A TREATISE

— ON THE —

Diseases of the Horse

Including a Complete System of Taming
and Training Wild and Vicious Horses.

By DR. D. A. HOLMES,
Columbus, - - - Georgia.

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AUTHOR'S PREFACE.

My only excuse or apology for offering to the public this little volume, is the fact that among all the works upon this subject, I know of none that gives, in a condensed and comprehensive form, the information that is really of benefit to the masses of horse owners. But in this, it is the object of the author to give a concise, and, at the same time, authentic and scientific treatise on the causes, symptoms and treatment of the diseases of the horse—a treatise that will be stripped, as far as possible, of technical terms—a work that will not require the ordinary reader to have a medical dictionary at hand, in order to comprehend its meaning, and at the same time it is calculated to be a safeguard to the purchaser of horses, by placing in his hands, the knowledge by which he will be enabled to detect the fraudulent tricks of the traveling cheat—a knowledge that should be in the hands of every citizen who ever deals in horse flesh, either as a buyer or trader.

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A TREATISE ON THE Diseases of the Horse.

PULSE.

In order for the non-professional man to understand the signs of disease, it is necessary to know something of the condition in health, as it is the contrast between the normal and the abnormal condition, that points out the nature and extent of the trouble.

The beating of the pulse is simply the passing of the blood through the arteries and may be felt anywhere an artery crosses a bone near the surface; but the one most convenient of access is the submaxillary where it passes around the inner side of the lower jaw-bone. It may be readily found by placing the index finger cross-wise of the bone and giving it a slight movement when the artery will be felt rolling under the finger like a cord, and the pulsation can be easily detected. The average number of beats in a minute in the healthy adult horse, is about forty, but it differs in individuals. It is faster in the young than the old. In the foal it may be three times as rapid as in the adult. From six months to one year, about double, and in the two year old, about one-fourth faster. The pulse is also somewhat affected in its frequency by the disposition of the individual animal. It is faster in the nervous, excitable animal than in

the one of dull, plethoric habit. In fact, there may be a latitude in frequency of from thirty-six to forty-five and still be commensurate with health. By slow pulse we mean the number or beats in a minute are less than normal; by quick or frequent pulse, the opposite. A full strong or large pulse means that the volume or quantity of blood is greater than usual and imparts a bounding sensation to the finger and is usually more frequent than normal—will usually be noticed immediately following work or undue exercise or excitement, or it may indicate a diseased condition of the general system, or of the lungs. A small pulse conveys the opposite sensation to the touch; is generally due to exhaustion from disease or work. A weak pulse is one that is hardly perceptible to the touch and may be due to general depression from different causes, such as long, continued illness, lack of proper nourishment, excessive loss of blood, etc.; or it may indicate organic lesion of the heart.

Hard or wiry pulse is tense, vibrating, incompressible, usually indicates acute disease of some serous membrane—always present in peritonitis, pleurisy, meningitis, etc.; is always more frequent than in normal condition. An irregular pulse is one where the heart beats regularly for several beats and then ceases for a period. It is indicative of disease of the heart or nervous system.

When a beat is omitted at regular intervals, it is called an intermittent pulse, and almost invariably points to disease of the heart. When the pulsations may be seen along the sides of the neck along the line of the jugular vein at each beat of the heart, it is called venous pulse, and usually denotes some obstruction to the flow of the

blood within the chest; due to dropsy or pressure of tumors, or it may be some lesion of the heart.

TEMPERATURE.

It is also very necessary to know something about the temperature of the horse in health, in order to utilize it as a diagnostic sign in the treatment of disease. The temperature of the horse in health may range from 98 3-5 to 101 degrees F., the average being about 99 degrees F. By long experience and close observation one may be quite adept at ascertaining if fever be present by introducing the finger into the mouth and noticing the difference in the degree of heat in the mouth of the healthy and the one with fever; but the only safe way to arrive at anything like an accurate knowledge of it, is by introducing into the rectum a registered clinical thermometer. Use a self-registering instrument, as the mercury would be likely to drop down before you could read it accurately. Be sure the mercury is below the normal point (viz., 98 3-5 degrees F.) before introducing. Allow it to remain from three to five minutes, according to the make. A little practice will enable almost any one to read it, and thus detect the presence, or absence, of fever. There are various circumstances causing a variation in the temperature of the healthy subject. For instance, a high surrounding temperature will increase it and a cold one will decrease it. Exercise will increase it; drinking cold water will decrease it. It is higher during the process of digestion than otherwise. It is higher in the young than in the old. It is higher in the female than in the male. Thus we see there are numerous phases to keep in mind,

in our efforts to read the different signs and arrive at a proper solution of the problem.

