

BULLETIN

ON

TYPHOID FEVER IN HORSES

Bull. No. 8

N. of A.

IMPROPERLY CALLED

INFLUENZA

BY

DUNCAN McEACHRAN, F. R. C. V. S., D. V. S.

CHIEF VETERINARY INSPECTOR FOR CANADA

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OTTAWA
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As early as 1867 I differentiated between influenza and typhoid fever in horses as will be seen by referring to page 164 of 'The Canadian Horse and his Diseases,' where I say, 'Until lately, typhoid fever was not recognized in veterinary nosology as a primary disease, although as an accompaniment of epidemic diseases, such as strangles, influenza, &c., we were familiar with it in all its forms.

'It now occurs in forms so well marked that we are justified in giving it a place in professional nomenclature as a distinct disease.'

At that time it was attributed by me to influences which interfered with the general health and vigour of the animal, among which stand pre-eminently overcrowding, improper ventilation, confinement in damp filthy stables, drinking bad water, holding in solution decomposing organic matters, insufficient nourishment and undue exposure, together with what may be termed generally, atmospheric causes.

Since that time (33 years) innumerable opportunities have occurred to study it in all its varying phases. Since first engaging in horse-breeding in Alberta, seventeen years ago, I have had almost yearly experiences of it, and some years encountering heavy losses from it.

While the term typhoid fever is applied to this disease, it must not be supposed that it is identical with typhoid fever in man, as a matter of fact 'Eberth's bacillus does not occur in equine diseases and its inoculation in the horse remains without effect' (Mossleman). It has its analogue in the so-called mountain fever so prevalent in man during railroad construction in the foothills and mountainous sections of the west, as was seen during the construction of the Canadian Pacific Railroad, not only were large numbers of the workmen affected but many of the Blackfoot Indians died in 1883 from this form of typhoid along the railway. In 1898-1900, during the construction of the Crow's Nest Pass Railroad, hundreds of cases and many deaths occurred from it.

Equine typhoid fever, prevailed extensively and caused severe losses to contractors during the construction of the Calgary and Edmonton Railway and hundreds of horses died from this and carbuncle of the feet and legs during the construction of the Crow's Nest Pass Railroad also.

It has been reported recently by Veterinary Staff Sergeant Mountford, V.S., North-west Mounted Police, Prince Albert, Veterinary Staff Sergeant Sweetapple, V.S., North-west Mounted Police, Fort Saskatchewan, and S. C. Richards, D.V.S., Grand Forks, B.C.

Being informed that Mr. J. H. Macfarlane, an extensive horse-breeder at Battleford had sustained severe losses and discouragement by the disease, I wrote him and

requested to be furnished with a statement as to his experience and observations ; in reply I have been favoured by receiving the following very lucid description of the disease from him.

D. McEACHRAN, Esq.,

Chief Inspector of Stock,
Montreal.

