

# Kansas State Agricultural College

EXPERIMENT STATION,  
VETERINARY DEPARTMENT.

Historical Document  
Kansas Agricultural Experiment Station

## A Troublesome Parasite of the Horse.

The Palisade Worm—*Strongylus Armatus*.

During the last two years this parasite has become very generally distributed over all parts of the State, due to the excessive moisture and flood conditions. It has caused the loss of a considerable number of horses in different localities, and in some instances killed all the horses on a farm.

*Description of the Parasite.* — Thick at its head end, it tapers backwards, ending in a blunt point; its mouth is round, open, and furnished with several hard rings, of which the outer one bears six short, blunt, teeth-like projections, and the innermost a row of closely set, pointed teeth. The female, from  $\frac{3}{4}$  to 2 inches long, has a blunt, pointed tail, but the male, 2 to  $1\frac{1}{4}$  inches in length, has two lateral projections joined by a rudimentary central lobe. This minute description is given in order to distinguish it from the *strongylus tetracanthus*, a somewhat lighter colored and smaller worm, which it resembles in many respects and which is found in the intestines only, either free or attached to the intestinal wall.

*Life History.* — The worms are found in the horse in two periods of existence. The mature worms are usually found attached to the mucous membrane of the intestinal wall of the large intestine—caecum and colon—with the head sunk deep for the purpose of sucking blood, which gives them the brown or red color. The immature are found sometimes in the same organs, in a small capsule or covering, in small pellets of manure, in cavities or cysts varying in size from a pin-head to that of a hazelnut in the walls of the intestines, and also in the arteries and other structures of the body. (See page 2.)

stagger, the eyes become fixed, and the horse shows many of the symptoms of "blind staggers."

When the large arteries of the abdomen are affected, and this is their favorite location in the circulatory system, the animal is frequently subject to colic, which often results in death. This is also the case when found in great numbers in the intestine. It has been estimated that in some localities as high as 90 per cent of cases of colic are caused by this parasite.

*Cause of Death.* — From a thorough investigation of a great many cases, both before and after death, the conclusions are drawn that the parasite evolves a poisonous substance (toxine) which in many instances stupefies the brain or parts of the nervous system of the horse, and in that way causes coma, paralysis, and death of the animal.

In a great many post-mortems held at the clinic and in the dissecting room of the Veterinary Department of the Kansas State Agricultural College and over areas of the State where no outbreaks have been observed, on careful examination, the mesenteric arteries and coeliac axis (arteries leading to the internal organs, the favorite location of these parasites) have been found to contain enlargements or aneurisms caused by this parasite which frequently contain the living parasite itself. In a post-mortem recently held upon a six-month suckling colt, a large aneurism of the anterior mesenteric artery was found containing a large number of the living worms.

*Treatment.* — Is mostly preventive. Thoroughly inspecting water supply, to see that there are no parasites



The egg being laid in the intestinal canal of the horse sometimes hatches there, but more often does not hatch until a few days after it reaches the external world. If conditions are suitable in the way of moisture and temperature, the worm may live for several months in this stage in damp places, such as fodder, pasture, or stagnant water. It has become quite prevalent the last year in pastures and meadows subject to overflow from creeks or washings from infected areas. In this stage the worms are taken into the system of the horse. Reaching the intestine of the animal, they bore their way into the mucous membrane and encyst themselves. Should they find a blood-vessel in their migrating, they are carried into the circulation. It is the most common parasite found in the circulatory system of the horse, through which it may be carried to almost any organ of the body.

*Symptoms.* — When present in the kidney or in the arteries leading to the kidneys, or in the surrounding tissues, a horse is especially sensitive to pressure over the loins. They have been known to cause paralysis.

When found in the brain, an animal when working, suddenly begins to

present in the drinking water. Keep the horses from all stagnant ponds. All surface wells should be inspected. Hay and fodder from swampy lands are to be looked upon as suspicious. Pastures which are subject to overflow and seepage should be avoided. Medicinal treatment consists of a prolonged, careful use of some of the essential oils or other vermifuges. The ordinary spirits of turpentine has proved a fairly good common remedy. An ordinary animal will stand two ounces of turpentine given in a pint to a quart of raw linseed-oil, thoroughly mixed. If the animal is badly affected, the above dose may be given night and morning for two or three days, then omit for a week or two and repeat. The remedy should be discontinued as soon as the animal shows signs of irritation of the kidneys. Some horses are more sensitive in this respect than others. Two to four doses may be given every two or three months to expel the worms from the intestinal tract. If possible, the whole herd should be placed under treatment under the direction of a competent veterinarian as soon as the parasite is found in the faeces or their presence is suspected.

Approved:

ED. H. WEBSTER,  
*Director*  
MANHATTAN, KAN., February 8, 1909.

F. S. SCHOENLEBER,  
*Veterinarian.*