RESPIRATION—BREATHING.

Must also be taken into consideration in summing up our evidence of the true condition of our patient. When at perfect rest and in good health, the horse breathes from twelve to fifteen times per minute, but exercise or excitement increases the number, or frequency of respirations. The act of respiration is also influenced in different ways and degrees by disease, according to its nature, but these variations are described under the heads of the diseases which they indicate and need not be mentioned further here.

DISEASES OF THE MOUTH.

Tooth Ache.—Is the result of decaying or otherwise defective teeth.

Symptoms.—When eating, the horse suddenly stops chewing, holds the head to one side, opens the jaws as if in great pain. He is also observed to do the same thing when drinking cold water.

Treatment.—Consists in extraction of the offending tooth. This requires the services of a Veterinary Surgeon.

PTYLAISM OR SALIVATION.

Causes.—Any irritating substances taken into the mouth, as caustics, mercury and some other medicines in too great quantities. Also irregular teeth and some of the grasses, especially white clover or second crop of red clover.

Symptoms.—Profuse discharge of saliva from the mouth.

Treatment.—If from any irritating matter or from too free use of mercury, syringe out two or three times a day with a solution of chlorate of potash, half ounce to one pint of water, or use the glycerite of tannin with a mop three times a day. If the trouble arises from irregular teeth, they must be floated (an operation that will be explained under the head of surgical operations). If from the pasturage, change it.

PHARYNGITIS.

Is an inflammation of the mucuous lining of the back part of the mouth.

Symptoms.—Are a slight elevation of temperature. The act of swallowing is accomplished with much difficulty and is usually attended with a fit of coughing, especially when swallowing liquids—profuse flow of saliva.

Treatment.—Same as for Ptyalism, when produced by irritants.

PARALYSIS OF THE PHARYNX.

Produces total inability to swallow either food or water. The flow of saliva is excessive. Temperature and circulation nearly normal in the beginning. The animal tries continually to eat or drink, but both food and water return through the nostrils. An examination fails to reveal any obstruction, only a flabby and relaxed condition of all the tissues. The victim assumes an anxious and haggard appearance, the eyes are dull; and unless we are enabled to restore tone and vigor to the organ, he wastes rapidly away and death soon relieves the sufferer.

Treatment.—Is of doubtful utility in the majority of cases; but should it be attempted we get the best results from sulphate of strychnine in two grain doses, night and morning, the strychnine being decidedly the best anti-paralytic we have in veterinary practice and the best means of administration is by hypodermic injection, provided it can be done by a competent veterinarian. If this can be done, inject deeply into the pharynx; if not, dissolve the specified dose in an ounce of water by heating, then throw well back in throat with an ordinary hard rubber syringe. Also use some astringent solution in throat four or five times a day—blister externally.

Electricity properly used is also indicated.

Abscesses sometimes occur in the Pharynx, often affecting the respiration. Should we be able to feel the abscess through the mouth it must be lanced by a surgeon; but if not, then hasten the process by hot poultices and fomentations.

DISEASES OF THE OESOPHAGUS (Gullet).

The diseases to which this organ is liable are very few, except those resulting from forcing down the throat, irritating medicines or from attempts of the animal to swallow too greedily or some object so large that it becomes lodged somewhere between the Pharynx and the orifice, opening into the stomach. Symptoms in the former are slight increase of temperature and symptoms of pain in swallowing.

Treatment.—Frequently gargle the throat with one pint of water, in which one-half ounce chlorate of potash

has been dissolved; use as drench, being careful not to raise the head too high, as this is liable to produce intense pain.

The result of the latter, what is known as choking, is more frequent in horses that are greedy eaters and bolt their food, or, in other words, attempt to swallow it without chewing and mixing thoroughly with the salivary secretions.

