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work and larger profits than in the old days of cheap labor but antiquated methods. Where a weeder is not included in the list of available farm tillage implements, effective work can be done by giving the corn field one or more strokes of the ordinary sweep harrow before and immediately after the corn is up.

Agricultural High Schools in Minnesota.

(Special correspondence.)

Something of a misconception has gone abroad with reference to the system of agricultural education in Minnesota, as conducted at the present time. The idea seems to have spread that Minnesota has adopted what may be termed a system of high school education in what pertains to agriculture. It originated, probably, in the name School of Agriculture, which forms a part of our comprehensive university system in Minnesota. We have no agricultural high schools as such in the State. To Wisconsin belongs the credit of introducing what may be termed the agricultural high school, as outlined below. At the session of our Legislature, which closed only a few weeks ago, an Act was passed setting aside an appropriation for the establishment of an agricultural school at Crookston, which will doubtless be of the high school order, but the details of management or course of study have not yet been worked out. It will probably be conducted somewhat after the methods followed in the Wisconsin schools.

Thus far the Minnesota system is in outline as follows: First, are the district schools, which correspond with the common schools in Canada; then follow the high schools, which correspond, more or less, with the same class of schools in Ontario; then there is the university, with its various departments. Intermediate, as it were, between the high schools and the university, are the normal schools, for the education of teachers. The district schools, of course, feed the high schools, and the latter the university. Owing to the way in which the course of study is arranged, it leads up step by step to matriculation in the university, and finally to graduation from the

same by those who pursue their studies until the goal is reached. The university virtually controls the final examinations at the high schools, and those who graduate therefrom are eligible to enter the university without further examination. The system thus far is one comprehensive whole, leading up from the kindergarten schools to graduation from the university. In this fact is one explanation, probably, of the very large attendance of students at the university—not less than something over four thousand.

The school of agriculture, though in a sense a part of the university proper, may also be called an advanced high school for imparting an agricultural education. Students may enter it from any source, who are able to pass the requisite examination, and graduates from the high schools may enter without further examination. It gives instruction to students of both sexes, largely on the same lines, except that the girl students take certain subjects pertaining to household science, and omit a very limited number of subjects pursued by the boys, more particularly those which are more or less concerned with outdoor manual labor. Those who complete the course of study at the school of agriculture, after a post-graduate course at the same, may enter the college of agriculture and graduate from it at the end of four years.

The regular course of study at the school of agriculture covers three years. It is designed to give an education that will fit the possessor for the intelligent pursuit of practical agriculture in its various phases. The terms for each year extend from the beginning of October to the end of March. There is a special course in dairying which is designed to prepare the students for practical work in creameries and cheese factories. A short course for farmers covers eight weeks, which anyone of sufficient age may take. There is also a two weeks' course in live-stock judging. The attendance of students in the regular course last winter was 530. In all the courses of study it was approximately 794. The college of agriculture is more particularly designed to prepare the students for teaching agriculture, or for pursuing the study of the same along scientific lines. As it virtually calls for an eight years' course from the time of entering the school of agriculture, the number, who have taken this course has not been very large, nor is it likely to become so, at least for many years to come.

The first county school of agriculture and domestic economy in America was opened at Wausau, Marathon County, Wisconsin, October 6th, 1902. A second school of the same class was opened at Menomonee, in Dunn County, somewhat later. The opening of these schools was authorized by the Legislature of 1901. The law of 1901 provided for State aid to the extent of over half the annual instructional expense, but neither school was to receive more than \$2,500 a year from the State. This law was amended in 1903, so as to increase the aid given from the State treasury to \$4,000 a year to each school, by way of maintenance. The county in which the school is located bears a part of the expense.

Provision is made for the union of two or more counties in the establishment of such schools, and for the apportionment of the cost. The course of study is outlined by law. Not less than three acres of land are required for illustration work. The school is free to all students from the counties which support it. The State superintendent is supervisor and instructor of the schools, and the Dean of the College of Agriculture may advise as to the courses of study and the qualifications of teachers. Provision has been made for the establishment and maintenance of four such schools within the State. Each school is under the control of a County School Board, elected from time to time. Schools are open each year from October 1st to near the end of May. The faculty of the school at Wausau consists of three persons, one in charge in the instruction in agriculture, who is also principal of the school; one in charge of the instruction in domestic economy, and a third in charge of the instruction of manual training. These are assisted by instructors, and all instructors teach academic subjects.

COURSE OF STUDY FOR BOYS.

First Year.

First Term.—The Soil, d. 5; Manual Training, Carpentry, d. 5; English, 5; Business Arithmetic, 5.

Second Term.—Soils and Fertilizers, d. 5; Manual Training, Carpentry, d. 5; English, 5; Library Reading, 5.

Third Term.—Plant Life, d. 5; Vegetable, Flower and Fruit Gardening, d. 5; Poultry, d. 3; English, 5; Library Reading, 2.

