In this issue we present in the leading article by Dr. E. T. Baker an invaluable contribution to the literature on plant poisoning.

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The promised announcement of our new work on "Lameness" will be found on page 681.

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Poisonous Plants Affecting Sheep

By E. T. BAKER, Moscow, Idaho

EVERY experienced person is familiar with the losses incurred among sheep from eating poisonous plants. Sometimes only a few are poisoned and die, while in other cases whole bands of several thousand have been wiped out in a few hours to a couple of days.

It is a well known fact that most of the losses occur in the early spring when the sheep are hungry for green stuff, or after shipment when the animals are so nearly starved they will eat greedily any plant they chance to come upon.

The two most efficient methods of prevention, therefore, are: First, keep off the range before the grass is abundant; and, second, keep the animals supplied with sufficient food.

In the early spring certain poisonous plants, such as death camas, begin to grow before the grass. The green, succulent shoots are eagerly nibbled and soon trouble ensues. If the animal’s rumen is full, and it eats but a few shoots of this plant, usually no symptoms of poisoning follow. That is due to a lack of absorption or the very slow absorption of such minute quantities as to cause nothing more than a slight discomfort.

Old stockmen regard plant poisoning as preventable diseases. Their young herders often grow impatient to be off for the range, but the older heads look wise and say nothing, and remain in winter quarters. When first starting out in the spring, the “old man” will ride ahead and carefully peer over the grazing ground on the lookout for “pizen.”

As Glover of Colorado has well said, “Throughout the vegetable kingdom, from bacteria to the mighty oak, we find species of plants poisonous under certain conditions, but few of them poisonous under all conditions.” This is further illustrated by the following statements:

1. Some plants are poisonous only at certain stages of growth; for example, the lupine is poisonous at the time of going to seed; larkspur loses its toxic properties at flowering time; death camas is very deadly in the early spring, but later dries up.

2. Unusual conditions and ecological factors may affect the quantity of poison in plants. The wilted leaves of the wild cherry or choke cherry are poisonous.

3. Poison is found in different parts of the plant, such as in the roots of wild parsnips, the seeds of lupine, the leaves of the wild or choke cherry, and the entire plant of death camas andaconite.

4. Variations according to season and climate. This depends on cultivation, location or season.
5. Some animals are more susceptible to poison than others. Three sheep of the same age, size and degree of health may eat a few leaves of death camas. One may become violently sick and die in a couple of hours; the second may show signs of slight discomfort and soon recover, and the third one may exhibit no ill effects whatever.

Loss from plants may be due to two causes:
1. The actual toxic material contained in the plant itself, such as in the death camas, or
2. The mechanical irritation arising from the sharp points or awns of the plant, such as foxtail or bearded barley.

Lambs succumb in either case more quickly than adult sheep, due to the absorbing powers of the abomasum, or fourth stomach, and the greater danger from inflammation of the bowels.

Emergency Treatment

Every sheep man should be advised to have in his medicine chest one hundred or more powders consisting of ten grains each of potassium permanganate and aluminum sulphate. Several long neck pint bottles should be included, and when any sheep gets poisoned, fill the bottle with water and pour the powder into it; shake well, and give very slowly. Do not set the animal up on its rump to drench it; to do so is to insure traumatic pneumonia, and death. This dose should be repeated in twenty minutes.

Tannic acid in sixty-grain powders should also be carried along, as this is an antidote for many vegetable poisons.

Laudanum, in teaspoonful doses, may be given to quiet the animal and relieve spasms, but treatment at the best is a poor substitute for prevention.

Such measures as slashing the ears and cutting off the tail to bleed the animal, of course, can do no good and are even harmful. There are times when these procedures are useful, but not often in poisons. Pouring melted lard and other concoctions into the animals usually does more harm than good. This has a tendency to dilute the poison and render it easier of absorption.

Morphin, glonoin, H-M-C and atropin all may be given hypodermically by the veterinarian.

But in all cases of plant poisoning, remember to have on hand the potassium permanganate and aluminum sulphate, the tannic acid, and opium in some form as a hypnotic. Stimulants are often valuable, but when the victim is so far gone as to be unable to swallow, little hope can be entertained for its recovery.

In all cases of vegetable poisoning, the usual treatment given by sheepmen is to administer a large quantity of stimulant, such as several ounces of alcohol or whiskey. In a short time the animal becomes sleepy, lies still for several hours, apparently dead, and then, if recovery takes place, gets up, shakes itself, and trots off, rather weakly, to be sure, but otherwise as if nothing had happened. In many cases, where the exact cause of the poisoning is not known, this treatment may be given with as good results as any.

1. Death Camas

Botanical name—Zygaenus venenosus.

Common names—Wild onion; lobelia; poison camas, and poison sego to distinguish it from the blue or edible camas.

The leaves are lance-shaped, with a simple stem, and bulb-like root, greatly resembling a tough onion. The flowers are greenish-yellow in color. Its toxic principle is an unknown alkaloid.

It is found in all kinds of locations, such as valleys, mountain sides and timber lands. Its habitat seems to be South Dakota, Montana, Idaho, Washington, and parts of Utah, Oregon, Wyoming and California.

One must see this plant growing in its native haunts to get a vivid mind-picture of it.

It has caused the loss of thousands of sheep. Instances have been known where over two thousand have died in one day from the effects of this poison
DEATH CAMAS (Zygadenus venenosus)

"Permission Will C. Barnes "Western Grazing Grounds and Forest Ranges"
POISONOUS PLANTS

Symptoms: These greatly resemble strychnin-poisoning in general. The animal becomes very restless from the severe pain. Trembling and frothing at the mouth are next seen. Death usually takes place in one to three hours, and from one-half to two-thirds of those exhibiting symptoms die.

Treatment: Give a drench of ten grains each of potassium permanganate and aluminum sulphate dissolved in a pint of cold water, or water with the chill taken off it. This dose should be mixed up just before using, as it soon loses its strength.

2. Loco

Botanical name—Astragalus molissimus [purple loco]; and Aragallus lamberti [white loco].
Common names—Rattle weed; loco.
It may be said that when the loco grows in large patches it resembles a field of alfalfa. It is a stemless herb, with numerous leaves, the whole plant being about a foot high.
Its habitat is in the Rocky Mountain region, extending from Montana south to the Mexican line.
Horses are its commonest victims, but occasionally a bunch of sheep become “locoed” to the profane disgust of the owner.
Symptoms: Are characteristic and are not seen from eating any other weed. The animal steps high and seems to lose control of its legs. It develops an insatiate desire for the weed. Other animals imitate the victim out of curiosity and also become victims of the weed.
Treatment: This is largely preventive. When an animal is seen eating loco with apparent relish, remove it from the band at once. If worth saving it may be given teaspoonful doses of Fowler’s solution of arsenic once daily.
Do not turn the animals out on pasture when they are very hungry or in the early spring.

3. Larkspur

Botanical name—Delphinium.
This does not cause so much loss among sheep as among cattle. There are many varieties, all more or less poisonous. The tall larkspur grows to a height of nearly four feet, with very smooth leaves and blue flowers. Purple larkspur grows nearly a foot high, bearing very beautiful purple flowers.
Its habitat is in the western range country, but it is not thickly distributed.
Symptoms: The animal walks with a stiff, trembling gait. Frothing at the mouth is noticed, and the victim makes a start for the nearest watering place, but often dies before reaching it. The fact that many animals have been found dead around a water hole has set up the mistaken cry that the water was poisoned.
Treatment: Largely preventive. When the animal is found poisoned, place its head higher than the body. Carefully give the potassium permanganate and aluminum sulphate drench. One-twentieth of a grain of atropin may be given hypodermically. For lambs, reduce this dosage accordingly.

4. Lupine

Botanical name—Lupinus.
Common names—Wild pea; wild bean; blue bean.
There are several dozen varieties of lupine, all legumes or members of the clover family. None seem to be poisonous until reaching maturity.
The most common lupines are rather tall, with branching forms. The leaves are green above and silver-gray beneath. The flowers vary from blue to white. Its habitat is pretty well distributed over the United States, but it assumes a more poisonous form out in the western range sections.
Symptoms: The sheep becomes excited; walks in a circle, and butts its head against any intervening obstruction. Paralysis then comes on, and death ends the struggle within a few hours to several days. The general symptoms resemble strychnin poisoning greatly.
Treatment: The potassium permanganate and aluminum sulphate drench may be given. In cases of convulsions, laudanum in teaspoonful doses, or chloral
hydrate in two dram dosage, or one-quarter grain morphin hypodermically, may be administered.

This is not a very common ailment among sheep, except in small localities. In Germany it often assumes the gravity of an enzootic under the name of "lupinosis."

5. Aconite

_Botanical name—_Aconitum._

_Common names—_Monkshood; wolfsbane.

This plant greatly resembles larkspur in that it has a blue flower, but this is "hood shaped." Much confusion exists between this plant and larkspur, and the chances are that owing to its pungent taste aconite does very little actual damage. Several species of aconite occur in the United States, the commonest being the _Aconitum Columbianum_; it grows in very high altitudes, up to ten thousand feet, and occasionally a band of sheep, very hungry for green stuff, may eat enough to cause serious results.

_Symptoms:_ Muscular weakness, with labored breathing, and a very weak, wiry pulse. Bloating, frothing at the mouth, and, as death draws near, the eye is greatly dilated.

_Treatment:_ One dram (sixty grains) tannic acid dissolved in an ounce of glycerin and a pint of water is the chemical antidote; atropin given hypodermically in one-tenth grain dosage is the physiological antidote.

6. Water Hemlock

_Botanical name—_Cicuta occidentalis.

_Common names—_Cowbane; sometimes called wild parsnip, but differing greatly from the real wild parsnip.

It grows from three to six feet high. Its stem is hollow, green and smooth. The roots are bunched together, and are spindle-shaped, with cross partitions in them. The real wild parsnip has only one thick, fleshy root, which is an easy way to tell the two apart.

The flowers are a dull greenish-white. The plant grows along banks of rivers the marshes, and is pretty well distributed over the West.

It is one of the most deadly of poisonous plants, the toxic matter being found in the root, stem and leaves.

_Symptoms:_ Great abdominal pain, which grows more intense in a few minutes, is the first symptom noticed. Sweating, frothing at the mouth, convulsions, and within half an hour to several hours death takes place in terrible agony.

_Treatment:_ Relief in the great majority of cases is absolutely hopeless. Raw linseed oil, lard, raw eggs, or any agent to soothe the irritated mucous membranes may be given. The potassium permanganate and aluminum sulphate drench may also be administered. Stimulants, such as spirits of camphor, whiskey, ether, aromatic spirit of ammonia or brandy, are indicated.

7. Choke Cherry

_Botanical name—_Prunus demissa.

_Common names—_Choke cherry; chokeberry.

This is a shrub with glistening green leaves, not ordinarily harmful, except when famished sheep are driven through thickets of it. It is found usually in gulches. The poison contained in the leaves is hydrocyanic or prussic acid.

_Symptoms:_ The first symptom noticed after passing through one of these cherry thickets is extreme giddiness; labored breathing, with spasmodic contractions of the bowels and bladder. Spasms continue until death ends the struggle. The attack is speedily fatal if the animals eat of these leaves when their stomachs are empty.

_Treatment:_ Largely preventive; the wise sheep man does not allow his sheep access to the leaves while they are very hungry.

Throwing cold water on the head, with inhalations of ammonia, and the hypodermic injection of one-tenth or one-twentieth grain of atropin is about all that can be done. Even this must be done immediately, and therefore by the herder, to be of any avail.

8. Laurel

_Botanical name—_Kalmia augustifolia; kalmia latifolia.
Common names—Laurel; sheep laurel; lambkill, and, in the southern states, icy.

It is a common plant in the eastern part of our country, growing in the woods in great profusion. It is a shrub with a pink flower. It is eaten only when the animals are famished for food or green forage.

**Symptoms:** Frothing at the mouth; labored breathing; loss of sight; paralysis; coma and death.

**Treatment:** The potassium permanganate and aluminum sulphate drench may be given at once, and one-twentieth of a grain of atropin hypodermically. Usually the animal is beyond recall when discovered.

9. Veratrum

**Botanical name—**Veratrum viride or speciosum.

Common name—Hellebore, Indian poke root.

A stout, coarse plant growing about three feet tall. The leaves are broad, with greenish-white flowers. It is found in moist land. Very little attention need be paid this plant, as sheep will not touch it; a lamb, though, may nibble at it out of mere curiosity, and later regret it.

**Symptoms:** Frothing at the mouth; diarrhea; labored breathing; bloat; great abdominal pain, and death within a short time.

**Treatment:** One dram (sixty grains) of tannic acid dissolved in an ounce of glycerin and a pint of cold water may be given to form an insoluble precipitate, or raw linseed oil, lard, or raw eggs to soothe the mucous membrane.

10. Ergot

**Botanical name—**Claviceps purpurea.

Common name—Smut.

Ergot is a black parasitic growth found on various grasses, being very prevalent on both wild and tame rye. The dust-like, powdery pod is familiar to all. Its greatest danger is to pregnant ewes, a very small quantity being capable of producing abortion. Sometimes it causes serious losses to a band of sheep by being thickly distributed through the hay.

**Symptoms:** The animal exhibits symptoms of painful swallowing, gulping as though it were choked. The pulse is slow, breathing shallow, and in gangrenous cases the ears become swollen and purple. Paralysis comes on gradually, death taking place quietly, as though the animal were tired of life.

**Treatment:** Immediate change of food. One dram of tannic acid (sixty grains) dissolved in a pint of water, to which is added a teaspoonful sweet spirit of nitre. The latter will neutralize the action of the poison in the blood to some extent, while the tannic acid renders the ergot in the stomach inert. Cutting off the ears or tail is sometimes indicated. Painting the necrosed areas with balsam of Peru will help these to heal, in case of recovery.

11. Deadly Nightshade

**Botanical name—**Solanum nigrum.

Common name—Deadly nightshade.

A smooth, wide-branching weed, growing one or two feet high, with clusters of white flowers. The berries, which ripen along in the late summer, are black, almost round, and very juicy. It is common to all sections of the United States.

**Symptoms:** Giddiness; dilated pupils; great abdominal pain; convulsions, followed by paralysis and death.

**Treatment:** As this very rarely causes death in sheep, treatment is a secondary consideration. A teaspoonful of soda dissolved in a pint of water may be given, and stimulants, such as whiskey, sweet spirit of nitre or ether, are indicated.

12. Woody Aster

**Botanical name—**Xylorrhiza Parryi [Gray].

This plant, found in Wyoming, and growing on gumbo-clay soil, has killed many sheep in the past. It is infected with a fungus, and whether this contains the toxic ingredients or the plant itself is poisonous, has not yet been determined.

It is a medium-sized plant, blossoming about the first of May, and grows less
poisonous with age, being entirely inactive when withered.

The poison is very fatal to sheep, from ninety to one hundred per cent of the affected animals dying in spite of all treatment.

**Symptoms:** From one to several hours after eating the plant, depending on the fullness of the first stomach, the animal begins to grow weak; labored breathing is noticed; then bloating, with frequent urinating. Later, a diarrhea sets in, the eyes become dilated, and the animal dies in from several hours to three or four days.

**Treatment:** No successful line of treatment has yet been worked out. Stimulants, such as one-half ounce aromatic spirits of ammonia in a cup of warm water; dram doses of oil of peppermint in a half-pint raw linseed oil; dram doses of laudanum in oil, have all been tried with varying success.

The best line of treatment is prevention, and avoiding aster patches when the sheep are hungry, especially in the early spring.

13. Sneeze Weed

**Botanical names**—Helianthus montanus; H. autumnale; H. Hoopesii, etc.

This belongs to the sunflower family, growing from one to three feet high. It has long, lance-shaped leaves, with bright yellow flowers.

It is a very bitter weed, and sheep will not touch it unless almost starved. Sometimes, however, a young animal will develop a taste for it.

**Symptoms:** Spasms; rapid pulse; labored breathing and extreme sensitivity of the skin. There is sneezing and coughing, and death ends the clinical picture.

**Treatment:** If observed before convulsions take place, a pint of melted lard may be given. Removal from infected pastures is the only logical procedure. The weed is very abundant on old, worn-out ranges, and is mute testimony to over-grazing.

14. Rubber Weed

**Botanical name**—Hymenoxys floribunda.

**Also known as** “pingue,” the Spanish name of the weed.

This is a small weed, bearing a yellow flower, and is found in the semi-arid ranges of southern Colorado and northern New Mexico. It does not contain any poisonous principle, so far as is known, but causes death by forming a rubber-like obstruction in the intestinal tract.

**Symptoms:** The animal appears drowsy, and loses its appetite. It lies down and refuses to get up. Death takes place in from one to several hours after the first symptoms are noted.

**Treatment:** As this is a very obscure disorder, treatment is still in the experimental stage. It has been found through practical experience that a pint of warm brine given every hour will do as much or more good than anything yet tried. This may have a tendency to dissolve the mass.

15. Strychnin

This is an accidental poisoning, the plant not growing in this country. The trouble usually follows attempts to poison noxious animals, and the sheep may get enough to kill them.

**Symptoms:** The signs of strychnin are too familiar to need particular mention. First is noticed a restlessness, labored breathing, rapid, wiry pulse, and the animal walks as though it were on stilts. The muscles twitch, the eyes become bloodshot, and there is frothing at the mouth. Convulsions set in and the animal dies with spasmodic twitching of the limbs.

**Treatment:** One dram (sixty grains) tannic acid dissolved in glycerin and water, an ounce of the former to a pint of the latter, followed by two drams chloral hydrate dissolved in a half-pint of water or given per rectum. Morphin in one-fourth grain doses may be given hypodermically. Raw eggs are excellent, while raw linseed oil or melted lard seems
Original water color from collection in Smithsonian Institution by Walpole

WATER HEMLOCK (Cicuta Vagans)

"Permission Wm. C. Barnes 'Western Grazing Grounds and Forest Ranges'"
to assist in keeping the poison from being absorbed.

16. Cotton Seed Meal
Poison by this valuable food is usually seen where there is too heavy feeding of oil cake.

**Symptoms:** Bloody diarrhea and urine; cramps; bloat, with great abdominal pain.

**Treatment:** Immediate change of food. Lambs may be given an ounce of castor oil and several raw eggs.

17. Tobacco

*Botanical name—Nicotiana.*

Sometimes seen after the use of tobacco or nicotine dips.

**Symptoms:** Great abdominal pain; frothing at the mouth; diarrhea; bloat; convulsions, followed by paralysis, and death within an hour or so after the first symptoms are noticed.

**Treatment:** One dram (sixty grains) tannic acid dissolved in a pint of water, to which has been added an ounce of glycerin. Black coffee may also be given.

18. Digitalis

*Foxglove.*

Digitalis poisoning very rarely occurs in sheep, as the digitalis plant, commonly known as foxglove, is a cultivated drug plant.

The symptoms are variable and one must know the complete history of the case in order to make a definite diagnosis.

No cure or antidote is known, although the tannic acid drench may be given a trial.

19. Turpentine

In the western range sections sometimes when the sheep are almost famished and food is scarce they will eat enough shoots of young evergreen trees to cause turpentine poisoning.

**Symptoms:** Acute gastro-enteritis; colic; constipation, the pellets voided being covered with a bloody, slimy mucus. The urine becomes bloody and general weakness follows. The course is a gradual one, sometimes lasting from several days to a couple of weeks.

**Treatment:** Removal from the offending pasture. Tannic acid in dram doses, together with whole flaxseed jelly to soothe the irritated urinary membranes. Small doses of lead acetate (from five to ten grains) may be given daily.

20. Rape Seed

This causes inflammation of the bowels, bloody diarrhea, convulsions and death.

The treatment is wholly symptomatic, and when the malady has reached an advanced stage, treatment is hopeless.

21. Croton Oil

When administered to cure constipation, sometimes an overdose is given. Violent cramps with a watery dysentery follows. Raw eggs, containing teaspoonful doses of laudanum may be given, but death is the usual sequel.

22. Hemlock

*Botanical name—Conium maculatum.*

Poisoning by this is very rare, the acrid taste of the hemlock keeping the sheep from eating it, even though they be almost starved. The usual victims are lambs, and the end is death.

**Symptoms:** Convulsions, followed by complete paralysis.

**Treatment:** While almost always fatal, one may administer one dram tannic acid dissolved in an ounce of glycerin and a pint of water. Spirit of camphor in tablespoonful doses may be given as a stimulant.

23. Flax

*Botanical name—Linum usitatissimum.*

In sections where flax is extensively raised occasional cases of poisoning among sheep have been known.

**Symptoms:** Colic; diarrhea; convulsions and death.

**Treatment:** Give the tannic acid drench.

24. Horse Radish

*Botanical name—Cochlearia armoracia.*

Sometimes in the early spring, sheep eat too much of this common garden plant, and a violent colic and diarrhea takes place.
The treatment consists in giving a dram of tannic acid dissolved in a pint of water. Several raw eggs beaten up can be next given to soothe the irritated mucous membranes.

If the horseradish is old and strong the animal will not need to be blanketed to keep it warm, and if it should die the flesh will not need seasoning.

25. **Toadstools**

These are never eaten by sheep, but if a lamb nibbles at one, the symptoms following are almost maniacal in form. Not much can be done, but a teaspoonful tannic acid dissolved in a cup of water may be given with advantage in some cases.

26. **Potato Tops**

The symptoms greatly resemble foot-and-mouth disease. The tannic acid drench should be tried.

27. **Poison Oak**

_Botanical name—Rhus diversiloba._
_Common names—Poison ivy; Poison sumac._

There are a number of varieties in this group, and poisoning rarely occurs in sheep from any of them. In case it does, drenches of raw linseed oil in pint doses seem to do more good than anything else yet tried. The course of the ailment is a lingering one, sometimes lasting over a week.

28. **Kafir Corn and Sorghum**

Losses sometimes occur in sheep in the autumn from turning in fields from which kafir corn and sorghum have been harvested. The young stubble contains hydrocyanic (prussic) acid, or substances that may be changed into this acid when ingested by herivora. It is very deadly to cattle and sheep. Hogs seem to be immune.

The only beneficial treatment known is to give a drench of the potassium permanganate and aluminum sulphate, twenty-grain doses of each, dissolved in a pint of water. However, as death often occurs within a very few minutes after the first symptoms of poisoning are shown, treatment is frequently impossible. As kafir and sorghum stubble is not uniformly poisonous it may be worth while to "try" it with only a few sheep, otherwise it is unsafe to turn a band onto such forage. The danger is greater in dry seasons than in normal seasons.

29. **Foxtail**

A number of grasses, such as foxtail, bearded barley or wheat, cheat, needlegrass and sandburs all cause trouble to sheep by mechanical irritation. A violent gastro-enteritis is often induced by eating them. Sometimes a bunch of the spikes or awns lodge in the mouth under the tongue and the animal starves to death from inability to eat.

When once affected, absolutely no treatment is known that is successful if the irritation occurs in the stomach or bowels. A careful post mortem examination will reveal the cause, and an extensive repetition of the trouble can be avoided by changing pastures.

30. **Ensilage**

Cases have been known where a large number of sheep have been killed by feeding on mouldy silage, or silage that apparently was in good condition, but contained the fungus, "Penicillium."

The symptoms are the same as from mouldy feed of any kind: A violent colic, constipation, followed by fetid diarrhea, convulsions and death.

Treatment is very unsuccessful, since, when the animals begin to exhibit typical symptoms, fatal quantities of the toxic principles have already been absorbed.

Large doses of potassium permanganate—one dram or sixty grains dissolved in a pint of water, may be given. The triple sulphocarbolates, in sixty-grain doses, combined with a dram of tincture of ginger and an equal quantity of dioscorea, may also be tried.

If only camp remedies are at hand, give a teaspoonful of powdered ginger, and one-fourth teaspoonful each of salt and pepper dissolved in a pint of lukewarm water. Teaspoonful doses turpentine in raw linseed oil may be tried, but (Continued on page 632)
Chinese Animal Hides, Skins and Bristles

By J. R. SHAND, M. D. C., Tientsin China.
Veterinarian with the United States Military Expedition to China.

This report is written at the request of Mr. Fred D. Fisher, American Consul General, Tientsin, China, and is intended for the express purpose of putting before the proper authorities in the United States the conditions to be contended with when hides and skins are imported into the United States from China.

As the writer has had no opportunity to visit the grazing grounds of the animals concerned in this report, he has obtained his information in Tientsin as best he could from "old timers," both foreign and Chinese, and from a naturalist who has traveled through the country referred to, and has every reason to believe that conditions exist as reported.

Where Hides Are Obtained

Hides are received at Tientsin from the following provinces: Mongolia, Southern Manchuria, Shansi, Shantung and Chihli. A glance at the map will immediately convey to the mind an appreciation of the vast extent of this part of China. Needless to say, it is seldom visited by the foreigners and veterinarians to my knowledge have never traveled through the district. It is, therefore, practically impossible to obtain any definite, dependable information concerning the ravages of contagious diseases among the animals. I have learned that anthrax, foot and mouth disease, rinderpest, mange and glanders are enzootic in the district, and the logical conclusion is that all these diseases exist sporadically at all times, and all shipments of hides must be considered infected, as will soon be seen.

