser" (Law); "Insects Injurious to Vegetation" (Harris); "Insects Injurious to Fruit" (Saunders).

D. P. McKINNON, South Finch, HENRY WADE,
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"PICTURESQUE CANADA" AGAIN.

CAUTION TO THE PUBLIC.

(From the Rural Canadian, for November.)

We, the undersigned farmers of the county of Peterboro', Ontario, take this means of warning our brother farmers throughout the Dominion of a cunning swindle which is being perpetrated throughout the rural sections, of which we, as well as others within our knowledge, were victims.

The fraud is conducted in the following manner. The agent of Belden Brothers of the Art Publishing Co., of Toronto, came to our county and employed an old resident to ride around and introduce him to the farmers. He showed us a sample of an illustrated part-book, containing about twenty-four pages, called "Picturesque Canada," bound in a paper cover, price sixty cents per part, to be delivered at our residences, one part every two months. The delivery was to begin January 1st, 1884. He represented the work to be "purely Canadian—all manufactured in Toronto," where he asserted the "Art Publishing Company" (the publishers) resided, with their artists, engravers, printers, presses, etc. He also exhibited letters from the Marquis of Lorne, who, he said, had taken \$12,000 worth of stock in the company. Earl Dufferin, L. R. O'Brien and other distinguished men, whom, we were lead to believe, were the stock-holders. As trial numbers, we consented to take from one to six parts, with the understanding that we could discontinue the work at any time at our option. He presented a book and asked us to write our names, lot, con., and p.o. address.

This agent had scarcely left our township when three oily tongued representatives of this company came along, each with a waggon-load of books, and informed us we had subscribed for the work and they had brought the first twenty parts, for which they wanted \$12. We protested we had only ordered one or two parts as "trial numbers." The agent then drew from his pocket a "cast-iron contract," with our names thereon, the conditions of which obliged us to take thirty-six parts at a cost of \$21.60. For the first time we saw we had