

as if it would do so again this year. Among the mangels growing were the Golden Tankard, sometimes puffed up by seedsmen, but which Mr. Rennie thinks very little of, although he has to grow them in order to make up his collection.

The hay crop will be fair, possibly about one and a half tons to the acre. In length it is all right, but, owing to the winter killing out the clover in all but sheltered spots, the bottom is thin.

Everyone who has been at Kelvin Grove remembers the splendid windbreak of evergreens round the orchard. These have now been allowed to run upwards, and it has also been found necessary to trim them up for some distance at the bottom, because they kept the orchard too warm, no wind being able to penetrate their matted branches.

BARLEY AFTER RAPE AND ROOTS.

On the opposite side of the lane was a grand field of barley, level as a table, with full, plump heads. On this field last year there were grown turnips, mangels, beets, and rape. The barley on the rape portion was the best, though there was very little difference between it and that on the mangel and sugar beet portions of the field. The poorest part (although the term "poor" could not with propriety be applied to any part of this grand field except in a comparative sense) was the turnip ground. This would seem to show that turnips draw more on the soil than the other root crops mentioned, or the rape.

On this farm the rape is never sown until August, which insures an even crop for plowing under or for feeding to pigs. No sheep are kept on the farm, so that Mr. Rennie has no experience with them, but he does not set a great value on rape for pigs, except as a maintenance ration. When rape is plowed under he recommends it not to be plowed too deeply, and it should be turned under in the fall if possible.

A Cement Wall Builder Describes His Work.

To the Editor FARMER'S ADVOCATE:

SIR,—I thought I would take this way of giving the numerous readers of your paper an idea of what I am doing at building cement and concrete walls. I have built a number of barn basements, among which are Mr. T. L. Pardo's (M. P. for Kent), which was 50 feet 6 inches by 100 feet 6 inches by 9½ feet high and 1 foot thick; also walls for a silo 15 feet square, outside walls being 16 inches thick and the same height as the barn walls. I did this amount of work in 8½ days, with the help of an average of 8 men, which is 58 feet for each man per day. For the walls mentioned I used 121 barrels of Thorold Hydraulic Cement and 59 loads of gravel, and a quantity of small field stone that a person usually has about the farm. The only advantage obtained by using the stone is this: that they will save a certain amount of tanning gravel and also some cement. I figure that the quantity of stone that I can use in a wall will save about one-fifth of the amount of gravel and cement that I would use if I hadn't the stone.

I will endeavor to give you an idea of how I managed the work. I first laid the footing coarse (which is a concrete foundation, 20 inches wide and 1 foot deep), then I put up the frame to build the wall. I had my men arranged in this way: three on the platform mixing the concrete and two wheeling it to the wall, where two men were continually ramming it and laying in the small stone. It is not at all necessary to have such a large gang, as five men can do very well, but not so fast. I raised the plank as much as three times a day. For the first six feet of wall that I built I wheeled the concrete, but the last three and one-half feet, instead of building scaffolds, I had a team and wagon and drove around the outside of the walls and threw it from the wagon into the walls. I find that this plan is much better and faster than the old method of building scaffolds. It is far quicker and not so much waste. I nailed boards on the sides of the standards that I put up to build the walls, for the men that were ramming the walls to stand on.

I also built a large barn basement, 44 x 80 x 9½ feet high, which took for the construction 80 barrels of Thorold Hydraulic Cement and 50 yards of gravel and a quantity of small stone, for Mr. David Almar, of the County of Norfolk. I did this amount of work in seven days, with the help of seven men, which is 49 feet per day for each man. I had my men arranged the same as for Mr. J. L. Pardo's, with the exception of the team and wagon. I had all the concrete wheeled, which I find is a loss of time.

Welland Co., Ont.

An Experiment in Destroying Wild Mustard Conducted at the O. A. C.

SPRAYED WITH COPPER SULPHATE.

