

shear rams are more desirable than lambs, and, to avoid being forced to use a lamb, an early choice will be necessary. Our sheep-breeders have on hand some choice stock, and the first buyer to make a selection, provided he is a good judge, secures the best sire, and nothing but the best is good enough for your flock.

A Retrospect of Foot-and-mouth in Canada.

Fortunately, Canada has not at any time experienced a typical outbreak of foot-and-mouth disease. Although it was supposed to have been observed in 1870 and 1875, there are no particulars on record officially with reference to these suspected outbreaks; in fact, the Hon. C. Dunkin and the Hon. L. Letellier, the Ministers of Agriculture for those years, stated in their reports that Canadian cattle were free from any epizootic disease.

On May 4th, 1884, foot-and-mouth disease was discovered on board the S. S. Mississippi. The disease was of a mild form, and the stock, upon being landed at Quebec, were isolated in quarantine station, and all possible measures taken for the disinfection of contact matter. One hundred and ninety-three animals were landed, fifteen of which were exhibiting symptoms of this disease, and fifty-seven others contracted the malady while in quarantine. There is no record of any deaths or of the origin of these animals.

On June 3rd of that year, the S. S. Oxenholme arrived at this port with 106 cattle on board, 11 of these animals being found affected with foot-and-mouth disease, and 15 or 16 others showing evidence of having had the malady recently. There is no record of any deaths, neither can we find any further particulars. It is quite evident, however, that very prompt measures were taken, which were very successful in eradicating the disease, as well as limiting it to the quarantine station. As these animals were undergoing the usual quarantine, and were, therefore, foreign stock, this outbreak cannot be fairly credited to Canada.

Regarding the fact that, while this disease is a very serious one in other countries, it has not resulted in an epizootic in Canada, competent authorities say that, in view of the indisputable evidence of its extremely infectious nature, it is possible that the vitality of the organisms causing these particular suspected outbreaks was of a very low order, and under unfavorable conditions became extinct. No other explanation can be given, provided the outbreaks referred to were actually due to infectious foot-and-mouth disease. There is every reason to suppose that foot-and-mouth disease would spread with amazing rapidity throughout this country if a virulent strain of organism were introduced. This disease is a peculiar one, and, while it is readily diagnosed by its typical characters and extreme infectivity, little is known of the causative agent. The germ, we are informed, is ultra-microscopic, and, therefore, exceedingly minute. It passes through the

Standard Chamberland and Berkefeldt filters, which prevent the passage of practically all bacteria that can be detected by the most modern microscopes. This is proven by the fact that saliva taken from affected animals, mixed with sterilized water, passes through the Standard filters without losing its infectivity, as it readily produces the disease when inoculated into healthy, unexposed stock.

The constancy with which the discharges from diseased animals cause the development of foot-and-mouth disease in all contacts has demonstrated the fact that this malady is caused by a specific infection, and that every outbreak starts from some previous case or cases. Authorities differ regarding the length of time the virus of this disease will remain active outside of the animal body, but there is no doubt that, under certain conditions it does not retain its effectiveness for a long time. It has further been shown that animals recovering from the disease will infect others for months, and quite frequently re-infect themselves.

Our readers will readily appreciate that these peculiarities necessitate the taking of very radical measures to eliminate the disease from any country, especially so when it is considered that infection may be carried on the clothes of human beings, on hay, straw, fodders and stable utensils, as well as on the feet of all animals, including birds. Although outbreaks of this disease are chiefly confined to cloven-footed animals, horses, dogs, cats and even poultry may occasionally become infected, as well as human beings.

While the mortality from this disease is quite low, the serious losses depend chiefly upon the diminution of milk secretion and shrinkage of flesh, and general condition of affected animals. The immunity conferred by this malady is of short duration, and animals are consequently subject to repeated attacks, unless they are properly disposed of.

The frequency with which foot-and-mouth disease breaks out and infects tremendous areas in countries governed by inadequate sanitary police measures demonstrates only too clearly the very serious nature of this not very fatal malady.

