

of phosphoric acid. Thus one ton of farm-yard manure contains from 9 to 15 lbs. of nitrogen, about the same amount of potash, and from 4 to 9 lbs. phosphoric acid.

The Value of Rotted Manure is weight for weight more than that of fresh manure. This statement must not be taken as proving that it is more economical to use farm-yard manure in a rotted condition than in a fresh one. Direct experiments have shown that 100 cwt. of fresh farm-yard manure is reduced to 80 cwt. if allowed to lie till the straw is half rotted; 100 cwt. of fresh manure is reduced to 60 cwt. if allowed to ferment till it becomes fat or cheesy; 100 cwt. of fresh manure is reduced to 40 to 50 cwt. if completely decomposed. This loss not only effects the water and other less valuable constituents, but also its most valuable fertilizing ingredients. Completely decomposed common manure has thus lost about one-half of its most valuable constituent. This can be minimized by adopting careful means of hindering drainage and volatilization of soluble substances.

Uniformity of quality is one of the first considerations. It is therefore important that the excrements of the different farm animals be thoroughly mixed together. By the intimate corporation of the "hot" horse dung with the "cold" cow and pig dung uniform fermentation is secured. Fire-fang, or too rapid fermentation, may occur from this not being properly done and from the manure being too dry. The great point to be aimed at is to ensure regular fermentation. What has to be especially avoided is any sudden exposure of the manure to large quantities of water. The result of such a washing out is to retard fermentation, besides incurring the risk of great actual loss by drainage.

Application to the Field.—The safest and most economical method is to spread the manure evenly and finely upon the land immediately before it is to be plowed in [NOTE.—The reference here is to Old Country conditions.—ED.], as then there is no chance given for undue drying out or leaching beneath heaps, both of which are undesirable. Distributing in small heaps is not approved, because it increases loss by volatilization, causes unequal application and improper fermentation. The practice of putting it out into large piles in the fields is often attended with loss, unless they are covered with soil and not allowed to remain standing more than a few weeks. As to the depth to which it is advisable to plow the manure, it may be here noticed that it should not be too deep, because the tendency of the soluble substances is to wash down into the subsoil and drainage water.

The influence of the fermentation of manure in the soil is very great. This is especially so in soils whose texture is too close, such as heavy clayey soils. It opens up their pores to the air and renders them more friable. Therefore, on clayey soils manure should be applied in a fresh condition, so that the maximum influence exerted by the manure in this direction may be experienced. On light soils, on the contrary, whose friability and openness are already too great, and which do not require to be increased, the manure will be best applied in a rotten condition. It adds, further, greatly to the heat of the soils by its decomposition. Thus, on cold, damp soils it effects a very marked benefit. As its indirect and mechanical properties are greatest when in its fresh condition, it is better to apply it in that condition to soils most lacking in these mechanical properties.

The rate at which farm-yard manure should be applied remains yet to be discussed. This, of course, should naturally depend on a variety of circumstances: the amount of artificial manure used as supplementary to the farm-yard manure, the frequency of its application, and the nature of the soil. There is a strong probability that the rate at which it has been applied in the past has been grossly in excess of what could be profitably employed. Opinion is gaining ground among practical farmers that smaller and more frequent applications would be fraught with better results than the applying of large dressings at one time. A famous old German writer, Thaer, regarded 17 or 18 tons as an abundant dressing, 14 he called good, and 8 or 9 light. Other German authorities speak of 7 to 10 as light, 12 to 18 tons as usual, 20 or more as heavy, and 30 tons as a very heavy application.

The desirability of manuring the soil and not the crop is, in this age of keen competition, no longer believed in, and the Rothamsted experiments have shown that it is highly doubtful whether even the soil benefits to anything like a commensurate extent by the application of large quantities of farm-yard manure.

The Agricultural and Experimental Union.

The next meeting of the Ontario Agricultural and Experimental Union is to be held at the Agricultural College on the 10th and 11th December next. The coming meeting promises even to surpass those held on former occasions. The co-operative work for 1896 is more extensive than heretofore. In agriculture alone there were 2,260 farmers throughout Ontario conducting co-operative experiments during the past season. The Committees on Horticulture, Apiculture, Dairying, Live Stock, and Botany and Entomology have all been active in their work. The reports submitted at the meeting should be of great practical value. We are very pleased to note that addresses are expected from Chas. E. Thorne, Director of the Agricultural Experiment Station of Ohio; Thos.

been most successful. I certainly anticipate that it will exert a wider and wider influence as the years go by."

