three into No. 1 and ten into No. 4. This indicates in a remarkable way the difference in the *individual capacity*, largely fixed by their breeding and probably to some extent by early management of certain animals. In another trial, a steady increase with increasing weight in the food required to produce a pound of gain occurred, pigs weighing 275 lbs. taking nearly twice as much food for 100 lbs. increase as those weighing 33 to 75.

Two seasons' experiments at the Ontario Agricultural College, taking into consideration health of animals, their gains, the quality of their flesh (examined by packers for English market), and the composition of sweet and sour whey, indicated that souring did not seriously detract from the value of whey for pig feeding. Two experiments showed 100 lbs. whey (sweet and sour) equal to 13.31 lbs. of the meal used, worth at the prices paid about eight cents.

Four lbs. of boiled potatoes or 8 lbs. of mangels, fed with skim milk or whey, were found (Denmark) to be about equal to 1 lb. grain, and the quality of pork in all cases proved satisfactory. In other experiments results favored exercise for light pigs; that about 11 per cent. more feed was required in winter than summer to make 100 lbs. of gain, and that in comparing light and heavy feeding, light feeding required 391 lbs. to make 100 lbs. gain, 397 lbs. (medium) to make 100 lbs. gain, and 404 (heavy) to attain the same result. Pigs weighing 275 lbs. required about double the feed for 100 lbs. gain as those weighing from 35 to 75 lbs.

In a breed test between three native sorts and Tamworths and Poland-Chinas, the "natives" made the poorest gains, and the "Tams" the best, and the Poland-Chinas produced superior pork to the natives, being harder.

In a trial (Robertson, Canada) of soaked frosted wheat, the product was pronounced by the Davies Co., of Toronto, "excellent—very rich and luscious, and superior to hogs fed on peas alone, the complaint regarding pea-fed bacon in England being that the lean was hard, and the fat to some extent also. Farmers should mix their grain, grind and feed with whey, skim milk or buttermilk." The feeding of half wheat in ration with barley, rye and bran showed that it was not a cause of "soft" sides. "Softness" in sides was thought to be a result of want of exercise and use of foods lacking in nourishment.

Summary.—By way of brief review, the foregoing study indicates the advantage to the farmer of giving his pigs a reasonable amount of exercise, comfort (which includes cleanliness), and succulent food, along with the heavy fattening grains, early maturity, and mixed rations; though, in regard to several points, there is yet room for further researches by Canadian investigators.

Duroc-Jersey - Yorkshire Cross to Produce the Bacon Hog.

I consider the cross of the Duroc-Jersey boar with Yorkshire sow the very best, barring the Tamworth, for fine bacon, suitable both to the English market and to the feeder. The Yorkshire pure-bred is not a suitable hog from the feeder's standpoint. The Yorkshire is too long-legged and lanky, and consequently too hard to feed. Again, the packers do not want the pure-bred Yorkshire. Wm. Davies Co., in their letter in the ADVOCATE some months ago, said they "did not want Yorkshires pure-bred at any price." They wanted in preference "the Tamworth pure-bred or the Yorkshire crossed." This is about the preference, too, of all the packers in Canada, and this is about what Rattenbury in this Island wants. Previous to the pronouncement of the packers, I advocated the cross of the Yorkshire, and I advocated, in preference, the cross of the Yorkshire with the Duroc-Jersey. I publicly gave my reasons for my faith in this cross. The Yorkshire has the length of body necessary, and the narrow back and light jowl, but it lacks the depth of body and large heart girth. The Yorkshire, in my experience, and in the experience of all others, as far as I know, is a hard feeder. The Duroc-Jersey, on the other hand, has the depth of body, good heart girth, but is too broad in the back, too short in body, and too heavy in jowl as well as shoulder. The Duroc-Jersey is a remarkably easy feeder, and the most docile and sweet tempered hog I ever saw. Something very remarkable about the Duroc-Jersey is the fact that it *never squeals*. Not so with the Yorkshire. The Yorkshire will squeal louder and oftener than any hog I ever saw. It is quite a hard job to keep a Yorkshire brood sow from running down in flesh when nursing a litter. The Duroc-Jersey will not run down in flesh much when suckling, and are great milking mothers. In fine, the objections to the Duroc are: Short body, broad back, heavy shoulder, heavy jowl, fat. The objections to the Yorkshire are: Lightness of body, lankiness, long-leggedness, want of heart girth, and irritability. The attributes of the Duroc are: Great docility, depth of body, good heart girth, hardihood and easy feeding qualities. The attributes of the Yorkshire are: Narrow, fleshy back, light head and shoulder, great length of side, and leanness. So you see what the one lacks is well supplied by the other, and what the other lacks is well supplied by the one. Therefore, the ideal bacon hog for profit is not the Yorkshire nor the Duroc-Jersey, but the Duroc-Jersey - Yorkshire cross.