A member of the editorial staff of "The Farmer's Advocate" has a very vivid recollection of what was believed to be an appearance of the malady. His large stock of pure-bred cattle, sheep and hogs, in the fall of 1875, contracted, through a purchase of sheep which were imported by an Ontario County breeder, and which appeared to be infected with foot-rot, but was later declared by the then principal of the Ontario Veterinary College, the late Doctor Andrew Smith, to be foot-and-mouth disease. At all events, the disease broke out on several farms in the neighborhood, a distance of four to six miles apart, which appeared mysterious at the time, but is evidently characteristic, as before stated, and may be carried in many and diverse ways. The losses by death in these outbreaks here mentioned were very few, not one per cent. of the animals affected, the remainder recovering within ten to twenty days,

and thriving well afterwards. The chief symptoms were high fever, loss of appetite, slobbering, eruptions of yellowish blisters in the mouth and on the tongue and lips, as well as on the feet and udder. Treatment was simple, consisting of only the application of a solution of carbolic acid on the affected parts.

It has been announced that a German scientist, Professor Wilhelm Grugel, Dean of the Hygienic Institute of the University of Rostock, has found the bacillus that causes foot-and-mouth disease, and also has serum for immunizing cattle against the dread malady. The treatment, of course, is preventive, and not curative. It is claimed that experiments have demonstrated beyond a doubt that treatment of healthy animals is unqualifiedly successful in rendering them immune.

If this immunizing animals from foot-and-mouth disease becomes a practical reality, it will enlarge the possibilities of cattle trade between Canada and Great Britain. Stockmen the world over wish Professor Grugel success.

THE FARM.

Ventilating Root Houses.

Editor "The Farmer's Advocate":

Regarding the several inquiries re ventilation of root houses, as published in your issue of July 18th, I would say:

1. Where roots—that is, turnips, mangels or carrots, are piled in large heaps or in deep bins, it is necessary, or at least very advisable, to introduce fresh air, in some way, at the bottom of the pile, or somewhere near the bottom, unless the root house is very cool and there is plenty of opportunity for the heated air at the surface to escape.

2. Occasionally, mangels covered with earth, as are sometimes found near the intake of the root house, keep better than those not surrounded by soil; but, generally speaking, freedom from earth is a condition of good keeping. Especially is this true of carrots and turnips.

3. It is a good practice to keep roots a few inches off the floor, or at least to so pile them that a circulation of air under the heap of roots is permitted. Separation from the wall by studding or other means is not necessary, in my opinion.

4. Our experience here would point to the earth floor as being more advisable for roots than cement.

5. Fresh air should be introduced from the bottom. It will circulate up through the roots quite freely, unless there is a good deal of loose earth lying in the heap.