Cow hides have two classifications, i. e., Mongolian and Shantung. The former come from Mongolia, Manchuria and Northern Chihli, and are the small hides. These animals' live weight averages 700 pounds, and the hides are of inferior quality, being thin and woolly. The Shantung hides come from Shantung, Shansi and Southern Chihli. They are large, and of superior quality, being thick and short-haired. The average weight of these animals is 1,000 pounds.

Contagious Diseases

It must be borne in mind that in China a hide is never lost. It makes not the slightest difference to the Chinaman from what disease an animal has died—the hide is always obtained and sold.

Mongolian cattle roam the sparsely settled country in large herds, and are known to be attacked by rinderpest, anthrax and foot-and-mouth disease at frequent intervals. I am informed by the naturalist that in his travels through Mongolia, Shansi and Manchuria he has seen hundreds of dead animals. It was impossible for him to state from what disease these cattle had died, as they were all skinned and in a state of decomposition, but he saw hundreds of hides being carted to the larger towns for sale. The hides were all sun dried. Many of the carcasses were disposed of in the streams and rivers, disseminating the disease far and wide.

Rinderpest is apparently the disease which causes the greatest losses, prevailing at all times of the year. In the Japanese leased territory of Manchuria (the extreme southern end), the veterinary corps of the Japanese army reported during the year 1914, 128 cases of rinderpest, of which 30 died and 87
were destroyed. I venture to say that ten times the number of cases were never reported by the Chinese farmers. The Chinese consume the carcasses of cattle that have died of this disease without any injurious effects. Rinderpest being epizootic in so small a country as the Japanese leased territory of Manchuria, where veterinarians are stationed, one can readily imagine the conditions in a large country like Mongolia and Northern Manchuria, where veterinarians are never stationed.

Anthrax is a curse of the summer season, and attacks cattle horses and human beings being transmitted through the medium of a fly resembling the tsetse fly. These flies appear in the early summer by the millions, and I have it on excellent authority that whole herds of cattle and horses (Chinese ponies) have succumbed to anthrax, after being attacked by these flies. The Russian medical authorities have confirmed this diagnosis of anthrax. The Chinese do not eat these carcasses, since it would be fatal to do so.

Texas fever is another disease which is quite prevalent, but it is not responsible for any great losses, as the cattle are fairly immune because of the ticks which are ever present.

Foot-and-mouth disease is always present. The northern cattle are so hardy that they contract the disease and soon recover. About the only time they succumb is during the winter, when the snow covers the ground; they are then unable to paw away the snow to obtain sufficient food, and starve to death.

With the Shantung cattle we have conditions reversed. As stated before, these hides come from the provinces of Shantung, Shansi and Southern Chihli, and are the large hides of superior quality. These animals are used principally as beasts of burden. There are no herds of any size. The individual holdings are small, on account of the poverty of the owners, who are all small farmers—a man having ten or a dozen working steers is considered "well off." On this account there is a natural quarantine established, as the cattle never come together. Notwithstanding this isolation, rinderpest, anthrax and foot-and-mouth disease are ever present in some parts of the country in a sporadic form. The farmer generally loses half of his cattle when they are attacked by these diseases, which would amount, on an average, to three or four head, but the disease cannot spread. In Tsingtau I saw 5,000 head of cattle collected from Shantung province, all fine, healthy looking animals. But, as stated before, and I desire to impress it on the reader's mind, no hides are lost. It makes no difference from what disease the animal died, its hide is worth money, and a few diseased hides in a shipment would naturally infect the whole shipment. As in Mongolia and Manchuria, veterinarians are as scarce in these southern provinces as the proverbial "hen's teeth," and there is no way of getting a line on contagious diseases. The winters in the southern provinces are not severe, zero and snow are seldom seen, and it is not, therefore, necessary for the cattle to be as hardy as those in the north, where snow three feet deep and temperature 40 degrees below zero are the rule, and natural shelters only, exist.

Horse (Chinese Pony) Hides

The Chinese horse is a pony, averaging thirteen hands, of blocky build, very hardy and with the instinct of the devil. He is raised in Manchuria and Mongolia, and the herds are large (from three to five hundred). The ponies are not used for food, so naturally the question arises when I see shipments arriving of 8,000 to 10,000 pony hides: "Of what did these animals die?" Anthrax, glanders and starvation kills them. The tsetse fly is responsible for thousands of deaths from anthrax. The B. mallei has made
its home among the large herds, and takes its toll. In addition every winter hundreds of ponies starve to death on account of deep snow, blizzards, etc. Mares suffer terribly during the winter when they foal; mother and foal are invariably lost if parturition occurs in bad weather. A dealer arrived in Tientsin in April, 1916, with 8,000 "unborn cold skins." These skins are obtained when the mares abort or foal in the winter.

Sheep skins come from Mongolia and Manchuria. These Chinese sheep are of the Algerian race. The only disease that I can find they suffer from is foot-rot. I have repeatedly inquired: "Do these sheep discharge from the nose?" The answer is invariably "No." Thousands of sheep starve to death during the winters.

**Pig Bristles**

Pigs wild and tame are periodically "wiped out" by some mysterious disease every four or five years. This is probably hog cholera. The natives then have a great harvest of pig bristles.

**Methods of Curing Hides**

In the provinces of Shantung, Chihli and Shansi, whenever an animal dies or is butchered, the hide is immediately taken off and salted. During the process of salting, a thin layer of mud is added. This mud is added because the hide is sold by weight, and the Chinaman thinks that he gets more money for the hide. To combat this little "squeeze" the buyers knock off 20 per cent for mud. The hides are bought by small dealers, who in turn, sell them to larger dealers in larger villages; they in turn cart them to the large towns, where the foreign buyers purchase them, and finally the hides reach Tientsin in shipments of from 5,000 to 10,000 hides.

The hides from Mongolia and Manchuria are invariably sun dried. It is then very easy to pick out the "died hides," meaning the hides from animals that have died natural deaths. The capillaries of the skin are engorged with dried blood. These hides are considered as third rate. A large percentage of Mongolia hides are "died hides." Pony or horse hides have the appearance of being all "died hides." In fact, they are, since horses are never killed for food.

Sheep skins are all sun dried, and only a small percentage have the appearance of being "died hides." The Chinese eat more mutton than beef, hence the greater number of sheep skins shipped than cow hides. An arsenic-cured hide is a misnomer and misleading. There is, in my opinion, no such thing as an "arsenic-cured" hide in North China. The term "arsenic-cured" came about as follows: Grubs and worms attack hides and cause a great deal of damage during shipment. It was, therefore, necessary for shippers to "cure" the hide against the ravages of these pests. A firm in England invented a soft soap heavily charged with arsenic. A solution is made from this substance by the addition of water, and the hides are simply passed through the tank. A better name for this process would be "arsenic solution dipped hides" because the hides are either sun or salt cured before they come to the arsenic bath.

Wet salted hides are first washed and scrubbed clean. They are then laid on the ground and a layer of salt is applied. Another hide is laid on top of this and salted, and so on, until the stack contains five or six hides. They are then rolled into a bundle, roped and made ready for shipment.

**Methods of Disinfection**

Under date of March 7, 1916, the American Consulate General issued instructions, which are still in force, governing the disinfection of hides for shipment to the United States, as follows:
"Until further notice, shippers of Dry Hides to the United States of America are hereby informed that, under a new regulation, such hides require disinfection prior to packing for shipment.

One of the following methods of disinfecting may be employed:

1. "By immersion, for not less than thirty minutes, in a solution of formic acid in water, to which there has been added one part of bichloride of mercury to each 1,000 parts of solution. In case formic acid is not obtainable, the bichloride of mercury alone will suffice."

2. "By immersion in a 5% solution of carbolic acid, for not less than thirty minutes."

3. "By exposure of the fumes of sulphur dioxide in a room tightly closed, in which the hides shall be suspended separately in such manner that there may be a free circulation of the sulphur fumes, and that all parts of the surface of the hides may be acted upon; provided that there be at least four pounds of sulphur burned for every 1,000 cubic feet of air space, and the room shall be kept closed and the hides subjected to the sulphur fumes for at least six hours."

The immersion of dry hides in a solution of arsenic is not considered to be an effective method of disinfection.

Whenever disinfection is to take place, this Consulate-General must be notified in advance, so that a representative of this office may call and be present during the disinfection. After disinfection, the hides must be immediately and permanently packed, and must not be exposed to contamination.

Proper disinfection certificates will then be certified by this office, and no shipment requiring disinfection will be passed that is not covered by such certificates of disinfection by one of the prescribed methods.

In this connection I am also quoting a letter from Dr. Ransom, of the United States Public Health Service, at Shanghai, addressed to the American Consul General, embodying a new regulation in relation to "arsenic cured" hides under date of March 25, 1916:

"Referring to Treasury Department Decision No. 31688, it is respectfully suggested that when requested by shippers, certificate for dry hides be granted along the following lines:

"Dry arsenic cured hides, passed without disinfection subject to enforcement of provision of Treasury Department Decision No. 31688."

This suggestion is made in view of the difficulty experienced by shippers in securing the necessary disinfections to comply with the recently made rules concerning this class of cargo.

Respectfully,

S. A. Ransom."

On account of the hundreds of thousands of hides awaiting shipment when these regulations came in force, it was impossible for a member of the Consulate General's office to be present at the time of disinfection, as the Consulate is only composed of the Consul General, the Vice Consul and Marshall, and these three gentlemen had all the work they could handle in the office. Mr. Fisher requested me to superintend the carrying out of the regulations during my spare time, to which I consented.

When I had read over the regulations, I informed Mr. Fisher that these regulations, in my opinion, would not disinfect a shipment of hides. However, the question was: "Would I superintend the carrying out of the regulations?" I have been doing this for two months.

Taking up the methods of disinfection separately, we start with the bichloride of mercury solution 1 to 1,000. The formic acid is not obtainable. The tanks used by shippers are all the way from 3 x 5 x 2½ feet to 20 x 20 x 24 feet. The tank mostly used is about 8 x 6 x 2½ feet. The tanks are half filled with the solution, and the dirty hides are placed into the tank to its fullest capacity and immersed for one-half hour. The solution in the tank is added to as the hides absorb the water, and about every other day the tank is cleaned out and new solution put in. We will take, for instance, one tank 8 x 6 x 2½ feet, containing 350 gallons of solution of bichloride of mercury 1 to 1,000. Fifty dried horse hides are placed therein and immersed for a half hour. When the time limit has expired the hides are taken out and placed on a ramp and allowed to drain into the tank. The water or solution in the tank has now turned to a muddy-reddish color, caused by dirt and dissolved blood, the hides have not
become thoroughly saturated, they are almost as stiff when they are taken out as when put in. Therefore, I claim that the hides are not disinfected. While the hides are “draining” into the tank (because the solution must not be lost, as that tank of solution cost $18) another batch of filthy hides are placed in the tank and immersed, while the coolies take the “disinfected” hides and lay them out in the sun to dry. This process goes on for ten hours per day, and a thousand hides are “disinfected,” the solution has not been changed only added to, but the tank will be cleaned out tomorrow night. Now if the first batch of hides are not disinfected, how about the last batch? At the close of the day the solution resembles dirty blood. If a clean, sterile hide were placed in this bath, I'll guarantee it would come out infected with anthrax, because the bichloride is rendered useless by the first batch of hides immersed. The regulations say nothing about changing the solution or keeping it clean, and the shippers sail as close to the wind as is possible. Most of the disinfection is placed in the hands of the No. 1 coolie, and he is ignorant and cares not. A foreigner generally starts him off by showing him what is necessary, and Mr. Chinaman continues mechanically.

The same procedure goes on with the Shantung hides, which are dry salted, with a coat of mud. The mud is partly scraped off, but just imagine a batch of these muddy hides going into a clean bichloride solution. How long will the drug keep up its action in mud? In regard to the wet-salted cow hides it is different. Only the good Shantung hides are wet-salted. First, they are scraped free from mud, then they are washed and scrubbed thoroughly, drained and placed in the solution, which is kept comparatively clean. Even at that I do not believe a half hour in the solution will kill all the germs in the hide, but as the hides are then shipped out wet, the hide is being disinfected until it dries out, which takes some weeks.

In my opinion this is the ideal way to disinfect a hide properly, but then the cost is too great, and would eat up the profits on Mongolian cow hides and horse hides.

Carbolic Acid

Crude carbolic acid is not used, as a rule, because the shippers do not know how to dissolve it in water. Carbolic acid crystals are not used on account of the high price. The regulations do not specify which preparation of the acid should be used, the crude or the crystals.

Fumigation by Fumes of Sulphur Dioxide

This method is the most simple, but it is not used to any great extent, on account of the high price of sulphur. Nevertheless, it is being used by some of the shippers. In my opinion, it is impossible to disinfect a hide with the fumes of sulphur. You can certainly disinfect the exterior of the hide, I grant, but how about the germs within the capillaries in the integument of a “died hide?” The question is: “Are these germs dead or alive, and how long will it take them to make themselves evident after the fumes of sulphur have left?” Take a Shantung hide that has the layer of mud. Some of the mud is scraped or beaten off. Can the sulphur fumes penetrate through the mud that is left on? Can sulphur fumes penetrate through the integument and enter the capillaries and kill the germs there? Decidedly no.

Conditions in Compounds

A compound is an enclosure between four walls. All business houses in China are located within a compound. The compound are of various sizes, and contain offices, living quarters, store-houses and what not. Wool, cotton, hair (human and horse) and bristle factories, hide and skin yards are often
found within the same compound, and naturally the whole premises are infected with every known animal disease peculiar to North China. I have never seen any attempt made to disinfect a compound, but they are kept comparatively clean by the application of brooms.

Prior to the disinfection regulations, hides were shipped in to be cleaned and pressed for reshipment. The Shantung hides, which contain the layer of mud, were opened out and the mud scraped off. They were then beaten, redried, press-packed and shipped out. Sheep skins were sorted and dried during the same period. Coolies tramped over cow hides and sheep skins, winds spread dust over everything. When large shipments arrived at the same time, every available foot of ground, in fact, any place, even to the roof, was used for drying damp hides. Now, wet "disinfected" hides are dried within these same compounds. Tientsin is a very windy city. It takes sometimes two or three days to dry a hide. I leave the rest to the imagination of the reader, and ask the question: "Is it possible to have a shipment of dry hides leave Tientsin or any other port in China free from contamination?"

Pig bristles and horse hair (tails and manes) are packed so tightly that it is impossible for the fumes of formalin to circulate freely. Human hair (Chinese pig tails or queues) is a filthy abomination, and should undergo the boiling or steaming process.

To ascertain whether hides and skins originated in a district where foot-and-mouth disease and rinderpest are non-existent and anthrax non-prevalent would require a force of 500 veterinarians in the field. As so many firms have been disinfecting at the same time, and as I have only the afternoon to devote to this work, it has been impossible for me to uperintend the work properly. I have just had to drop in on my regular rounds, from one to another, relying on the honor of shippers to do the right thing. An assistant is necessary to be at each tank continually during disinfection.

**Suggested Remedies**

A. England solved this question at one stroke of the pen. She would take no chances, and claimed that, granted hides were disinfected properly in China, there was no reason to believe that the shipments could not be contaminated in the dirty hold of a ship. The hold of the ordinary commercial liner, especially the freighter is as filthy as Chinese commercial human hair. England now demands and enforces that all hides must be disinfected upon arrival in Great Britain under government supervision. She then knows that the hides are disinfected in the true sense of the word. This method, to my way of thinking, is the only possible and safe solution.

B. If hides must be disinfected in China the present mode of disinfection should be modified. Cow and pony hides should not be brought into compounds containing sheep skins and wool factories. A separate location should be used for disinfection. My idea is a location away from wool factories, and sheep and goat skins, because as far as I am able to find out, sheep and goats do not suffer from contagious diseases, except foot-rot in sheep, and I see no sense in exposing them to contamination from cow and pony hides.

A compound should be procured large enough to disinfect all the hides that are exported from Tientsin, and close to an abundance of clear water. In the center of the compound there should be three large cement tanks, so placed that a dividing wall in the compound would leave two tanks on one side and one on the other. The side containing the two tanks should be used for depositing infected hides, and the side with one tank for drying and packing disinfected hides. These
tanks would necessarily be at least thirty feet square and perhaps larger, depending on the number of hides to be disinfected. Now we have two compounds within the one, with three tanks. As the hides enter I would have all the mud scraped off and the hides thrown into tank No. 1, to be washed and scrubbed. The next step would be rinsing them in tank No. 2. Then, when they are clean, I would throw them over the wall into tank No. 3, which contains the disinfecting fluid. From the third tank the hides would be hung on racks to dry, and when dry, packed for shipment and dispatched. The infected yard should be "policed up" and disinfected daily. Every hide would then have to be opened out for the cleaning process, which would make the hide perfectly pliable, and when it got to the disinfecting tank, it would be comparatively clean and the disinfecting fluid could then get in its work. The disinfecting fluid could be kept comparatively clean and in good working order.

C. Owing to the fact that most of the shippers are using mercurichloride for disinfection, the price of this drug has soared to $8.00 a pound, with the possibility of its cost still increasing, because of the difficulty chemists have in procuring it. Therefore, as carbolic acid is allowed to be used by regulations, I see no reason why some of the commercial coal tar disinfectants cannot be allowed as a substitute for carbolic acid, provided that the disinfectant used be guaranteed of a certain coefficient standard by laboratory test of either the Rideal-Walker or Anderson & McClintic methods. Depending on the coefficient agreed upon, a solution superior to that of carbolic acid can be figured out that will be stronger and cheaper than the methods now used.

Serotherapy of Bacterial Anthrax

By V. FRASEY, Pasteur Institute, Paris, France.

(Continued from July number)

Professor Vallee kindly consented, in 1912, to place six sheep at our disposal, and we were able to carry out the following experiment: Two sheep received subcutaneously 20 c.c.'s of serum, two others, 10 c.c.'s of serum, the following day these four sheep each received together with two controls a drop of blood taken from a guinea pig killed by the bacteria with which the serum was obtained. The two controls died from anthrax within thirty-six hours; one of the sheep injected with 20 c.c.'s died in sixty hours, one of the sheep injected with 10 c.c.'s died in four and one-half days, the other in six and one-half days; the fourth sheep injected with 20 c.c.'s survived.

*A lecture delivered before the Society of Practical Veterinary Medicine.

At the same time, three horses were inoculated subcutaneously with 1 c.c. of the second anthrax vaccine, and simultaneously two of these horses received, on the other side of the neck, 10 c.c.'s of antianthrax serum; the control horse, without any noticeable general condition, had on the site of inoculation a thick, hard and voluminous edema, extending as far down as the extremity of the shoulder; the two other horses had no reaction whatever, either local or general.

Availing themselves of the advantages to be derived from the properties of antianthrax serum, foreign scientists were not long in trying to substitute them for those obtained with anthrax vaccine according to the Pasteurian method.

For several years, especially in Ger-
many and Austria, veterinarians, have to some extent given up the use of the two vaccines and simply inoculate in one dose on the same day several cubic centimeters of serum concurrently with a dose of the second vaccine. Practice has shown them, it would seem, that this one operation is enough to obtain sufficient immunization against anthrax bacteria; however, they still admit a death rate of about four per cent. I cannot at the present time give you any statistics on the subject, but the method is still the object of controversy and does not offer, in my opinion, the certainty of the old Pasteurian method; moreover, the price of the serum must be considerably higher than that of the vaccine; its sole advantage is that one inoculation is sufficient, but until further investigation we cannot recommend it to the prejudice of a method which has given proofs of its excellence for over thirty years.

The only instance where antianthrax sero-vaccination might be preferred is in the case of vaccination of horses, as they are more sensitive to the Pasteur vaccine than are oxen. By inoculating them with 10 c. c.'s of serum and at the same time with a dose of the second vaccine, they are given sufficient immunity, and accidents will be avoided.

Antianthrax serum is far more to be recommended in case of an outbreak of the disease in flocks and herds that have not been vaccinated. You are all aware that anthrax epizootics are quite exceptional in those countries where vaccination is regularly resorted to, and for several years a number of cattle breeders or owners have forgotten the tremendous death rate which anthrax formerly gave rise to. In a spirit of foolish economy, they hesitate to go to the expense of vaccination, which seems unnecessary to them; and as for quite a long time they have not come across a single case of anthrax, they prefer to keep their money. This may be all very well for a number of years—then one fine day the veterinarian is called in for several cases of sudden death, and he is confronted once more with anthrax. Vaccine is quickly telegraphed for, but in the meantime several oxen and a number of sheep die, and although dispatch is used, during the twelve or fifteen following days, more animals may very well die.

Perhaps the farmer who is confronted with the same situation in a country that is practically free from anthrax is not so much to blame, but he has to suffer quite as much. In a case of this kind, antianthrax serum may be of great service. Of course its application is more expensive than simple vaccination in a region free from the disease, but it can check an outbreak to a very considerable extent.

Every veterinarian is aware that there is a certain risk in vaccinating in a contaminated region; the introduction of a small quantity of the first vaccine subcutaneously may quicken in some animals in which there is a condition of latent infection or microbial anaphylaxy, the growth of virulent bacteria, and death may occur. What should be done in such a case? The animals should be protected against this danger for about eight days by injecting them preventively with a fixed dose of the serum subcutaneously; as this serum acts immediately, it confers upon the animal temporary immunity, quite sufficient to enable the organism to fight latent infection, and then it is possible, six or eight days later, to proceed with the first vaccination without danger. Moreover, if the disease is already developing in some of the animals, the serum acts as a curative agent, and after that it is only a question of administering judicious doses.

I cannot too highly recommend my colleagues to read Mr. Chone's interesting report, which was submitted to the Central Society of Veterinary Medicine.
Medicine. His procedure enabled him, as soon as he was in possession of the serum, to completely check an outbreak—the result of a cattle owner’s negligence—which threatened to greatly diminish his herd.

To sum up, the course to be pursued by a practitioner when he is confronted with a case of anthrax in a stable where vaccination has not been resorted to, is as follows: Every animal should be carefully watched; temperatures should be taken and they should all be immediately injected subcutaneously, in one dose, with the following quantity of antianthrax serum: 10 c. c.’s for oxen and horses, 5 c. c.’s for sheep.

At the end of five or six days, the two vaccinations can then be proceeded with, at twelve-day intervals and offer no danger.

A high rectal temperature will easily show which animals are in a state of infection; those who have fever should be injected, in one dose, with the following quantity of serum: 50 c. c.’s for oxen, and 20 c. c.’s for sheep; intravenous injection is preferable; furthermore, if the animal shows symptoms of anthrax, these injections should be continued on the following days if the general condition does not seem to improve.

I should like to insist a little more on intravenous injections of the serum, which should always be resorted to in serious cases because their action is quicker, and therefore, more effective than subcutaneous injections.

Vallee has shown that the rapidity of the formation or elimination of precipitins, which are formed in the same way as for antibodies, is the result of the method of inoculation which gave rise to them. Greater rapidity is seen following intravenous injection, lesser rapidity following subcutaneous injection; peritoneal injection gives an intermediary result.

Nevertheless, intravenous injection of the serum has certain disadvantages which it will be well to point out; oxen and sheep inoculated for the first time with horse serum may have certain anaphylactic accidents if they are again inoculated intravenously more than twelve days later with the same serum; this peculiarity will rarely occur, and in such cases, subcutaneous inoculation should alone be resorted to.

As horse serum is slightly toxic for cattle and sheep, it will be advisable not to inoculate the first time intravenously too large a quantity of the serum; 40 to 50 c. c.’s will be sufficient.

As regards complications following vaccination, it sometimes happens that after first or second vaccination, a somewhat voluminous engorgement is seen, after introducing subcutaneously antianthrax vaccine. Engorgements of this kind are generally not serious, but take a long time to be reabsorbed; antianthrax serum will greatly facilitate resorption.

By following these directions, you will have every chance of checking the development of the disease and the complications which may arise after vaccination, in these particular cases.

Antianthrax serum has been used in France for too short a time to enable me to give you any statistics. However, besides Mr. Chone a certain number of our colleagues have been using the serum in similar cases, especially Messrs. Duez, of Maing; Blanchard, of Trelon; Mondine, of Outarville; Brenet, of Pontarlier, and Gros, of Revel. Fatal termination of the disease stopped after the serum was administered. Only a few days ago Mr. Fafin, of Valognes, was telling me of the satisfactory results obtained by him with the serum. I wish, however, to point out to you that while antianthrax serum as prepared at the Pasteur Institute (whose properties as a preventive and curative agent at least equal those of foreign serums) has

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(1) Bulletin of the Central Society of Veterinary Medicine, April 30th, 1914, p. 165.
given excellent results in the few cases for which it has been used, we must make certain reservations as regards the positive cure of animals suffering from anthrax. Everything depends not only on the rapidity of intervention but also on the quantity of serum used, method of administering same (intravenously or subcutaneously), and the virulence of the bacterium is also to be considered.