P. E. Island. J. A. MACDONALD.

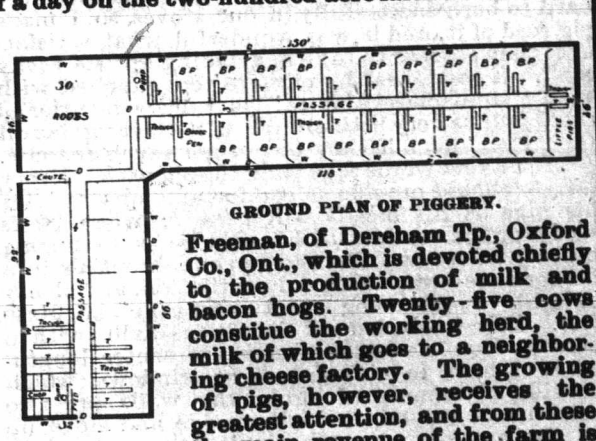
A Well-Conducted Bacon Pig Raising Establishment.

It is a fact worthy of cognizance that a large majority of Canadian farmers recognize the wisdom of adjusting their farming operations to meet the demands of the market, and thus secure the greatest returns for their labor and capital invested. At this particular time the bacon industry is the one most before our attention, largely, perhaps, because of the position our hog products have secured on the British markets. The question is raised, particularly in the minds of our U. S. neighbors south and west, whether the advantage gained in price of bacon over fat pork will warrant the supposed greater cost of producing the "strip of fat and strip of lean sort" which we have for years been striving to produce in order to suit the palates of our best customers across the sea. The difference in price between "Canadian long-rib lightweights" and "American rib in bellies"—the highest price American bacon—as quoted by a recent Liverpool market report is shown, the former being 45 to 46 shillings per cwt. for Canadian, and 34 to 35 shillings per cwt. for American; whereas Canadian hams are quoted at 46 to 48 shillings per cwt., and American 33 to 35 shillings per cwt.—quite a difference, it must be acknowledged. While the difference in price would leave us a handsome profit, even if produced at considerable greater cost, we are not prepared to acknowledge that with the greater intelligence and care of our farmers our bacon need be expensively produced. We are aware from experience and observation that good breeding, selection, feed, exercise, housing, as well as the time of year to market our hogs, have all to be intelligently studied in order to increase the margin of profit from the same. Let us study

AN EXAMPLE IN PIG-RAISING

as a specialty on a Canadian farm:

We recently had the privilege of spending most of a day on the two-hundred-acre farm of Mr. S. A.



GROUND PLAN OF PIGGERY.

Freeman, of Dereham Tp., Oxford Co., Ont., which is devoted chiefly to the production of milk and bacon hogs. Twenty-five cows constitue the working herd, the milk of which goes to a neighboring cheese factory. The growing of pigs, however, receives the greatest attention, and from these the main revenue of the farm is produced. Both cheapness of production and excellence of product are intelligently sought after and satisfactorily secured. For the last few years about 200 hogs per year have been turned off at about six months old, weighing from 150 to 240 pounds, the bulk of the pigs going about 170 pounds each at that age. Up till the present time 18 brood sows have been kept, but now this number is to be increased to 30, from which it is hoped 400 "baconers" per year will be sold. To accommodate this increase a substantial but cheap new piggery, 150 by 26 feet, is being built. This is shown in the accompanying illustration, and includes the longer portion, which contains the root house. The wing, 66 by 32 feet, is the old building, which at the time of our visit contained 114 pigs, which will all be sold during July and August. This building can easily accommodate 200 pigs, which will be fed off twice a year hereafter.

The new building, as will be seen by the illustration, contains 22 brood sow pens, and one pen across the east end in which the little pigs from the whole of the sows will learn to eat. The sows all farrow about the same time twice a year, in February and August. When the winter litters are from two to three weeks old they are given access to the entire pens with their dams, where they become acquainted, and by the time they are four weeks old they have learned to eat well. The rations of the sows are then reduced and the little pigs are not weaned until they are eight weeks old. By this time they are eating so heartily they scarcely notice the weaning, and have developed good, vigorous forms. The sows are now quite thin, but healthy, and in good condition for breeding for the next litter. The sows after being bred are turned out and rough it on grass and clover in summer, and roots, with a little bran, in winter.