Mr. W. M. Doherty, assistant biologist at the O. A. C., Guelph, has been giving some time to experiments in the destruction of wild mustard, along the lines found successful by a French scientist, and which the FARMER'S ADVOCATE has made mention of on several occasions. We also recommended that tests be made by our readers this season, which Mr. Doherty has done by the application of the recommended chemicals. About a month ago Mr. Doherty tried three different strengths of iron sulphate and three of copper sulphate on six plots. The iron sulphate did not do any injury at all to the

crop, nor did it entirely destroy the mustard. The copper sulphate, on the other hand, completely killed the mustard and did a very slight damage to the grain. The copper solution used at that time was 1.3 per cent. and was applied with a Spramotor made in London. By strengthening the solution and spraying less generously, Mr. Doherty concluded better results would be obtained, and a more extensive test was made. A plot of about a quarter of an acre on an infested farm was selected and sprayed with a 2 per cent. solution of sulphate of copper. The result is entirely satisfactory. The mustard is all dead and the crop is not at all injured, a brown spot on the plant here and there being the only evidence of the test. Being an annual, the mustard plant destroyed at this season of the year is destroyed forever.

The cost of the chemicals will be very light, \$1.00 worth being sufficient to cover an acre. If—as seems almost certain—this test indicates an easy and effective method for the eradication of wild mustard, Mr. Doherty has certainly demonstrated a good thing.

On July 10th, Mr. Doherty sent us a bunch of mustard plants that were taken from a sprayed plot, and which he states were completely killed in four days after the spraying occurred. He also states that the oat crop which was sprayed is slower coming out in head than the adjoining unsprayed plot. The sprayed portion has a deeper green color and is very sharply separated from the unsprayed portion by being 3 to 6 inches higher. This is attributed to the grain on the sprayed plot receiving the extra nourishment which the mustard was getting on the unsprayed plot. Mr. Doherty has found that in using a 4 per cent. solution of copper sulphate a less quantity is required, and results are fully as good as in using the 2 per cent. strength.

A New Refrigerating Plant for Western Ontario.

There has recently been opened in the City of London, Ont., a cold-storage warehouse that will give the citizens of Western Ontario an opportunity to preserve all kinds of perishable products an almost indefinite time without deterioration. The well-constructed white brick building (80 by 100 feet) has four flats, divided into some 22 rooms, each thoroughly insulated and able to be controlled at any desired temperature from 12 degrees above zero, Fahr., up to whatever may be desired for the various classes of products. Rooms are especially fitted for each of the following classes of foods: Butter, cheese, eggs, apples, poultry, fish and game, meats, fruits, and vegetables. The building is in charge of an expert, and each class of produce will be subjected to the best known temperature for its preservation.

Each room has thoroughly-insulated walls separating it entirely from the others, so that neither temperatures nor odors are transmitted from one room to another. The entire building is supplied with an electric incandescent lighting system, and also receives light by windows of three thicknesses of glazed sash. The entire building was planned, and superintended, while in construction, by Geo. C. Zimmerman, of Detroit, and includes the latest ideas in cold-storage construction and equipment. The two lower flats are cooled by direct expansion from ammonia pipes, and the upper flats by the cold-air system, which consists of the warmer air of the room being drawn off by a suction fan, when it passes over a system of ammonia coils having brine running over them constantly. The cooled air is then forced into the room through slides, which are adjustable, so as to admit much or little, as desired. The cold is produced by two 40-ton Linde British ammonia refrigerator machines, which are connected with the coils and pipes throughout the building. The company operating and owning the plant consists of a number of business men of the city. The President is T. H. Smallman, and the Secretary-Treasurer is Dr. J. S. Niven. The storage is claimed to be the most perfect one of its sort in Canada west of Montreal.

Changes at the Ontario Agricultural College Farm.

Just as we go to press we are in receipt of the following letter:

Guelph, Ont., July 13, 1899.

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—In reply to your kind favor of 9th inst., beg to state that I have quite decided to retire from my position as Farm Superintendent, and return to Toronto end of September. My coming here six years ago was mainly to demonstrate the advantage of cultivating the soil by a systematic rotation of crops, and according to the teaching of science, also the economic feeding of live stock for the best results, which has proved a decided success. Under this system the farm has increased in fertility, so that it is now returning a handsome profit over and above all expenses. I have good reason to believe that the same system will be continued by Prof. Day, he being a graduate of this college.

WM. RENNIE.

