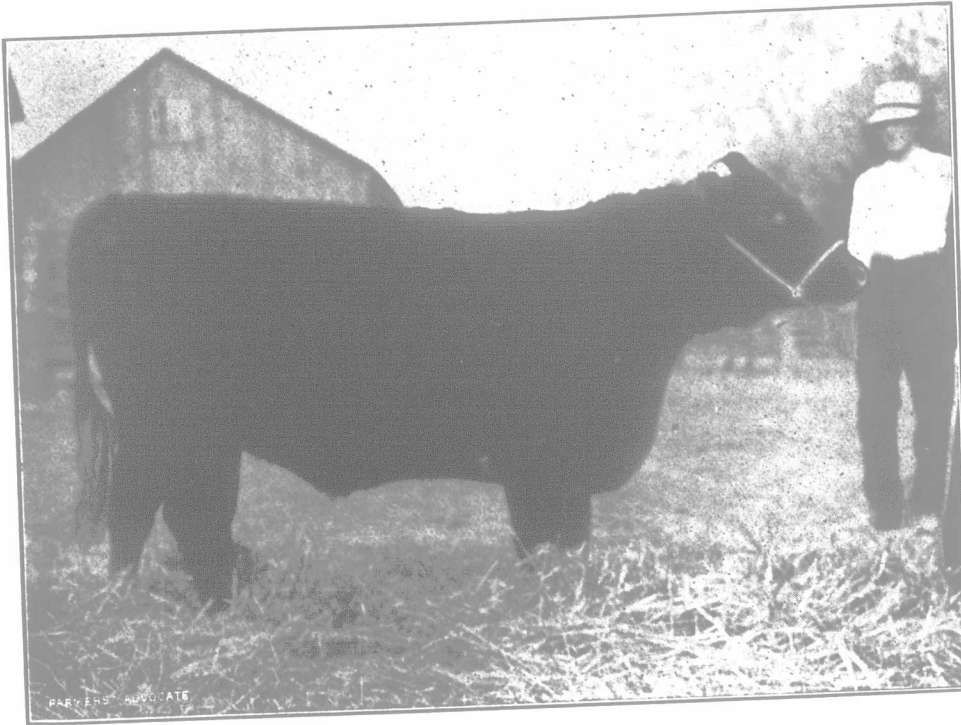


tion, when these products, which are supposed to be of a nitrogenous nature, are converted into various substances, chiefly uric and hippuric acid, and are supposed to be thrown on the kidneys for elimination or excretion. The kidneys, being unable to perform the increased function, these materials are practically thrown back upon the system, causing a form of poisoning of the muscles which produces paralysis, either partial or complete, according to the severity of the attack. It is probable, if the period of rest be extended beyond ten days or two weeks, that the system becomes accustomed to its conditions, the excretory organs become active and eliminate the materials which at an earlier stage of the period of idleness would have caused the disease, if the animal had been subjected to exercise. We cannot tell why some horses will suffer from the disease under conditions to which several have been subjected, and others go free. Neither can we tell why a horse may be subjected to such conditions many times with impunity, and at another time be attacked with the disease. We know that such are the facts, but cannot explain why. We notice that horses that are accustomed to spasmodic exercise, or, in other words, are accustomed to standing idle for a few days at a time, and then worked or driven, seldom suffer from azoturia. Most victims are those that are accustomed to regular work and good food, and from some cause spend three days or more in idleness, and are then given exercise. Exercise following rest is necessary to cause the trouble. I have met with cases that were caused by horses getting halter-cast after standing a few days, the exertion in endeavoring to rise having the same effect as driving or work. Horses that are kept in box stalls are very seldom attacked. They evidently take sufficient voluntary exercise in the stall to keep the excretory organs active, and prevent the accumulation of the products noted. As the disease is always serious, and in severe cases often fatal, it is obvious that preventive treatment is advisable. This, of course, consists in giving daily exercise, even a few minutes; but if conditions make this impossible, the grain ration should be reduced, and largely supplemented by bran; or, if possible, the horse given a box stall during his period of idleness.

Symptoms.—After a period of rest, the horse usually feels vigorous and anxious to go. After being driven or ridden for a variable distance, from a few hundred yards to several miles (the symptoms have been noticed in some cases after a few minutes' exercise, while in others not until after a few hours). He begins to lose ambition, hangs back, goes suddenly lame either in the hind or fore leg (usually behind). It is often thought he has picked up a nail. He perspires freely; the muscles over the loins and croup (or, if the fore extremity be involved, those of the shoulder and forearm) become enlarged and very hard. His respirations are labored, his expression becomes anxious, he trembles, the pulse becomes frequent and strong. He looks around at his sides, appears to suffer colicky pains, may lie down and roll, regain his feet, etc. His back becomes arched, he knuckles at the fetlock, he has lost control of his limbs, the whole body shakes, and he tries hard to retain the standing position, but eventually falls. He may rise on his fore legs, drags his hind part along on flexed fetlocks, and falls again, struggles violently, and often becomes delirious, and becomes practically uncontrollable. If he voids urine, or if he is drawn by a catheter, it is noticed to be thick in consistency and very dark in color, very strongly resembling very strong, thick coffee in appearance. He is totally unable to rise, or to stand if raised in slings, but his power to struggle is very well marked, and it is a very difficult matter in many cases to prevent him injuring himself and his attendants. These symptoms are those of a very severe case, and, of course, are more or less modified in cases less severe; but the partial or complete loss of control of the limbs, the lassitude, enlargement and hardening of the muscles, anxious expression, and apparent colicky pains, are more or less marked in all cases.