After farrowing in summer the sows run with their litters on pasture and grain stubble as soon as they commence to feed, and are given cobs of soft new corn as soon as the young pigs will take it. This is found to promote rapid growth and prepare them for the pens as soon as the cool, damp weather arrives. They are then housed in the brood pens, in which they remain until eight weeks old, when they are weaned and turned immediately into the fattening pens to go forward without an hour's delay. The winter litters are farrowed in the brood pens, into which the sows are placed just a short time before farrowing is to take place. They are given the run of the barnyard up till this time and very cheaply fed as above mentioned. Not only are the sows fed cheaply as a matter of economy, but larger and healthier litters are thus produced. Mr. Freeman informed us he had raised as many as 96 pigs from eight sows at one lot of litters, and it is the great exception to lose young pigs from any cause whatever.

FEEDS AND FEEDING.

From the time the pigs are weaned (at two months old), till they are sold they are pushed forward on whatever sorts and mixtures of grains are cheapest. He feeds three times per day. At certain seasons it is found advantageous to sell certain foods and buy others. He feeds mixtures of grains, giving a ration so composed as to be a good bacon-producing food, and believes in giving food so that the pigs will relish it. Shorts are fed more or less at all times, and are bought in carloads at the season when they are cheapest. By watching the market closely it is rarely necessary to pay higher than $12 per ton. At the time of our visit equal parts of crushed corn, oats and barley and shorts were being fed. This is allowed to soak in whey and water from 12 to 24 hours. The feed box stands just in front of the pump and beneath a whey spout into which the whey is emptied from the waggon. Each piggery has a cement cistern or tank, which is filled from a spring well by windmill pump. As will be seen by the illustration, the feeding-troughs are all at one end of the pens in which the entire feeding herd run together. The pigs can get at the troughs from either side, so that less trough room is required. They are given their fill of slop morning and night, just thin enough so that it readily runs the entire length of the troughs, which have a slight fall from the passage end where the feed is poured in. At noon time in summer they are given corn on the cob on the floor of the north part of the pen, and given a drink of the thin liquid taken from the bottom of the feed box. In winter the noon food consists of raw mangels fed whole on the floor where the corn is fed in summer, and peas in the straw are fed in the division of the pen next south of where the mangels are fed. Wide doors are always open between these portions of the pen, making it one large pen. In summer the pigs have constant access to a large straw yard at all times, kept clean by frequent and liberal bedding, and afforded exercise. By this means the pens and surroundings are kept perfectly sweet and clean, practically no manure, liquid or solid, is dropped inside the pen, but every portion is saved in the straw yard.

In winter the fattening pigs are kept in continuously, except occasionally on a very fine day they are given a run. The pens in winter are cleaned out every day as regularly and carefully as the cattle or horse stables. The pigs wear nose rings all the time, which Mr. Freeman considers keeps them much more contented than if allowed to dig up the yard. They thus do better and keep in apparently perfect health at all times.

The pens have cement floors and walls, and when kept well bedded answer to Mr. Freeman's satisfaction. Both the old and the new pens are well lighted by large windows. The new one has six windows on each side and one at the east end, each 3 feet 3 inches by 4 feet 6 inches. These have double glass on the same sash, and are hung on hinges from the top, so as to be fastented out of danger when the pens are being cleaned out. The manure when cleaned out is taken directly to the field and spread. Along the walls of the new pen inside are rows of doors in the partitions dividing the pens. Through these the sows are driven to their various pens, and in the doors will be arranged creep holes for the young pigs to pass at their pleasure. The spaces marked "d" in the outer walls of both the old and the new pens are small doors, through which the pigs can enter or exit. The troughs now in use are of wood, but cement ones are to take their place, and will also be used in the brood sow piggery.

The walls of the piggeries are 6 feet 6 inches high, and each has a loft above for straw bedding and unthreshed peas. The new building has 16 foot posts above the walls. The only floor above the pens consists of poles about two feet apart, upon which the straw is built. This provides, in Mr. Freeman's estimation, ideal ventilation, as it allows the steam and foul air to escape without causing draft. As will be noticed, the root house is in close proximity to either pen, and water is conveniently situated, so that feed can be mixed quite close to where it is needed.

AS TO BREEDING.

The breeds or crosses of pigs best suited to Mr. Freeman's business is not yet with him a settled question, although, so far as a sire is concerned, he has no desire to change from the Yorkshire, which he has used for a number of years with good satisfaction. His present boar, as well as several previous ones, was bred by Mr. J. E. Brethour, of Burford, Ont. For years Berkshire sows were the only ones used, and it is with much reluctance they are to some extent being given up, as they have proved themselves good mothers of large, even litters. They were inclined, however, to become too fat for the present market demand, and for this reason a number of half-bred Berkshires and Tamworths are now in farrow for August litters. This cross will likely be adhered to for dams, although a dash of Yorkshire in the dam, Mr. Freeman considers, would be no bad element. He considers Yorkshires and their crosses are less liable than any of the others to become crippled through heavy feeding. He also maintains that the Yorkshire is the slowest pig to get to a condition where