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should be tried is merely work half done, and we all know what results are in the end. If it is worth while to breed a mare it is just as well worth while to return her regularly, providing some worthy reason does not later develop why she should not be returned. Merely to fail to take her to the appointed place on the plea of being busy is a very poor business policy. Suppose the corn is weedy and the weather has been wet, to stop for a half-day means to lose that much time in going over a few acres at the most. To keep on may mean not only to let the mare go barren for a year, but may also start her in a bad habit and cause her to become difficult to get with foal afterwards. If the owner of the mare agrees with the owner of the stallion to return her at a stated time and place that constitutes a binding agreement, and in the event of dispute over the payment of the fee might have a marked bearing on the outcome. In any case an agreement is an agreement and if the owner of the mare cares nothing of his own financial welfare he should at least respect his word. The business of standing a stallion is a precarious one at the best and disagreeable at all times. To make a profitable season, the man handling a horse must arrange his business in a business-like manner, and he cannot do that if he cannot depend on the return of the mares when promised.

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Contagious Abortion in Mares.

Editor "The Farmer's Advocate":

Contagious abortion in mares is commonly known to the stockman as "picking the foal," slinking or slipping the foal or some other phrase suggesting un-natural birth.

Until recently outbreaks of abortion were practically limited to those occurring amongst cattle. But during the last four or five years serious outbreaks of abortion in mares have occurred in several parts of the Province. At present the disease seems to be gradually spreading into the districts adjoining those primarily infected.

In some countries the disease has at times become almost as serious a menace to the livestock industry as contagious abortion in cattle. The much desired knowledge as to how the disease spreads from animal to animal and from place to place is unfortunately not at present available. An investigation made by the writer for the Ontario Department of Agriculture during the year has however, been fruitful by adding a little more information to that already possessed. Before anything worth while can be done to prevent the spread of an infectious disease a thorough knowledge of the way or ways in which the disease spreads is of course, most essential. Then the disease can be met and effectively checked like an enemy whose secret plan of attack has been revealed to the opponent.

The live-stock breeders will, I am sure, much appreciate the action of the Minister of Agriculture in starting and encouraging an investigation into this disease which is one of considerable importance to them.

There remains yet much to be learnt about this disease and such knowledge can only be obtained by co-operation between the breeder on the one hand, and those investigating the disease on the other. I am desirous of getting in touch with any who may have experienced the disease or are in any way interested in it. Let me first introduce the subject of contagious equine abortion to you, then later discuss some of the results of our investigation.

ABORTION CONTAGIOUS AND SPORADIC.

By abortion is meant the premature expulsion from the uterus of the foetus and its membranes. Foals born before their time but living are considered as premature births.

It is important to remember that abortion may be produced in a number of different ways. For instance, rough handling, as kicking or poking in the abdomen, a mare heavy in foal will frequently produce such a result. Backing heavy loads with a mare in advanced pregnancy is dangerous for the same reason. Feeding hay heavily infected with ergot will readily cause abortion. A severe attack of pinkeye, influenza or strangles may be followed by abortion. In fact, anything that profoundly disturbs the system is conducive to abortion. When due to these causes the term "sporadic abortion" is applied indicating that the disease is not in the epidemic form, just a few cases occurring here or there wherever some of the previously mentioned causes may have been operating. Sporadic abortion is not infectious or to use the better word not transmissible. Thus, if a mare happens to slip and fall on the ice, and abortion results such a mare is incapable of transmitting the condition to other mares stabled beside her.

This non-transmissible type is of little significance in comparison to the contagious abortion to be considered now.

CONTAGIOUS ABORTION.

Most stockmen have experienced this disease amongst their cattle and know how disastrous it proves to their calf crop. The disease in both cow and mare is very similar, although the micro-organism or germ causing the disease differs with these animals. The germ causing bovine abortion has been discovered for a number of years now and named after the discoverer, the Bang Bacillus. Only quite recently, however, has the germ of contagious abortion in the mare been discovered. Already many experiments have been made which leave no doubt as to its relationship to this disease. Discovering the germ that causes a disease, although of considerable value, is not always productive of the good results which may be expected to follow in the way of preventing and controlling the disease. Many useful experiments have, however, been performed and much of practical value is being learnt about this



A Belgian Officer.
Note the type of horse.

organism. In some of our experiments we find that this germ has marked powers of resistance to sunlight and drying. This teaches us the necessity of a thorough and efficient method when trying to rid a stable of infection. This germ lived for more than one hundred days when dried out on the end of a cotton-batting swab. Diptheria germs or tuberculosis germs would have been dead in half the time. We shall return to some of the peculiarities of the germ later.