Excursion rates on the railroads are being arranged for, and those who attend the Experimental Union can also visit the Fat Stock and Dairy Show and the meetings of the live stock associations to be held in Guelph the same week.

DAIRY.

A Day in a Silo District.

Reference was made in an article in our November 2nd issue, upon "The Production of Milk for Winter Buttermaking," by Mr. J. B. Muir, to the fact that a large proportion (some thirty-five or forty) of the Avonbank Creamery's patrons use corn ensilage for winter feeding. Hundreds of new silos have gone up in Canada this year, and many more will be erected in 1897. The subject is therefore a live one. There is also the existing prejudice against feeding ensilage to dairy cows on the score that it may impart an objectionable flavor to the milk and indirectly to the butter. We were therefore led to have one of our staff spend a day visiting the factory and as many as possible of the ensilage-feeding patrons.

The Avonbank factory makes cheese in the summer and butter during the winter months. It was the first in Ontario to commence this method independent of Government assistance, and has carried on the twelve months' operations each year since beginning in this way.

As to the factory and surroundings we must speak in the highest terms. There is a tidiness and orderliness, indeed, conspicuous both outside and in. In summer a few flowers about the windows add to its attractiveness. No doubt these characteristics are carried into the manufacturing operations of the products and have much to do with the very high standing of both the cheese and the butter turned out. With regard to the quality of the butter made last winter from the milk of ensilage-fed cows, we were shown a letter from the firm that has handled the Avonbank butter for a number of winters, which reads as follows:—

Toronto, June 2nd, '96.

Avonbank Butter Co., Avonbank, Ont.:
GENTLEMEN.—Herewith we beg to hand you statement of account, together with our cheque for \$1,260.42, being balance due you.

This ends our season's business together. The prices last winter and this spring were not as high as you probably would have liked, but this is attributed to the large volume of stock that was continually being offered in this market, which necessitated our selling at the low prices that were prevailing. We have to testify to the excellent quality of your butter, and hope next season to have the privilege of marketing same as usual. Wishing your Company every success in their cheese operations this summer, we beg to remain, Yours faithfully,

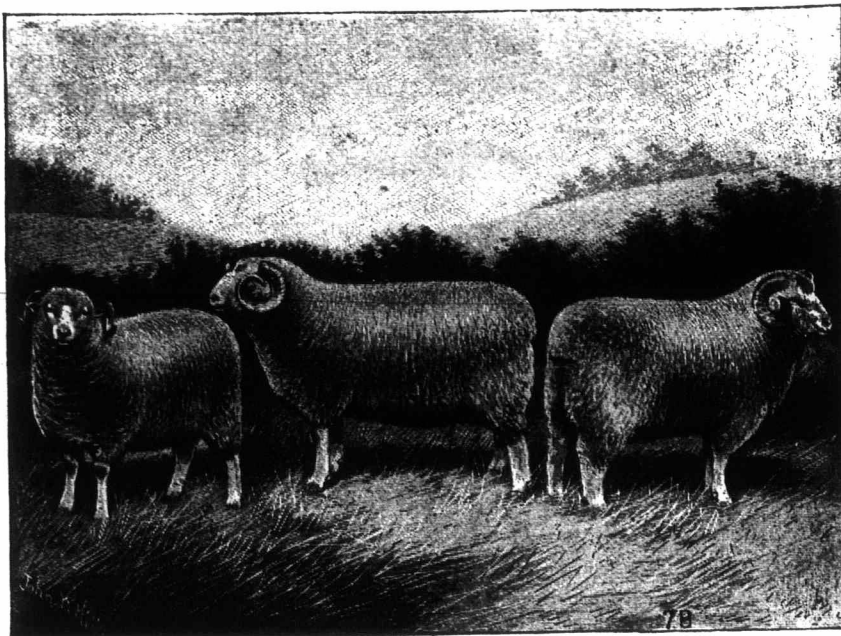
PARK BLACKWELL & CO., LTD.

This letter speaks for itself. The reference to the quality of the butter, entirely unsolicited, shows that good ensilage may form a considerable per cent. of the ration of cows without imparting any objectionable flavor to the butter. In fact, Mr. Muir had no hesitation in saying that the quality of last winter's butter was superior to their make of any former winter, when less ensilage was fed. Unfortunately, the day and roads were not in the most favorable condition for making good time, but we visited quite a number of representative farmers and learned their opinions and methods of feeding. We regret that the weather prevented our seeing many old friends of the ADVOCATE in that locality.