In any case, I am of the opinion, at the present time, that although we have at our disposal a therapeutic medium with which to fight this disease, yet it would not be well to advise against ordinary vaccination, for this is a case where the old proverb (prevention is better than cure) finds a ready application.

Besides the preventive and curative properties to be found in antimicrobial serums, it has been noticed that some of them possess certain peculiar properties due to the presence of so-called sensitizing substances; agglutinins, precipitins, etc. The various investigators have not yet been able to show the presence of sensitizing substances and agglutinins in antianthrax serum. Ascoli, however, perceived in several specimens of serum he was making, a precipitin which enabled him to determine a method for the diagnosis of anthrax bacterium, even when only disposing of old or even putrefied organs.

Veterinarians generally think that the bacteriological diagnosis of anthrax is the easiest thing in the world, and that a little blood, organ pulp, a lamella, a microscope, and perhaps, a few guinea pigs suffice to help them out. Unfortunately such is not always the case. Those who work in laboratories and have to deal with materials more or less well prepared, more or less decomposed, know that microscopic preparation does not always reveal the presence of the bacterium, which is easily and quickly destroyed even in organs that are relatively fresh, and that inoculation in guinea pigs is only positive if the bacteria have had time to sporulate before disappearing. However, in spite of the rapid destruction of the bacterium, the different organs, liver, kidney, spleen, etc., of animals having died of anthrax have had time to become impregnated with specific thermostatic substances which remain a long time in these organs even when in a state of putrefaction.

This is how Ascoli utilizes the precipitant properties of the serum to show their presence. After grinding down and mixing the suspicious pieces with from four to five volumes of physiological water, he brings the material to a temperature of 100° by heating it in a vessel filled with hot water; at the end of a few minutes, it is quickly filtered and the filtered liquid is placed in contact with an equal quantity of precipitant serum. More or less quickly, cloudiness is observable at the point of separation of the two liquids, this cloudiness forms an opaque ring which is very distinct. In such case, even when it has not been possible to reveal, by bacteriological examination or by culture, the presence of the bacterium, it is quite certain that we are dealing with bacterial anthrax.

As Ascoli only had nine specimens of precipitant serum out of forty serums of varied origin, it seems that he made a special preparation of precipitant serums. I believe personally that the serum prepared with a horse according to the technique given by me, always furnishes a sufficient quantity of precipitins to avoid this complication in the preparation of the serums. Of course certain specimens are richer in precipitins than others. The precipitins of poor serums can then be concentrated by Vallee's process, and can be kept in the laboratory for future use.

Allow me, gentlemen to go no further at the present time into the study of antianthrax serum. Today I only want—

(Continued on page 654)
Effects of Stallion Registration Laws on the Breeding Industry

At the last meeting of the Illinois State Veterinary Medical Association, considerable discussion of the stallion registration law of Illinois was indulged in, and the act was condemned by a few speakers as being of no particular value; this, chiefly because of lack of provision for regular re-examination of animals that are in service. Opinions were also given that desirable breeding stallions are barred from service because of being afflicted with periodic ophthalmia, and animals of inferior quality are at stud.

Necessarily, those who take the stand that good individuals should not be disqualified as breeders even though affected with recurrent ophthalmia, disclaim the influence of heredity of this disease, class it as an infectious ailment and contend that environment is an influential causative factor—an undecided question.

The Indiana Experiment Station has just issued a bulletin wherein a résumé of the stallion enrollment law of that state is given and comparisons are made of the results obtained in the twenty different states having such laws. Particular attention is given the quality of the stallions now in service, in the several states and a comparison between the number of pure-bred stallions in service at the time registration laws were enacted and the present. In Wisconsin, the first state to pass such a law, an increase of thirty per cent is shown in the number of pure-bred stallions in the last ten years. Minnesota shows an increase of twenty per cent, and Illinois of ten per cent.

A lien clause in the Indiana law prevents any stallion or jack owner from forcing collection of fees, who has failed to comply with the law in every way. Section ten of their law provides for the sale of the offspring, if necessary, for the collection of fees. Stallion owners are benefited in so many ways by the Indiana law that it is decidedly to their interest, as well as for the benefit of the farmers, to support this law.

Progressive practitioners would do well to secure circular No. 52 of the Agricultural Experiment Station, Lafayette, Indiana. Veterinarians in state work where no stallion registration laws are in effect, are derelict if they are not working for regulations which make for
an improvement in the quality of horses and mules bred in their respective states. Stallion registration laws such as are in effect in some states, are of great benefit to the farmers and stockmen, owners of stallions, and as well, materially contribute toward improved conditions for the practicing veterinarian.

Program for A. V. M. A. Convention

Fifty-second annual meeting, Detroit, August 21-25, 1916.*

Preliminary to the opening of the Convention the Executive Committee and the Committee on Reorganization will hold sessions at the Hotel Statler, Detroit, on August 19th and 20th. The Executive Committee will also hold a session at 8 a.m., August 21st to receive reports from those desiring a hearing.

MONDAY, AUGUST 21ST, 10:30 A. M.
Opening meeting, Detroit Board of Commerce Auditorium.
Address of Welcome to Michigan, Hon. Woodbridge W. Ferris, Governor of Michigan.
Address of Welcome to Detroit, Oscar B. Marx, Mayor of Detroit.
Response to Address of Welcome.
President's Annual Address, R. A. Archibald, Oakland, California.
Submission of the Minutes of Previous Meeting.
Report of the Executive Committee.
Unfinished Business.
MONDAY, AUGUST 21ST, 2 P. M.
Unfinished Business.
Report of the Executive Committee.
Report of the Secretary, C. M. Haring.
Report of the Treasurer, F. H. Schneider.
Report of the Committee on Diseases, J. R. Mohler, Chairman.
The Efficiency of the Various Disinfectants, Charles H. Higgins.
Hemorrhagic Septicemia in Cattle in the Middle Section of the United States, A. T. Kinsley.
Hemorrhagic Septicemia with Special Reference to Its Economic Importance, J. R. Mohler.
Non-Specific Treatment of Infectious Diseases in Animals, K. F. Meyer.
A Study of the Milk in Bovine Infectious Abortion.† Ward Giltner.

* After August 7th, address all communications to the American Veterinary Medical Association, Hotel Statler, Detroit, Michigan. By that date the President and Secretary will be en route from California. Beginning August 18, the Secretary will hold office hours at the Hotel Statler, Detroit.
†This paper will be read by title and referred to the Chairman of the Section on Sanitary Medicine to be read at the proposed symposium on that disease.

Report of Committee on Intelligence and Education, N. S. Mayo, Chairman.
Report of the Committee on Re-Organization, C. A. Cary, Chairman.
MONDAY, AUGUST 21ST, 8 P. M.
Reception and Ball, Hotel Statler.
TUESDAY, AUGUST 22ND, 9:30 A. M.
Report of the Executive Committee.
Report of the Committee on Finance, E. L. Quitman, Chairman.
Report of the Committee on Necrology, H. Jensen, Chairman.
Report of the Committee on Salmon Memorial, J. F. Winchester.
Report of the Committee on Selection of Emblem, Otis A. Longley, Chairman.
Report of the Committee on Journal, F. Torrance, Chairman.
Report of the Committee on Advertisements of Veterinary Remedies, M. Jacob, Chairman.
Report of the Special Committee on Agricultural College Investigation, F. B. Hadley, Chairman.
Report of Committee on Glanders, E. B. Ackerman, Chairman.
Report of the Special Committee on Veterinary Nomenclature, S. Sisson, Chairman.
TUESDAY, AUGUST 22ND, 2 P. M.
SECTION ON SANITARY SCIENCE, Chas. Higgins, Chairman.
The Death and Expulsion of the Immature Fetus as a Standard for Measuring the Prevalence of Infection of Cattle Abortion, W. L. Williams, Ithaca, N. Y.
Contagious Abortion from the Practitioners' Standpoint, C. A. Cotton, St. Paul, Minn.
The Bull as a Disseminator of Contagious Abortion, F. B. Hadley, Madison, Wisconsin.
This paper discusses an experiment, based upon practical and scientific knowledge, in which abortion-infected bulls were bred to non-infected virgin heifers.
The authors, among other conclusions, state:
(1) That the bull is less susceptible to abortion infection than the cow.
(2) That if the bull does become naturally infected by the abortion bacilli the infection usually runs a course much more benign than in the cow.
(3) That the soiled bulls with systemic infections used in the experiments were incapable or disseminating the abortion disease by cohabitation.
A Study of Milk in Bovine Infectious Abortion, Ward Giltner, L. H. Coolidge and I. F.
Huddleson, Laboratory of Bacteriology and Hygiene, East Lansing, Michigan.

This paper deals with various aspects of cow’s milk in its relation to bovine infectious abortion and to human health. It is shown that the introduction of Bact. abortus into the udder of a cow causes the appearance of agglutinins in the milk; that agglutinins are always found in milk capable of producing typical lesions of Bact. abortus in the guinea-pig, but that the reverse is not true. No proof is found that Bact. abortus is pathogenic for man, but antibodies for the microorganisms appear in the blood of man as a result of feeding naturally infected milk, probably representing a passive immunity in man. Results are reported also on the, (1) effect of feeding infected milk to rabbits; (2) to guinea-pigs; (3) to newborn calves; (4) significance of the matting of the hairy tufts around the sheath and vulva of calves.


This paper recounts briefly the history of the disease, quoting authors and setting forth the essential contributions of each; points out the difficulties associated with the investigation of the question; reports some of the work, and conclusions of the Bureau of Animal Industry; and finally outlines methods which have been in a measure successful in controlling the disease.

Discussion to be opened by V. A. Moore, Ithaca, N. Y.


This paper outlines experiments in connection with Equine Abortion. It also gives data relative to the vaccination practiced in this disease and also ophthalmic experiments.

TUESDAY, AUGUST 22nd, 8 P. M.

Meeting of various Alumni Associations and Class Dinners.

WEDNESDAY, AUGUST 23rd, 9:30 A. M.

SECTION ON GENERAL VETERINARY PRACTICE.

L. A. Merillat, Chicago, Chairman.
2. Teaching Pharmacology, H. Jensen, Kansas City, Missouri.

WEDNESDAY, 2 P. M.

1. Shipping Fever of Horses, J. R. Mohler, Washington, D. C.
2. Shipping Fever of Horses from the Army Standpoint, C. J. Willgans, Kansas City, Mo.
4. Tuberculosis of Mares, H. Fulstow, Norwalk, Ohio.
5. Paraphimosis of Domestic Animals, J. V. Lacroix, Kansas City, Mo.


7. Recommendations for the Control of White Scours, A. T. Kinsley, Kansas City, Mo.

WEDNESDAY, AUGUST 23rd, 9:30 A. M.

SECTION ON SANITARY SCIENCE AND POLICE.

Charles Higgins, Chairman.

Osteomalacia or “Cage Paralysis in Primates, W. Reid, Blair, New York.


Hypodermic Anaphylaxis, by S. Hadwen, Agassiz, B. C.


This paper deals with the possibility of spreading hog cholera by means of infected pork trimmings in garbage. It includes experimental data obtained by killing hogs in various stages of hog cholera, and feeding small portions of the hams from which the samples were taken were fresh, while others were refrigerated or cured before portions were removed for feeding. Special consideration is given to the relation between meat inspection and this means of hog cholera transmission.

Results of the use of Hog Cholera Globulin on 3,000 Hogs in the Field, Robert Graham, Lexington, Ky.

Hog cholera globulin was used under field conditions in controlling hog cholera in infected herds as well as herds apparently free from the infection. In non-infected herds virus was simultaneously administered in conjunction with the globulin. Hogs immunized by the simultaneous method were later hyperimmunized in some instances. Comparative results of the use of hog cholera globulin and unrefined hog cholera serum indicated that hog cholera globulin in small doses has protective powers against hog cholera equal to those of the unrefined serum.


No method will produce 100% reactions in tuberculous cattle and that probably the efficiency by the ordinary technic used in routine work is not more than 90% for any one test. Most tuberculous cattle will react to any one of the tests while some will react to one or even two of the tests and not in another.

In the elimination of tuberculosis from certified herds the writers advocate the combined method of tuberculin testing, using three methods at once or, preferably, if the time permits, the follow-up system, by applying the ophthalmic test twice at intervals of one week, followed immediately by the intradermal method, and after the lapse of six weeks testing by the subcutaneous method all animals that have not been removed by the previous tests.

In routine testing in certified herds alternate semi-annual tests by the subcutaneous and intradermal methods have been used, supplemented by the follow-up method in those herds where over 3% of the reactors were found to be present. The intrapaphebral method is considered to be in principle practically the same as the intradermal. In practice we have found the injection required more time and labor,
and was objected to by cattle owners as causing too much disturbance in the barn. Slight local reactions in the subpalpebral injection are more difficult to recognize than those in the subcaudal fold and there is a higher percentage of doubtful cases to retest.

Studies in Forage Poisoning, Robert Graham and L. R. Himmelberger.

Continuing bacteriological studies of an oat hay which proved poisonous to horse and mule stock, previously reported at the United States Live Stock Sanitary Association meeting, 1915. The pathogenic properties of a bacillus isolated from the oat forage as well as from another forage in a remote outbreak are described. Small animals, including guinea pigs, rabbits, chickens and white mice, were apparently immune while horses were apparently susceptible. Bovines, sheep and goats less so. Filters of this bacillus grown in Uschinsky's protein-free medium on being injected intravenously into horses from day to day resulted in manifest symptoms, coma and death.

WEDNESDAY, AUGUST 23RD, 2 P. M.

SECTION ON SANITARY SCIENCE AND POLICE.

Chas. Higgins, Chairman.


By a Veterinary Corps is meant a department of the Army having its own organization and head.

Its purpose is to insure the purchase of sound horses and care for those that are injured, sick or insufficient. In order to be of the greatest value in reducing the amount of suffering to the minimum, in preventing the spread of transmissible disease to animals and beings in the army and in civil life during the war and after it is ended, in removing from the fighting and working lines the animals that are valuable to the work and that interfere with progress, it is imperative that a sufficient number should be properly educated, organized, equipped and clothed with abundant authority.

From observations made in the field the Veterinary Corps is the most efficient organization for looking after this important branch of the Army Service. All charity and assistance contributed by humane societies or individuals to alleviate the suffering of animals should be conduced and handled under the supervision of the Veterinary Service.

The National Horse, by R. Vans Agnew, Army Service Schools, Fort Leavenworth.

The improvement of the present stock for breeding the light horse. The giving of Government premiums in all States for the best type of stallion, mare and foal. The present remount depot and the class of animal sent to them. The fallacy of the present contract system. The evil of shipping fever in connection with it. Some suggestions for a remount organization to take the place of the contract system. Cooperation from the State Veterinarians & Agricultural Farms. The ypes and their crosses for remounts. What has been done in some states to improve the type. The real type and what it is called upon to do in peace and war.

Remounts their Care in Depots and in Transit, by D. Warnock, British Remount Station, Dixie, Que.

Remounts, Joseph N. Hornbaker, Front Royal, Va.

South of the Advantages of Sanitary Precautions in Cattle Breeding, John P. Devine, Goshen, N. Y.

WEDNESDAY, AUGUST 23RD, 7:30 P. M.

Annual Banquet.

THURSDAY, AUGUST 24TH, 8:00 A. M.

The entire Association, including ladies and all registered visiting veterinarians, will leave on the steamer Britannia for Parke, Davis & Company's plant on the river front. During the entire day the association will be guests of that company. They will visit the Laboratories and sail on the Lake and the River St. Clair.

THURSDAY, AUGUST 24TH, 7:30 P. M.

Report of Committee on Legislation, David Buckingham, Chairman.

Report of the Committee on Resolutions, John W. Adams, Chairman.

Further report of Committee on Re-Organization.

Report of Committee on History, James Law, Chairman.

Reports of Delegates to Conventions.

Unfinished Business.

New Business.

Election of Officers:
1. President.
2. First vice-president.
4. Third vice-president.
5. Fourth vice-president.
6. Fifth vice-president.
7. Secretary.
8. Treasurer.
9. Librarian.

FRIDAY, AUGUST 25TH.

General Assembly of the Association.

Unfinished Business.

Installation of Officers.

Clinic and Demonstrations throughout the day.

Adjournment.

SATURDAY, AUGUST 26TH.

The members of the Association who will be passing through Chicago have been invited by Sears, Roebuck & Company to visit their establishment at 10:30 a. m. and be their guests at luncheon.

1917 Meeting.

Already there is some talk as to the location of the 1917 meeting of the A. V. M. A. Philadelphia is an active bidder for the meeting and offers the association many inducements to hold its next meeting there.

At its annual meeting at Omaha, July 12th, the Missouri Valley Veterinary Association passed a resolution asking the A. V. M. A. to hold its next meeting in Kansas City and submitted the following in support of its claims upon the association for the 1917 meeting:
The accompanying map of the United States is marked to show the area favored through the holding of A. V. M. A. meetings, over a five hundred mile radius, since 1907 — nine years. The arbitrary five hundred mile radius is a very fair standard, beyond which the average veterinarian will not go to attend the meetings.

This diagram shows clearly that the territory west of the Missouri River and east of the Rocky Mountains has been outside of the limit during the designated time. It also shows that the membership on the Atlantic seaboard, or the area east of the Allegheny Mountains, has been within the favored radius four times. Hence the very important reason why the association should hold its next meeting in a territory which has been so long outside of its special influence.

In conjunction the tabulation of membership in the A. V. M. A., also attendance at the several meetings from the eleven states not favored by a meeting within their territory during the nine years is very important. This study of membership and attendance should serve to guide those interested in the growth and usefulness of the A. V. M. A. when selecting the next place of meeting.

From this list it will be observed that more than twenty per cent of the member-
bership of the Association is within the eleven states enumerated, while the attendance of the meeting of 1915 was less than ten per cent of the total. At the meeting held on the Atlantic Coast it was less than six per cent of the total membership resident in the eleven states.

A study of those attending from these states at the several meetings will show that a great majority of them held official positions as sanitary officers, or were connected with some veterinary college, and that the attendance of veterinary practitioners has been a very small percentage indeed. If the association purposes to secure and hold practitioners as members, it must hold its meetings where said practitioners may have frequent opportunity to attend.

* * *

Of course, there is already some speculation as to who the next president will be, and friends of the following are urging their availability upon the members:

C. A. Cotton, Minneapolis.
G. H. Roberts, Indianapolis.
F. Torrance, Ottawa, Canada.
R. P. Lyman, Michigan.

To Detroit by Auto

Several veterinarians contemplate driving their cars to Detroit for the pleasure of a trip so made and because of the convenience of having their cars while at the meeting. Some who go this way will take their families with them; others will unite with nearby veterinarians and go in small parties.

Inquiry has been made as to the condition of roads; since no general statement can be made on this subject, we give below information concerning routes from various localities within 500 miles of Detroit.

All feasible routes from Chicago to Detroit pass through South Bend. To the latter city there are two approximately equally good routes; both are paved all the way—asphalt, brick, concrete and macadam. The older route via Valparaiso and Laporte runs through a section well studded with small lakes, on which there are numerous summer resorts. The distance is 101 miles. The optional route is via the model city of Gary and the lake port, Michigan City. It is a newer route than the other and four miles shorter. However, there are numerous railroad crossings on it, several of them being particularly dangerous.

From South Bend, the tourist to Detroit has the choice of two routes with the option of additional routes that differ a part of the way. The shortest route is via Coldwater and Ypsilanti, 190 miles—the "main" route, so called because it is the one selected by a majority of the tourists—via Kalamazoo, Battle Creek, Jackson and Ann Arbor, 209 miles.

The short route, the one via Coldwater, is good gravel all the way to Ypsilanti. From there it is concrete. The "main" route—via Kalamazoo and Ann Arbor—is one of the most traveled in the whole middle western section. The roads are mostly graveled; there are some stretches of sand. It runs through Notre Dame university fame; Niles of foot-and-mouth disease note; Paw Paw distinguished by its number of summer tourists; Kalamazoo which contains the largest paper mills in the world and near which are the largest celery gardens in the world; Battle Creek noted for its enormous sanitarium and for the Postum and Kellogg cereal companies; Albion, Jackson, the birthplace of the Republican party in 1854; Ann Arbor the seat of the University of Michigan, and Ypsilanti.

Tourists to Detroit from central Illinois and central Indiana points will find it advantageous to go via LaFayette, Logansport, Peru, Ft. Wayne, Bryan, Ohio, Wauseon, Adrian, Clinton and Ypsilanti. The distance from LaFayette is 298 miles; from Ft. Wayne 166 miles. From Indianapolis, the most direct route and the best road is via Anderson, Marion and Pendleton to Ft. Wayne. The distance to Ft. Wayne is 121 miles. All of the Indiana roads above mentioned are good gravel or stone.
From central and southern Ohio points, the routes of choice to Detroit run through Lima. The distance from Cincinnati to Lima is 126 miles; from Dayton to Lima 74 miles; Springfield to Lima 66 miles; Columbus to Lima 90 miles; Marion to Lima 59 miles. From Columbus and Marion, the more direct route lies straight north through Upper Sandusky and Fostoria to Toledo, a splendid road over a distance of 130 miles, but the road from Toledo to Detroit cannot be recommended; if the weather is dry, it is good; if it is wet, better go via Lima and Wauseon, although it is considerably farther.

From Lima to Detroit, the route of choice runs through Ottawa, Napoleon, Wauseon, Adrian, Clinton and Ypsilanti. The distance is 165 miles, and the road good gravel all the way.

Eastern Ohio and Pittsburgh travelers to Detroit will find splendid roads to Cleveland, from where they may embark with their cars on lake boats or drive via Sandusky and Toledo. The distance from Pittsburgh to Cleveland is 147 miles; from Cleveland to Detroit, 200 miles. If the roads are wet, a better route from Pittsburgh is via the Lincoln Highway to Lima and thence to Detroit as already described. The distance from Pittsburgh to Lima is 280 miles.

From Eastern points to Buffalo by automobile and thence to Detroit by boat, is a trip unexcelled and will doubtless be chosen by some.

SALMON MEMORIAL FUND

Dr. W. Horace Hoskins, secretary of the committee of the A. V. M. A. appointed to receive subscriptions to the Salmon Memorial Fund, reports the collection of $1,462.00 since the publication of his report in the April issue of the Journal. Of this amount, $1,000 was received from a single subscriber, the name being withheld to be announced at the Detroit meeting. The remaining $462.00 was subscribed as follows:

### Subscriptions to Salmon Memorial Fund

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From unnamed donor $1,000.00

Grand total to date (July 15, 1916) $2,881.00

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As the title indicates, this volume is for use in laboratory diagnostic work and contains directions for making all tests that are required in the laboratory. The tests described are, in the opinion of the author, the simplest possible and at the same time, such that findings will be accurate.


*Practitioner's Medical Dictionary*—the last revision of Gould's Dictionary, by R. E. J. Scott, M. A., B. C. L., M. D.

This new dictionary defines 70,900 terms within 962 pages. A very good quality of thin paper is used, making the book of convenient size—not bulky, yet surprisingly complete. It is not only a desirable dictionary for the practitioner, but the student also will find it to be well adapted to his work. By the elimination of many illustrations, which does not detract from the usefulness of the book, a compact volume has been produced. It may be had in leather or cloth binding, and with thumb index if desired.

Published by P. Blakiston’s Son & Co., Philadelphia. Price, $2.75.

*Diseases of the Dog and Their Treatment*, by Dr. Georg Müller, Professor Director of the Clinic for Small Animals at the Veterinary High School at Dresden, and Alexander Glass, A. M., V. S. Professor of Canine Medicine in the Veterinary Department, University of Pennsylvania.

