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and sheep pens have also been somewhat modified. The farmer who could visit the College during the winter months, examine the buildings, inspect the stock and witness the feeding experiments would, we feel quite sure, be well repaid for time and labor expended.

AGRICULTURAL EXPERIMENT STATIONS.

There is probably no matter that will be read with greater interest by those engaged in agricultural pursuits, than that concerning the development of the Experiment Stations. The U. S. Department of Agriculture has recently published a bulletin, from which the following valuable information is gleaned:—

"Farming is a perpetual trying of experiments with soils, manures, and crops; with cattle and cattle food; with milk, butter and cheese; with plows, harrows, and harvesters; with an almost endless list of things. The most successful farmers—those who get the most out of their land, their cattle, their crops, their fertilizers, their implements, and their labor—are those who experiment themselves most industriously, most skillfully, and most intelligently, and who take the fullest advantage of the experiments of others. The best agriculture is that which, in old countries on worn and intractable soils, has learned by long continued and varied experiment to make the gain of farming sure. Within recent times farmers and men of science interested in farming have seen the advantage of using the resources of science to improve the practice of agriculture and have established agricultural experiment stations.

"The object of these stations is to experiment and to teach, to make a regular business of discovery for the use of farming, to promote agriculture by scientific investigation and experiment, and to diffuse as well as increase the knowledge, which improves farm practice and elevates farm life.

"Established for the benefit of agriculture and hence of the community at large, the most of them connected with educational institutions where experience shows their work is most successfully done, these stations seek answers to the questions which agricultural practice is asking as to the tillage of the soil; the nature and action of manures; the culture of crops; the food and nutrition of domestic animals and of man; the production of milk, butter, and cheese; the diseases of plants and animals; and, in general, whatever the agriculturist needs to know and experimental science can discover.

"Nearly forty years ago a company of farmers joined themselves together in the little village of Moeckern, near the city, and under the influence of the University of Leipzig, called a chemist to their aid, and with later help from Government, organized the first agricultural experiment station.

"The seed thus sown has brought forth many fold. In 1836 there were five; in 1861, fifteen; in 1866, thirty; and to-day there are more than one hundred experiment stations and kindred institutions in the different countries of Europe. In each of these from one to ten or more investigators are engaged in the discovery of the laws that underlie the practice of farming, and in finding how they are best applied.

"The first agricultural experiment station in America was established at Middletown, Conn., in the chemical laboratory of Wesleyan University in 1875. The example was speedily followed elsewhere; in 1880 four were in operation, and in 1887 there were some seventeen of these institutions in fourteen States. In that year, Congress made the enterprise national, by an appropriation of \$15,000 per annum to each of the States and Territories, which have established agricultural colleges or agricultural departments of colleges. This has led to the establishment of new stations or the increased development of stations previously established under State authority, so that there are to-day forty-six, or, counting branch stations, fifty-seven agricultural experiment stations in the United States. Every State has at least one station, several have two, and one has three.

"These forty-six stations now employ over three hundred and seventy trained men in the prosecution of experimental inquiry. The appropriation by the United States Government for the fiscal year just closing, for them, and for the office of experiment stations in the U. S. Department is \$395,000; for the coming year it

is \$600,000. The several States appropriate about \$125,000 in addition, making the sum total of about \$720,000 given from public funds the present year for the support of agricultural experiment stations in the United States."

The progress of experimental work in Canada as well as a somewhat detailed account of that carried on at present at the Agricultural College, Guelph, will probably appear in the December issue of this paper.

THE FARM AND EDUCATION.

By F. J. Sleightholm, Humber, Ont., Associate of 1887.

The profession of the agriculturist is, of necessity, one of extreme complexity. Its divisions are many and varied in character. To resolve these divisions into one harmonious whole is the farmer's work, and the measure of success to be reached in the profession is gauged by the ability manifested in thus reducing to unification its divisional parts.

To perfect a system of agriculture suitable to a given soil can hardly be called child's play; to breed with ever-increasing success a single class of live stock requires not only a peculiar genius, but also a genius peculiarly developed; the feeding of live stock has in itself become a profession in whose ranks, despite the seeming paradox, are few professionals. Yet all these offices among a host of others, the individual farmer must combine within himself, if he would succeed in his chosen pursuit. From the unnumbered and chaotic minutiae of his profession he must deduce and perfect that combination, which cometh nearest to his ideal farming.

From what has just been said, two facts evolve themselves. The first is, that the profession admits of wonderful elasticity. The expansion and contraction to which it may be subjected are simply astonishing. The greatest astonishment, however, comes from the latter characteristic—contraction. Those of weak minds and weaker energy find a home (?) for their powers in the farmer's occupation. That some of these continue to eke out an existence upon the farm, has done more to injure the profession in the eyes of the masses, as regards the need of an education than any other power. They, the masses, forget that there is success and success, and that the one may be a failure and the other the success that succeeds.

The second fact elicited is, that a business of such extreme complexity requires an extreme of knowledge, relevant to the subject, to perfect it. And yet how many say by voice and by action that "anyone can be a farmer." The professions usually spoken of as such require of their devotees but one bent of mind and, with slight deviations, but one line of study.

It is not so with farming. He will find the foundational principles of a knowledge of his profession in agriculture proper, but agriculture is composed of many arms. Its chief one is live stock, in the breeding, feeding and handling of which the ablest minds of ablest men may find fullest scope. A knowledge of surgery and medicine becomes a desirable adjunct in the work. An intelligent understanding of the relationship existing between the various foods and the sustenance of animal life presents a field for deepest study, closest observation, and widest experience.

On the other hand who can weld the chain, complete in the number and strength of its links, which connects the inanimate of the earth with the animated organism of plant life? There is embodied in the connection not only a required mechanical ingenuity but a knowledge chemically of mother earth, of air, of water, and of vegetable growths.

A knowledge of practical botany claims attention from him who labors for his own good and the advancement of his profession; an acquaintance with insect life is forcing itself upon the agriculturist; local geology is a recognized aid in the profession; a thorough drilling in chemistry is indispensable; arboriculture demands no small share of attention—but why enumerate further? Let him who thinks the educational novice can undertake and successfully carry on the work of this profession ponder these things, and know that mental giants may find herein room for mightiest powers. The farm and education in its deepest sense are as inseparably linked together as the mind and body of the living man.