

ROADS.—Don't we remember the fall and spring-roads between Chamblay and St. Johns, in the sixties, when we had the old Chamblay Brewery? The horses that drew the waggons used to lose flesh, in traversing those twelve miles, at the rate of pounds a day. Wherefore, we are glad to see that the exertions of Mr. Camirand have borne fruit, and that, under the patronage of the Minister of Agriculture at Quebec, lectures are to be given, by Mr. Camirand, accompanied by practical demonstrations with a road-machine, acquired by the Department of Agriculture. Any municipality applying for the use of the same to the department at Quebec can have it during eight days on the condition of furnishing the working-men and horses. The department will supply a foreman to direct the works. All applications addressed to the department will be granted according to the order of their reception.

Our good friend Mr. Ness, of Clydesdale, spoke highly in favour of this machine at the Dairy-men's Convention, at Waterloo, last winter. All the parishes of Mr. Ness' county have one, and from two to three miles a day of road are easily overtaken.

M. Plamondon, at the same meeting, agreed with Mr. Ness, and said that, in Mr. Ness' village, he saw four miles of the best roads he ever met with; it was more like a plank road than anything else.

The machine makes splendid ditches, too, cutting the sides perfectly, and leaving them in such a form that, on M. Camirand's farm, a ditch, extending from one end to the other of the estate, is easily crossed by mower or horse-rake. If this plan is thoroughly carried out, the horses, harness, carriages and limbs, of those who use our country-roads will last a great deal longer: accidents involving serious injuries are far too common in the roads of this province.

CUTTING SEED-POTATOES.—Far better leave them uncut, and plant only whole potatoes of middling size. The "ash-leaf-kidney," the mainstay of the early potato growers in England, will never yield a full crop here because people will cut the sets.

CUTTING SEED POTATOES.—The best way to cut seed potatoes is a problem upon which no two farmers agree and concerning which numberless experiments have been tried by farmers generally, as well as by experiment stations. Results at all the stations have been carefully studied by J. F. Duggar, who concludes (*Farmers' Bulletin No. 25*, United States Department of Agriculture) that it is more "important to cut the tuber into compact pieces of nearly uniform size than to so shape the pieces as to have a definite number of eyes on each set. No piece should be entirely devoid of eyes, and the majority of the seed pieces should be large enough to support at least two eyes, and better, three or more." The yield from planting the seed or bud end is larger than from the stem or butt end of the tuber, the eyes on the seed end being the first to germinate and hence of especial importance when an early crop is desired. The total yield increases with every increase in the size of the seed pieces from the single eye to the whole potato; this increase occurs both in the large and in the small potatoes, but chiefly in the latter. The net yield of salable potatoes increases with every increase in the size of seed piece from one eye to the half potato. "The half potato affords a larger net salable crop than the whole potato, on account of

the excessive amount of seed required in planting entire tubers. Taking the average of many experiments it was found that for every 100 bushels of net salable crop grown from single eyes, there were 114 bushels from two-eye pieces, 131 bushels from quarters, and 159 bushels from halves, but only 159 bushels from planting whole potatoes. These results favor the use of halves as seed pieces if seed potatoes and crops are assumed to be of equal value per bushel, but when seed potatoes command a very high price quarters may be used to advantage. It is better to place in one hill one large piece than several very small ones of the same aggregate weight. Small potatoes can sometimes be used for seed with profit, in which case they should be planted whole. Leading growers are careful to select for seed medium to large tubers of good shape, and their example should be followed."—*American Agriculturist*.

SIZES OF POTATO SETS.—Although many experiments have been made from time to time in relation to this question, it seems as if nothing were definitely settled. No doubt the common belief is the larger the set the greater produce from a potato plant. That may be so under exceptional cultural conditions, as, for instance, when large tubers are planted singly in hills three feet apart, and, having ample room, are earthed up accordingly. We have yet to determine thoroughly which may be, relative to quantity or weight of seed, the best plan to adopt—whether to plant half-pound tubers on single hills, or to plant sets of half the weight, say 3 oz. to 4 oz., in rows 2½ ft. apart and 16 in. apart in the rows; or to plant from 1 oz. to 2 oz. sets in rows 24 in. apart and some 13 in. apart in rows. In any experiments that may be made with a view to settle this matter we must not lose sight of the fact that in planting ½ lb. tubers we are planting those of good table size and edible use. Tubers from 3 to 4 oz. in weight make what is called fine seed, and by most persons are regarded as the very best. Still we may point out that tubers even of that weight when largely planted signify great bulk of seed. But the tubers of from 1 to 2 oz. in weight, though relatively small, are on the whole the least useful, and, therefore, may be the most profitably employed for planting. Some very interesting experiments conducted for the Surrey County Council last year at Hookham by Mr. Goff, of Eastwicke Park Gardens, throw considerable light on the question at issue. Mr. Goff, on a piece of open land used as a trial ground, planted in the spring of 1895 three rows each of four varieties of potatoes, namely, Magnum Bonum, Renown, Reading Russet, and Crawley Prize-taker. All the varieties had been grown on the ground the previous year, and the tubers selected on lifting for this special trial. In each case one row was planted with 1 oz. sets, a second with 2 oz. sets, and a third with 3 oz. sets; the numbers in each row were the same, and the general treatment was identical. When all were lifted in September the exact results were: Magnum Bonum, 125 lb. from 1 oz. sets, 149 lb. from 2 oz. sets, and 110 lb. from 3 oz. sets; Renown gave in the same way 113 lb., 131 lb., and 90 lb.; Reading Russet, 84 lb., 137 lb., and 95 lb.; and Crawley Prize-taker, 81 lb., 125 lb., and 101 lb. Thus, in each case, the produce was distinctly in favour of the 2 oz. sets.—*The Gardeners' Magazine* (Eng.).