This is the fourth revision of the authorized translation of Professor Müller's work by Glass and the principal improvement over the last edition is in a revision of the chapters which deal with serum therapy. Changes have been made in the treatise on "black tongue" and also in the chapter that considers intestinal parasites. The treatise is very complete, and as is the case with most for-

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*Practitioner's Medical Dictionary*—the last revision of Gould's Dictionary, by R. E. J. Scott, M. A., B. C. L., M. D.
Department of Surgery

By L. A. MERILLAT, Chicago,
Professor of Surgery in the McKillip Veterinary College,

Pitfall No. 18

A three-year-old ridgling, castrated on one side as a two-year-old, was cast and secured for removal of the hidden testicle in June, 1915. The operator, an experienced ridgling castrator, found the epididymus in the inguinal canal. It was hanging down almost to the level of the scrotum and was a well developed epididymus, but tracing it into the abdomen no testicle was found attached to it. The vas deferens could be drawn upon but the traction would bring out no testicle, as it usually does. There seemed to be no testicle attached to it. Believing it to be a case of anorchidism, it was decided, after considerable study, to excise only that part of the organ that lay outside of the internal abdominal ring. Examining the excised structure it was found to be only the epididymus, but thinking it would be unwise to search further at that time, the horse was let up. To the surprise of all, the operation was successful in that the subject cohabitated harmlessly with the other animals in the pasture during the whole summer and was wintered with other horses without ever showing any impulsiveness. In the spring of 1916—now a three-year-old—on being turned into the pasture, he suddenly became very wicked, mounted mares, jumped fences and acted as mean as a ridgling can act. The writer being present at the first operation was consulted and advised another operation. The patient was prepared, cast, secured, positioned and well disinfected. An invasion was made in the usual manner to the internal inguinal ring area and then into the abdomen at its upper posterior quadrant. There was no trouble finding the vas deferens with the inserted finger, but in spite of every attempt no testicle could be drawn up. The vas simply tightened and threatened to tear from the traction. Believing now that some very rare anamoly was responsible for these failures, the whole arm was inserted into the abdomen and the manual search made disclosed a testicle enlarged to the size of a football. It was hard and heavy and floated elusively about the abdomen. As removal through this form of incision would have been impossible, the operation was abandoned and a flank operation advised at some future time when the wound of this second futile operation had healed. It was not thought prudent, with the facilities at hand and with the patient already weakened from the above mentioned manipulations, to attempt any such procedure at the time. As similar cases, while not numerous, are reported from time to time, it would be well for ridgling castrators to keep this anomalous condition in mind. Dr. Charles Frasier reports a case of enlarged testicle successfully re-
moved through the flank after failure to bring it out via the inguinal canal, and Dr. W. O. Longley prefers this route to all others for all kinds of ridgings.

Clinics at A. V. M. A. Meetings

AFTER having been discontinued for two consecutive meetings, surgical clinics will be revived at the coming Detroit meeting. The first clinic was held in Omaha in 1898 and the last one at Indianapolis in 1912. Between these two years a clinic was held in connection with each meeting; it had become a permanent institution and no meeting was thought complete without it. All of the while, however, there had been an underground sentiment against them that has cropped to the surface now and then in the form of complaints that clinics were more spectacular than instructive and that the time given over to them might have been devoted to matters of greater importance to the profession. It has always been my impression that they were tolerated rather than cherished by those who have the weight of the greater veterinary problems upon their shoulders, and with a kind of "let-the-boys-have-their-fun" attitude, there was no serious objections raised against the enterprise. Being an attractive feature, the clinic was not expunged. It brought together a larger congregation to which the higher gospel could be expounded. Each year the question of whether a clinic should be included in the program has been raised and until 1913 the exponents won over an opposition which was mild enough but, nevertheless, extant. New York decided against a clinic and San Francisco, not to be outdone in this endeavor to give a higher order of instruction, followed suit. Detroit this year comes back to the old order of things and will conclude the program with an exhibition well known to the faithful—a surgical clinic.

What about this feature of the A. V. M. A. meetings? Are the clinics worth while? Is there anything really instructive about them? Are they a reasonably good reflection of our surgery? Can the A. V. M. A., with its multitude of problems arising out of our rapid progress, afford to devote a day to instruction in the technic of this one branch? Being an ardent champion of surgery, I would naturally be expected to answer these questions in the affirmative. This is, however, not the answer. The A. V. M. A. can no more afford to assume the burden of teaching surgical technic to its members than it can to teach the technic of any other branch. We might as well expect the section on sanitary science to undertake instruction in laboratory technic or the section on general practice to teach pharmacy methods by demonstrations. While these efforts would, of course, be in line with association work, there are other places where such details should be sought. The clinic by right should be an annual feature, but it should be limited to the demonstration of the few new and important developments of surgery. The promiscuous exhibition of common surgical operations should be discontinued in the A. V. M. A. and substituted by a demonstration of current achievements only. And to make these demonstrations still more valuable, they should come first hand from the originator of the idea or inventor of the method. For example, we have this year three distinct innovations with which the rank and file are none too well acquainted and which will be included in the Detroit program. These are Williams' uterine irrigations, Bemis's dental anesthesia and McKillip's ventricular cauterization. To omit such valuable acquisitions from the program of a National As-

(Continued on page 631.)
Fistula of the Jugular Vein

The author observed in practice two cases of fistulas of the jugular vein after the bleeding of the animals by a quack. In both cases the vein appeared swollen to the thickness of an arm, and from the opening of the fistula pus evacuated. In one case purulent thrombi developed in the blood vessels of the anterior extremities, resulting in pyemia. The other case completely recovered in 14 days with treatment of moist warm applications of sublimate solution, and inunction with red iodid of mercury ointment.

The Use of Ethyl Chlorid as General and Local Anesthetic

While the use of ethyl chlorid in human medicine is extensive, it receives very little attention from the veterinarians, nevertheless it possesses great virtues in one of the most delicate fields of surgery, in the anesthetizing of dogs and cats. The anesthetizing of cats is at present still a risky procedure.

All known anesthetics, such as Billroth’s mixture, ether as inhalation anesthetic, scopolamin-pampon, an injection anesthetic, urethan, per rectal administration, all possess various shortcomings, so that the mortalities still represent a correspondingly large percentage. Aside from all of these the various anesthetizing methods are accompanied with more or less danger for the administrator, especially so in ether anesthesias, in which the stage of excitement is very pronounced.

The author therefore aimed to reach the goal in another way, much more rapidly and without danger, and experimented in a series of cases with ethyl chlorid. This represents, in a chemically pure condition, a colorless liquid having a pleasant, sweetish taste and odor. It boils very easily at 12°, and burns with a flame having a greenish border.

For anesthetizing purposes a mask may be used which is lined with several layers of gauze, or still simpler, several loose layers of bandage gauze may be employed, placed on the mouth and nasal openings.

The animal is secured either in the dorsal position, or better, one hand is placed on its neck, while with the other the animal is held fast in the lumbar region, pressing it down on to the operating table. Thereupon the anesthetic is dropped on to the gauze near the nasal openings. Drippings should not be too fast (in 10 seconds about 10 to 20 drops). Only a few drops are sufficient to produce anesthesia. If it concerns a simple operation all instruments should first be prepared, and the operation should be started immediately after the application of the anesthetic. If the operation is more complicated it is advisable to commence the anesthesia with
ethyl chlorid, and to continue the same with ether.

Compared with the previous method this procedure is much faster and entirely void of danger. Formerly the animal has been laid down and a wad of cotton saturated with ether and administered to the animal. This method has many disadvantages; first of all the danger of anesthesia is very great, the author himself observed in physiological operations, when cats were anesthetized with this method, three fatal terminations out of five cases. Further this procedure has also the great disadvantage that the animals in their excited state may readily injure themselves. Especially dangerous is this form of anesthesia in parturition operations, as fatal accidents may result from the same.

The author employed the same in various operations on cats. In castrations the animals were laid on a table unsecured, and the procedure lasted only two minutes. In the extirpation of the thyroid gland this method of anesthesia has been employed with very good results. He further anesthetized 12 animals without undertaking a surgical operation on them, simply to observe the action of ethyl chlorid.

The anesthesia is quiet and deep, there is no salivation, and the unconsciousness is complete. The animals awaken immediately after the removal of the gauze from the nose, and run around as in normal conditions, whereas with the use of other anesthetics they stagger around for a long time.

Blood Albumen as a Substitute for Eggs

By Alois Walz (Tier. Centr. No. 3 1916).

The scarcity of albuminous foods gave rise to repeated investigations in order to utilize the blood obtained during slaughter for human food. Up to the present only hog blood has been used for the preparation of blood sausage. From cattle blood various kinds of blood puddings, blood Zweibach, and dry blood has been prepared, without being able to create a popularity for these products. More recently the author succeeded in producing albumen from the blood, which neither in its external appearance, nor in its taste or odor, simulated or resembled blood. This product, which has been patented, under the name “Haematalb” represents a yellowish, coarse powder, and has for months been employed with great satisfaction in hospitals, restaurants, confectionaries, and also in private kitchens as a substitute for the very expensive eggs. “Haematalb” readily dissolves in water, and is obtained by special procedure from fresh bovine blood. According to the official analysis it contains 7.73% water, 9.71% ash, 77.44% of albumen. In the alkaline ash the basic substances are those found in normal blood, such as salts of potassium, sodium, iron, calcium, magnesium, chlorine, sulphur, and phosphorus.

According to the certification of the officials, “Haematalb” is a preparation containing a high percentage of proteids, which represents 3 to 4 times the amount of those contained in meat. It is readily soluble in cold or warm water, and coagulates in hot water. The customary solution for the kitchen is 1:8-10. The yellowish, milky fluid may then be employed for the preparation of pastry and other products in which eggs are being used, as well as a binder for chopped meat.

“Haematalb” may be used alone or in combination with eggs in all instances where it is desired to increase the nutritious value of the food. This is especially of great importance in the present war, where nations aim to utilize everything possible for food purposes, and where it is desired to keep the price of nutritious food at the lowest possible level.

The Williamson state-wide tick eradication bill was passed by the Louisiana senate June 6, only four senators voting against it.
sociation would be a decided loss to the members and would, besides, indicate a retrogressive trend of our surgery. The champions of surgery may reasonably expect to retain the A. V. M. A. as the medium through which to expound its new methods as well as its new doctrines in just the same manner as it serves the other branches, but they should expect no more. By overstepping the bounds of dignity, with ungainly displays of the common grist of surgical operations, we have often actually degraded surgery more than we have elevated it. By attempting to wade through a lot of surgical operations in a short time the A. V. M. A. clinics have been fraught with unsatisfactory results from every standpoint by which good surgery is judged. Entirely wrong impressions have been gained of surgical operations of great merit, operators have been unjustly criticized, and patients have been brutally handled at these clinics, all because the local committees, not to be outdone, have attempted to "pull off" a big show. At other times the expected order of things was entirely upset by some single operator who, in his desire to do his work well, monopolized two or three precious hours with an operation of little significance, while other important operations were postponed until too late to do them well, and in almost every clinic in my recollection there were many patients left over, to the discomfiture and disappointment of those in charge. In order that we may raise to higher dignities these matters must be corrected and this can best be done by limiting the exercises to a few new operations for which ample preparation has been made, and to whose demonstration a given amount of time has been apportioned. In addition, such operations should be well displayed and graphically described.

Governor Burnquist of Minnesota recently appointed Dr. R. R. Price, veterinarian of the St. Paul battalion, M. N. G., to a first lieutenancy.

**BOOK REVIEWS**

(Continued from page 626.)

Foreign works, opinions of numerous authorities are given throughout the volume. More attention should have been given to the style in which the subject matter is presented; however, this is always a problem in translations.

Alexander Eger, Publisher, Chicago. Price, $6.00.

*Veterinary Therapeutics* a Guide to the Treatment of Disease in the Domestic Animals, by E. Wallis Hoare, F. R. C. V. S., Lecturer in Veterinary Hygiene, University College, Cork, etc.

This, the third edition, has been entirely rewritten; obsolete material has been deleted, and the newer therapeutic measures have been incorporated in this volume. The peculiar, yet appropriate, manner of combining etiology and symptomatology with therapeutics—therapeutics in its broad sense—has necessitated an explanation on the part of the author, to the effect that the work is not intended as a textbook on materia medica or on pharmacy and that it deals with the treatment of diseases of animals.

While many veterinarians are familiar with the previous editions, the work is of such importance that some mention of the nature of its contents is in order.

Part I deals with the subject of *Diagnosis*. The general symptoms of disease are fully considered. The section on *Care, Management and Nursing* of Sick Animals has been enlarged and revised. It now includes articles on cattle, sheep, pigs, dogs, cats, and birds, written by practitioners who have specialized in these subjects.

Part II gives consideration of the action, uses and doses of drugs. Here discrimination has been made and only such agents that are of practical value or that give encouraging results are dealt with. A chapter on serotherapy is also included.

Part III treats of diseases commonly
met with in general practice, and in order to better explain the indications for treatment, etiology and symptomatology of many affections are included in a concise manner. Eighty-three pages are given to formulae, written out in regular prescription form and arranged in a manner that should prove very popular with the practicing veterinarian, whether he be a prescriber or a dispenser. In a word, this treatise is written in a manner which characterizes its author—accuracy of statement, practicability and clarity of style in its composition are its noteworthy attributes.

The work is not only well suited for the student of veterinary medicine, but will prove valuable to the practitioner. Alexander Eger, Publisher, Chicago. Price, $5.50.

POISONOUS PLANTS AFFECTING SHEEP

(Continued from page 608)

in cases where there is great inflammation of the mucous membranes of the stomachs and bowels, this seems to make matters worse. Raw eggs are always valuable in soothing this irritation.

31. Porcupine Grass

Botanical name—Stipa.

While over a hundred varieties of this grass are known to botanists, only one, "Sleepy Porcupine Grass," is known to be poisonous to sheep. This is commonly a native of the Southwest, abounding especially in southern Colorado, western Texas, lower California, Arizona, and New Mexico. It grows at an elevation of from 5,000 to 9,000 feet; is a very hardy plant, about three to five feet tall, with peculiar long, flat leaf-blades, hence the name, "porcupine grass." The stalks and leaves are bright green, and the seeds very coarse.

Only when the animals are very hungry or the feed extremely scarce will sheep eat it.

The symptoms of poisoning are insidious, but not particularly fatal. The animal becomes droopy and appears sleepy. Finally, it lies down and, to the unexperienced, the band is minus another sheep. However, in a little while, depending on the amount eaten, the victim awakes like Rip Van Winkle and trots off as though nothing had happened.

32. Uncommon Plant Poisonings

Occasionally a plant will cause trouble in some locality that is not known generally. Also, one comes into contact with poison cases that have occurred in almost unheard of manners. Even in the West, on one forest range, a peculiar grass, such as "bear grass," may be found on one side of the mountains, causing much trouble, while on the other side it is unheard of. Many local poisons have not been touched on for the reason that space forbids.

It requires often the utmost skill to unravel cases that at first defy diagnosis. Eliminating spoiled food, acute infectious diseases, parasites, nearly all range enzootics can be traced to some poison ingested in the food or water.

In every case where the diagnosis is shrouded in mystery, the sheep should be moved to other quarters and given different food and water. These two precautions will often work wonders. An investigation can then be made.

In some parts of the Northwest, two plants found among the foothills of the summer ranges have been condemned by sheep men as poisonous. These are the scutellaria or skullcap, and a form of wild pea, with small white flowers. Poisoning from these usually occurs in the early spring, and perhaps they are only harmful when ingested in large quantities by a hungry animal.

In the eastern part of the United States, pokeweed, corn cockle, horse nettle, jimson weed, horse chestnut and the castor bean have all caused occasional deaths among sheep. It is not common, however, and the animal is dead before discovered, as a rule. The treatment for these cases consists of large doses of tannic acid dissolved in water, if they are discovered in time.
The editor will reply to queries appearing here, as he is able and as opportunity permits, but he does not want, nor cannot undertake to monopolize this portion of the department. Any reader who can furnish further and better information in reply to any query is urgently requested to do so. Where the treatments advised in these replies is adopted it is hoped that those employing them will report their results whether good or bad. In all cases give the number of the query when writing anything concerning it.

QUERY NO. 241—Please identify a disease common to horses in the central United States. Here is a case illustrating my point of inquiry.

A man buys a horse in March while the weather is cool. He tries him out and his wind is very good indeed. The horse is brought to me, a veterinarian, for certificate of soundness, and I test him in every way I can and pass him sound. The horse is accepted by the buyer on my judgment and his own opinion and upon the seller's warranty of soundness. This same horse works every day sound in wind on up until, we'll say, May, when the first hot sunny day comes, and lo, to our dismay he ceases to perspire and pants so badly that he cannot do a horse's work. The man comes to me then to know what steps to take to recover on the seller's warranty. He has ample proof that the horse was afflicted in the same way the summer before and that the owner who sold him also knew it full well. The seller is sued for the breach of warranty and the case comes to trial. Veterinarians, both new and old, are examined rigidly by both sides of the case. They are asked for the name of the disease. They are asked for its pathology. They are asked for its cause. They are asked for prognosis of such cases. And they cannot answer. The court by agreement permits veterinary books on diseases of horses to be read from in court as evidence, and no answer to the above questions is found, and finally the case has to be thrown out on account of non-identity, or the veterinary profession is laid bare to ridicule and scorn, and judgment rendered on general principles and the horse adjudged as unsound regardless of the ignorance.

I say again, let's have identity for this malady in all its aspects.

"Hey Doc, this horse won't sweat a drop and he pants like a lizard," says our client. What's the cause? What's the disease? What's the remedy? Now, what should poor "Doc" say or do? Any readers who answer these questions satisfactorily will do a splendid service to many of us. J. W. H.

REPLY—Greatly to our relief, the opinion of readers and not of the editor is asked for. We leave the reply to this question to readers, but it may make the replies more definite to add to the foregoing that the history further reveals that this malady first attacked the horse very suddenly during some hot day when he was being worked hard, as for example, working on the binder during harvest. It will probably further show that this horse was fed on corn and corn fodder or timothy hay during the following winter; in other words, fed an unbalanced ration, a ration deficient in nitrogenous food. It will further show that the horse possessed a very heavy coat and did not shed in the spring until late—perhaps it did not completely shed at all.

Experience has shown that the majority of these cases are quite readily curable. Where the malady is known to exist the preceding summer, it can in a
measure be forestalled by feeding a well balanced ration, or at least including some alfalfa hay in the regimen during the winter, with oil meal and blanketing if necessary to bring about early and complete shedding. If no precautions are taken and the condition is allowed to become aggravated, with the first days of warm weather and hard work, a different line of treatment is required, but usually success may be obtained from the following:

Clip the horse at once. Wash him thoroughly all over with soap and water. Feed a balanced ration. Administer epsom salts, three ounces daily, until the horse begins to sweat freely, which usually requires a week or ten days. During this time he must not be subjected to any work that will cause the "panting." If auscultation to the trachea reveals loud noises made by collections of mucus in the bronchial tubes, he should, in addition to the foregoing, receive ammonium chlorid, one to two drams three times daily. Further than this, some veterinarians administer sweet spirits of nitre, two ounces, three or four times daily and believe that its action in this ailment is very beneficial.

As stated above, we leave the reply to the query to readers. Let us have your opinions.

**Query No. 242—Why do some animals that are hosts of millions of intestinal parasites, manifest no particular evidence of ill health or inanition, and in other instances a few parasites cause animals serious disturbances?**

**Reply by Dr. A. T. Kinsley—**So far as I know it has never been explained why a very heavy infestation of parasites produces but minor symptoms or none at all in some animals, while in others a comparatively light infestation is productive of grave symptoms. Perhaps it is due to the varying degrees of resistance or susceptibility to these parasites by the different animals.

The same phenomenon is observed in the case of infectious diseases. Taking tuberculosis, for example; it is not rare to find most extensive lesions postmortem in cases that showed but few or no symptoms antemortem, while on the other hand there are animals that exhibit grave symptoms of tuberculosis and on postmortem examination we find comparatively insignificant lesions.

**Query No. 248—What is the best cure for capped hock?**

**Reply—**The ordinary case of capped hock, that is, the one where the sheath of the superficial extensor tendon is not involved but where there exists a superficial bursal distension over the oscalcis, is best handled surgically.

After preparing the field of operation in a good manner with regard to asepsis, painting the skin with iodin, an incision is made through the tissues into the center of the cyst with a sharp bistoury, and drainage is in this way provided. Such incision should be about one-half to three-fourths of an inch in length, and the interior of the cavity is injected with tincture of iodin and immediately covered with an aseptic dressing of cotton, which is held in position by means of bandages.

After-care consists in keeping the animal on pillar reins if necessary to keep it standing, and absolute quiet is enforced for a period of about ten days. If one is careful in the execution of the technic, no infection will result and complete recovery will follow within three weeks.

Enclosed please find three dollars for one year's subscription to VETERINARY MEDICINE and one Big Ben binder.

I have read it and would say that the AMERICAN JOURNAL OF VETERINARY MEDICINE is a very interesting and very valuable publication. You have accomplished a great deal with it. I am not like some who say they couldn't live without it. But I should have missed a great deal of interest and value had I not had it. Every veterinarian should take it who wishes to keep in touch with the times in the profession.

Yorkton, Sask.           H. V. MARKHAM, V. S.
The Story of Army Veterinary Legislation

FIFTY years is a long period for a federal service to go unrecognized by a country.

Twenty-five years, or a quarter of a century’s efforts, to gain some standing in keeping with the dignity and scientific service of the veterinary profession was a long campaign for justice. Such has been the experience of the veterinary profession in the United States army.

Passing strange, indeed, is the fact that one who entered the United States army veterinary service in the early 80’s, a Canadian by birth, should have spent upwards of ten years as an army veterinarian and then, discouraged and hopeless of ever gaining rank in our army, went back to his native country and entered the Canadian army veterinary service, was soon after recognized and honored by rank and in another ten years was promoted to lieutenant-colonel and the whole Canadian army veterinary service placed on a higher plane of efficiency and service than in our own country.

Some will remember the early efforts of Drs. Griffin, Le May, Piche, now in the Canadian army veterinary service; Lusk, Schwarzkopf, McMurdo, Plummer, Corcoran and others who sought proper recognition through army channels, but who realized the promises made to the ear were to be broken to the hopes.

Others will recall the wonderful campaign led and directed by the lamented Huidekoper at the close of the Spanish-American war under the encouraging aid of the late President McKinley. How he overcame the opposition of some army officers, the forceful feeling of opposition of some senators, the opposition of Senator Sewall, of New Jersey, and with an adverse report of the Senate Military Committee, carried the bill through the Senate in 1899-1900 under the leadership of Senator Kenney, of Delaware. Also successfully overcoming all opposition in the House, even with an adverse report of the House Military Committee, gained the approval of the House directing the establishment of an army veterinary corps with commission and rank to colonel. How a little later the Secretary of War, Elihu Root, and Adjutant General Corbyin succeeded in holding up the measure and finally encompassing its defeat.

Then followed, congress after congress, efforts to again pass some measure, under the leadership of the late Dr. T. Earle Budd, and later under the directing influence of Dr. J. P. Turner,
under whose leadership retirement on age, disability and the granting of pensions was obtained.

At the close of the 61st Congress, and after the election that made the House in the 62nd Congress Democratic—at the Prince George Hotel in Toronto, Canada—several army veterinarians and others of the A. V. M. A. earnestly plead with the writer of this story to accept the post of leadership in another campaign to attain this much to be desired recognition.

Army veterinarians conferred and finally drafted a bill to give commission, rank, pay and allowances up to first lieutenant. The bill was placed in the hands of Congressman Diefenderfer, of Pennsylvania, and later obtained favorable approval of the House Military Committee and later, under the helpful influences of Chairman Hay of the House Military Committee, passed the House without a dissenting vote.

Senator Penrose, of Pennsylvania, had been selected to introduce a similar bill in the Senate, but having it placed on the calendar of the Senate by request, it met the fate that usually follows bills introduced by request and was never reported.

In the meantime the House bill went to the Senate, was referred to the Senate Military Committee and by this body to a subcommittee consisting of Senator Bristow, Chairman; Jones of Oregon and Clarke of Arkansas. The most persistent and far-reaching efforts were made to secure a favorable report of this bill from the subcommittee, but broken promises by the chairman and continued procrastination ended in this Congress reaching its end, but no action by the subcommittee. It is only just to say that Senator Jones, of Washington, was favorably disposed to report the bill out of committee but Senators Bristow and Clarke were opposed to our recognition.

In the 63rd Congress, the Senate having become Democratic, the bill was again introduced in the House by Chairman Hay of the House Military Committee, and through whom it received early consideration at the hands of this committee, and under the guiding hand of Chairman Hay it passed the 63rd Congress without a dissenting vote.

Senator Kern, of Indiana, introduced the bill in the Senate and it was referred to the Senate Military Committee, by whose chairman, Senator Chamberlain, the bill was referred to the following subcommittee: Senator Luke Lea, of Tennessee, Chairman; Senators Thomas of Colorado and Catron of New Mexico. Later, owing to the absence of Senator Thomas from the Senate for a period, Senator Hitchcock of Nebraska was substituted for Senator Thomas.

A favorable report was obtained from a majority of the committee, Senator Hitchcock dissenting and later joined with Senator Thomas in a minority report opposing the proposed recognition.

The Senate Military Committee as a whole approved the favorable report of the subcommittee, and the bill was placed on the calendar of the Senate. Three successive efforts to pass the bill by unanimous consent failed, through the opposition of Senators Clarke, Hitchcock and Smoot. On the 3rd of March, just twenty-four hours before the end of the 63rd Congress, efforts were made to pass the bill, but under a filibuster, led by Senator Smoot, a motion to lay the bill on the table followed and no opportunity followed to recall it and a second defeat was the fate of our bill.

On the convening of the 64th Congress Chairman Hay, who had so successfully handled the measure in the 63rd and 63rd Congresses, again assured us of his deep interest in our efforts. Charged as he was with drafting an army reorganization measure, he made our bill of the 62nd and 63rd Congresses a part of his army reorganization scheme and increased the proposed rank to that of captain. He again obtained the endorsement of the House Military Committee and later succeeded in having the House approve this measure with but two diss-
senting votes, neither of which was against our part of the bill.

