

quality and suitability, but its condition is always assured through the services of the refrigerator.

I hope to call on you in June or July. Meanwhile I hope to hear from you at your convenience.

I beg to remain,
Yours truly,
JAMES RUDDIN.

Ontario Agricultural College Report

The report of the Ontario Agricultural College for 1908, just received, contains a fund of practical information of value to every farmer in the country. While the work carried on by every department of the college is equally valuable to those specially interested, there are two or three departments deserving of more than passing mention at this time. The experimental work carried on by the Dairy Department in regard to curing-rooms and curing cheese is of special value to dairymen. The experiments in swine feeding carried on by the agriculturist during the past two years make the report of great value to those producing hogs for the export bacon trade, and the growing and testing of seed grain by the experimentalist gives it additional value at this season of the year.

Aside from the practical information which the report contains, there is one feature of it to which we would like to direct special attention. There have been complaints made, both in the Legislature and out of it, that too much money is being expended annually upon the college. Dr. Mills, in the beginning of his report, gives some figures showing the amounts of money expended annually in maintaining some of the agricultural colleges in the United States. The annual expenditure for the Wisconsin Agricultural College, apart from the erection of buildings, is \$60,000, and the annual amount of salaries paid \$28,000; for the Iowa Agricultural and Mechanical College, apart from buildings \$100,000, and the annual salary bill \$50,000; and for the Michigan Agricultural and Mechanical College \$108,812, apart from buildings, and \$42,426 on yearly salary account. When these figures are compared with the total amount annually expended in maintaining the Ontario Agricultural College, it will be seen that the people of this province are getting just as effective work done at a very much less outlay. When a state like Iowa or Michigan can spend annually \$150,000 in maintaining its agricultural college surely a province like Ontario could afford to expend a little more than \$51,267 (the appropriation for the current year) on the maintenance of an institution which is being operated in the interest of the largest portion of our population. Dr. Mills states that \$20,000 is needed for immediate outlay on buildings and equipment and an addition of nearly \$3,000 for annual maintenance expenditure, which seems to be a very modest request indeed, considering the value and importance of the college to the agricultural interests. The interest and attendance at the college has greatly increased during the past few years, and the institution has now reached a stage where expansion and enlargement are necessary, and it would be a suicidal policy for the sake of saving a few thousand dollars to the country not to put every department in a shape that would admit of the most effective and beneficial work being done.

Manures and Manuring

By T. C. Wallace, before the Ontario Farmers' Institutes

(Continued from last issue.)

FARMYARD MANURE.

Farmyard manure we depend largely upon to return us a part of the fertility our crops and animals remove. Its value must not be underrated, but at the same time it is suicidal to our interests to close our eyes to any deficiency in it. By the dung and liquid waste of our animals we get most of the nitrogen we feed and most of the potash. The solid portion of the dung is the undigested, or only partially digested, material from which the animal extracted what it

could. It contains then the unused nitrogen potash and phosphates. The liquid portions contain the daily waste of the system. What really entered the system and formed blood was taken in a liquid condition and is, of course, thrown off only in a similar state. The phosphoric acid absorbed by the animal never returns in excrement. It enters into the bone of the animal. It gives nerve force and induces ripening of the flesh, and never comes back to us in the shape of manure. The straw used as litter gives us most of the potash of the grain plant and considerable nitrogen, but none, or practically none, of the phosphate, because plants, like animals, use it for their ripening strength. While then, as I said before, stock-keeping is a better condition of affairs, yet it has not so far proved an ideal one in the way of bringing up and keeping up fertility. But how do we usually care for this manure, and do we use it so as to make the most out of it? Usually it is kept in heaps in the barnyard or the field. The straw as it goes into the heap is certainly not in a condition of plant food until rotted, but as the process of decomposition develops acids which might be of great value to us in liberating the locked-up elements of our soils, it appears a pity to carry on this forceful action in the heap instead of in the soil. I consider rotting straw in the heap wasteful, for this reason: The dung soon warms up in the heap, and in a few days a lively action of

DENITRIFICATION BEGINS,

which, in a comparatively short time, entirely liberates or changes the nitrogen so that it is less valuable, gets washed out, or, forming gases, escapes to the atmosphere again. It is in the warmth, moisture and darkness of the manure heap that this serious loss goes on, and in a month or two we have only the nitrates developed in the straw for our lands. This is a serious loss, for nitrogen is the principal money value of our manure. This manure has cost us money in some form, and to so waste it is equal to allowing our hard-earned dollars to run out of a hole in our pockets. Here, then, is a leak which every effort must be made to stop. To some extent the use of land-plaster in the stable, strewn daily in the gutters, will help to prevent this loss. It is not a complete cure, however; but it seems to help. In fact, anything which will induce dryness in the heap will assist. But if we spread the manure on our fields immediately, no loss occurs. The sun does not waste the manure, it only takes water from it and dries it. Also, in the sunlight, the microbes do not develop and work destruction. This is a labor-saving operation, and the labor saved will be well spent in cutting the straw for bedding. But is there no other reason for spreading the manure as soon as made? Most of the manure made at the barn is produced in the fall, winter and early spring. If we consider that the readily available part of the manure, the dung, is in a state of very fine subdivision we can readily see how the gravity water of the soils, present during those seasons only, can assist in distribution of this manure much more perfectly than any machine we can devise. This is an important reason for fall, winter and early spring manuring, and should not be lost sight of.

(To be continued.)

Economy in Fuel in Cheese and Butter Factories

Paper read by E. Agur, Brownsville, Ont., before the Cheese and Butter-Makers' Convention at Listowel.

Our cheese and butter factories of the present time cannot be operated without the steam boiler. The boiler is constantly in use during the cheese season, which is closely followed by the butter season, which continues in many factories all winter.

A boiler under constant work should be carefully looked after in order to prevent heavy bills for fuel and repairs. The fuel bills in our average cheese and butter factories are 25 per cent. higher than necessary. Now, what does