TURNIP SEED "may be sown among the potatoes at hilling or last cultivation, and a very large quantity of cattle food be grown almost without cost. I know a prosperous farmer who used to grow hundreds of bushels every year in this way, also in his corn field, and he considered them profitable cow feed. He used to make over 300 pounds of butter per cow, and I never heard of any complaint from dealer or consumer, that the turnips injured the quality of the butter." Very likely hundreds of bushels of turnips were grown in the above fashion, but what sort of state was the land in the following spring? Far better to harvest the potatoes, grub and afterwards plough the land, and let it lie till barley seed-time. The passion for growing two crops at the same time is marvellously dear to the thoughtless farmer. We have even known barley and carrots sown together in Belgium, and, only the other day, we saw, in an American exchange, a proposal to sow oats and rape at the same time on the same piece.

THE NODULE-FORMING MICROBE.—What does the following mean? Has the "bubble of the microbe, etc.," really burst? We have seen no account of the theory having been proved to be ill-founded. The extract is from the *"Country-Gentleman"*:

"Fortunately for animal life, oxygen and nitrogen, of which the air is composed, have but a slight chemical attraction for each other. Hence nitric acid is sparingly formed in the air, yet in abundance to supply the small percentage of nitrogen in the albumen, gluten and casein that enters animal life, none of which is found in starch, sugar and cellulose, composing the bulk of vegetable matter. When it is known to science that every fall of rain washes from the air ammonia, nitric acid and carbonic acid, I do not wonder that the bubble of the microbe oxidizing nitrogen through the nodules of certain plants, like many others, has burst."

CALVES.—We think that the treatment of calves pursued by Mr. Tremain, evidently a Cornish woman by her name, is excellent, except that we do not approve of rubbing the calf dry, "as all rubbing of the wet coat of the calf tends to agglutinate the hair. A far better plan is to put the calf on a thick layer of soft straw and, covering it up with plenty of the same, leave it alone till it is dry. Twelve hours after birth is not too long to wait before feeding. Crushed linseed and skim-milk will do as well as full-milk for everything but a calf intended for the butcher. Nothing but the cow's milk unskimmed will make white veal for the London or Paris market: 96s is worth enough for the milk."

RAISING CALVES AT HILL VIEW FARM.

Mrs. Jennie Snyder, butter-maker for Mrs. Tremain at Hill View Farm, Lake George, writes in the *Jersey Bulletin*: "Mrs. Tremain wishes me to inform you of her method of rearing calves up to twelve months. At birth the calf is taken from the cow; she seldom sees it. The calf is at once rubbed perfectly dry, and in winter it is wrapped in clean blankets with warm bricks or water bags put around it. We find that care of the calf from the first moment is of the greatest importance. After four or six hours we feed the calf

the dam's milk from two to four quarts depending upon the condition of the calf and how well it drinks. We never have any trouble in teaching the youngsters to drink, because our motto is patience and kindness. The calf is fed six times daily during the first week, from eight to twelve quarts a day, according to its capacity. (And the Hill View Farm calves generally have plenty of that.)

About the eighth day they are fed four times and this is continued, still giving the whole milk, if we possibly can, for a month. The fifth week we give only three meals; and the skim-milk, then thickened just a little with fine wheat middlings, well cooked. We also give at five weeks, and from then on, a pint of whole oats and a half pint of oil meal each day, divided into morning and evening mess, of wheat bran and a little cut hay, or cured fodder corn—that which has been cut several days at least. We always give a little salt from the calf's first week. Also give long hay or fodder corn leaves from about the second week, and after a few tastes this food is much relished.

One thing we are very careful about: Always feed the milk very warm. And another point of importance: Always have a clean and dry bed for the calf. Then, too, we comb and brush all calves every day. (1) Mrs. Tremain thinks this necessary. She insists that their little coats ought to shine. We separate the helpers from the little bulls at four months always.

The helpers are bred at from twelve to fifteen months, depending upon their condition at the time. When our helpers drop their first calves, we find them nearly always just like old cows at milking, because Mrs. Tremain has them handled and milked from the time they are born. Our helpers at their first calving in make from 10 lb. 8 oz. to 14 lb. 4 oz. of butter, and milk from 23 to 40 lb.—*"Country-Gentleman."*

ROTHAMSTED.

FEEDING OF ANIMALS

(Continued)

Thus, as compared with either oxen or sheep, the pig offers many advantages as a subject for the consideration of the relations of food and increase, and consequently for that of the source in the food of the fat which he yields. He has a less proportion of alimentary organs and contents, he consumes more food in proportion to his weight, he yields a larger proportion both of total increase and of fat; and finally, much less of his food is effete and voided. The general result is, that changes in his live weight are in a much less proportion influenced by variations in the contents of the alimentary organs, and are, therefore, much truer indications of change in the substance of the body; and hence the range of error in calculating the amount and composition of his increase, in relation to the amount and composition of the food consumed, is much less.

THE EXPERIMENTS AT ROTHAMSTED WITH PIGS

In the selection of the experiments with pigs for calculating whether more fat was stored up than could possibly have been derived from the ready-formed fat and the nitrogenous sub-

(1) Their tongues answer the purpose, if they are loose.—Ed.