It is gratifying to know that, while the Farm is to lose Mr. Rennie, he will resign his position to good hands. It is understood that he is to be succeeded by Prof. G. E. Day, who was reared as a farmer, is a graduate of the Agricultural College, and has had, for the past few years, charge of the live stock at the Institution. Prof. Day is not, therefore, like a newcomer, but will take up and continue Mr. Rennie's good work without change or interruption, and, we hope, with as marked success as Mr. Rennie has done.

Remedies for the Horn Fly (*Hematobia serrata*).

The expected has not occurred, since the horn fly (*Hematobia serrata*) has not disappeared, as was prophesied at the end of three years from the time it first made its appearance on the cattle of Canadian herds. The pest is still in evidence over a large portion of Ontario, and upon inquiry and observation we find many farmers looking about for a means of dealing with the pest that is cheap, easy of application, lasting and effective. The following replies have been received to enquiries made by us:

Of many kinds of oily substances tried on cattle to prevent the annoyance by the horn fly (*Hematobia serrata*), Mr. R. R. Elliott, the herdsman at the Central Experimental Farm, has for three or four years used, when necessary, a mixture of 1 pound of pine tar in 10 pounds of lard (applied once a week), and still finds it the most convenient and effective remedy. This mixture is smeared on all the parts of the animal liable to be bitten.

Central Experimental Farm. J. FLETCHER, Entomologist.

A mixture of fish oil and a little pine tar I have found to protect my cows fairly well. One application will last five or six days. Apply with a brush.

Wentworth Co., Ont.

The best application we have tried for horn fly is 15 pounds of tallow, ¼ pound black tobacco, simmered on the stove for 24 hours, then add 1 gallon tanner's oil. Apply with a cloth once a week. We have used it for two years, and find it gives good satisfaction.

Lanark Co., Ont.

We have used almost every patent preparation we could get, besides several by local druggists, but all, more or less, have failed. We find that kerosene emulsion applied with a spray pump every second morning answers fairly well.

Huron Co., Ont.

To keep the horn fly off cattle we use seal oil and crude carbolic acid. To one gallon of the seal oil add four tablespoonfuls of carbolic acid. Apply once a week with an ordinary cattle brush over the whole body.

O. A. C., Guelph.

I am in receipt of your favor asking how we manage to keep the horn flies off our cows. There are many ways and different mixtures recommended in farm journals. We have only tried the application of one mixture and that is what is called Shoo-fly. We apply it with a flat, wide paint brush, twice a week. Or a quicker way of applying it is with a small sprayer, costing \$1.00, made for the purpose. The flies have not been nearly so bad this year, so we have not had to use any remedy as yet this season.

Oxford Co., Ont.

POULTRY.

Incubation and Brooders.

NATURAL VS. ARTIFICIAL HATCHING.

To make poultry-raising pay, one must have early chickens. The cockerels must be ready for the early markets, and the pullets ready for the following winter's egg production. In order to get chickens early we must have artificial incubators or sitting hens. To get the latter we must first have winter layers, and given the winter layers, it does not always follow that we can get persistent sitters. We would require to begin with nine or ten of them to cover as many eggs as one 100-egg incubator. Frequently it is quite late in spring before the majority of us have any hens inclined to broodiness.

The very early chickens, if left to the tender mercies of the old hen, and the accommodations and companionship found in the henhouse, will die or become stunted from cold and rough treatment, and it is hard to decide that the few which manage to exist will pay for the eggs set, their food, and the time and food of the hens while hatching and mothering them. We are liable to compare with the incubator and brooder the success of the motherly hen, which, about harvest time, hides her nest in some remote corner, and hatches all or nearly all her eggs, and raises all of the chickens hatched. We decide in favor of the hen and against the incubator, forgetting that we might be apt to have just as good hatches from equally strongly fertilized eggs did we set our incubator full at the same time of the year. But we do not do it, because we have little use for late chickens, or those hatched in the middle of summer or fall. The price is too low to make the marketing pay, and the pullets will not lay until the following spring, when the price of eggs is so low that it scarcely pays to produce the eggs, to say nothing of wintering the birds. Their only excuse for living is found in the fact that by picking their own living