

must be frequent and thorough, allowing no weeds to appear. The planting must be done in the early spring, as early as the ground will work well, and the plants must be one-year plants. Select good, thrifty, well-rooted, young plants of the variety desired, and after making small holes in the ground, spread the roots well out in the new soil and make them quite firm, and growth will readily commence. The planting should be done in rows three feet apart, and the plants one foot apart in the rows and allowed to mat up close the first year, or they may be made very satisfactory grown in hills. Pinch off runners till plants are well established, and also blossoms, not allowing fruit to set the first season. On the approach of winter a thin, light covering of straw or leaves may be placed on the whole, and in the spring this mulch should be raked in between the rows to remain there. The picking may be safely left to be attended to by the good wife and mother and the children, who, with much pleasure, will look after the fruit.

Varieties.—The small space at my disposal forbids me to attempt more than simply indicate a few of the best for home or family use.

1st.—For early: *Lovets* (S.); early, a new, large, early, promising berry. *Buback No. 5* (P.); large to very large, fine berry. *Haverland* (P.); large, firm, and fine, good bearer. *Clyde* (S.); healthy, vigorous, large size, uniform, quality good, firm, dark, bright scarlet, very productive, stands drought well.

2nd.—Medium: *Warfield* (P.); medium firm, and good producer. *Williams* (S.); plant strong, great bearer. *Maple Bank* (P.); new and good, fruit large and best.

3rd.—Late: *Jersey Queen* (P.); a standard sort, fruit large and fine. *Aroma* (S.); new, fruit large and late, firm and good. *Woolverton* (S.); fruit large, and of good quality. *Gaudy* (S.); fruit large and good, a good grower. *Connecticut Queen*; early, large, and good.

By consensus of opinion Buback, Warfield, Haverland, Clyde, and Woolverton are the five best market sorts to-day. I have named five late sorts because of their great value, and because good late berries are more valuable than early ones. With such a splendid list of this fine fruit, in its new and excellent sorts, I am sure that all farmers and others should have a splendid showing, and a fine, toothsome treat.

[TO BE CONTINUED.]

VETERINARY.

The Care of Young Horse Stock.

(From an address to Manitoba Farmers' Institutes, by F. Torrance, B.A., D. V. S.)

Of all our young domestic animals—colts, calves, lambs, and pigs—the colts are those most liable to disease and accident. Many of these mishaps that cause disfigurement, blemishes, or even untimely death, may be prevented by special care on the owner's part. The means at our command for protecting young animals from these evils will form the subject of the following remarks. The care of the colt should begin with the care of the mother. By this is meant not the ill-judged kindness of high-feeding and idleness, but the proper combination of good food and water, sufficient exercise, and comfortable quarters. Mares in foal are not any the better for having no work to do. On the contrary, they are distinctly benefited by doing regular work, provided it is of a suitable kind, and their offspring will be all the more vigorous in consequence of it. Weak colts that cannot stand alone are generally the offspring of mares that have been getting too little exercise during the latter months of gestation. The colt partakes of the nature of its mother, and if the dam is soft and flabby from want of work or exercise, the foal will be weak at its birth and a disappointment to the breeder.

Breeding mares, then, unless running at pasture, should have regular work or exercise every day. Their food should be abundant and contain all the elements required for the formation of bone and muscle. As the time approaches when the birth may be expected, the food should be of a more laxative nature, and the ration should contain a certain amount of bran or of roots. At the birth of the colt steps should be taken to guard against disease and accident. The most important of these are in connection with the treatment of the navel cord. If the birth takes place in the pasture, it is likely that everything will be well; but if it occurs in the stable or barnyard, the young animal is exposed to certain dangers which you should guard against. The most serious of these dangers is the disease known as

BLOOD POISONING, "NAVEL ILL" OR SEPTIC ARTHRITIS.