SYMPTOMS OF EQUINE ABORTION.

These in many cases, are quite lacking. Generally speaking, the more advanced the pregnancy the more pronounced are the symptoms both before and after abortion. The early symptoms, unfortunately, are rarely specific, colicky pains, restlessness and occasional straining may be noticed. These in a pregnant mare, should always be regarded with suspicion.



Three Russian Officers.

Photo taken at the International Horse Show, London, Eng.

The vulva is frequently swollen and a mucus discharge present. Immediately previous to the act of abortion all symptoms become more noticeable.

The discharge which follows an abortion is generally very typical, being chocolate brown in color, fairly fluid and containing numerous small flaky particles. The odor is also very typical and offensive. The foetal membranes are, unfortunately, inclined to remain intact, which may necessitate their artificial removal. Common results are inflammation of the uterus and leucorrhoea or "the whites." The mortality is not high,

but the animals frequently lose in flesh and become unthrifty.

The foetus if delivered alive does not, as a rule, live long: those surviving have a pronounced tendency to develop joint ill.

The outside appearance of an aborted animal is normal, but on examining the organs, these often appear inflamed and larger than usual.

TREATMENT IN CASES OF ABORTION.

As soon as any symptoms suggestive of abortion appear, the mare should be isolated and placed in a box or single stall away from the other mares. Choose a place that can be easily cleaned and disinfected. Little can be done until the abortion has taken place. The uses of uterine sedatives is of little value and in contagious abortion should be avoided. The mare must be carefully watched for a day or two and if there is any evidence of fever a veterinarian should be called without delay. If the membranes do not come away with the foetus, they must be removed before twelve hours in the summer time and twenty-four hours in the cold winter weather. This is of great importance, many mares die through neglect of such a necessary measure. In all cases of valuable mares, a veterinarian should be called in to examine and thoroughly wash out the uterus.

METHODS THAT SHOULD BE EMPLOYED TO PREVENT THE SPREAD OF THIS DISEASE.

Prevention is better than cure in most diseases, but especially in those that are contagious. If the following precautions are taken, the spread of the disease from place to place should be considerably minimized.

1. As soon as aborted, burn the foetus and membranes. If not burnt, bury deeply and give a liberal dose of quick-lime before covering with soil.
2. Never drag a dead foal across a barnyard and field to place of burial and thus spread the germs of the disease over the farm, but remove in a split sack or wheelbarrow.
3. After handling foetus or "cleanings" wash hands thoroughly and then rinse in a one in forty Carbolic Acid solution.
4. Remove and burn all bedding. The sides of stall should be washed with a strong disinfectant and chloride of lime sprinkled on floor.
5. Wash the vulva, thighs and tail of mare with a one to forty Carbolic solution daily.
6. Isolate the mare for at least one month, then do not allow to mix with the rest of the stock unless all uterine discharge has ceased.

THE FOLLOWING RULES SHOULD GOVERN THE BREEDING OF SUCH MARES.

1. A period of three months should pass before breeding a mare that has aborted.
2. Mares should not be bred if there is any evidence of a chronic discharge from the uterus.
3. Mares which have aborted should only be bred at the end of the stallion season.
4. The application of an efficient disinfectant should be made to the generative organ of the stallion after each service in districts where abortion is prevalent.

SOME OF THE INTERESTING RESULTS OBTAINED DURING THE INVESTIGATION INTO THIS DISEASE.

1. That the germ of the disease may still be in the womb three weeks after abortion. Therefore, the mare ought not to be bred until much later if the interests of the breeding community are to be safeguarded.
 2. That mares may be harboring the germ of abortion and yet never abort. Foals from such mares, however, generally develop joint evil.
 3. That carbolic acid used in the strength frequently employed as an antiseptic wash (from three to six tablespoons to the pail of water) does not kill the germ of abortion. The strength should be increased to one in fifty or about a teacup to a two-gallon pail.
 4. There is much evidence pointing to the stallion as an important factor in the spread of the disease. The disease is bound to spread as long as stallion owners without suitable precaution breed unhealthy and discard mares.
- In closing, let me again state my desire to get in communication with any interested in this disease.

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Well Satisfied.

"I have read with growing interest the three numbers of your paper that have already come to hand, and am confident that I shall read the succeeding issues with pleasure and much profit. The practical matter-of-fact way in which the different features of farming treated are given to your patrons appeals to me. By having your contributors evidently so widely distributed (geographically) you are able to make your paper a compendium of up-to-date knowledge of every side of the composite theme you are constantly dealing with."

H. G. ESTABROOK.

B. C.