In the Senate a similar situation prevailed. Senator Chamberlain, as chairman of the Senate Military Committee, was called upon to draft an army reorganization scheme and in this bill pay and allowances up to and including major was allowed but no commission or rank was granted the profession. On the 17th day of April, 1916, this bill was amended on the floor of the Senate by adding the word commission and rank before second lieutenant, first lieutenant, captain and major, and, happily for the Chamberlain bill, passed so amended.

In conference, when the final bill was brought out, the House conferees accepted the higher rank of major and those parts of the House bill covering many details of the service were adopted and recommended for passage to the Senate and House, both of which bodies passed the same by overwhelming majorities. The bill was subsequently approved by the Secretary of War and later signed by the President and is known as the NATIONAL DEFENSE MEASURE, undoubtedly the best bill of its kind ever passed by Congress.

The loyal, earnest support given this bill by the profession over the land, the splendid timely support of Drs. Bolser of Indiana, Robertson of Illinois and Hollingsworth of New York, and Turner of Washington during the past five years, was of the most helpful character. This story of our efforts would not be complete without special reference to Congressman James Hay of Virginia, who was won to its support by the justice of this measure and who for five years has been, above all others, the staunch friend and advocate of the profession’s hopes to receive this recognition at the hands of your country and mine; nor can we ever forget the splendid contributions from the pen of the lamented Dr. D. Arthur Hughes, that did so much to arouse the veterinary profession to a realization of the merit and importance of the legislation, and to align the ranks of the profession solidly behind those who were in the forefront of the struggle.

W. HORACE HOSKINS.

The above is a photograph of a tuberculous beef liver. It is interesting on account of its size. The weight was thirty-seven pounds.—James G. Jervis, B.V.Sc., Vancouver, B. C.

STRANGULATED VENTRAL HERNIA OF COLT

Before starting this article I wish it understood that the report of this case is not one of those where we have miraculous recovery as in some that are reported.

I am sending it as it shows that strange and seemingly impossible things can happen, and the man in the field may meet with such experiences not infrequently.

I was called on July 20th to see a mare colt of about six weeks of age and found the animal suffering intense pain and showing colicky attacks, and lying on its back with the feet extended almost constantly.

The history was as follows: The colt was in good shape when the owner left it the night before and on going to the barn the next morning he found it in the condition as above described.

The colt had been sick the greater part
of the night as there were areas where the skin had been bruised; the mother's udder was very much distended with milk which was proof of the colt's illness for several hours. Upon examination I found an enlargement on each side of the mammary gland (this was a mare colt) about the size of a man's two fists and these had appeared after the owner had noticed the colt was sick. The enlargements contained prolapsed bowel. By applying pressure to one enlargement it would increase the size of the other.

It was readily seen that I had a case of hernia to contend with and the next thing to do was to find an opening or outlet from the abdominal cavity.

I made a very careful and close examination and also questioned the owner and he informed me that since the colt was born that it had had an enlargement at the navel but this had not increased in size any. I found the umbilicus somewhat thick but could not recognize any intestine within it so the idea of an umbilical hernia was put aside. The space between the navel and mammary gland (six or seven inches) was not in the least enlarged or thickened I did not think a prolapse could have occurred at that place, but by grasping the skin and at the same time exerting some pressure I was able to recognize bowel and bowel movement.

I then came to the conclusion that the opening was not far away from this point.

I then explained the case to the owner and told him that the colt could not live long in the condition it was in and that an operation was indicated as some relief would be gained by it. The prognosis I withheld for the time being as I was afraid that the intestines had become strangulated and if such was the case the prognosis would be unfavorable (with the unfavorable emphasized) owing to the inflammation that would be present.

The owner consented and we gave the colt a small dose of H-M-C. The case was soon under the anesthetic and we proceeded to operate. I selected a field about half way between the navel and mammary gland and after cleansing the seat I made an incision in the skin and further proceeded with blunt dissection. Just below the skin and underlying tissue I came upon a portion of the small intestine and by following this forward (towards the navel) I came to an opening in the abdominal wall about one-half inch in diameter. The external opening was about as near to the internal as if I had already known beforehand where it was. The internal opening was a little to one side of the median line and about three inches posterior to the navel or umbilical opening. The abdominal opening being too small for the return of the prolapsed bowel I enlarged the opening and reduction of the hernia was comparatively easy. The intestines were very much inflamed and discolored and I knew that the prognosis was very unfavorable, as I had before feared. After completely reducing the hernia the abdominal wound was saturated with catgut and the external wound with tapes and drainage provided.

The animal was allowed to remain on its side until the effects of the anesthetic had passed and this did not keep us waiting long as it was soon over and the colt went to its mother and started to nurse showing no further pain.

This took place in the forenoon and the colt did not show any further disturbances until about 3 p.m. when it grew worse and at five p.m. it died. This was one of those cases where the operation was a success but the patient died.

In conclusion I will say that the only way that I can account for the condition as stated above is that there must have been a weakness at the point and a small rupture of the abdominal tunic with a following prolapse of intestine and after they had once left the abdominal cavity the gas that was generated in them caused them to push farther out and separate the skin from the underlying tissue. The loose skin on the ventral surface of the mammary gland was easily separated but that between the navel and gland being so

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A RARE FRACTURE OF THE HEAD OF THE FEMUR

Belgian horse, gelding, color roan, age six years, weight one ton, cost $300, in Iowa, last November and shipped to this city and put to work on ice wagon after recovery from the so-called shipping sickness.

The horse suffered with lameness after a few days' work, and the practitioner diagnosed it as sprain of the gluteal group of muscles and applied the usual treatment, but without avail. Then, the owner surmised injury to the hip joint, and his friend, the veterinarian, applied a strong blister externally over the region of the joint. The patient was kept in a box-stall four months without visible improvement, and I was called in consultation.

I considered the history and conditions and learned that at no time was there much swelling, which is deemed characteristic of fractures, and I considered we were dealing with a case of what Williams calls trochanteric disease, or what Moller and Dollar describe as inflammation of the bursa of the gluteus medius tendon. The patient walked about as lame as the average spavined horse, and the hand could feel a crepitation when placed over the hip joint, also a well marked clicking sound could be heard in the hip joint region at every step when walking, and the lameness was most marked when the horse was turned around and more pronounced after a short rest.

I advised absolute rest in slings and deep pointed firing with thermo-cautery over the hip joint, but the owner decided to delay firing and rely on the rest in slings. No improvement resulted in a month, and I was again called in consultation and decided to resort to rectal examination, which had been overlooked. We discovered the fracture after careful manipulation of the limb and palpation by the hand within the rectum. The attending veterinarian agreed with me after following my procedure of examination.

The patient was kept another month in slings and finally killed. Post mortem revealed a transverse fracture of the head of the femur without evidence of repair, as fully described in textbooks mentioned above. The specimen was sent to the Veterinary School of the University of Pennsylvania.

Jas. A. Waugh.

Pittsburgh, Pa.

ENDORSEMENT FOR MERILLAT'S TREATMENT OF SEROUS SACS

In reading Dr. Merillat's article in the May Journal on serous sacs, I felt like adding something to the treatment as outlined by him. Like most practitioners, I used to open them and endeavor to promote healing by the use of antiseptics but later discovered that if they could be kept aseptic, more than half was accomplished. So I began treating them as outlined by Dr. Merillat, but in addition using a blister of biniodid of mercury over the part affected, and I found the results most gratifying. I find it necessary from time to time to reopen the sac, as if this is not done the primary opening very soon closes and allows the sac to refill. Of course, I always open it in an aseptic manner.

With the treatment as outlined above, these conditions recover in from five to ten days and cause no further trouble, but occasionally one of long standing will form a fibrous wall and will not respond to the above treatment. In such cases, I either cut them wide open.
and destroy the wall with tincture of iodin or pack the cavity with gauze soaked in a strong solution of bichlorid of mercury. This will destroy the wall and at the same time not infect the tissues with pus organisms.

While speaking of biniodid blister, in the treatment of this condition I will mention another use that I find for the same, and that is in wounds of nearly all classes of the limbs, with the exception of large lacerations. In the army we get a great number of punctured wounds of the legs, and almost invariably infection is carried into the same by the shoe of the offending animal. Many times there are punctured tendon sheaths or even joints. My method of treatment is to clip away the hair, apply iodin to the part, and then rub in and around the cut or puncture biniodid of mercury and cosmolin, one to four.

In those cases where there is danger of open joint or tendon sheath, I always cover the same with gauze, then a layer of cotton and apply a bandage over all and leave this in place for several days, often a week, unless I find some good reason for removing it. The results have been almost marvelous in preventing infection with pus organisms by this line of treatment, whereas in the old method of trying to overcome infection of wounds became infected and swollen to a great extent.

The logical reason for the benefit gained seems that it is due to the increased blood supply and innervation of the affected tissues, also an increased leukocytosis, with a consequent destruction of any germs that may have become lodged in the tissues. Then, too, biniodid of mercury is a very powerful antiseptic and disinfectant.

I like my new station and now that the army bill has passed, the army position looks good to me and should attract some of our best men from civil life. There will be many vacancies to be filled. Chas. H. Jewell.

Schofield Barracks,
Honolulu, H. T.
dition with practically nothing in the floating colon. I forgot to say that on auscultation, peristalsis could be heard on the left side sometimes but not on the right side, the sounds seeming as if far away. The bowels were in good condition, there being no inflammation present, so the only solution to the case that I could see was a complete paralysis of the large colon.

W. B. Morgan.


THROMBOSIS OF THE DORSAL ARTERY OF THE PENIS

I was recently called to see a stallion which presented symptoms which were entirely physical and subjective in character, yet perplexing as far as the etiology was concerned.

The animal in question was a twelve-year-old Belgian. Previous history was negative. His present condition consists in an inability to obtain a complete erection of the penis when about to serve a mare.

For the purpose of giving me an opportunity of observing the condition to a good advantage, he was brought out with a young mare and after teasing the mare for a short time, I found on making an examination that the penis was in a perfect erection, with the exception of its distal third, including the glans, which was flaccid and apparently anemic. There was no sign or history of physical injury, nor was there anatomical malformation. Further, as I have stated before, complete history was negative; heretofore he had been in perfect health and very capable of both erection and copulation. This, in a way, practically removed the condition from the realm of physical injuries and placed it in the category of pathology. Granted that it was a pathological condition, yet, I was in a quandary as to what could affect the organ in this manner, from the standpoint of pathology. Infectious diseases were ruled out, because of the absence of inflammatory reactions and rise in temperature. The only thing that I could arrive at, was that inasmuch as he was somewhat aged, because of continual sexual excitement and a high blood pressure, he had acquired arterio-sclerosis, a condition often accompanied by emboli. I thought it possible that an embolus had lodged in the dorsal artery of the penis producing a thrombosis and the above stated results.

I put the subject on potassium iodid, arsenic and strychnin. As yet the condition is unchanged and I fear that it will remain so unless a compensatory circulation is set up or absorption of the thrombus takes place.

I should like to hear what others have to say of this condition.

G. E. Jørgenson, D. V. M.

Clermont, Iowa.

EVERSION OF THE UTERUS

One morning a farmer called me, asking that I come to his farm at once, because as he termed it, “the calf bed had come out of his cow.” On my arrival I learned that I was the third veterinarian he had called to see this case in the last ten days. One of my brother veterinarians had cleansed the uterus and returned it to its proper place and applied a trust. The second veterinarian had called and replaced the uterus and had sutured the vulva.

I cleansed the uterus well with antiseptics, and then put it in proper place at which time I inserted a rubber ball and blew it up to full size. After it was inserted, I instructed the owner to sell her, as her calf was weaned, and the cow was fat. The farmer replied that he considered such action a fraud and that he could not sell her under those conditions, so in order to help him out of the difficulty and to get my fee I told him I would send a shipper to buy her. That same evening he sold her to our local shipper, who in turn sold her on the Indianapolis market, with the rubber ball still in the proper place. I have
often wondered what the man thought that butchered this cow.

Shelbyville, Ind.

W. S. Tucker, D. V. S.

Probably if the uterus had been thoroughly and carefully cleansed with a suitable and warm antiseptic solution, such as a half of one per cent solution of some of the proprietary coal tar preparations, and then carefully and properly replaced, recurrence of the eversion would not have taken place if labial sutures had been retained for forty-eight hours. (Ed.)

CHRONIC GLANDERS OF HORSES

Dr. T. D. Hinebauch of Tower City, North Dakota, sends a brief of a case which was tried in the Supreme Court of North Dakota wherein Ole H. Nilsson sued Horton & Co., horse dealers, for the price of five horses. The plaintiff established the fact that a gray mare that he purchased from the defendants and which was guaranteed by the said defendants to be "sound and true in all form, shape and manner" was glandorous; that as a result, four other horses became infected, and the five animals were destroyed under the direction of the state veterinarian.

Dr. Hinebauch's letter states that in July, 1897, he examined a bunch of horses on the Erickson farm and found a number of them affected with glanders. The animals were all destroyed with the exception of a certain gray gelding that the owner needed to finish his harvest, which would require but two days. Mr. Erickson faithfully promised to destroy the horse as soon as harvest was completed, but failed to keep his word. In November, 1905, more than eight years after his first visit, Dr. Hinebauch again visited the Erickson farm and found the same gray gelding, showing well marked symptoms of glanders. Needless to say, the horse was immediately destroyed.

Here, it would seem, is an instance where an animal remained infected with glanders for at least eight years.

A PRACTICAL METHOD OF HANDLING TORSION OF THE UTERUS

In going through the March Journal, I noticed on page 224, Query No. 215, information is requested relative to torsion of the uterus in cows, and I wonder if it is not universally known that this condition can be corrected quickly and easily by hoisting the animal by its hind legs until the uterus is pendent. Infrequently some manipulation is required after hoisting, but generally the position corrects the condition. I use this method and cases that previously gave me great trouble are now satisfactorily terminated in a short time.

Charles Thompson Fake, D.V. M.
Granville, N. Y.

AN EASY METHOD OF BURNING CARCASSES OF INFECTED CHOLERA HOGS

It is not advisable to bury the carcasses of animals. I know that on some farms the question of fuel is important, but if you dig a trench, say eighteen inches wide, two feet to two and one-half feet in length and eighteen inches in depth and lay across this little trench a few pieces of scrap iron that you might readily find on most farms where they have some of their old machinery, and put the fuel underneath, it takes very little fuel to burn a carcass completely. This is a comparatively easy method and successful in incinerating the entire carcass quickly without a great deal of smouldering and smut about the place. I always advise against the burying of these animals for the simple reason that the owner or the tenant might be of a lazy disposition and not dig the trench deep enough unless you are there to watch him, and hogs might pasture or roam around the place where these bodies have been buried a year or so.
afterwards and dig up some of these carcasses, which would then be virulent and produce cholera.

A. T. Peters.

Peoria, Ill.

A CASE OF OPEN JOINT SUCCESSFULLY TREATED.

A case of open joint due to injury in a runaway was brought to my attention immediately after the injury. A small piece of iron pipe was driven into the fetlock joint at the anterior part of the internal surface of the joint producing a small wound about one-half inch in length. The owner did not think it serious but as it was a valuable horse he decided to call me.

Upon my arrival I immediately observed that synovial fluid was seeping out of the joint and on closer examination I saw something which looked like cartilage. I had considerable difficulty in convincing the owner that the condition was serious.

The horse was then cast and very securely confined; the surface about the wound was clipped and shaved and then washed with a solution of mercuric chloride—1 to 2000—in sterile water. I then rinsed the wound for about five minutes with sterile water using a syringe which had been boiled for 15 minutes. After washing my hands well in a bichlorid solution, I painted them with tincture of iodin and also painted the wound and surface about the wound twice. I then explored the wound to see what it was that looked like cartilage and found it to be a small piece of bone with cartilage attached at the end. I then painted with tincture of iodin and clipped a layer off of the surface of the wound with a sterile pair of scissors. The wound was again painted twice with tincture of iodin and stitched with braided silk which had been boiled for 15 minutes and then dipped into tincture iodin. The surface of the stitched wound was painted twice with tincture of iodin and covered with a thick layer of collodion. This layer of collodion was watched frequently and any break or crack was re-covered with collodion. A course of polyvalent staphylocous and streptococcus bacterin was given. Upon leading the horse to the barn, only a short distance, he was very lame. Three days later he was slightly lame. Seven days later the horse got loose and tore off the collodion. It then had nearly healed but no more synovia escaped and the wound was well granulated. Twelve days after the injury he was driven but at certain steps would flinch a little. He was then put in the stable for another week and then when taken out did not limp. This horse is owned by Dudley Ferguson, liveryman, Marietta, Ohio, and is now as well as ever; not even a blemish of any kind is to be seen and the joint did not swell at any time.

S. T. Ludwig.

Marietta, Ohio.

SIGNIFICANCE OF VOMITING IN DOMESTICATED ANIMALS*

There is no doubt that vomition in the herbivora is always pathological, and as its incidence is well known I shall not add anything on this point.

I am in absolute agreement with those who maintain that vomiting in the bitch during the weaning period of her offspring is physiological.

Many birds—such as the canary and allied finches, pigeons, parrots—feed their young by regurgitating partly digested food from the crop; whilst owls cannot thrive for long unless they swallow fur, skin or feathers, which they reject afterwards by vomition. Other birds—as the nightingale—vomit pellets containing the chitinous material of those insects on which they thrive.

The cat vomits its fur, and does this with greater ease if she ingests fish-bones and skin, which seem in this creature to have a purposeful action.

Physiological vomiting is mentioned

in the Scriptures in which they say "a
dog returns to its vomit."

Parrots and many other birds vomit
when suffering from gastric catarrh, gas-
tritis, gastroenteritis, indigestion, etc.
Dogs occasionally, and cats frequently,
vomit after chloroform anesthetization.
The dog generally vomits after the hy-
podermic injection of narcotics and in-
testinal stimulants. Many of the short-
faced dogs—as bull-dogs, pugs, Peking-
eses—will frequently vomit an undis-
solved capsule, pill, bismuth powder, etc.
This cannot be due to a physiologico-
chemical action. Many of the smaller
breeds confined in a basket or box, or
lying on one's lap, frequently vomit
when traveling in a carriage, taxi-cab,
or train. Cats deprived of verdures for
a long time do not rarely vomit at the
sight of, and upon a green carpet.

Last year a great proportion of the
dogs suffering from distemper first man-
ifested repeated vomiting, which disap-
peared under treatment to be followed
by more characteristic symptoms of the
disease. As kidney-disease is almost
general in dogs over eight years of age,
one must be careful in concluding that
because a dog died after repeated vomit-
ing and kidney lesions—especially of the
chronic type—were found on post-mor-
tem examination, the disease caused the
vomiting.

Typhus is fatal in the majority of
cases in old dogs, and as kidney lesions
are commonly present anterior to that
disease, I think co-existence of the two
may have much to do with the mortality.
In the case of the older dog there
may be no kidney disease, yet repeated
vomiting.

Kidney disease may exist in the dog
for some years without the animal ex-
hibiting any symptoms likely to attract
attention. In numerous cases of poly-
dipsia associated with polyuria—both are
often exhibited when there is chronic
nephritis—chemical and microscopical
examination give no result beyond a
low specific gravity of the urine.

Old cats suffering from a chronic
catarrhal gastritis or enteritis associated
with chronic hepatitis often have inter-
mittent attacks of vomiting which is oc-
casionally accompanied by diarrhea.

I have never observed stercoral vomit-
ing in typhus—I have in cases showing
all the phenomena often seen in the last
stages of that disease, when there has
been found on post-mortem examination
a cork or other foreign body in the
stomach or small intestine; stricture of
the ileum, etc.

Vomition is not rarely absent in ty-
phus; I have often seen it absent in gas-
tric tympany, and in impaction with food
or hair, both in the cat and dog. These
cases, unless relieved, end suddenly; or
they may linger until death supervenes
from starvation or intoxication. In the
case of starvation by impaction, as the
stomach is full there is no stimulus for
food.

The carnivora often vomit from brain
disease, cerebral intoxication or blood-
poisoning. Many of the inflammatory
diseases set up intoxication of the blood-
stream and thus cause vomiting. This
is seen in the case of an abscess, or in
an accumulation of catarrhal material
in senile metritis in the bitch. In these
conditions, as soon as there is an escape
of the purulent material the vomiting
ceases.

Torsion of the uterus, retained dead
pups in an impervious uterus, retention
of the urine and cystitis, due to the
blocking of the urethra, or jaundice,
bring about vomiting by absorption of the
toxic material which is carried to the
brain by the blood-stream.

Pharyngeal and esophageal disease,
irritation, or obstruction, set up retching
rather than vomiting.

Areca nut seems to act more ener-
ggetically on dogs suffering from an
abundance of worms than when there are
one or two; in the latter case it is
often rejected by vomition. It does not
seem to matter in what manner or form
this drug is given; a dog that cannot re-
tain areca nut in powder or in solution
does not often retain it when given in a
capsule, pill or catchet. The same effects also result from similar vermifuges.

**HIGH STEPPING FOLLOWING FAULTY SHOEING**

The following is a short account of a condition in horses that I encountered quite frequently last spring and which I have not seen before during my three years' practice.

The past spring my attention was called to a number of horses that were affected with a peculiar gait, which at first gave me something to ponder over as the animals appeared to be in the best of health in every way. From all external symptoms, the animals were O. K. with pulse, temperature and appetite normal. When the affected ones were driven or worked in the field on soft ground, all was well, but let one come on hard solid ground, and it would show some of the most peculiar gaits imaginable—a gait hard for me to describe. On solid ground, they would not bring their forelimbs back of a perpendicular line during locomotion and would travel as if they were "tender-footed" and yet would raise the forefeet to an abnormal height and hit the ground with considerable force. When forced to back, the feet would be dragged over the ground in a very peculiar fashion, some animals almost walking on their hind legs. Several of them, on being taken from the barn and led on hard ground would begin to dance, first picking up one foot but quickly letting it down to repeat the action on the other, and so on. There was no swelling or inflammation present in any case.

On carefully inspecting the feet, I noticed that the toes were of considerable length, and after questioning the owners, I was informed by each one that the animals had been shod all winter and the shoes had been removed only a few days before. In every case the condition was noticed a couple of days after the shoes were removed. A pair of shoes were brought to me, on which I noticed the heel calks were quite high, a thing many shoers believe in. Seeing that the high calks would about bring the foot to the proper inclination, and thinking that the sudden change from high to low heels might cause some soreness of the tendons or slight straining, I proceeded to balance the foot by cutting down the toe.

In almost every case, about one and a half inches were cut from the toe, and to my surprise the cure was almost instantaneous. In a few cases, I was compelled to leave some medicine as the patients had become very nervous and were rather hard to handle. In every case the cure was complete in three or four days after balancing the foot. This is the first experience I have had with such a condition, and I thought it might be of benefit to some of my fellow practitioners.

W. P. Bosserger, D. V. M.
Williams, Ia.

**ONE TWIN DEFORMED; THE OTHER NORMAL**

On May 27th, I was called to see a sick mare and on my arrival saw that the mare had delivered a live colt but was straining. On examination, I found another colt but badly deformed. The
The neck was twisted twice on itself, and the front legs, which were about the size of a lamb’s legs, were doubled back. The hind legs were also doubled back, but one of the hind legs was shaped like a front leg. In delivering the fetus, I had to cut the neck in order to get it out of the way. The accompanying illustration will give readers some idea how it looked. The mare and the other colt are doing fine.

W. A. Elver, D. V. M.
Long Prairie, Minn.

INGESTED FOREIGN BODIES*

Under this head we will discuss those conditions which occasionally develop in cattle from swallowing hard substances, such as pieces of iron, wire, nails, hairpins, and similar objects.

The habit of ingesting foreign material such as that described above seems to be a normal one in cattle. Nearly all cattle examined postmortem are found to contain in the rumen and other parts of the alimentary tract numbers of such objects. Apparently they rarely do harm; at least they ordinarily give no sign of their presence during the life of the animal.

Under certain conditions, however, the ingestion of hard foreign objects produces results which are quite serious and frequently fatal.

In such cases the offending object is usually of iron, steel or wire in the form of elongated pieces with a pointed extremity. It may be that the sharp end of the object becomes lodged between folds of mucous membrane, or that it enters the mouth of the ducts of some gland. The peristaltic movements and contractions assist in implanting or embedding the object to such a degree that it remains lodged. Necrosis at the point of lodgement occurs and the object penetrates into the peritoneal cavity or into contiguous organs such as the liver, spleen, through the diaphragm and the heart or lungs.

*Reprinted from “Special Cattle Therapy.”

Nails, pieces of baling wire, and similar objects, have been found on postmortem examination in almost all organs, not excepting the heart, and in many instances the animal suffered no ill effects apparent to the eye during its lifetime; although in some cases the object had traversed the length of the abdominal and thoracic cavities before it become permanently located.

In other cases which have been reported by veterinarians, similar objects have sloughed through the abdominal wall and made their appearance and escape from the body, the cow suffering no particular ill effects.