Second Year.

First Term.—Plant Life, d. 5; Manual Training, Blacksmithing, d. 5; U. S. History, 5; Economics, d. 3; Library Reading, 5.

Second Term.—Animal Husbandry, d. 5; Rural Architecture, d. 5; U. S. History and Civil Government, 5; Library Reading, 5.

Third Term.—Animal Husbandry, d. 5; Vegetable, Flower and Fruit Gardening, d. 5; Economics of Agriculture, 5; Library Reading, 5.

COURSE OF STUDY FOR GIRLS.

First Year.

First Term.—Cooking and Sewing, d. 5; Domestic Hygiene, 5; English, 5; Business Arithmetic, 5.

Second Term.—Cooking and Sewing, d. 5; House Economy, 5; English, 5; Library Reading, 5.

Third Term.—Cooking and Sewing, d. 5; Vegetable, Flower and Fruit Gardening, d. 5; English, 5; Library Reading, 5.

Second Year.

First Term.—Cooking and Sewing, d. 5; Laundry, d. 3; U. S. History, 5; Library Reading, 5.

Second Term.—Cooking and Sewing, d. 5; Chemistry of Foods, 5; U. S. History and Civil Government, 5; Library Reading, 5.

Third Term.—Cooking and Millinery, d. 3; Home Nursing, d. 2; Poultry, d. 3; Vegetable, Flower and Fruit Gardening, d. 5; Library Reading, 5.

The numerals denote the number of recitation periods per week; d. signifies double periods.

The course of study cannot, of course, be given in detail in this paper, but it is one of the most practical that has ever come under the notice of the writer. The attendance at the Wausau school in 1894 was 75, and the enrollment in 1905 is still larger. Nearly all the students come from Marathon County and from rural homes. Prof. R. B. Johns, the principal, is enthusiastic over the outlook for the future of the school.

The question of introducing the study of agriculture into the district schools of Minnesota has been considerably agitated, and a few years ago an appropriation was made for this purpose in a tentative way. But little progress, however, has been made in this direction. The successful introduction of this branch into the common or district schools has yet to be achieved in this country, nor is it likely to be achieved until the teachers in these schools are required to pass an examination in at least some of the branches of agriculture.

THOS. SHAW.

Organization for Purchasing Supplies.

Instead of dealing with co-operative organizations in their two general classes—those for buying and those for selling on the farmers' behalf—I am discussing them in the order of their present importance. Hence, before dealing with further problems of the disposal of products, this article will take up that large one of the purchase of supplies by co-operative organization.

It is safe to estimate the value of what Canadian farmers buy annually, exclusively for use in their farm business, at \$20,000,000. They imported over three million dollars' worth of implements, fertilizers and animal foods (for finishing) last year. In 1901 (year of last census) they bought of our own manufacturers over \$12,000,000 worth of similar articles. Add to these binder twine, power machinery, corn, salt, and other widely-used articles, and \$20,000,000 will hardly cover the total. It is worth considering whether the half-million farmers who spend this necessary and enormous sum of money are getting all they should in return.

It is clear to any business man that they are not. Anyone knows the difference between buying retail and buying wholesale. By the present system the farmers support an army of agents, and pay large profits to merchants as well as to manufacturers. We may divide that twenty millions into two parts: One the real, necessary costs of manufacture, plus a reasonable profit, over all other capital charges, of, say, 3%, which part will amount to \$12,000,000 at most; the other part, \$8,000,000, is now paid for costs of selling, risks of business due to present conditions of industry that co-operation would eliminate, and profits that are greater than is fair to the farmers, who are the chief wealth-producers. That \$8,000,000 can be saved by a complete organization of the farmers, according to the principles already shown to be absolutely proven. That would mean \$8,000,000 more yearly on the bank accounts of farmers, or that much applied to reduction of farm mortgages, or as extra capital on the farms.

If anyone doubts the possibility of such a large saving, estimated at 40% of the amount now expended, let him look at the evidences. At present, as business men know, the usual or average agent's commission is not less than 25% of the total cost; and this would be saved by buying co-operatively. Other expenses of selling, such as advertising, travellers or general agents, office staff necessary to present system, amount at least to 10% of the total. "Risks of capital," and profits above what is necessary for the farmers to pay, will easily amount to the remaining 5%. Recollect the great wealth of the Masseys, the McCormicks, and others, gathered as profits on dealings with farmers. Recollect the dividends paid by the Farmers' Binder Twine Co., amounting—as I believe they have boasted—to 400% on invested capital since the beginning, and to 100% in one year's dividend! If a concern which exists in the farmers' interest and wars against monopoly and the robber trusts will take such profits out of the farmers, what can we expect of the trusts and private enterprises? It is clear that the figures given are moderate.

And the remedy? Co-operation—the kind of co-operation these articles have been advocating—is the remedy. That is, all the farmers uniting in one vast organization to buy what they need from those who