DEAR SIR,—Replying to yours, would say that I am pleased to have the opportunity of giving you any information in my power. Have been breeding horses in the Battleford district for twenty-five years, and have lost a large number during that time. I have had no trouble with horses that are constantly stabled, but have had serious losses among those running on the range, and at pasture. Pink eye started in this district early last spring, which caused a large percentage of the mares to abort, and also killed many of the foals. Would say the loss of foals was fully 75 per cent. Nearly all the older ones recovered without treatment ; that disease seems to have run its course, as I hear no more about it. The drawback in the horse-breeding industry is what is called here typhoid fever. Symptoms are dulness, tucked up flanks, loss of appetite, costiveness, constant standing, legs swell from feet upwards, swelling on belly, which in time extends from sheath to breast—drinks freely in first stage, heaving at flanks, passes wind freely, bowels rumble greatly, in females water dribbling—males, pendant sheath—eyes bright, pendant head, back arched ; when walking will strike hind feet against front ones--sore throat, no cough or discharge from nostrils. The heaving at flanks and pulse quickens as disease progresses, patient stands till exhausted, then falls and dies at once without a struggle. In some cases this disease runs its course in ten days, in others will last for months. Many of those that recover are of little use, most of them being weak in the spine. This disease seems to be hardest on colts two to four years old, as it usually attacks one of those ages first. It has always been my custom to isolate affected ones, and to treat according to the best method known here, but so far have had very poor success. Some owners will allow an affected one to remain with the bunch, and perhaps lose only the one. Others have tried the same thing and lost half the bunch. Some years ago, a three-year old filly took this disease ; I at once placed her in a loose box, but she became so excited that I put an aged gelding in with her for company ; they remained together till shortly before the filly died. The gelding is still hearty at 24 years old. Again, last fall I allowed a three-year old gelding that had this disease to run with a bunch of twenty head. The colt died after being sick two months, but all the rest of the bunch are still in the best of health and condition. This disease is just as hard on the native Indian pony as on horses of a higher grade. It has been a scourge all through the Saskatchewan district since I came here, and unless some treatment can be found that is effective, the horse-breeding industry will degenerate into breeding ponies, on the principle that if you lose a pony you will not lose much.

The treatment prescribed by the veterinary surgeons who have been in Battleford district has been a failure. In my opinion, the flies have more to do with this disease than we are aware of. They are so numerous as to be a perfect scourge. To give you an idea of what stock have to stand in that way, we began making smudges on May 12 last, and kept them going constantly until September 12. This disease usually attacks during the months of July, August, September and October, when the days are very warm and nights cold ; this seems to be the hardest time, probably because the horses are then moulting. It is hard to tell where and when this disease will attack. It broke out last summer among my Clydesdale fillies, with the result that I lost one three-year old, one two-year old and one yearling—one yearling colt recovered. My Clydes have always been carefully wintered in comfortable stables, and on account of always being strong and healthy, thought them proof against this disease, but found

I was mistaken. I may say that they were allowed their liberty as soon as the grass was good in spring. Many ranches are from 25 to 100 miles distant from a veterinary surgeon, and the ranchmen consider it as well to let the horse take his chances as to go that distance to consult one, but if those men only knew how to treat the patient, they would keep a supply of the necessary medicine on hand. Were I allowed to offer a suggestion as to the best way to prevent the loss in future, I would say the most practical move your department could make is to have circulars printed, giving symptoms and treatment, with full directions about isolation and fumigating infected stables; have those circulars reach every farmer and rancher in Saskatchewan district. Where there are no druggists, storekeepers could keep a stock of the required medicines on hand and supply the surrounding country. If this could be done, I am sure it would save many thousands of dollars to the settlers each year. Should you consider the above worth consideration, I would advise prompt action being taken.

I have been informed that there has been considerable loss in stabled horses at Saskatchewan, Rosthern, Duck Lake and Prince Albert. From the symptoms given me by some of the unfortunate ones, I am satisfied it is this same fever. One Rosthern man told me he had lost twelve out of twenty brought from Manitoba four years ago. In low swampy regions this disease is much worse than on high dry parts, and it appears the farther north we go the worse it is. You are probably aware that in many parts of Saskatchewan district there is considerable bush land, also many small lakes and swamps.

Horses like to go in the water and feed on the tender grass. In bush parts there is a rank growth of peavine (wild pease) that horses feed on, as soon as the flies will allow them. At that time the prairie grass is about cured. Might not the change from dry to green feed have some effect? That is always the most dangerous time. Another thing I should mention is the sudden changes in the weather, when suddenly a cold north wind will bring up as cold a rain, and although it knocks out the flies and allows horses to feed, still their appearance shows that they have suffered. Am not at present able to state the losses in horses within the last year. Breeders in this part are so discouraged by heavy losses, I am sure that anything you can do will be highly appreciated.

Any further information you may require about this disease and district will be cheerfully given to the best of my ability.