In many cases, however, serious damage is done and grave consequences, or even death, may result from the passage of foreign bodies through, or into, the peritoneal cavity and other organs.

Death may be caused in such cases by the direct presence of the object interfering with the proper performance of function in an organ; by inflammatory or necrotic processes developing in the region of the object; and by secondary pathological conditions occurring as the result of damage done by the object.

The diagnosis of abnormal conditions produced by the emigration of foreign bodies is not easy. With very few exceptions, the diagnosis can be made certain only on postmortem examination. If laparotomy were more practical in cattle it might on certain occasions be resorted to in the diagnoses of conditions in which foreign bodies are suspected. Dr. John K. Bosshardt, of Camden, N. Y., has performed a considerable number of successful laparotomies in cattle for intestinal invagination. For him it is from all appearances an ordinary proceeding. The average veterinarian, however, as a rule does not transgress to any great extent on the abdominal viscera in a surgical manner. We rely for diagnostic purposes chiefly on our powers of observation, on our sense of touch, and other ordinary means.

The symptoms produced by foreign bodies which leave the intestinal or ali-
mentary tract vary, of course, with the extent of the lesions produced, and the organs involved.

The usual history in cases due to the action of foreign bodies is that the cow has been suffering from inappetence for a long time. For weeks she has not been a hearty eater and she looks unthrifty. At times she has had the appearance of a cow suffering dull pains; she stands almost immovable for hours. The expression of the countenance is that described as "haggard" or "anxious;" she frequently grinds her teeth. At other times she has had slight colicky pains. This covers the general initial symptoms in all cases. Now come special symptoms, varying from now on with the course pursued by the object in its movement within the body.
When the object penetrates and severely injures the peritoneum, the special symptoms are those of peritonitis, with possibly perforation of the abdominal wall and the liberation of the object.

When the liver has been injured seriously by the object the symptoms do not vary from those occurring when the object injures the heart. We find in either instance a set of symptoms which duplicate almost entirely those symptoms seen in infection with Distoma hepaticum. The symptoms due to foreign bodies, however, develop more gradually and persist for a greater length of time. Another point of differentiation lies in the color of the fluid in the dropsical swellings; that found in cases of infection with the liver fluke is clear as water. The fluid contained in the dropsical swellings caused by injuries to the liver and heart from foreign bodies is either yellowish or tinged with blood. Also, in the latter cases, the hide does not peel off as in liver rot.

When a foreign body damages the lung tissue or becomes lodged therein, the symptoms are either those of pulmonary gangrene or of pulmonary tuberculosis; the former when the object is en route through the lung tissue, the latter when it has lodged there permanently.

An exact diagnosis can hardly ever be made with assurance. The diagnosis can be made with reasonable certainty when either the liver or the heart is involved.

The treatment of conditions produced by foreign bodies which have been swallowed and then go through a period of wandering about in the body cavities can only be symptomatic and expectant. If the veterinarian can be reasonably certain that the object is in a portion of the peritoneal cavity where it can be reached and safely removed through laparotomy, he would be justified in undertaking the operation.

In all other locations the symptoms can only be treated as they arise.

Milwaukee, Wis. M. R. STEFFEN.

STOMACH LAVAGE—A RECTAL INJECTION RETAINER

I am greatly pleased with "Colics and Their Treatment," doubly so as it advocates the use of the stomach tube. It has been my sheet anchor in colic troubles for many years. My first one, an improvised affair, I had in commission in 1900. Shortly after that date, I procured a Phillip's tube that I have been satisfied with ever since. On December 19, 1895, at the Victoria Hotel, Chicago, I attempted to exploit the usefulness of the stomach tube to those in attendance at the meeting of the Illinois Veterinary Medical Association, but met with such a storm of protest that I abandoned the idea and concluded that I had either overestimated its value or was the wrong person to introduce it or that my listeners were provoked that they had not originated the idea themselves. To the latter reason, I am inclined, for after writing several articles for publication in veterinary publications I received scores and scores of letters from all parts of the civilized globe asking where a tube could be obtained, also its field of usefulness.

As but little can be added to what is already known, I might say that as the tube enters the esophagus, if difficulty is experienced, a couple of ounces of water thrown into the tube with a syringe, will cause the patient to swallow and the entry into the stomach scarcely requires an effort. Linseed oil is the best lubricant for many reasons.

I can fully endorse Dr. L. A. Merillat's ether treatment, having myself seen the author, Dr. N. P. Whitmore, give a pint of the drug in its pure state in an emergency case. His war cry always was, "If you have faith in your drug, give enough to win out, not just enough to lose your patient."

Early in my experience in bowel lavage, I saw at once that something must be invented to meet the demands of necessity to retain displaced organs. I...
obtained the bladder of a large male hog, attached it to a bicycle pump with a long hose with a valve attachment. On being inflated after introduction, it conformed readily to the altered condition of the parts and being non-irritating, could be left in situ for a long period. After noting what I had accomplished, I obtained the organs of all of the domestic animals, had them tanned and rubbed in wheat bran until they were as soft and pliable as mole skin. These were tested and found that any and all would stand a degree of air pressure that was surprising. They should be treated to a bath of warm creolin solution and massaged with the hand before introduction.

I shall use Dr. Quitman's salicylic acid treatment at the first opportunity. Coming as it does from so eminent a source, it must be valuable.

F. J. BLISS.

Earville, Ill.

A TYPICAL PARTURIENT PARESIS

During the past few months I have had some experiences that have been surprises to me and seem to upset our ideas of the causes of parturient apoplexy. In three cases the parturient period had very little to do with the condition.

The first case of this kind that I ever saw happened some years ago and was a Jersey cow that went down with milk fever two successive years at the usual time—a few hours after calving. She missed one year and then, to my surprise, I was called to see her four months after freshening, to find her in comatose condition, and there existed a case of milk fever as plainly manifested as I ever saw. I gave her the usual air treatment and in less than two hours she was on her feet and apparently in a normal condition.

The second case was treated about two months ago. Early one morning I was called to see a cow and I asked the owner over the phone as to the nature of the case and he replied that she had lost her cud, so I went loaded for some stomach trouble. I found that the cow had been down all night. Asking when she was last calved, the owner replied that he had bought her at a sale the fall before and was told that she had been giving milk about two months at that time. So it was at least nine months since she had calved. She was due to calve again in about four months.

The case presented an appearance that kept me thinking of milk fever, but since the bowels had not moved during the night, I proceeded to give a good big dose of salts. She was very restless and when I had given her about a gallon of the solution I noticed that she was not swallowing well and when I let down her head it dropped to her side and apparently there existed the most marked case of milk fever that I have ever met with. I gave her the air treatment and in about four hours she was on her feet and eating.

The third case happened very recently. As the result of an early phone call to see a sick cow, I was told that she had indigestion. The owner stated that he found the cow down on the morning of the day before; when he could not get her up he called a local empiric, who had given her about a pound of salts and then stated that he didn't understand the case. I found the cow laying in usual position, but unable to raise the head. There was no bloating; no movement of the bowels; no milk in the udder. She had been giving about four gallons of milk per day. It was thirteen months since the cow had had her last calf and she would calve again in August. I told the owner of Case No. 2 and called his attention to the fact that this one appeared to be similar. I further told him I was going to give the air treatment and await results. This I did, and gave also one-half grain atropin sulphate.

I went back in half an hour and she was eating the straw about her. I had a long trip to the country and didn't get back until late, but upon my return I called the owner by telephone and he said that the cow had been up for half an
hour. Today she is in normal health and giving her usual flow of milk.

Now, if the coming of spring had anything to do with these cases, was it the parturient condition of the past or the fact that she was pregnant that caused the paresis?

J. C. CALLANDER, V. S.
Parkersburg, West Va.

A STUBBORN CASE OF FISTULOUS WITHERS

On January 24, 1916, a 5-year-old gray mare, draft type, was brought to my hospital to be treated for a swelling which had suddenly appeared in the region of the withers. Upon examination, I found it to be a true case of fistulous withers.

On January 25th, the animal was prepared for operation by giving her two and one-half ounces of chloral hydrate per rectum. After administering the chloral hydrate, the animal was placed in stocks and the field of operation was prepared by shaving, cleansing and painting with tincture of iodine. By the time the operation area was properly prepared, the chloral hydrate had affected her sufficiently and the operation was commenced.

The swelling was incised by making a deep longitudinal incision through its most prominent point, which was superior and medial to the cartilage of the right scapula. The incision thus made, by cutting through the skin, fascia, trapezius cervicalis, rhomboideus cervicalis and dorso-scapular ligament, extended away from the median line, being some two inches to the right. Through this incision, I could easily follow the fistulous tract, which led to the region of the fourth thoracic spine. Upon palpating the spine, I found its superior aspect to be broken off, and it was easily removed by cutting a few loosely adherent attachments. After removing the piece of fractured bone, I established drainage lower down and in front of the scapula.

After-care consisted in maintaining the drainage aperture patent as long as there was considerable wound discharge and keeping the upper wound packed with a dry dressing. Most of the swelling and discharge subsided in ten days, and the animal was taken home to be treated by packing the uppermost wound daily with a dry dressing.

Fifteen days after the animal had left the hospital, the owner reported that "she is not doing well," and upon examination of the case, I found a peculiar condition existing. The swelling had all subsided, and from an off-standing position, it would have been difficult to detect any abnormality other than a slit-like opening just above and medial to the scapular cartilage. By introducing the fingers into this opening, there was disclosed a shallow cavity between the cartilage of the scapula and the rhomboideus muscle. The cartilage of the scapula was easily felt since it had only a very thin covering at this time.

I again established drainage low down and in front of the scapula and carried out the same line of treatment as was employed in treating the original wound, but to my dissatisfaction, I found that the shallow pocket between the scapular cartilage and the rhomboideus muscle did not decrease in size, even though drainage was good and there was only a slight quantity of wound exudate. Seeing that low drainage did practically no good in the relief of this condition, I let the drainage tract heal and expected the cavity to heal by granulation, but up to the present time, it has not done so. I have kept the cavity packed with dry dressing continuously and have employed some dressings that were almost caustic, hoping in this way to stimulate granulation which would bring about a cure, but the shallow cavity persists.

At present the cartilage of the scap-
TETANUS ANTITOXIN

ula is covered with a leather-like covering which lines the entire cavity, and when the animal makes a step, the up-and-down movement of the scapula causes a peculiar "smacking" sound. The cavity is only superficial, and the wound exudate is very limited in quantity, but with the scapular movement, it appears that the cavity will not heal by granulation.

I should appreciate all the information I can get from those who have treated such cases. Please state treatment employed and the duration of the affection.

J. M. Cozart, D. V. M.
Evanston, Ill.

ANTITOXIN IN TETANUS

I have often noticed articles on the wonderful curative results obtained from the use of tetanus antitoxin after marked symptoms of the disease are manifest, but I believe that I would absorb such reports with a grain or two of salt, not that I mean to question the veracity of the statement that such cases recover, for cases of tetanus will recover at times—even without treatment. But I do question and hold in doubt the statement that it was due to the antitoxin that they recovered, for I firmly believe that after the toxin molecules have gone into a stable chemical combination with the motor neuron in the spinal cord all the antitoxin on earth would fail to break it up.

The most acceptable theory of immunity is the one known as Erlich's side chain theory. In this, Dr. Erlich contends that the body is made up of multitudinous cells, each cell in turn being made up of numerous molecules of protoplasm. These molecules he believes have open or unsatisfied valences, which he calls receptors, and which are capable of combining chemically with molecules of nutritious material. Unfortunately they are also capable of combining with deleterious substances such as toxins, etc. When this occurs, by way of a reaction, it produces a number in excess of these cell receptors, which break away from the cell and are to be found in the body fluid in constant readiness to combine with approaching toxin molecules, thereby preventing them from reaching and injuring the body cell.

These then are the anti-bodies, classed in three orders, according to their action, that of neutralizing, zymogenic and agglutinating, however, their function is the same. These substances Dr. Erlich called alexins, and their production depends upon the presence of antigen, which in this case is a microorganism with its toxins. In tetanus the alexin produced is presumed to be the one known as the "cell receptor of the first order," and is the constituent of our tetanus antitoxin, and its primary function is to combine chemically with the tetano-toxin molecule and neutralize it before it reaches the neurons in the inferior cornua of the spinal cord, while secondarily it may act as diluting medium for the toxin.

If the above may be accepted as a reasonably certain theory, then it can be readily seen that in order to be of any value the antitoxin must be administered before the toxin has reached and combined with the motor neuron.

I agree with Dr. Steffen in his article in the December number, wherein he ventures that the cases which recover after the use of serum would have recovered without the use of it.

G. E. Jorgenson, M. D. V.
Clermont, Iowa.

Comment: Suppose we admit that your statement that "after the toxin molecules have gone into a stable chemical combination with the nerve tissue antitoxin cannot break down this combination" is true as it probably is, does it follow that when the symptoms of tetanus appear this action of the tetanus toxin is complete? Is it not probable that this action continues un-
til death occurs or recovery begins? If such is the case may not the administration of the antitoxin stop the combining of toxin and nerve tissue in many cases, while there is yet a chance for recovery? In the complete absence of any proof that such is not the case are we not justified in giving antitoxin on the supposition that such may be the case?—Ed.

**TETANUS IN A JACK.**

On May 1st, one of my worthy clients, living one mile north, called at my place of business seeking professional advice regarding his jack, which was sick, he said. Upon being interrogated, he replied: "My jack is constipated and stiff all over, I think he has influenza, and I would like to have you fix up a little medicine for him."

As I had been out to his place a few nights before to see a mule foal (one of this jack's colts) which died of tetanus of the fulminating type, the infection being received at the time of birth following umbilical hemorrhage, I got suspicious and told him I had better go out to the farm and examine the patient thoroughly.

Arriving at the place, I found the jack presenting the usual clinical picture—trismus, tail elevated, "saw-horse" attitude, ears rigid, eyes sunken, and when excited the nictitans membrane protruded over the eye; respiration was very painful and the gait stiff.

Upon further questioning, the owner informed me he had extracted a rusty nail from this animal's foot a few days before; this confirmed my diagnosis of tetanus.

**Treatment:** I injected 4,500 units of tetanus antitoxin (Parke, Davis & Co.) at once. Some veterinarians upon reading this will say, "He should have injected ten or twenty thousand;" but I did not have it. However, I telegraphed to Parke, Davis & Co. (Kansas City branch) for more antitoxin. Upon making a very careful examination of the foot, the nail wound positively could not be found, so no vigorous antiseptic attention could be given. I then placed the animal in a very large box stall and darkened the same, injected lobelin sulphate (Abbott) one-tenth grain, and ordered plenty of fresh water for the patient as well as clean hay and bran mashes.

On May 2nd, the antitoxin arrived, and 6,000 units more were injected as well as lobelin one-tenth grain. This same dosage of both the antitoxin and lobelin was repeated on May 3rd and 4th, when the animal took a change for the better. Then, I gave smaller doses of the antitoxin, but the same doses of lobelin up to May 12th, when I discontinued the antitoxin, having given in all 37,500 units, but I continued giving lobelin until May 16th, when recovery was complete.

The entire number of units of tetanus antitoxin administered in this case was rather small as the average case requires fifty or seventy-five thousand units. Tetanus antitoxin as a curative agent is not accepted by a large number of veterinarians because they have seen desperate cases of tetanus recover without any treatment.
This, however, does not prove anything at all because the same can be said of a number of diseases that can be relieved with specialized weapons to be found in the progressive veterinarian's armamentarium.

I wish to comment on the action of lobelin sulphate which was very gratifying in this particular case. After injecting lobelin each day, I noticed it relaxed the masseter muscles considerably, allowing the patient to eat every day during the attack, and it also relieved the painful respiration to a large extent. This was my first experience with lobelin, but it will occupy a prominent place in my hypodermic tablet case from now on. Before alkaloids became popular with the veterinary profession, the writer injected large doses of fluid extract of lobelia hypodermically and noted that it did more good than anything else. The accompanying photograph shows the animal on the third day of the attack.

Naval infection in foals in this section is generally followed by tetanus of the fulminating type as a complication making a "bad thing worse," and in the future I will not treat a case of navel infection without giving a prophylactic dose of tetanus antitoxin in conjunction with symptomatic treatment as indicated.

GLENN PARSHALL, D. V. M.
Okarche, Okla.

RABIES IN CATTLE

On May 7, the writer was called in consultation with Dr. A. C. Yow, of Henderson, North Carolina, to see a suspected outbreak of rabies in a herd of cattle near the Virginia line. Several dogs in this community had been killed since Christmas, suspected by the laity of being rabid. They had not been known to have been in the pasture with this herd of eighty head of cattle. Shortly after Christmas, a calf and its mother died within a week of one another from symptoms simulating rabies, although no diagnosis had been requested by a veterinarian at this time. A few weeks later, a young steer died with somewhat similar symptoms and several head of cattle, some distance off, had died, as well as a few hogs, presumably from rabies. Some two weeks ago, a cow out of this herd died and since then three more have died, making seven deaths out of the herd of eighty. Dr. Yow saw the first case he was called to Saturday, May 6, in a cow that was supposed to have shown first symptoms on the day before. Upon our arrival at the farm Sunday afternoon, this cow was found dead, having succumbed about noon. Another heifer had been confined in a small enclosure, having acted strangely the evening before, with symptoms typical of rabies. The animal was almost continuously lowing, the eyes were bulging and she would make for one when coming near the fence, however, seeming to appreciate the obstruction, she would stop short before striking the fence. She could be driven off by a stick, but would become wonderfully excited over a threat to strike her and she would fall to the ground. Saliva was drooling rather freely from the mouth, and upon offering her a bucket of water she simply played in it without swallowing any. Before being penned, she made the white colored animals bear the brunt of her hallucinations, chasing them until they were greatly fatigued. She had also shown increased sexual desire as did all of the others, which had died within two to four days after showing similar symptoms, consequently she was shot. The brain of the one that had recently died was packed in ice and brought to the veterinary laboratory of the College of Agriculture and Mechanical Arts at West Raleigh, where microscopic examination was made and a positive diagnosis established upon finding numerous negri bodies.

G. A. ROBERTS, B. S., D. V. S.
West Raleigh, N. C.
PROBABLY FORAGE POISONING

Now, for a little information, if you please, on a very perplexing ailment that I have been treating in about fifty cases in cattle ranging from the three-year-old to the old toothless mamma.

History: Cattle may or may not have been turned out to pasture, or wintered on silage—shredded or cut or long cornstalks with the corn remaining. The corn did not mature the past year, and contains some black mold and considerable white mold. In some places one may find nice bright timothy hay while in others it is rather moldy and dusty. Alfalfa is good in some places and on adjoining fields, poor. The water supply is good; drainage is adequate; stables are light, well ventilated and warm. Animals are salted at regular intervals. Some of the cattle are fat enough for beef while others are in an emaciated condition. Some of these cases are found out in the pasture, others in the barn, and some in the barnyard—not more than two occur in any one place at the same time. Some are fresh milkers, and others are well along in milking, while some are dry.

A man may milk his cow at night and get a normal quantity of milk; the cow's appetite is good; and when he goes out in the morning, the cow is down unable to rise. They are found in asternal recumbency; ears are erect; the nose is warm and moist in most cases. There is some constipation and it does not readily yield to the action of a good physic and stimulants. In from two to three days, the subjects are able to stand, and within a week the usual flow of milk returns and everything is normal. But where the waiting game is practiced for two or three days before you are called, the eyes become red; the muzzle is dry; the extremities cold; and the ears are drooping. Feces are dry and more or less coated, and symptoms simulating milk fever are present. These are the kind that are fatal.

Others take a different course. They travel in a circle, seldom bumping into anything but are seemingly unable to walk in any other way. They see where they are going and are fully conscious but still travel in the same circle. They eat and drink and give a certain amount of milk; still their heads remain turned aside as though injured in the region of the poll. Temperature ranges from normal to subnormal, none of them reaching 103 degrees F. By pricking with a pin along the spine, recumbent animals evince sensation, and some draw their legs under them.

One of my clients wrote to Dr. David Roberts of Wisconsin for his advice. Of course he was ready with a positive diagnosis. His answer was that it was paralysis of the posterior bowel. When the cow defecates in a perfectly normal condition and no bloating is present, how can this be? I thought it possible that some of the older heads might be able to figure this out for me—my hair is only tinged a little around the edges.

B. W. W., M. D. V.

SEROTHERAPY OF BACTERIAL ANTHRAX

(Continued from page 618)
ed to show you that the horse is capable of furnishing a sufficiently active serum, and that it seems to me to be the best animal when great quantities of serum are needed for practical purposes. Its effectiveness in veterinary medicine cannot be denied, and it is now for practising veterinarians to use it in fighting anthrax. Only after we are able to gather together a great number of observations will it be possible for us to be definitely informed as regards its curative value; the experiments conducted by me give us great expectations on the subject.
AUGUST VETERINARY MEETINGS

Aug. 2, 3, 4, New York State Veterinary Medical Society, Ithaca, N. Y.
Aug. 8, York Co. Veterinary Medical Society, York, Pa.
Aug. 8, Chicago Veterinary Society, Chicago.
Aug. 8, Keystone Veterinary Medical Assn., Philadelphia.
Aug. 16, Los Angeles Veterinary Medical Assn., Los Angeles.
Aug. 21 to 25 inc., American Veterinary Medical Assn., Detroit.
Aug. 23, Massachusetts Veterinary Association, Boston.
Aug. 23, 24, Georgia State Veterinary Assn., Savannah.

MEETING OF THE ALUMNI ASSOCIATION OF THE N. Y. STATE VETERINARY COLLEGE

The annual meeting of the Alumni Association of the N. Y. State Veterinary College at New York University, New York City, was held at the Hotel Astor on the evening of June 15, 1916.

A special effort had been made to gather as many of the alumni of the two old schools as possible for the purpose of celebrating the gift of a veterinary building—a donation of the university. The veterinary building is situated near the medical school and it is hoped that with the combined facilities afforded by the medical and veterinary schools and the clinical material and other advantages available in this great metropolis, that this school may again take the rank which it once so gloriously held. It already possesses one of the finest libraries and museum collections of any veterinary school in the world. It is hoped that the legislature will see fit the coming session to give this school its rightful aid as just recognition of the splendid work it has done in the past and its promising future and so crown the efforts of the loyal faculty that has for years instructed without compensation.

Several speakers responded to the call of Toastmaster Hoskins during the evening, but the enthusiasm displayed when our dear old friend, Dr. Munn, and our loyal hustler, Dr. Gill, were spoken of for what they had done to perpetuate the old college clearly showed that deep appreciation after all is a great reward for those who labor persistently and unselfishly for a good cause.

MISSOURI VALLEY VETERINARY MEETING

The 22nd annual meeting of the Missouri Valley Veterinary Association was held at Omaha, July 10, 11 and 12. It was said to have been one of the most successful meetings on record. A large number of veterinarians were in attendance.

The meeting opened on the morning of July 10th, with an address of welcome by City Attorney Tepole of Omaha. Dr. R. C. Moore, of St. Joseph, Mo., replied in behalf of the Association to Mr. Tepole's welcome.

The report of the committee on surgery by Dr. R. R. Dykstra, Chairman, was next presented. This report dwelt particularly on the use of blistering and bandaging in the treatment of chronic inflammation of tendons and tendon sheaths, and it also brought out the feasibility of local anesthesia during dental operations, which notable advance in veterinary dentistry had been announced by Dr. Bemis of the Veterinary Division, Iowa State College. Dr. L. A. Merillat, who was a member of the committee on surgery, contributed some observations relative to the importance of veterinarians familiarizing themselves with the new anatomical nomenclature. He also discussed local anesthesia in dental operations as advocated by Dr. Bemis, and the modern treatment of open articulations. There was considerable discussion by the members of the views expressed by Dr. Merillat, and this occu-
At the afternoon meeting, the following papers were read and discussed by the members:

Opsonic Therapy, A. T. Kinsley, Kansas City, Mo.

The Influence of Temperature Upon Bacteria and Their Toxins in the Animal Body, E. A. Logan, St. Joseph, Mo.

Internal Secretions and Ductless Glands, C. F. Nord, Onawa, Ia.

Drugs and Therapeutics, E. L. Quitman, Chicago.

The report of the executive committee was presented by Dr. R. F. Bourne, Secretary-Treasurer, in which he submitted the names of six veterinarians making application for membership in the association. The members present voted to elect them to membership. The committee also recommended that the charges against Dr. J. W. Connaway of Missouri be dropped because of the absence of witnesses against him, and this recommendation was passed by the assembly.

The report of the committee on sanitation was submitted by Dr. J. I. Gibson, Chairman, dealing with the sanitary control of hog cholera, the discussion of which occupied the rest of the afternoon session.

In the evening the members and visiting veterinarians were invited to the Ak-Sar-Ben den and initiated into the mysteries of that organization.

Tuesday, July 11th, was devoted to the clinic at the horse and mule barns on the south side. Dr. Shipley operated on a pig for eversion of the vagina. Two horses with fistulous withers were brought in, but after Dr. Hughes and Dr. Moore had examined the animals and explained the conditions, it was decided not to operate.