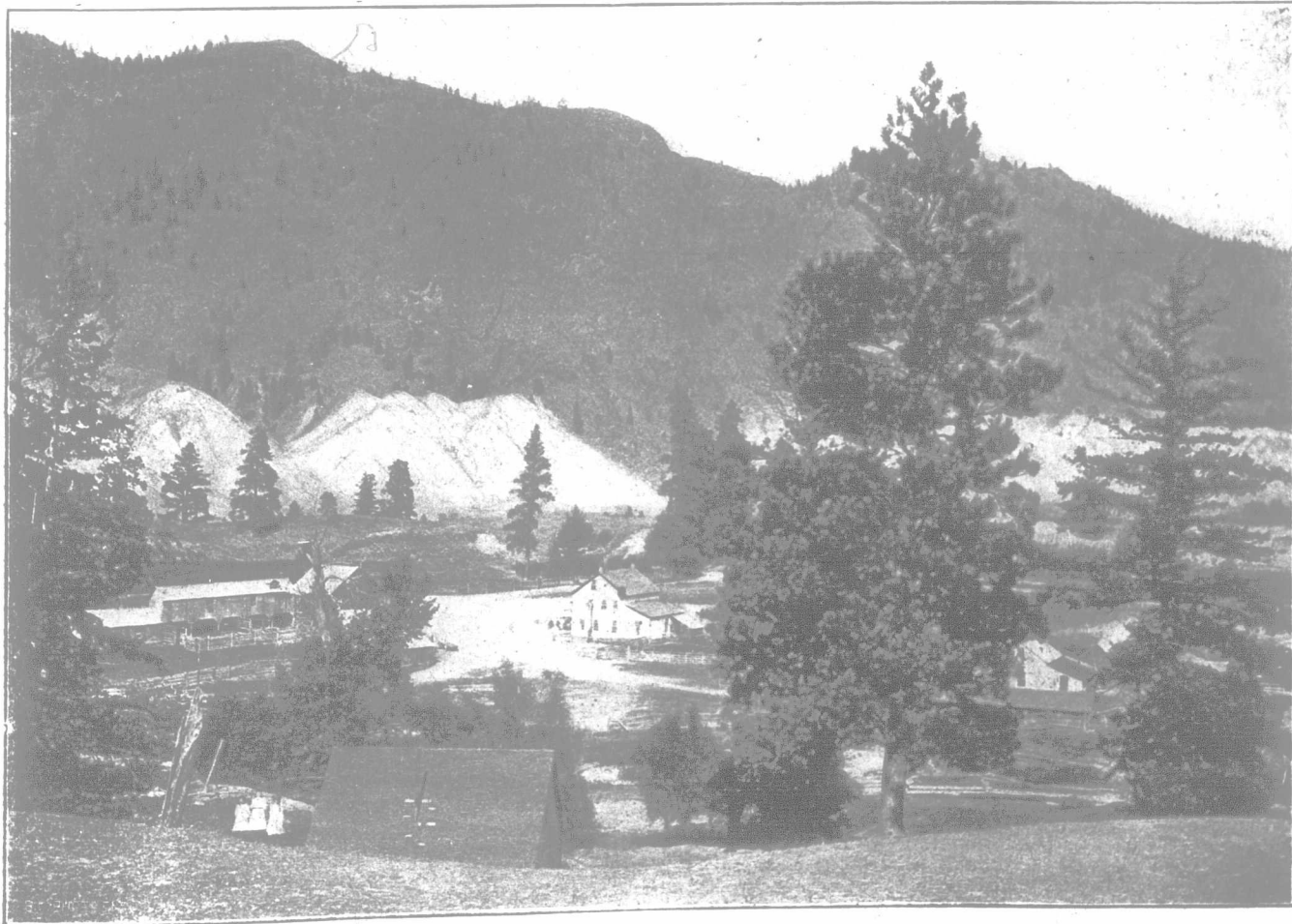
6. The outlets for heated air should be near the ceiling or in the ceiling itself, and should be controlled by traps or lids which should be easily handled from some central point, in order to insure their being looked after.

7. Such a root house as described would probably be fairly satisfactory, provided the roots were not piled in more than seven or eight feet deep, and even in such cases provision should be made for ventilation. A good plan would be to take the air in from the floor level by having openings through the brick wall into the stable. These openings should be subtended by small conducting passages made of lattice work, leading to the inside. Some of these might be short, but others should be long, reaching to the far side of the root house. These lattices, boxes or conduits should be about six inches square. The heated air should be allowed to escape through shafts extending from the ceiling to the roof, but this is impossible, then there should be an opening through the wall, near the ceiling, to the outer air, which should prove fairly satisfactory. These openings, either in the ceiling or in the wall near the ceiling, should be protected by lids or dampers of some kind to prevent ingress of air in cold weather.

I am not very much in favor of root houses in barns, for the reason that they have a tendency to make a building dark, and are very sure to be the cause of evil odors for a greater or lesser period sometime during the year. J. H. GRISDALE, Director.

ANOTHER OPINION.

1. I would advise ventilating shafts every eight or ten feet apart, the shaft to be made one foot square on the inside. Take four scantling



A Ranch in the Foothills of the Rockies.