Yours truly,

J. H. MACFARLANE.

The following report on this disease has been furnished by J. J. Mountford, V.S., North-west Mounted Police:—

‘The fever I spoke of in my report I have often discussed with the different medical men in Prince Albert, and they say it is the same as the typhoid in the human being.

‘On post mortem examination you will find perforation of the intestines and the most common cause of death is blood-poisoning, though rupture of the intestines is not uncommon.

‘The influenza is similar to the influenza I have seen in western Ontario, and the symptoms vary much and depend on the organ most affected.

‘The horses which are running on the open range suffer most from the above diseases, and the horses which are in the stable and are not allowed to run out at all and watered at the river are seldom affected.

‘The cause of so much sickness among the range horses is, I am satisfied, caused by the horses eating and drinking out of sloughs which are full of water in the spring and gradually drying up during the summer. The vapour which rises off of one of those sloughs is putrid and the country is full of them.

'May say I have often seen a farmer have his stable on the edge of a small slough, the drainage from the stable running into the slough, winter and summer, and he would be surprised at his horses being sick.'

This disease is also referred to in the reports of Commissioner Perry, North-west Mounted Police, Veterinary Staff Sergeant Sweetapple, V.S., S. C. Richards, D.V.S., Grand Forks, B.C., and W. S. Bell, V.S., Cranbrook, B.C. The latter gentleman also reports another variety of it which occurred in Indian ponies on the reserve south of that place. Here it presented several complications, partaking more of the character of irregular strangles.

Typhoid fever is not the form of influenza western men are familiar with, occurring as it does almost every summer among the cow-ponies. The disease which attacks these ponies is a catarrhal form of influenza accompanied by slight coughing and nasal discharge running its course without complication in about three weeks without treatment of any kind if the weather is fine, longer should it be cold and wet.

It partakes more of the character of epizootic cellulitis or pink eye, and like it prevails most during cold wet weather, particularly when moderately warm days are followed by cold wet nights to which the horses are exposed.

It is usually ushered in by dulness, rigours, fever, infiltration by serious effusion in all submucous cellular tissues, accompanied by nervous depression and general debility, the head is carried low and the gait is tottering. The action of the bowels is sluggish and gastric and intestinal complications are apt to ensue.

During some seasons it takes the form of pink eye when the eyes are affected, being closed and watering; the pupil is contracted and the conjunctiva is of a dark red hue, the eyelids tumid, hot and tender.

It is sometimes complicated by purpura hæmorrhagica when the legs, sheath, under surface of the belly, brisket, and head become largely swollen; the nostrils almost closed and the mucous membrane tumid and studded by spots of a bright scarlet hue.

It is found on post mortem examination that the cellular tissue underlying all the mucous membranes is infiltrated, hence the intestines, liver, kidneys, lungs and heart may become more or less severely involved, particularly organs which have been weakened by previous disease.

Sometimes, however, with unstabled horses, if the weather is favourable, it runs a definite course, recovery taking place within a week or ten days. Pregnant mares usually have it in a mild form, but it almost invariably produces the death and abortion of the foal.

Prophylaxis.—In view of the fact of this disease being most commonly observed under circumstances favouring a miasmatic theory of origin, an effort should be made to herd them away from sloughs, particularly during hot dry weather. They should be herded on dry land and watered at a running stream or spring, if possible. Rock salt should be scattered over the grazing grounds, and on the first appearance of the disease—if it is at all practicable—they should be removed to another portion of the range; if not, they should be given the best shelter possible, but not in a warm stable. (*Beware of sudden transitions of horses from the open ranges to warm stables.*) In addition to hay, or as a substitute for it, give them unthreshed oats. In dealing with a herd medication is not practicable, and the best you can do is to assist nature by nursing them through it the best way you can. As long as sloughs exist and the herd has free access to them, this disease will continue.

To prevent it in stabled horses, see that your stables are constructed on proper principles for insuring free ingress of pure air and thorough removal of foul air by properly constructed ventilating shafts, which should be from two to four feet square, running straight up through the roof from within two feet of the ceiling, and divided in the middle to ensure a circulation of air in them.