The symptoms depend in a large measure upon the location of the offending body. Should it be in the upper portion of the Oesophagus or near the Pharynx, it is known as Pharyngeal choke, or more commonly high choke. In this the symptoms are indicative of great distress, breathing greatly accelerated, persistent coughing, profuse flow of saliva, the body bathed in perspiration, trembling and violent stamping of the fore feet, rapid swelling or distention of the abdomen. By outward manipulation of the Oesophagus, especially on the left side, we are generally enabled to feel the obstruction and usually by the introduction of the hand into the mouth we may reach it with the fingers.

In Cervical choke the object may be lodged anywhere between the Pharynx and the shoulder, and may be determined with certainty by outward manipulation, as it can be plainly felt and usually seen. The abdomen is usually more or less distended, the animal will occasionally draw himself up and arch the neck, every muscle and tendon seeming to be drawn to its utmost tension, sometimes uttering a distressing cry, as if in severe pain, although not so intense as in the pharyngeal form. Water poured into the Oesophagus will be seen to dis-

tend it above the obstruction. Should the obstruction be still lower it is known as Thoracic Choke, and is known by the food and water being ejected through the nose and mouth. We sometimes hear the cry of distress noticed in cervical choke. Also symptoms of distress and tympanitic condition of abdomen, but should we not be fully decided as to the trouble we may determine positively by the introduction of the probang into the Oesophagus.

Treatment.—If we find Pharyngeal Choke we must first place in the animal's mouth some kind of a gag or speculum to protect the hand and arm of the operator. Then introduce the hand as far back in the mouth as possible, pulling the tongue well out of the mouth, and at the same time an assistant should outwardly manipulate the object, pushing it forward with all his power, and in this way try to bring it within reach of the hand within the mouth, so it may be grasped and withdrawn. Should success not crown our first efforts, we must not be discouraged, but persist until we are satisfied further efforts are useless. Failing removal by the mouth, from the fact of the object being too low to be reached, we should direct our efforts to move it up and down by manipulation gently applied, and should we be successful in moving either way, if only very little, then introduce into the throat an ounce or two of the following mixture with a syringe every half hour. We may confidently look for its total spontaneous disappearance:

R. Cloral Hydrate, Fluid extract of Belladonna and tincture of Gelsemin, of each one ounce, Olive Oil one pint.

This will relax the walls of the Oesophagus and lubricate at the same time. It is well -also to rub externally along the line of the Oesophagus the same mixture, only substituting Ether or Chloroform for the Oil, applying the whole length. Should these be impossibles of access, use thick warm soapsuds internally. In Cervical Choke use the same remedial agents, and should the impaction be of dry food, the mass must, if possible, be broken up by gentle outward manipulation and the use of the fluids. If the Oesophagus be filled with water or other fluid, it is likely to produce a violent paroxysm of coughing, which greatly aids in the dissolution of the mass. Sometimes we find choke to be caused by the forcible entry of an egg (with the shell entire) into the throat by some ignorant groom. In such a case, pierce the shell in two or three places with a needle introduced through the walls of the Oesophagus, then crush it by applying gentle pressure on either side, and it will be at once passed on to the stomach and the symptoms immediately subside.

In Thoracic Choke, of course we cannot do anything toward the distintegration of the mass by outward manipulation, therefore, have to rely on lubrication and dilatation very largely, using the same remedies as in the previous cases, but should these means fail we will then have recourse to the probang, which must be done with caution. Also the operation of Oesophagotomy, to which we are forced to resort in Cervical Choke when all other means fail; but this operation should never be resorted to until all other means have been exhausted,

as the wound in the Oesophagus is sometimes exceedingly difficult to heal, and, in fact, sometimes impossible; and should the process be perfect it is liable to produce stricture of the walls, which generally results in dilatation immediately above the stricture. We frequently meet with stricture resulting from the administration of corrosive and irritating medicines, tumors, etc. Animals so affected should never be fed on dry food, but upon sloppy substances, which may be swallowed with little difficulty. Dilatation of the Oesophagus as previously stated is the result of dry food lodging against a stricture.

Symptoms.—Are about the same as in choking, appearing only when eating dry substances.