This disease is caused by disease germs which have gained access to the system through the moist surface of the navel cord during the hours immediately following birth. The disease germs are present in soiled bedding, filth of all kinds, and when the young animal is born indoors he is more or less exposed to infection from these sources. Out of doors the danger of infection is much less, and at pasture is so slight that it may be entirely disregarded. Once infected, the colt will within a few days show some of the following symptoms: He seems indifferent to his feed and unwilling to get up. Then he is found to be lame, and a painful swelling is discovered about some joint or other. This may disappear under proper treatment, but

frequently it becomes worse, and eventually bursts and discharges matter (pus), and a running sore is left. This often communicates with the interior of the joint, and the synovia or joint oil escapes. Cases of this kind usually die, and even mild cases are difficult and uncertain to treat. The importance of preventing the disease is, therefore, easily perceived, and the means of doing so are simple and within the reach of any one. Have at hand a small quantity of pure carbolic acid, and as soon as the foal is born dip a feather in the acid and brush it all over the surface of the navel cord, taking care not to touch the skin with it. The effect of this is two-fold—it presents an effectual barrier to the entrance of disease germs and it dries up the navel cord quickly, and once the cord is dry there is no danger to be feared from disease germs. So far I have spoken only of colts. Calves suffer from this disease so seldom that it is unnecessary to take this precaution.

BLEEDING OR HEMORRHAGE FROM THE CORD.

Unless the flow of blood is alarming, it is better not to tie cord without waiting a minute or two to see whether it will not stop of itself. The tying of the cord interferes with its rapid drying, and is to be avoided if possible. When necessary, it should be of stout cord—binding twine will do—and must not be applied too close to the body. Always leave a couple of inches, if possible, between the ligature and the body. Then if the cord is accidentally torn and the bleeding starts afresh you have still something left upon which to apply a ligature.

CONSTIPATION.

After attending to the navel, the young animal, as a rule, requires no help to get up and take its first drink, and this is generally followed by the first movement of the bowels. If this motion does not take place within an hour or two after birth, constipation is present and calls for immediate treatment. During the life of the colt or calf within the womb, although no food enters its mouth or stomach, yet a certain amount of material accumulates in the bowels. This is called *meconium*, and is chiefly composed of bilious matter from the liver and of dried mucus from the mucous lining of the bowels. Nature makes provision for the speedy expulsion of this meconium after birth by giving a purgative quality to the first milk secreted by the mother. If, from any cause, this fails to empty the bowels within a short time after birth, the meconium should be removed artificially, either by giving an injection of warm soap suds, or by hooking it out piecemeal with a stiff piece of wire bent into a loop. [NOTE.—Many find there is no other means so safe and effective as to insert the index finger, well oiled, to remove the meconium.—Ed.] After the first hard masses are removed there is usually no further trouble.

DIARRHOEA.

The opposite condition of too great looseness is a frequent ailment of young colts and calves. It may arise from taking cold, or it may be produced by some change in the milk which renders it unwholesome. If the colt or calf is sucking its mother, the udder should be examined for symptoms of inflammation, and if these are present the young animal should be fed artificially for a time. When no change can be detected in the milk or udder, the diet of the mother should be lowered for a time. In treating diarrhoea, do not make the mistake of trying to stop it at once by giving laudanum and astringent medicines. It is better to try first, by dieting the mother and removing probable causes of the condition, to get the bowels into a healthier state. A moderate dose of raw linseed oil will generally be useful in helping nature to expel irritating matters in the bowels. Often it will be all that is necessary, but if the diarrhoea continues it is time to give medicine to check it, such as laudanum and tannin, in moderate and frequent doses, until the desired effect is produced.

FEEDING COLTS.

Young colts should be taught to eat oats as soon as possible, so that when they are weaned they will take readily to them and not suffer a serious check to their growth. The care that is bestowed on a colt at the time of weaning and during his first winter is most important to his development. If he is left to feed himself as best he can, and "rustle for grub" around a strawstack, he will never amount to anything. Every colt should have his oats and bran regularly every day from the time he is weaned until he is turned out to grass the next summer. The insufficient food and the care bestowed upon many of the colts in this Province is one reason, and probably the great reason, why most of the horses raised in Manitoba are undersized. Good feeding is essential to the growth and development of the colt.

PARASITES.

During the winter months colts often get infested with vermin. Lice multiply so fast and cause such irritation that unless speedily destroyed they will seriously injure a young animal by stunting his growth. There are many remedies in use for destroying them, but all have some drawback, and the ideal one is not yet discovered. Coal oil emulsion is probably the best of these, being cheap and effectual in destroying not only the lice, but their eggs or nits. The drawback is that it wets the skin, and in cold weather this may be followed by a cold. It should only be applied on a mild day and in a warm stable: Boil two ounces of soap in a quart of

water until dissolved, then pour it into half a gallon of coal oil, and churn up the mixture briskly with a syringe until the oil no longer comes to the top. When cool this should form a jelly, and must be diluted with four or five times the quantity of water before using. The colt should be wetted all over with this solution, and the sides of the stall should be painted with coal oil.