See that the drains are properly laid and in good order, and that no stagnant pools exist in proximity to the stable. Young and old horses should be exercised several

hours in the open air every day. While its contagiousness is doubtful, it is advisable not to risk healthy animals coming in contact with diseased ones. Buckets, feeding boxes, drinking troughs, and buildings may be the media by which it is communicated.

The stables should be thoroughly lighted, sunlight is destructive to most disease germs. The walls should be frequently swept, and if possible whitewashed twice a year, and in every case immediately after it has been occupied by sick animals it should be disinfected as directed below.

TREATMENT.

All reducing measures must be interdicted, such as bleeding or purging; benefit will follow the relieving of the bowels by administering half a pint of raw linseed oil, feeding on bran mashes, oatmeal gruel, linseed tea or barley tea. Milk is highly recommended as a sustaining food in these cases.

They should be encouraged to drink cold water impregnated with nitrate of potash, three drachms daily. Two drachm doses of chloride of ammonium, or the same of hyposulphate of soda, given in a mash night and morning will tend to prevent blood clots forming.

Stimulants must be given when symptoms of weakness appear, alcohol, four to six ounces, may be given daily, well diluted, or drachm doses of the Sesqui carbonate of ammonia may be administered in a ball several times in the twenty-four hours. The swollen legs should be bandaged; swellings of the head and nostrils should be fomented with hot water. When purpura sets in ounce doses of spirits of turpentine may be given four times a day, well shaken up in a pint of linseed tea, or drachm doses of chlorate of potash may be substituted. The appetite must be coaxed by offering changes of food, green grass, carrots, &c. The animal should be clothed and protected from draughts, being subject to chills and relapses.

It must be nursed through the convalescent stage by generous diet and judicious exercise.

DISINFECTION OF STABLES.

When the buildings are modern and properly constructed as to air space, light, drainage and ventilation disinfection is a simple matter.

When, however, the stable building is old, perhaps a utilization of some old wooden structure for housing animals, or the make-shift erections of the pioneer in the west who by force of circumstances has been compelled to provide some sort of shelter which because horses are kept in it is called a stable, it is more difficult.

The disinfectant may be gaseous, spray, liquid or solid. The gases most used for disinfection are chlorine and formaldehyde.

In using gas for disinfectant purposes it is necessary to remove the animals, and close up tightly the doors, windows and ventilators.

To generate chlorine gas, place, say 8 ounces of common salt with which $\frac{1}{2}$ ounce of black oxide of manganese has been mixed—in an earthenware plate, then pour three ounces of sulphuric acid over the mixture and stir, when chlorine gas will be evolved. Care must be taken not to inhale any of the fumes as they are very irritant to the bronchial tubes—several plates may be used according to the size and form of the stable. It should be left closed for four hours when it may be opened and air and light freely admitted for several hours before animals are returned to it.

Vaporized formaldehyde is extensively used for disinfecting houses, it is disengaged by a special apparatus and is introduced to a room or building by a rubber tube, passed through a key-hole.

Steam is very effective where it can be conveniently furnished.

The liquids used for disinfection are solutions of corrosive sublimate which while much used in human practice is too dangerous a poison to be employed for disinfection of stables or byres. Solutions of carbolic acid, creolin, sulpho naphthol or sanitas, may be used either in watery solutions or in combination with lime wash.

Reliable disinfection may be obtained by using a spraying pump and applying a lime wash to every five gallons of which a pound of commercial carbolic acid is added, forcing it into every corner, crack or crevice of the walls, stall, divisions and floors.

The solids used are lime, chloride of lime, and carbolate of lime which are useful for sprinkling floors or mixing with composts and manure heaps.

More powerful chemicals are prescribed for disinfection, but in selecting the above we have considered efficiency, safety, cheapness and facility in procuring as most country druggists can supply them.