Treatment.—Is of such doubtful utility as to seldom justify us in the attempt, especially if the stricture and consequent dilatation be in the Thoracic extremity of the Oesophagus, but should the reader deem it expedient to treat it when Cervical he may do so by opening tissues over the line of the dilatation, then take up enough of the sack the full length of the dilated portion and reduce its diameter to normal size by the use of fine cat-gut, interrupted sutures very close, make thoroughly antiseptic, then bring the wound in skin and tissues together by metallic sutures; treat with antiseptic lotions and Iodoform for ten days, feeding on gruel or other soft feed in the meantime. At the expiration of this time the parts of the walls of Oesophagus brought in contact by the sutures will have united and the sutures will have been absorbed, but when commencing to give solid food we must support the parts until nature repairs the broken-

down tissues, and we can best do this by making a stiff but soft pad to fit nicely on either side of the neck against the affected parts, and held in place by elastic tape fastened to the pad on either side and fastened around the neck. But if more pressure is needed, it may be supplied by a steel spring in the shape of a bull ring with the ends attached to either side of the pad and the round side below the neck.

DISEASES OF THE STOMACH.

Indigestion without engorgement results from various causes, such as disease and irregularity of the teeth, and consequent insufficient mastication; unwholesome food, from irregular feeding, also from a predisposed debility of the stomach itself. And in the foal, it is induced by allowing it to suckle when the dam is in a heated and feverish condition. Also by draughts of cold milk.

Symptoms.—Loss of appetite, excessive thirst, an inclination to eat dirt and filth. The skin becomes tight, dry and scurfy; bowels more or less irregular, but inclined to constipation. If caused by imperfect mastication, whole grains of oats or corn will be seen in the excrement. Sometimes a dry cough is present; irregularity of pulse. symptoms of colic are sometimes manifested an hour or two after food has been partaken of. And occasionally staggering gait. In the foal diarrhoea is generally present, and is sometimes the result of dentition.

Treatment.—If due to diseased or irregular teeth, remedy the defect by some of the various dental operations described under their proper heads. And if due to de-

bility of the stomach, and diarrhoea be not present, give six or seven drams of aloes for the adult horse, and follow with suitable doses of vegetable bitters and tonics. I find good results are obtained from the administration of tincture of gentian, half ounce, tincture nux vomica, one dram; and one tablespoonful of bi carbonate of soda twice a day. But should this fail, give one to two drams dilute nitromuriatic acid in one pint water twice a day, being very careful to dilute it well, as it is a corrosive poison. An engorged or impacted condition of the stomach, is due to repletion of the organ with solid food; usually given when the animal is suffering the pangs of hunger, and he greedily swallows his food without proper mastication. Often this condition of distention continues until the muscular fibres become paralyzed, and sometimes ruptured, and are unable to contract upon the contents.

Symptoms.—Engorgement, when unaccompanied by tympanitis, or gaseous swelling, occasions but little local pain; but gives rise to symptoms of cerebral (brain) trouble, causing the animal to stagger like a drunken man. And on this account, it is generally known as stomach staggers. Soon after eating, he becomes drowsy. Slight but continual symptoms of colic are manifest, the head is carried extended and near the ground, the dullness increases, eyes partially closed, vision affected. He now becomes apparently unconscious of his acts, he presses his nose and head against the wall, or any object with which he comes in contact; he paws or rears, respiration is less than normal, pulse slow. He grows from bad to worse until he becomes frantic or delirious; cold clammy

perspiration breaks out on him, he tumbles violently, a sour saliva is emitted from the mouth, he plunges wildly, or staggers from side to side until relieved by treatment, or death. We must be very particular to learn the history of the case, or we may confound this disease, with the diseases known as mad or blind staggers. (Meningitis.)

Treatment.—Bleed from the jugular vein, three to six quarts, to relieve the cerebral symptoms. Give a ball composed of one ounce of Barbadoes Aloes; and half ounce of capsicum or Jamaica ginger; repeat the capsicum or ginger two or three times a day. When engorgement is accompanied by typanitis, or distention by gas, it is usually due to partaking too freely of tender succulent herbage; or by giving an extra allowance of grain immediately prior to starting on a long or fatiguing journey. After traveling a short distance, he grows stupid, pays no attention to the whip, perspires freely, is distended over the posterior or back ribs, and in the flanks. A hollow sound will be produced, if he be tapped, with the ends of the fingers over the flank. He attempts to lie down. As in the other case, the head is carried low, and nose extended, eructations of fermented food, pain continuous, peculiar metallic sound will be noticed if the ear be placed to the wind pipe.