Mr. James Rodgers farms about 200 acres. His milking herd usually runs about twenty-four cows. He has fed ensilage for four winters and considers that good, sweet ensilage is one of the great boons to the dairying industry. His practice is to feed twenty pounds of ensilage to each cow morning and night, with a little chop added, and straw at noon. Mr. Rodgers expressed a preference for hay over straw, but has not been able to obtain sufficient of it to feed his cows for the last two seasons.

Mr. Chas. Baird, on his 150-acre farm, milks twenty cows. He has fed ensilage for four winters and is loud in its praise for the profitable production of milk. His feeding ration is much similar to that of Mr. Rodgers. When straw forms the dry fodder Mr. Baird uses oil-cake meal or pea meal, with bran. He has two wooden silos, one 13x15 and 20 feet deep, the other 11x17 and 23 feet deep. They have stone foundations and are of double inch hemlock lining, with tar paper between. Each of these silos cost from \$35 to \$40, besides the labor which Mr. Baird's men did in slack times. Mr. Baird's herd consists of Holstein, Jersey, and Ayrshire grades. The Holsteins have the preference.

Mr. Adam Oliver keeps twenty-one good milch cows on his 150 acres. Last winter was his first

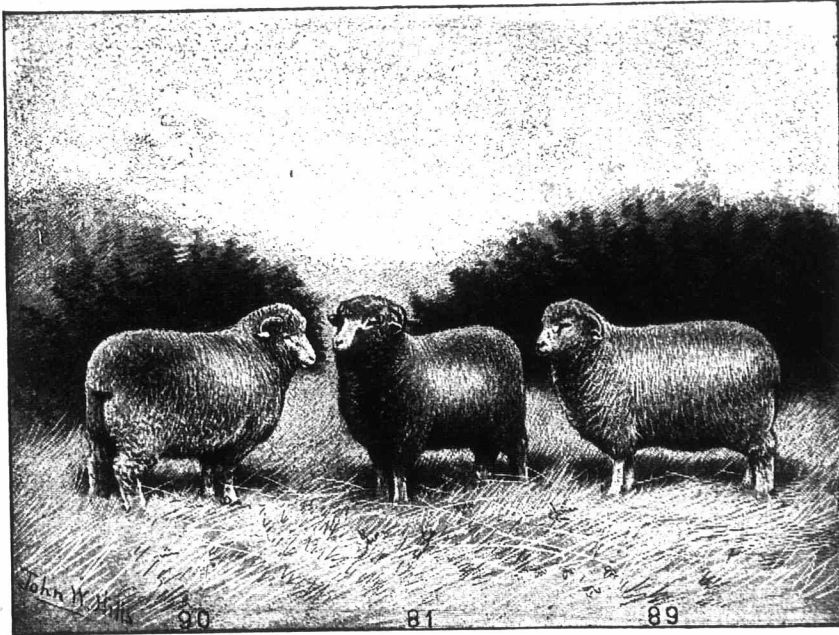


THREE REPRESENTATIVE DORSETS.

Nos. 73 and 78—Bred by John A. McGillivray, Uxbridge, Ont.
No. 71—R. H. Harding, Thorndale, Ont.

Grenier, La Salle, New York (author of "How to Make the Garden Pay," etc.); Mrs. Hoodless, Principal of School of Domestic Science, Hamilton, Ont.; Hon. Sydney Fisher, Dominion Minister of Agriculture; Hon. John Dryden, Provincial Minister of Agriculture, and others have consented to be at the meeting and deliver addresses.

Prof. Thorne, in reply to the invitation to the meeting, wrote Mr. C. A. Zavitz, Secretary, as follows: "I am in receipt of your kind invitation to attend the next meeting of the Ontario Agricultural and Experimental Union, which I assure you it gives me much pleasure to accept, as there is no group of agricultural educators and investigators



THREE REPRESENTATIVE MERINOS.

Nos. 90, 81, and 89—Bred by Jos. Edgerton, Nassau, Iowa.

in America in whose work I have felt greater interest than those connected with the Ontario Agricultural College."

Prof. L. H. Bailey, Cornell University, Ithaca, New York, who is one of the best authorities in horticulture in America, and who addressed the annual meeting of the Experimental Union in 1892, speaks in high terms of the work of the Union in a letter of recent date, which reads as follows: "I have watched the reports of the Experimental Union with much interest, especially since the time when it was my privilege to address the organization. I know of nothing like it in this country. It seems to me to be an excellent conception, and from all that I can learn of it the management and the organization of the body have