Dr. Merillat demonstrated the operation on a horse for alveolar periostitis. Drs. D. M. Campbell and E. L. Quitman demonstrated the administration of Quitman's new anesthesia to a dog during oophorectomy. Dr. Hughes lectured on a case of chronic osteo-arthritis in a horse, and Dr. Miller operated on the animal by ligating the saphenous vein.

Much interest was displayed in the clinic and an instructive discussion was engaged in by the members present.

An exhibit of pathologic specimens obtained from the packing houses had been arranged by the local Federal inspectors, and the members of the association repaired to Cudahy's packing plant and inspected this display during the balance of the afternoon.

The annual banquet was held at 7:30 p.m. in the Hotel Castle, and a good entertainment had been provided. Dr. Gibson, as well as Miss Gibson, and Dr. Miller favored the assembly with several songs. In addition, an imitator of barnyard animals and musical instruments, a magician and a boxing match between two colored boys refereed by Dr. Mayo, lent novelty to the occasion.

At the morning session on July 12th, Dr. R. F. Bourne presented his treasurer's report, in which, among other items, the total membership of the association was given as 618.

Dr. L. A. Merillat of Chicago, who was an honorary member of the association, was elected to active membership.

Dr. C. W. McCampbell, Secretary of the Kansas Live Stock Registry Board, next presented a paper on "Important Essentials in Profitable Horse Production."

Dr. S. W. Alford then submitted his report of the committee on therapeutics, which dealt with the increased cost of drugs, the use of the stomach tube, the importance of care in making rectal injections, quinin-urea-hydrochlorid as a substitute for cocain, carbolic acid in the treatment of hydrocele, etc., etc.

The election of officers which was next in order, resulted as follows:

President, Dr. R. C. Moore.
Vice-President, Dr. C. C. Hall,
Secretary-Treasurer, Dr. R. F. Bourne.

Board of Censors, Dr. D. H. Miller, Iowa; Dr. J. H. Scott, Missouri; Dr.
Burt Conrad, Kansas; Dr. H. R. Morris, Nebraska; Dr. Joseph Hughes, Member at large.

The report of the committee on resolutions was submitted, and the following resolutions were passed:

WHEREAS, it has seemed best to Almighty God, in His infinite wisdom, to transfer to another field of work and usefulness our friends, co-workers and fellow members, Drs. C. W. Browne and John A. Boyd;

WHEREAS, it seems fitting that this association should record its feeling of grief at their loss;

Therefore, Be It Resolved, that in the death of these associates this association feels the loss of personal friends and co-workers, and the profession has also suffered a loss;

And be it further Resolved, that we extend to the families of each the assurance of our sincere and heartfelt sympathy in our common bereavement.

Recognition of the Final Eradication of Foot-and-Mouth Diseases From the United States

WHEREAS, the livestock industry was severely affected by the recent outbreak of foot-and-mouth disease;

WHEREAS, the disease has been successfully eradicated by the Bureau of Animal Industry through co-operation with the various states concerned;

WHEREAS, the work was successfully consummated with a limited loss of livestock considering the extent of the outbreak and at a less expenditure of money than in any similar outbreak on record;

Therefore, be it Resolved, that this association express its gratification and confidence in the ability of the veterinarians taking part in this work;

And be it further Resolved, that this association further appreciates the cooperation of the livestock interests which facilitated the prompt eradication of the disease;

And be it further Resolved, that a copy of these resolutions be forwarded to the Secretary of Agriculture.

Passage of the Army Bill

WHEREAS, the Congress of the United States has seen fit to recognize the importance of the veterinary army service by commissioning the army veterinarians;

WHEREAS, the Honorable James Hay and Dr. W. Horace Hoskins, and many Senators, Representatives, veterinarians and members of the army legislative committee, devoted much time and energy to the support of this bill to its successful passage;

Therefore, be it Resolved, that this association express its appreciation of this recognition;

And be it further Resolved, that this association express its appreciation to the various parties for their service to the army veterinary corps and the profession at large.

Be it Resolved, that we sincerely thank the retiring officers and committees for their successful efforts in the carrying out of their various duties;

Be it further Resolved, that we express, as an association, our appreciation of the very excellent way in which the local committee on arrangements has provided for this meeting and extend to its members our thanks for their thoughtfulness for our welfare and entertainment.

A resolution on hog cholera control presented by the committee was not approved by the members and was referred back to the committee for reconsideration.

At the afternoon session the applications of eleven new members were acted upon and they were admitted to membership in the association.

The executive committee recommended that in the future the clinic be held on the last day of the annual meeting and not on the second day as it was this year, which recommendation was favorably voted upon by those present.

The committee on resolutions reported that they had reconsidered the resolution on hog cholera control, and after con-
siderable discussion, it was decided by the members present to divide the matter into two resolutions, which were finally passed as follows:

**Hog Cholera Control Work**

Whereas, hog cholera is a serious and widespread disease and has for the last few years caused serious losses. However, through the untiring efforts of the veterinary profession, it has been kept under control with diminished annual losses;

Whereas, the veterinarian alone is especially fitted by virtue of his education and training to cope with the prevention and treatment of hog cholera;

Whereas, there is considerable agitation to transfer the Government hog cholera control work from the Bureau of Animal Industry to another department;

Whereas, the Bureau of Animal Industry through co-operation with the various state organizations and veterinary practitioners has successfully eradicated pleurapneumonia and foot-and-mouth disease from our country and has materially diminished the scabies and tick infested areas and has made material progress in the control of hog cholera, thus demonstrating its efficiency;

Therefore, be it Resolved, that this association express its confidence in the Bureau of Animal Industry and urge the Secretary of Agriculture to use his influence for the continuation of hog cholera control work by the Bureau of Animal Industry;

Be it further Resolved, that a copy of this resolution be sent to the Secretary of Agriculture, U. S. A.

**The County Agricultural Agent**

Be it Resolved, that this association commends all the good work accomplished by the county agricultural agent movement, and especially in those instances where the county agents have cooperated with the local veterinarians;

Be it further Resolved, that this association deplores the fact that in some instances county agricultural agents have assumed to render services that only qualified veterinarians are prepared to do. Therefore, we urge that the Secretary of Agriculture issue instructions to all county agents to refrain from treating diseases of livestock unless such agents are qualified veterinarians.

Be it further Resolved, that a copy of this resolution be sent to the Secretary of Agriculture.

The committee presented another resolution at this time, which was passed, as follows:

Whereas, the American Veterinary Medical Association has not held a meeting in the Missouri Valley since 1907;

Whereas, the number of veterinarians has increased materially since 1907 and the profession is benefited by such an association meeting in its territory;

Therefore be it Resolved, that an invitation be extended to the American Veterinary Medical Association to convene at Kansas City in 1917.

The following papers were next presented and discussed:

The County Agricultural Agent in His Proper Sphere, Dr. Henry Hell, New Liberty, Ia.

The Care of Hypodermic and Serum Syringes, Dr. C. J. Norden, Kansas City.

The Business Side of Veterinary Practice, Dr. N. S. Mayo, Chicago.

Dourine in Iowa, Dr. C. A. Langenfeldt, Carroll, Iowa.

Simultaneous Vaccination Against Blackleg, Dr. F. S. Schoenleber, Manhattan, Kans.


When Pres. W. R. Carr called order in the Assembly Room of the Chamber of Commerce, Wednesday, June 21, 1916, he opened the fourth and largest joint meeting of these associations, and after a short address appreciative of such a
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Because it will satisfy your most exacting customer. SUCCESS brings with it more MONEY—That's what you are in practice for—

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full attendance all eager to take up the program he introduced Mr. John S. Mitchell, president of the Chamber of Commerce.

Mr. Mitchell, in his usual happy manner, welcomed those assembled to the city to which President Roadhouse of the Northern Association, very ably replied.

Dr. R. A. Archibald, president of the Western Laboratories, then read his very able paper on "A Brief Review of Some of the Late Developments Along Immunological Lines," which was followed by a most interesting paper on "Hemorrhagic Septicemia," by Dr. J. P. Iverson, Deputy State Veterinarian. The discussion of these papers continued up to the noon hour.

After lunch all took automobiles to "Santa Anita Rancho," the country estate of Mrs. Anita Baldwin, which was formerly the home of her father, known to the turf as "Lucy Baldwin." Here Professor J. I. Thompson and Professor Major, present and former professors of animal husbandry, University of California, entertained with demonstrations of live-stock judging, using the pure bred animals of which there were plenty.

In the evening all met at the Hollenbeck Hotel, at the banquet, and every chair prepared was occupied. At the close of the banquet, Toastmaster J. L. Tyler called on R. A. Archibald, president of the A. V. M. A., who gave us some past, present, and he hoped, future, of that association, to which C. M. Haring, secretary of the A. V. M. A. also responded.

Dr. L. M. Powers, health commissioner of Los Angeles, then read a paper on "Fields for Veterinarians in Preventive Medicine." Other cities have their health officers, but none has one that is a better friend or more appreciative of the veterinarians' services than Dr. Powers, and in his paper he cited many ways by which the departments of food, health and sanitation could be assisted by the veterinarians.

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The demand for information on this subject has been too great, and the reception of the articles on sheep that we published recently has been too enthusiastic to permit of a delay of a year or more in rendering the series of articles on this subject available for readers as was announced in the June issue of the Journal.

To meet this demand, we shall publish Dr. Baker's manuscript immediately in book form. It will comprise a work of about 260 pages and will be incomparably superior to anything that has heretofore been attempted on this subject. The following abbreviated list of contents gives an idea of the completeness of this work:

Section I, History of the Breeds.  Sec. XIV, Diseases of the Brain and Cord.


" III, Hygiene.  " XVI, Non-Parasitic Diseases of the Skin.

" IV, Medicines and Their Administration.  " XVII, Diseases of Obscure Origin.


" VI, Diseases of the Blood.  " XIX, Diseases of the Ewe.

" VII, Diseases of Metabolism.  " XX, Diseases of Rams and Wethers.

" VIII, Diseases of the Urinary Organs.  " XXI, Surgical Diseases.

" IX, Diseases of the Circulatory Organs.  " XXII, Parasitic Diseases.


" XII, Diseases of the Liver.  " XXV, Quarantine and Transportation Regulations.

" XIII, Diseases of the Peritoneum.

The illustrations constitute an exceedingly valuable part of this work.

There are six three-color lithographs of poisonous plants showing the plant, flower, fruit and root in their natural colors.

There are twelve to fifteen full page half-tone plates showing typical specimens (ram and ewe) of the principal breeds of sheep, and in addition, there are fifty to sixty half-tones in the text, showing parasites, bacteria, methods of handling and other matters discussed in the text.

To bring out the illustrations to the best advantage, the work will be printed on the best quality of enamel paper that we can buy. It will be expensive to manufacture, and we cannot set a price upon it as yet. However, we shall have a large edition printed and in this way hope to keep the price low.

For those desiring to procure a copy of "Sheep Diseases" as early as possible, we are making the following money-saving special offer:

Send us $2.00 now (before Sept. 1) and we will send you all charges prepaid a copy of this splendid work as soon as it is ready for distribution, which will be some time this month. The price after the book is published will be more than $2.00.
J. Traum, bacteriologist division of veterinary science, University of California, followed with a very complete paper on methods of diagnosing tuberculosis. His wide experience giving him ample material, taking up the various forms of applying the tuberculin test as well as physical examinations. The discussion of this paper consuming the balance of the evening.

The morning session, June 22, was opened at the Chamber of Commerce, by a paper on “Anthrax Serum and Spore Vaccine,” by F. W. Wood of the veterinary department of the Cutter Laboratory. This paper was thoroughly discussed, especially by state and county veterinarians present.

L. M. Hurt, Los Angeles county live stock inspector, then read his paper “Illegal Practitioners and Steps to be Taken to Correct this Evil.” This was presented in such a manner as to cross the live wires of discussion to the extent of carrying it over to the afternoon session, which convened at the hospital of Drs. Carr & Stevens at 1:30 p. m., for the clinic and conclusion of session.

This discussion of Dr. Hurt’s paper included the county farm adviser and higher education for the veterinarian, and a motion was made and passed that resolutions be framed and presented to the regents of the California State University urging the establishing of a veterinary school at that institution.

Drs. Archibald & Longley, the two remaining active members of the State Veterinary Examining Board, announced their intention of resigning from that board, and requested that the association take some action calling the attention of the governor to appointing a new board.

A committee was appointed to draft and present such resolutions.

The publication committee was instructed to publish the proceedings of the meeting and all meetings for the coming year.

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July 1, 1916. This is the youngest veterinary association in New York state and there was an unusually large attendance for what might be termed a district society, taking in as it does only counties in the southwestern part of the state.

The advancing interest and the progressive evolution of the country veterinarian was strikingly manifest at this meeting, practically every veterinarian in attendance being from a rural district, and, with the exception of possibly one or two, they were graduated, licensed men. A decade ago we question whether or not ten licensed graduated veterinarians could have been assembled at a veterinary meeting in this locality.

The subjects, too, that were discussed added further evidence of the changing of vocation, so to speak, of the practicing veterinarian from what might have been once termed “an equine specialist” to a diversified practice pertaining to all domestic animals.

The meeting convened at the hospital of Dr. E. F. Vorhis. The genial doctor, who has guarded the livestock of this community for nearly a quarter of a century, provided ample material and convenient equipment for the conducting of a very instructive clinic. There were several surgical cases, including roaring, fistulas, tumors, etc., which received skillful surgical attention by Drs. Frost, Muldoon, Birch and others.

The clinics finished, we had a joyful hour at luncheon at the Ah-wa-ga Hotel, after which the business and literary program was opened with an address by President Vorhis.

The president reviewed the changing character of veterinary practice and mentioned particularly the great interest that has been taken of late in dairying and the improvements of dairy methods and stated that it was his opinion that the rural veterinarian could be the most important factor in the reduction of tuberculosis among cattle. He predicts a great future for the profession and looks upon it as a public necessity which is increas-
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Dr. D. W. McAhren, Chief Veterinarian.
Dr. G. A. Johnson, Veterinarian.
Dr. F. W. Cairy, Veterinarian.
ing rather than decreasing. Following the president, the secretary submitted a formal report and made special mention of the recent veterinary legislation which, in his opinion, was not satisfactory to the veterinary profession, and he urged all to attend the coming annual state meeting, at which the matter will be discussed at length.

The program was as follows:

"Some Advantages of Sanitary Precautions in Cattle Breeding," by Dr. J. F. DeVine, Goshen, N. Y.

"Some Advantages of Sanitary Precautions in Cattle Breeding," by Dr. J. F. DeVine, Goshen, N. Y.

"The Veterinarian and the Farmer," by Mr. E. R. Zimmer, Mgr. Farm Bureau, Tioga Co., N. Y.

"Veterinary Dairy Inspection with Special Reference to the Physical Examination of Cattle," by Dr. C. D. Pearce, Binghamton, N. Y.

The writer spoke on some practical points with reference to the close association of abortion, sterility, mambitis and infectious scours in calves, and recited experiences occurring in his practice which proved, in his opinion, that the

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Special Announcement

The course of study has been increased to 24 months in all accredited veterinary colleges in the U. S. While the San Francisco Veterinary College has divided this course of study into 3 terms of 8 months each, all other private colleges have increased their courses to 4 years. In so doing the Board of Trustees of the San Francisco Veterinary College believes that while keeping up with progress in veterinary education, prospective students, for economical reasons, would prefer to finish the course in three rather than four years.

EDWARD J. CREELY,
Secretary.
controlling of all of these maladies were more or less interdependent.

Dr. Moore stated that Dr. Williams contends that where calves are fed on milk from a herd affected with contagious abortion, the heifers abort during their first pregnancy; he urged that the members of the Society give this statement special attention to determine if all experiences on this question agree.

Mr. Zimmer made a plea for improved agriculture and better livestock. He deplored the lack of judgment of the farmer in not seeking the advice of a capable veterinarian sufficiently prompt so as to get the greatest value from his services. He gave some interesting data of certain localities showing the excessive expense of producing milk where the dairy cows were of low production, and pointed out that the veterinary profession could do a real service in assisting in improving our dairy breeds and encouraging the rearing of young stock of high quality.

In discussing the milk question, Dr. Pearce stated that the main purpose of the veterinary inspector should be healthy cows, so protecting human health and life. He lays much stress upon the importance of physical examination and recited the principles and described his method of making such, as follows:

"General appearance of the cow; palpate the glands of the neck; auscultate the lungs; handle the udder, taking a small amount of milk from each teat."

This paper was discussed by Drs. Birch, Battin, Koneig, Udall and Moore. The latter explained that in the investigation of the Boston and Baltimore outbreaks of septic sore throat the reports indicated that streptococcic organisms were in the milkers' throats and simply carried by the milk. It was also brought out that in one of these outbreaks the incriminating milk was pasteurized milk.

Following this discussion the officers for the ensuing year were elected and the meeting adjourned.

Goshen, N. Y. J. F. DeVine.

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"Test W-871—Iodum-Miller has nineteen times the germicidal power of carbolic acid. This value is based upon the action on typhoid bacillus. This test shows available iodin as found in Iodum-Miller to have the greatest germicidal power of any substance that we have ever tested that can be used medicinally.
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Do you know the extent of your obligations in the implied contract between yourself and your client every time you respond to a call?

Are you familiar with the legal aspect of and responsibility for "Errors of Judgment" on the part of veterinary practitioners?

Is the difference between malpractice and negligence clear to you? Do you know your liability in both instances?

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If not, you are daily assuming unnecessary liabilities and neglecting to make the most of your opportunities. A small portion of the contents of Hemenway's "Essentials of Veterinary Law" will convey this information to you in a delightfully interesting manner.

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Single and Double Treatment

is without comparison as a reliable preventive of Anthrax (Charbon).

The DOUBLE vaccine, introduced by us into America in 1895 and successfully used by veterinarians on over 85,000,000 animals, is still used wherever possible as the best known preventive of this disease.

The SINGLE vaccine is rapidly winning in popularity with those having large herds and where double vaccination is a burden. The single Anthrax Vaccine has been used in all parts of the world on over 25,000,000 head, with the best of satisfaction.

Anti-Anthrax Serum

(Institut Pasteur, Paris)

makes it possible to immediately immunize animals preparatory to using the vaccine, thus saving a large number of animals that would otherwise die before the vaccine alone could take effect.

Further particulars on request.

Pasteur Laboratories of America

New York 366-368 W. 11th St.
Chicago 17 N. La Salle St.

Solo Concessionaires of the Original and Only Genuine Pasteur's Anthrax Vaccine, discovered by Profs. Pasteur, Chamberland and Roux.

EUCAMPHOL

Trade Mark

Disinfectant and Antiseptic for Internal and External Use

The veterinarians' reliable standby.

Frequently honored with imitations.

Never equalled in quality and reliability.

Insist on the original.

Pasteur Laboratories of America

New York 366-368 W. 11th St.
Chicago 17 N. La Salle St.

"Test X-152—It is to be observed in the use of tincture of iodin, U. S. P., that there is a very large separation and precipitation of elementary iodin and the efficiency of the iodin is largely lost. In applying iodin tincture for germicidal purposes the alcohol evaporates so rapidly that iodin has not the opportunity to penetrate. Any preparation that will not evaporate rapidly and that will, under no circumstances, allow the precipitation of elementary iodin would be immeasurably superior to tincture of iodin as a germicide.

"Laboratory Number X-467—Test No. 3—This test was made for the purpose of establishing the comparative penetrating and germicidal power of Iodum-Miller and tincture iodin. The skin was cleansed thoroly with water and the iodin applied without drying. Penetration of Iodum-Miller was very deep, being aided in its penetration by the presence of water; penetration of iodin tincture was very slight, being restricted, apparently, by the presence of water. Iodum-Miller sterilized much more quickly and more extensively than iodin tincture.

"Bacterial life exists almost wholly in the aqueous medium of the body rather than in the oily media. In the use of iodin as a germicide it is necessary that the iodin be made to penetrate the aqueous medium which Iodum-Miller does. It is therefore more effective in destroying bacterial life than tincture iodin which penetrates the oil media."

This, together with my personal experience, convinced me that in Iodum-Miller we have a remedy that gives all of the best effects of iodin with the bad features, as found in other combinations, practically eliminated.

In my practice I note that when using Iodum-Miller in surgical dressing to injuries, abscesses, etc., the tissues are not cooked; there is a greater protection against infection; wounds heal more quickly and in all ways conditions are better than when iodin tincture is used. In fact, I find that Iodum-Miller is a stimulant of, rather than a retardant to, nature's efforts at repair.

Further, when using this preparation internally my patient bears it much better that potassium iodid and, greatly to my surprise, I always get a germicidal action of iodin on the body tissues—an action I have never had when using potassium iodid. It is to this germicidal action of iodin that we may attribute the phenomenally good results from Iodum-Miller in the treatment of infectious and zymotic diseases.

I could cite you to many conditions in which Iodum-Miller has proved superior to the older combinations of iodin and iodides, but I trust I have said enough to start investigation by other veterinarians because we want to find and use the best.

Olathe, Kan.

F. P. LAMBORN, D. V. S.
IMPORTANT

Due to the many inquiries we are receiving regarding our ability to supply PASTEUR'S ANTHRAX VACCINE, Single and Double, Etc., during this season, we take this means to notify the trade that we are in a position to supply all demands for this vaccine and all other PASTEUR products, including Profs. LeClainche and Vallee's

Liquid Blackleg Vaccine

After extended experiments in Europe, Prof. LeClainche, chief of the Sanitary Bureau of the French Department of Agriculture, and Prof. Vallee, Director of the Veterinary School at Alfort, France, have perfected the first improvement made in more than a decade in the prevention of blackleg.

These recognized veterinary authorities have devised this absolutely reliable and positively attenuated LIQUID BLACKLEG VACCINE that is ready to inject as sent out by us. This will revolutionize Blackleg vaccination and places it on an ethical basis that should appeal to the veterinary profession. In their experiments, Profs. LeClainche and Vallee have vaccinated 3,500,000 cattle with complete success.

By means of PROFS. LECLAINCHE & VALLEE'S Blackleg Serum

which we also have the pleasure of supplying, all outbreaks of Blackleg may be controlled immediately and many animals saved.

We also supply our original

Blackleg Vaccines

Cord Form
Pellet Form } Double and Single
Powder Form

Write for complete literature

PASTEUR LABORATORIES OF AMERICA

New York—366-368 West 11th Street
Chicago—443 South Dearborn Street

DOCTOR

Write us regarding

Anti-Hog-Cholera

SERUM and VIRUS

Highest Potency Obtainable

U. S. Veterinary License No. 10

PRICES RIGHT

Wholesale and Retail

Wichita & Oklahoma Serum Company

Wichita, Kansas

Branch Office:
Oklahoma City, Oklahoma
Little Rock, Ark.
# ASSOCIATION MEETINGS

The information given below is up-to-date and has been furnished by the secretaries of the various associations listed. Associations are requested to supply us data regarding their associations after each meeting; otherwise, the association will necessarily be dropped from the list. We ask secretaries to kindly co-operate with us in keeping the date and place of the next meeting.

<table>
<thead>
<tr>
<th>Name of Association</th>
<th>Date of Meeting</th>
<th>Place of Meeting</th>
<th>Secretary</th>
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Mark Twain once remarked:

"It's Only a Difference of Opinion that Makes a Horse Race."

In connection with horses and races—

**"Cleseptol" Dusting Powder**

has been picked as "winner" by hundreds of Veterinarians in the United States and Canada.

Containing calomel, boric acid, camphor, alum, copper sulphate, and carbolic acid, mixed with pure tallow—all powerful healing agents—"Cleseptol" "takes the lead" as

**THE SATISFACTORY DUSTING POWDER**

Antiseptic - Deodorant - Healing
Invaluable for wounds, cuts, abrasions, galls.

Put up in 6-oz. sifting top cans, always ready for use.

<table>
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<tr>
<th>Quantity</th>
<th>Price</th>
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<tr>
<td>One gross, your label</td>
<td>$16.75</td>
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<tr>
<td>One-half gross, your label</td>
<td>$8.75</td>
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<tr>
<td>One dozen, our label</td>
<td>$1.50</td>
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**TIME IS MONEY—ORDER TODAY**

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**The I. V. A. Case**

Designed and recommended by prominent members of the Iowa Veterinary Association—and used by all Veterinarians.

— Compact — Handy — Attractive —
The solution of the old inconvenient "Walking Drug Store" proposition!

The I. V. A. is a medicine case, pure and simple, with just enough bottles of the right capacity to answer the needs of the Busy Veterinarian.

The large number of sales proves that this Case is built on the right plan—because it meets the demand. Veterinarians write: "Send me an I. V. A. —it's just what I have been looking for, for a long time." Are you next?