Treatment.—One and one-half, to two grains each of eserine and pilocarpine, hypodermically, followed twice daily, with one grain pilocarpine administered in the same way. If this cannot be obtained, give aloes (Barbadoes), one ounce; carbonate of ammonia, half ounce every two hours.

I also advise the early use of the trochar and canula to evacuate the gas or flatus from the intestines, especially from the colons. Care must be exercised that the animal does not throw himself down violently, on hard ground, as there exists great danger of rupture of the stomach. Supply abundance of bedding.

Gastritis.—Inflammation of the stomach, seldom occurs in the horse, except by the administration of some very irritating or corrosive poison,

Symptoms.—Pawing with fore feet, and more especially the left one; more or less fullness of the abdomen, attempts at vomition; occasionally, saliva will be discharged rather profusely from the mouth, cructations or belching of gas, symptoms of colic, trembling of the muscles, especially those in the region of the left shoulder, partial sweats bedew the body. Should inflammation be the result of bichloride of mercury (corrosive sublimate) the symptoms are manifestations of great pain and uneasiness, the animal frequently getting up and lying down, the extremities cold and mouth hot, the abdomen distended, the excrements mixed with mucus, profuse discharge of saliva, nausea and purging, great prostration and convulsions, or delirium. When the direct result of arsenic (arsenious acid), the symptoms are about the same, except the discharge of saliva is less profuse, and more foetid.

Treatment.—When produced by bichloride of mercury; albumen, (white of eggs) opium in full doses, linseed oil, flax seed tea, or slippery elm. If by arsenic or any of its compounds—magnesia, chalk, albumen, hydrated sesquioxide of iron.

RUPTURE OF THE STOMACH.

Symptoms.—Profuse perspiration, sudden tremor of fore extremities; in some cases the left fore limb will be extended; strength failing, respiration labored, head turned round to the flanks. Sometimes symptoms of vomiting, during which the head is depressed, the chin being brought in contact with the sternum or breast by the spasmodic contraction of the inferior or lower cervical muscles; and in some cases food is ejected from the mouth and nostrils; this act of vomiting is of great value to us in diagnosing the trouble; yet it is not positive in its significance, for the act of vomiting is sometimes the result of rupture of the colon, or other intestine, but in such cases the extremities are not so extremely cold. The same thing may occur in dilatation of the oesophagus, so we must not be too hasty in our diagnosis, but must acquaint ourselves with the history of the case, if possible; but should it exist in connection with other symptoms enumerated, the pulse being small, quick and thready, and growing continually more frequent and feeble, until it becomes imperceptible, then it is of value as a diagnostic symptom. We do not always find distention of the abdomen, in connection with rupture of the stomach; but on the contrary, it appears drawn and smaller, than usual, the abdominal muscles being rigid from tonic spasm; and as we stated before, when vomiting accompanies these symptoms, rupture undoubtedly exists. Another fact remains that may further enable us to come to a correct diagnosis, should we still be in doubt; all medicines administered for the purpose of alleviating the agony only increases it, due probably

to the fact that it escapes into the peritoneal cavity. The stomachs of very old horses are quite liable to rupture, from degeneration of their walls.

Treatment.—Is useless; and after we are fully satisfied that rupture certainly exists, it becomes our duty to relieve the sufferer by at once ending its existence.

BOTS (LARVAE OF THE GAD FLY, OR ESTRUS EQUI.)