Treatment.—In most cases, when the first symptoms appear, if the horse be allowed to stand, he will recover even without treatment. Hence, so soon as the slightest symptom of the trouble is noticed in an animal that is being given exercise after a period of idleness, the driver should not attempt to get him home or to a veterinary infirmary, but quietly lead him to the nearest stable or other building he can reach, or, if in fine weather, a field or even a fence corner; and if he has trouble in standing, he should, if possible, get help, and endeavor to support and steady the patient for an hour or longer. It is good practice to administer a purgative of about 8 to 10 drams aloes and 2 drams ginger, and, if the weather be cold, clothe him warmly and keep comfortable. Some recommend the application of mustard or a strong liniment over the loins, but others claim that this increases the uneasiness and does no good. We have not thought we found benefit from this practice. If the patient can be led on his feet for a few hours, a recovery will take place, and he can be moved to his own

stable in from 24 to 48 hours, or, in rare cases, sooner. If the patient falls, and is unable to rise, he must be moved on a boat or truck to some comfortable and roomy stall or building, and made as comfortable as possible. A brisk purgative should be administered, and this followed by two drams iodide of potassium every four or five hours for about twenty-four hours. Injections of warm, soapy water per rectum should be given every few hours to hasten the actions of the bowels. The urine should be drawn off with a catheter about every six to eight hours, and, if the kidneys become inactive, $\frac{1}{2}$ ounce of nitrate of potassium should be given three times daily. It is necessary for an attendant or two to remain with him, and in some cases it is necessary to hobble his feet to prevent injury to himself and attendants.



Yearling Cruickshank Butterfly Heifer.

In D. Birrell & Sons' Shorthorn sale, at Greenwood, Ont., June 20th.

If the bowels and kidneys can be kept active, and delirium does not increase, there will be a reasonable prospect of recovery; but if the symptoms continue to increase in intensity, death will result usually in from two to three days. When recovery is about to take place, and the patient attempts to rise, he should be assisted. In some cases it is wise to use slings to get him on his feet, but if he cannot stand when raised, he must be allowed to lie down again. During treatment he should be allowed water frequently, but should not be allowed large quantities at a time; and, if

the services of a veterinarian, as complications are liable to arise which he will probably be able to combat. There are different proprietary medicines and serums from which practitioners claim to get excellent results; but these can be used properly and safely only by qualified practitioners. "WHIP."

LIVE STOCK

Profitable Steer Breeding in Manitoba.

Keen interest has been aroused by the steer-feeding experiments conducted at the Manitoba Experimental Farm at Brandon during the past

few years, particularly by reason of the satisfactory showing of outdoor, compared with stable feeding. The results of another year's work have been recently published by the new Superintendent, W. C. McKillican, and additional interest is lent by the encouraging showing of alfalfa hay, which was used in a small way for two of the three lots. The following is abridged from Mr. McKillican's report:

Twenty-one steers were purchased, at \$33 per head. They averaged 1,053 lbs., which made the purchase price 3.13 cents per pound. They were all rising three, and were chiefly Shorthorn and Hereford grades. They were started on

feed on Nov. 15th, and shipped on May 1st. Bids were received from quite a number of buyers from Winnipeg, Brandon and other points. The best bid was 6.30 cents per pound, made by a Brandon buyer.

DETAILS OF THE FEEDING.

The twenty-one steers were divided into three lots, as evenly as possible in regard to size and quality.

Lot 1 was fed entirely outside, without any shelter except the natural scrub and brush. They

were supplied with water from a well and a large trough which was kept from freezing by means of a small tank heater. They were fed straw and, at the last, hay in large racks, which were filled by the sleigh-load, as required. The grain ration was given on feeding tables. They were started on a ration of 2 pounds per day of mixed oats and barley chop. This was gradually increased to 11 pounds of chop, 1 pound of bran and 2 pounds of oilcake at the finish. From January 1st on, they got 2 pounds of alfalfa hay per day, chopped and mixed with their grain.

Lot 2 was fed in the stable. They received 8 pounds of straw, 35 pounds of corn silage, and 15



Waterloo Lady 36th.

Three-year-old Shorthorn heifer. First and champion, Oxfordshire Show, Thame, May, 1911.

he will eat, he should be given bran and a little good hay or grass. At any time during treatment, when colicky pains are present, it is good practice to give an anodyne, as 2 ounces of the tincture of belladonna, or 1 ounce chloral hydrate. The treatment advised for that can be given by the ordinary horseman. Of course, in all except very mild cases it is necessary to secure

pounds of roots daily throughout the experiment, and received no hay. They were started on a ration of 2 pounds of mixed oats and barley chop on November 15th, and this was gradually increased to 10 pounds of mixed chop, 1 pound bran and 2 pounds oilcake at the finish of the test.

Lot 3 was fed in the stable, as well. They