$15.25 Cash—prepaid to any part of the U. S. A.
Made especially for, and sold by

**The W. G. Cleveland Company**

"The Western House for the Western Doctor"
Omaha, Nebraska
<table>
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ADAPTED TO THE NEEDS OF THE GENERAL PRACTITIONER

I consider "Canine Medicine and Surgery" by Saunders a most excellent work; in fact, I think it the best and most up-to-date work that I have ever seen on these subjects. It should be of great benefit to the veterinarian who is doing any dog practice whatsoever. The symptoms of the different diseases are given in a terse manner, in plain language, and to the point. The treatments are up-to-date and scientific, with dosage for the different medicinal agents, and in many cases prescriptions compiled, which makes it very valuable for the busy practitioner, especially the one who only occasionally has a case in canine practice and is also oftentimes in a hurry to formulate a treatment for a case of ailment in the dog. The busy practitioner will find it very handy and serviceable, and should not be without it.

Bisbee, Ariz.

H. T. Doak, D. V. S.

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VETERINARIANS:

The benefits of everything are best judged by the results.

We comply with every existing regulation prescribed by the Bureau of Animal Industry thus assuring you of honest, worthy products.

Fowler Serum and Virus

are made by veterinarians who strive earnestly to maintain the eminence and good will we have earned.

Prompt attention given all orders.

Fowler Serum Company Kansas City, Kan.

N. B.—Day and night service

Either 'phone, Main 6490
Every Veterinarian Should Have Them

The V. 4272 King Ecraseur is the latest improved model. The slack of the chain can be taken up instantly, enabling the operator to perform the operation quickly. Price, $12.00.

The Butler Combination Float is the most popular float in our stock. It consists of a light straight, angular, and heavy spoon rasp. Complete, $3.50.

The Max Wocher & Son Company
19-23 W. 6th Street
Cincinnati, Ohio

Cedar Rapids Serum Company (Inc.)
Producers of Highly Potent and Reliable
Anti-Hog Cholera Serum
For Simultaneous Treatment

U. S. Veterinary License No. 40

None Distributed Unless Proven of High Potency

Cedar Rapids, Iowa
Low in Price
Economical and Convenient
The Butler garage is cheaper than any other all metal garage on the market, considering the weight of metal, quality of workmanship, and size of building.
You can save garage rent, and reduce your insurance rate, and always have your car where you can get it immediately, and know it has not been tampered with.

Easily Erected
Moved or Enlarged
In case you move, it is an easy matter to take your Butler garage along. Very often, a person buys a larger car than he formerly owned. One or more extra sections can be easily added to a Butler garage at any time. Easily erected or moved by anyone. No skilled mechanics are necessary.

Special Features
Round roof for extra strength.
Large locking doors and window.
Ventilators and tool shelf.

Many Sizes
Made 10x14 ft. and larger. Also made for two and four cars or specially constructed so they can be used for other purposes.
Shipped knocked down and well crated to get low freight rate.
Address nearest office for free descriptive booklet and prices.

Butler Mfg. Co.
1330 Grand Avenue,
Kansas City, Mo.
Gasoline and oil systems, truck bodies, tanks for any purpose.

An advertisement in the Clarksdale (Miss.) Register, which is inserted by Dr. W. L. Gates, constitutes an offer of twenty-five cents each for buzzard heads. The bodies are to be burned as soon as the birds are killed. This is a part of Dr. Gates' campaign against anthrax in Coahoma County, Miss.

The 27th annual meeting of the New York State Veterinary Medical Society will be held in Ithaca, August 2, 3 and 4. There will be three sessions daily on the 2nd and 3rd, and clinics will be held on the 4th in the operating rooms of the New York State Veterinary College.

The mid-summer meeting of the Illinois State Veterinary Medical association was held at Peoria, July 19 and 20. About 250 veterinarians were present. A four-hour scenic excursion and a short business session on board a boat in the Illinois River occupied the first day with a visit to the Elmore Live Stock Co.'s plant in the evening. A clinic was held at the hospital of Drs. John Scott and C. G. Brown on the afternoon of the 20th.

The Jean du Luth farms at Duluth, Minn., claim to have the champion Red Poll cow. She showed a gross earning capacity of $1,000 annually for milk alone, with an additional $1,000 for her calf. In a year the cow gave 20,280 pounds of milk, containing 891 pounds of butter fat. This is said to beat all Short-horn records, all records for brown Swiss cows, any official milk record by a Jersey, and has been beaten for milk only by one Guernsey.

Six horses died recently on a farm near Ottawa, Ill., and the University of Illinois was called upon to make an investigation of the cause. The university sent five of its own horses to the farm and four of them were taken sick immediately, resulting in the death of one. The conclusion reached was that the animals died of silage poisoning.

Dr. W. E. Simonsen, who for three years has been connected with the veterinary department of the Iowa State College at Ames, located at Cherokee, Iowa, for the practice of veterinary medicine, July 10th.

Dr. L. B. Mallette, of Princeton, Minnesota, was married to Miss Mina Bradshaw, of Kansas City, Mo., June 29th. Dr. and Mrs. Mallette will make their home at Princeton, where he doctor is well established in practice.

The next meeting of the Veterinary Association of Saskatchewan will be held at the University of Saskatchewan, Saskatoon, Saskatchewan, July 31st, August 1st and 2nd. Dr. L. A. Merrillat, of Chicago, will act as director of the surgical clinic.
A New and Complete Work on Lameness of the Horse

By J. V. LACROIX, D. V. S.

(Author of "ANIMAL CASTRATION")

This volume will contain about 400 pages and will be well illustrated. It deals specifically with diagnostic principles, symptomatology and treatment.

The following, which is abstracted from the table of contents, gives an idea of the range of subjects considered:

INTRODUCTION

SECTION ONE

Etiology and Occurrence of Lameness
Affections of Bones
Affections of Ligaments
Affections of Thecae and Bursae
Affections of Muscles and Tendons
Affections of Nerves
Affections of Blood Vessels
Affections of Lymph Vessels and Glands
Affections of the Feet

SECTION TWO

Diagnostic Principles

SECTION THREE

Lameness in the Fore Leg
Anatomo-physiological Review of parts of the Fore Leg
Shoulder Lameness
Fracture of the Scapula
Scapulohumeral Arthritis
Luxation of the Scapulohumeral Joint
Inflammation of the Bicipital Bursa
Contusions of the Triceps Brachii
Muscular Atrophy (Swinney)
Paralysis of the Suprascapular Nerve
Radial Paralysis
Thrombosis of the Brachial Artery
Fracture of the Humerus
Inflammation of the Elbow Joint
Fracture of the Ulna
Fracture of the Radius
Wounds of the Anterior Brachial Region
Inflammation and Contraction of the Carpal Flexors
Fracture and Luxation of the Carpal Bones
Carpitis
Open Carpal Joint
Thectitis and Bursitis of the Carpal Region
Fracture of the Metacarpus
Splints
Tendinitis
Chronic Tendinitis and Contraction of the Flexor Tendons
Contracted Tendons of Foals
Rupture of the Flexor Tendons and Suspensory Ligament
Thectitis and Bursitis of the Fetlock Region
Inflammation of the Fetlock Joint
Open Fetlock Joint
Open Tendon Sheaths of the Flexors of the Phalanges
Luxation of the Fetlock Joint
Seamoiditis
Fracture of the Proximal Seamoids
Inflammation of the Posterior Ligaments of the Eastern Joint
Luxation of the First and Second Phalanges
Ringbone
Sidebones
Navicular Disease
Laminitis
Calk Wounds
Corne
Cartilaginous Quittor
Nail Punctures

SECTION FOUR

Lameness in the Hind Leg
Anatomo-physiological Review of Parts of the Hind Leg
Hip Lameness
Fractures of the Pelvic Bones
Fractures of the Femur
Luxation of the Femur
Gluteal Tendo-Synovitis
Paralysis of the Hind Leg
Iliac Thrombosis
Fracture of the Patella
Luxation of the Patella
Chronic Goutitis
Open Stiffe Joint
Fracture of the Tibia
Rupture and Wounds of the Tendo Achilles
Spring-halt
Open Tarsal Joint
Fracture of the Fibular Tarsal Bone (Calcaneum)
Tarsal Sprains
Curl
Spavin
Bog Spavin
Thorough Pin
Capped Hock
Rupture and Division of the Long Digital Extensor
Lameness from Interfering Lymphangitis

The manuscript is now in the hands of the printer and the work will be ready for distribution soon. Price $3.00. Advance orders received before the work is published will be filled for $2.50.
Dr. S. O. Fladness, who has been engaged in tick eradication work in Alabama, is being sent by the Bureau of Animal Industry to northern Argentine Republic, Uruguay and Brazil. His stay in South America will be for an indefinite period.

Dr. Joe Bowen, of Trinidad, Colo., a graduate veterinarian, 22 years old, and said to be worth $3,000,000, joined the signal corps of the national guard, where he holds the position of blacksmith. He expects to be promoted to company farrier. He has donated his twin-six touring car for the use of the signal corps.

Daniel Fleming, aged 75, a veterinarian, died at his home at Dublin, Ohio, July 9th. He had lived for fifty years in the house in which he died.

The city council of Cleveland, Ohio, refused to approve the dog-muzzling ordinance presented by Health Commissioner Bishop, who stated that since the first of the year 767 persons have been bitten by dogs and 96 of the dogs had rabies.

The Hon. Newton D. Baker, secretary of war, under date of May 22nd, invited the American Humane Association to prepare and organize a relief service for animals used in the United States army, which shall do for them what the American Red Cross is prepared to do for our soldiers in time of war.

Hemorrhagic septicemia has again made its appearance in the lowlands of Michigan. Last year fifty head of cattle died of the disease in that locality.

The Washington Pure-Bred Stock Association met at Spokane, Wash., June 17th. About fifty stock breeders from all parts of the state were present. It was proposed that the county agricultural agents be made honorary members of the association and work in cooperation with it. H. R. Graves, commissioner of agriculture for the state, asked that the aid of the association in securing a larger appropriation for the fight against tuberculosis. He stated that 53,000 cattle have been examined for tuberculosis this year and only 1,000 have re-acted.

North Dakota sanitary officials have lifted the ban on cattle importations from Illinois, and it is expected that considerable breeding stock will now be shipped from the latter state.

Dr. C. L. Passmore, of Huntley, Ill., was named the defendant in a damage suit at Algonquin, Ill., recently, brought about by the collision of the doctor's car with another automobile.
Stop! Look! Listen!

Elmore Refined, Sterile Hog Cholera Serum
Always reliable and potent. A serum that will not clog syringes nor soil the operator. Free from all contamination.

Write for Free Sample
Elmore Live Stock Co., P. O. Box 43 Peoria, Ill.

No Statements Made Without Proof Positive; No Exaggerations

Less Worry!

Less Work!

And far better and quicker

Results!

Are assured the profession in the use of

THERAPOGEN

Little short of a specific in contagious abortion and foetal discharges. The recognized ideal antiseptic and healing agent for

Obstetrical, Surgical and Canine Work

Not caustic, but soothing; not ill smelling, but sweet. For internal and external use. A splendid deodorizer, pleasant to handle. A Thymol-Terpene Compound but not a coal tar preparation.

THERAPOGEN-WOUND-POWDER
An excellent aromatic substitute for Iodoform, remarkably accelerating granulation and healing process.

The foremost authorities of two continents are using THERAPOGEN very extensively

THEODORE MEYER, Mfg. Chemist 924 LOCUST STREET PHILADELPHIA, PA.
Blackleg is said to be prevalent in Marshall County, Indiana, and many farmers in that vicinity are having their stock vaccinated.

Dr. M. P. Freed, of Conneaut, Ohio, recently operated on an Angora cat and removed an eight inch hatpin which she had swallowed.

Dr. P. H. Canakis, of Chicago, has been at Milan, Ill, attending to the practice of Dr. Gillespie during the latter's illness.

Dr. Stephen O'Toole, of the veterinary department of the North Dakota Agricultural College, has been chosen by the health department of Atlanta, Ga., for the position of veterinarian in that department. He will report for duty August 1st.

Dr. Wm. A. Clare, state veterinarian, Deputy Commissioner of Agriculture Romaine A. French and County Agent Wm. H. O'Kane inoculated 119 head of cattle at Sonyea, N. Y., June 19th, with anthrax serum in the effort to check the spread of the disease. Eight cattle had died of the disease up to that time.

The Iodum-Miller Co., of Kansas City, Mo., have issued a new booklet to veterinarians, describing the combinations, action, application and uses of Iodum-Miller in the different conditions met with in veterinary practice.

The semi-annual meeting of the Mississippi Valley Veterinary Medical Association was held at Galesburg, Ill., July 7th. Papers were read by Dr. J. C. Brown of Joy, Dr. F. C. Eiler of Chapin, Dr. J. M. More of Galesburg, Dr. J. R. Fessler of Bushnell, Dr. G. E. McIntire of Alexis and Dr. E. K. Glover of Indianapolis. The following new members were added to the association: Drs. E. G. Cluts, Canton; L. H. Reynolds, Cordova; Robert F. Curran, Buda; Charles F. Fidler, Canton; H. C. Reinhart, Rushville; J. T. Nattress, Delevan; E. S. Sailor, Warsaw, and W. R. Salter, Stronghurst. One of the chief events at the morning session was the passage of a resolution approving the action of Governor Dunne in having the Illinois cattle-tuberculin law passed. The association was organized eleven years ago with only a handful of veterinarians and now there are approximately sixty members. The officers are Dr. W. J. Morgan, Seaton, president; Dr. M. C. Eckley, Galesburg, vice-president; Dr. W. Lester Hollister, Avon, secretary-treasurer.

The new regulations governing the movement of cattle from ticky districts will not affect Kansas City's quarantine market. The local bureau of animal industry at Kansas
Practical, Up-To-Date Works On Animal Husbandry
Selected for the Busy Veterinarian

At the recent annual meeting of the Illinois Veterinary Medical Association, a resolution was passed providing for a committee to investigate the available works on animal husbandry topics and to select a list of those in its opinion adapted to the needs of veterinarians and present recommendations to the association at its next meeting.

The following are among the list selected:

**Horses**
Productive Horse Husbandry by Carl W. Gay, D.V.M., B.S.A. This volume contains 331 pages and 175 illustrations. Price $1.50. It has been widely adopted as a text in agricultural colleges and has the endorsement of experts everywhere. It is practical, progressive, scientific and will benefit every veterinarian who reads it, particularly those having no agricultural college training.

**Swine**
Productive Swine Husbandry by Geo. E. Day, B.S.A. 363 pages; 95 illustrations. Price $1.50. This work discusses in a clear, authoritative manner; Uses and Types of Swine; Breeding and Selection; the history and description of each of the breeds with illustrations and a score card for each; Feeding; Management of the Boar, Sow, young Pigs and fattening Hogs; Marketing; Curing pork; Buildings and Sanitation, etc., etc.

**Feeding**
Productive Feeding of Farm Animals by F. W. Woll, Ph.D. 362 pages; 96 illustrations. Price $1.50. This is not the most exhaustive work on this subject, but it is the newest and because of its brevity, best adapted to the needs of veterinarians. Dr. Woll is Professor of Animal Nutrition in the Univ. of Cal., formerly of the Univ. of Wisc., and ex-president of the Ass'n of Agri. Chemists of Amer. His name as writer is a guarantee of the authoritativeness of the work.

**Poultry**
Poultry Culture Sanitation and Hygiene by B. F. Kaupp, M.S., D.V.S. 418 pages; 196 illustrations. Price $2.00. Dr. Kaupp's writings on poultry topics are too well known to veterinarians to need particular mention. This work deals with the poultry industry in its broadest sense, separate chapters being given to the discussion of breeds of poultry, mating, breeding, hygiene and sanitation, poultry houses, diseases and parasites, feeding, marketing, incubating, etc.

**Specialized Farming**
Productive Vegetable Growing by John W. Lloyd, M.S.A. 339 pages; 193 illustrations. Price $1.50. This work comprises the information obtained from experience that has cost millions of dollars.

Productive Orcharding by Fred C. Sears, M.S. 315 pages; 156 illustrations. Price $1.50. Describes up-to-date methods of selection, planting, protection, pruning, harvesting and marketing.

Productive Bee Keeping by Frank C. Pellet. 316 pages; 135 illustrations. Price $1.50. Tells how to begin and how to see it through; the methods found to be the best money makers by extensive honey producers.

Productive Farm Crops by E. G. Montgomery, M.A. 501 pages; 204 illustrations. Price $1.75. This work gives twentieth century, scientific information on the principles of fertilizing, planting and cultivating.

Supplied Prepaid at the Price Stated by the

American Journal of Veterinary Medicine
9 South Clinton Street
City state that ticky cattle which come to the city quarantine division may be dipped under regulations in force in the last year and shipped out for stocker or feeder purposes as in the past.

The Oregon State Veterinary Association met at Corvallis, Oregon, June 9th and 10th. The following papers were read and discussed: Hog Cholera, Dr. S. L. Brown; Impaction of the Horse, Dr. C. W. Lassen; Hemorrhagic Septicemia, Dr. W. H. Lytle, state veterinarian; Contagious Abortion of Range Cattle, Dr. Notz, Baker; Surgical Antiseptics, Dr. R. G. McAllister; Review of Work of State Stallion Registration Board, Prof. Carl N. Kennedy. At the clinic, a double cryptorchid operation was performed by C. W. Lassen; two shoulder tumors were operated upon by Dr. W. B. Coon, of Forest Grove; extraction of molar by Dr. Reagan; spaying of bitch and dilatation of os uteri of a cow by Dr. Simms; diagnosis of lameness case by Dr. S. L. Brown, of Portland; demonstration of ophthalmic mallein test for glanders by the state authorities. The following officers were elected: Dr. C. W. Lassen, Pendleton, president; Dr. B. T. Simms, college veterinarian, secretary-treasurer; Dr. Reagan, Hillsboro, first vice-president; Dr. R. G. McAllister, Corvallis, second vice-president; Dr. Roy Smith, third vice-president.

Remount station No. 2 at Fort San Houston has been trebled in size and 15,000 horses have been sent to the post to undergo treatment before going into the army service. Buyers have been scouring the Middle West and Southwest for horses, competing with agents from France and Great Britain, who are also buying horses in this country for the European allies.

Fourteen children between 6 and 15 years old were given the Pasteur treatment at Indianapolis, Ind., all having been bitten by the same dog, July 8th. Dr. Howard Danner, veterinarian of the city board of health, shot the animal. It was suffering from rabies.

John Frazier, aged 88, the oldest veterinarian in Butler county, Pennsylvania, died at Butler, July 11th. He was born in County Down, Ireland.

Twenty cattlemen and stockmen organized...
For the Particular Veterinarian

We produce

A High-Grade Anti-Hog Cholera Serum
of Unusual Purity and Potency

Produced in our new, modern, sanitary plant, located on our farm. After passing the test prescribed by the Bureau of Animal Industry, all of our serum and virus is given a thorough test in the field.

We Guarantee Quality and Service and our Prices Are Right

U. S. Veterinary License No. 27  Nebraska State License No. 41

THE SIMONSON SERUM FARM
Hooper, Neb.
P. Simonson, D. V. S., Owner and Manager.

Long Distance Phones:  Day—R24  Night—83

THE INDIANA VETERINARY COLLEGE
SESSIONS BEGIN IN SEPTEMBER

Practical course in Veterinary Science. Catalogue on request.

805 E. Market St.

INDIANAPOLIS, IND.

THE TERRE HAUTE VETERINARY COLLEGE

Session begins September 18, 1916.
Recognized and accredited.
Practical Course of Veterinary Medicine and Surgery.
Write for Illustrated Catalogue.

S. V. RAMSEY, Jr., D. V. M., Sec'y, Terre Haute, Ind.

THE KANSAS CITY VETERINARY COLLEGE

Thoroughly modern and spacious accommodations, extensive laboratory and clinical facilities. Large corps of experienced instructors. For announcements and full information address

DR. S. STEWART, DEAN

1326 East Fifteenth St.

Kansas City, Mo.

McKILLIP VETERINARY COLLEGE

Chicago—Chartered 1892

AFFORDS UNLIMITED CLINICAL ADVANTAGES

Fully accredited and recognized by the Government and professional associations. New college building containing every modern equipment. The new U. S. Sanitary and Pure Food laws require larger and increasing number of Veterinary Inspectors.

Write for Catalog and other information.

GEORGE B. McKILLIP, Sec., Dept. E, Wabash Ave.

Chicago
Ideal Iodine

WHY should IODUM-MILLER, the soluble Iodine, have a SPECIAL PLACE in the hand-bag or emergency case of EVERY DOCTOR?

BECAUSE as a first aid dressing to injury of any kind it has no superior.

BECAUSE it is always ready for use.

BECAUSE it is always the same strength.

BECAUSE it has great germicidal power.

BECAUSE it is more efficient as a germicide than iodine tincture.

BECAUSE it does not irritate to the extent that iodine tincture does, and when applied to the surface it is absorbed into the deep tissues.

BECAUSE it is soluble in water and under no circumstances will precipitate elementary iodine.

BECAUSE it is better tolerated by the stomach than any iodide and in specific conditions it can be carried to large doses.

BECAUSE one dram in an ounce of water a half hour before feeding gives a better therapeutic effect than 60 gr. potassium iodide.

BECAUSE it has a germicidal action on the body tissues and potassium iodide has not.

BECAUSE it is for external, internal, hypodermic or intravenous use, and however used it gives all of the best action of iodine.

BECAUSE it is a germicide, an alternative, a tonic and a reconstructor of diseased tissue.

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The Animal Welfare Association of Detroit, Mich., held a carnival on June 20th, the proceeds of which were added to the fund for the association's rescue stable and free dispensary.

The case of the Burgess Stock Farm against the Percheron Society of America was decided in favor of the complainant by Judge T. M. Harris, of Lincoln, Ill. Following his ruling suits for damages totaling $600,000 were filed against the society. The suit was brought to compel the defendant to register a horse, which the society declined to do because of former alleged misrepresentations of the Burgess company as to the nativity of other animals.

The veterinary hospital of Dr. W. C. Giller, at Roodhouse, Ill., was destroyed by fire on June 28th. One horse was lost.

The graduate veterinary associations of Texas have consolidated and formed the State Veterinary Medical Association of Texas. Dr. N. F. Williams, of Amarillo, is president and Dr. E. M. Wiggs, of Greenville, secretary-treasurer. No meeting date has yet been announced.

State Veterinarian Marshall, of Pennsylvania, and a corps of assistants have been ap-
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XI Mosquito Control. XI Mosquito Control.
XII Arachnids and True Scorpions. Appendix General Classification of Bacteria and Protozoa.

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American Journal of Veterinary Medicine
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plying the ophthalmic mallein test to horses and mules in the old section of Pittsburgh and are weeding out many cases of glanders.

Dr. John H. Blattenburg, of Lima, Ohio, is listed to teach during the coming session in the Cincinnati Veterinary College.

State Veterinarian Marshall delivered an instructive lecture recently before the Western Pennsylvania Veterinary Club, giving his observations on army veterinary hospitals and system in Great Britain and Europe in the allies' armies.

Losses of cattle in the Black Hills, South Dakota, are reported owing to the abundance this year of white clover. The cattle gorge themselves and die in a few days.

Parts of seven farms near Sweeney, Cooper county, Missouri, have been quarantined because a carload of cattle infected with Texas fever ticks were unloaded there owing to a fire in the car bedding. Some of the animals strayed from the right of way to adjoining farms. No stock will be allowed to run on these farms until after December, when the frost will have killed the ticks.

Last year live stock valued at $300,000 was killed on the national forest ranges by eating...
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poisonous plants; 85 per cent of the losses of cattle were caused by tall larkspur.

During the past six months there have been six or seven deaths in Woburn and Winchester, Mass., traced to anthrax. The disease is believed to have originated from raw hides shipped from China and used in the tanneries at Woburn.

A lamb with six legs is the property of the Intermountain Land & Livestock Co., of Boxelder County, Utah. The extra pair of legs are attached to the ribs just behind the shoulder blades. The limbs are somewhat crooked, the toes pointing in a variety of directions. The freak animal is said to be as healthy as any normal lamb.

Ocean Blue, a $15,000 bull, belonging to Mrs. Nelle Fabyan, of Geneva, Ill., has been shot. The animal contracted tuberculosis while quarantined in Chicago after the first outbreak of foot-and-mouth disease. The bull had won grand championship prizes in many shows and had been raised from a calf by its owner.

Dr. J. S. Price, county health officer, has been authorized to employ as many assistants as necessary to enforce the charbon law in Jefferson county, Texas. The carcass of every animal dying from the disease must be burned and those who fail or refuse to comply with the law will be arrested and fined from $25 to $100. Dr. W. A. Davis, secretary of the State board of health, said the disease was killing hundreds of cattle, horses and mules throughout Southeast Texas, and if steps were not taken to prevent a spread of the disease, he would be compelled to institute a quarantine against Jefferson county. He will take the same action against Liberty, Hardin, Chambers and Orange counties if something is not done at once in those localities.

Dr. William F. Osborn of the South Omaha branch of the Bureau of Animal Industry, has been sent to Texas where he will join

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