CARE OF THE FEET.

During the winter the feet of the colt are not subjected to the same amount of wear as they are in summer, and as they are growing continually they soon attain an unnatural length. This increased length of foot alters the natural relation of foot and leg. The weight of the body is thrown more and more upon the back tendons, and strains are thrown upon structures unprepared to stand them. The result of this condition, if allowed to continue, is frequently the production of ringbone or some other deformity. The feet, then, should be looked to, and the excessive growth removed when necessary. Twice during the winter should be sufficient.

Experience and Experiments with Milk Fever in Cattle.

(Compiled from an address delivered at the annual discussion meeting of the Refresher Society by Mr. Alex. Fottie, M. R. C. V. S., Paisley.)

Milk fever in cattle is attended by a protracted sickness that lasts from twenty-four to forty-eight hours, and then passes off. It may attack the cow two days before calving, or within three days after calving, but never at any other time. The disease is more fatal when it attacks cattle when feeding on grass than house meat. It seldom attacks a cow under five years old, but may attack a cow at any age afterwards. The first attack renders them almost liable to take it a second or third time, for one attack leads to another. Now, I will add to these my own observations: That an animal with a full rumen or first stomach seldom recovers, or is more likely to die than one with a comparatively empty stomach; that a cow in this disease has almost no fever or excess of bodily heat, and that recovery does not depend on temperature; and that in the great majority of cases a cow does not die from constipation of bowels. Now, these are, perhaps, the most of the facts or truths from observation that we can produce, and whatever we find is the first cause must in some measure account for these facts. We will not, then, begin to theorize about the nature of milk fever until we have examined closely the state of the animal immediately after it takes the disease, its internal organs, and the *post-mortem* appearance of a cow that has died of the disease. If you examine, say, ten carcasses of cows that have died of this disease, having passed through all its stages, you will find five at least where not a particle of disease can be found in any organ of the body. If you examine a carcass, say, of a cow twelve hours in it, and which passed as near the gates of death as possible, and which had then been killed, you are no better. Now, suppose I admit that in some cases we find congestion of the brain, blood on the brain, or fluid on the brain or spine; in another tuberculosis in various parts of the body, or disease of the liver; or in another a needle near the heart, or the placenta in the stomach—are we nearer a first cause? No; for if we admit that cases of milk fever have been known where nothing was to be observed, we must also, then, admit that all the other things observed are but accidental diseases or conditions, or are the effects of the disease, which may render the case more difficult to cure, but which can in no way be connected with the true cause of the disease, unless we view them as exciting causes. I admit, then, that the disease, whatever it is, is not structural, but functional. When we see any alteration of structure, as inflammation of an organ or any changed condition of the carcass, we say the disease is structural; but if we see nothing—that is, if the disease has died with the animal—we say that it is functional; that is, it belongs entirely to those diseases where the organ has stopped acting. If a watch stops and the watchmaker can see nothing broken, but only some dust that has prevented the watch from moving, we would call that stoppage of the wheels a functional stoppage. So, you see, we learn much by seeing nothing, for we have proved that whatever the disease is it is a functional derangement—it is a stoppage or interference with the working of some organ of the cow's body. You may have three cases of milk fever, and in every one the symptoms are different. Now, we can only know disease or read it in many cases by its symptoms. First, then, you have what is called a mild case—partial paralysis of the hind legs. She is down and cannot rise; is not very sick; carries her head, and at times keeps it to her side; grinds her teeth; breathes naturally, but is inclined to swell; may get up, stagger, and lie down again. If not tubercled she may get up in a day or two; she has almost no milk, and is but slightly affected in the head. This is what I call the partial paralytic form. The second form is that of a cow that seems at first dull; eye dull; staggers, and moans as if very sick; tries to stand as long as possible; probably falls, as the hind legs have become so cramped that she cannot bend them. She struggles a little, but the drooping head, dull eye, and incessant swing of the head all indicate that she is going fast into a sleepy, comatose state, so that in four hours or so from the first visible attack she may not be able to swallow. This is what I call the comatose