The gad fly is too well known to need any description; their eggs are deposited on the hair of the horse while at pasture, late in summer and early autumn. Instinct seeming to lead the insect to deposit its eggs within easy access of the mouth of the horse; the points mostly sought being the inner parts of the front legs, and especially about the knees; the base of the neck and shoulders, and whenever, from any cause, the animal licks these parts, and any of the ova or eggs adhere to the tongue, they are hatched by the moisture and heat of the tongue, and are carried into the stomach with food and water, where they attach themselves to the cuticular portion of the stomach, by means of two large cephalic, or head hooks, where they remain about eight months, when they voluntarily detach themselves and are carried away with the excrement. They bury themselves in the ground to perfect their development of the perfect fly. But we have not the space here to follow their history further; we are of the opinion that they rarely cause any serious trouble, although they may, at times, accumulate, in such vast numbers, as to cause unthriftiness of coat, causing it to turn forward. They

may, also possibly cause other stomach troubles, and should they re-attach themselves to the mucous membrane of the intestines in their passage, they might produce intestinal irritation and colic symptoms, but as these are points upon which authorities widely differ, and as we know of no medicine that would kill them without killing the horse, we had far better allow nature to rid the animal of them in her own way, which she will eventually do, if we allow her the opportunity. In the meantime, it is essential to look well to furnishing generous and nutritious diet, and if necessary, give some good tonic and keep the digestive organs in a healthy condition; and trust nature, the great healer, for the result.

DISEASES OF THE BOWELS.

Indigestion.—While the stomach, or small intestines are the principal seat of indigestion, we find various causes, such as improper food, defective teeth, bolting the food, inactive liver.

Symptoms.—Irregular appetite, sometimes ravenous, then refusing all food; there is a disposition to eat dirt, excrement, soiled bedding, etc. The animal rapidly loses flesh, his skin is drawn, hide bound, coat rough and staring, grain passes whole and undigested, the hay in impacted masses, frequent discharge of flatus of a disagreeable or sour smell.

Treatment.—Same as laid down under head of indigestion without engorgement of the stomach.

COLIC—SPASMODIC.

A spasmodic contraction of the muscular coats of the intestines; it is due to improper food, irregular feeding,

giving full feed after long fasting and overwork, bolting the food, feeding grain, or giving cold water when hot; driving through cold water when in a heated condition. Colicky pains are also frequently the result of abscesses of the mesentery, concretions, or intussusception.

Symptoms.—Are sudden pain, pawing, kicking at the belly with the hind feet, looking round at the flanks, lying down, rolling, suddenly jumping up and seeming to be free from pain for a short time, when the attack will return; sometimes with increased severity, and sometimes the symptoms are more or less abated; the symptoms recur time after time, until the animal is either relieved, or succumbs to pain and exhaustion, and in some cases enteritis, or inflammation of the intestines is the result, and that usually means death. It may be located either in the small, or larger intestines; during the spasm of pain, the pulse rises in frequency, is full and hard, but upon the subsidence of the paroxysm it resumes its normal condition; the respiration is also more or less accelerated during the spasm; at the commencement of the attack there is frequent evacuations of small quantities of faeces, sometimes soft and at others the reverse; there is also frequent attempts to urinate, but owing to spasmodic contraction of the neck of the bladder, the efforts are ineffectual; but upon any permanent degree of relief, the difficulty is relieved by relaxation of that organ, as well as others; and free urination may be considered a good indication of permanent relief.

Treatment.—If the spasms be severe, the first care must be to relieve first, and remove the cause later; and the remedies are numerous. Give hypodermically one

grain each of eserine and pilocarpine, repeat the pilocarpine in two hours. if necessary; sustain the patient by one-fourth grain nitro glycerine every three or four hours; or the intra trachael injection of fluid extract of lobilia instead of the eserine and pilocarpine. In fact, anything that is anti-spasmodic and anodyne in its action, but I will not perplex the reader with any but the best and surest. I find nothing better or more sure than one ounce chloral hydrate wrapped in soft paper and placed back of the root of the tongue and turned loose; as the animal cannot get rid of it after it passes that point; be careful that the paper is not broken in the administration, as the chloral is very irritating to the mouth; repeat in one hour, if necessary. Or the following is excellent: Camphorated tincture of opium (paregoric), two ounces, spirits of nitre, one and one-half ounces, tincture of capsicum two drachms, tincture of aconite root thirty drops, mix and give at one dose; repeat in one hour if not relieved, but leave out the aconite. In miscellaneous formulas will be found several, all of which are good; but there being a strong probability that the trouble arises from the presence of undigested food, or other irritating substance within the intestines, the rational thing to do, is to get rid of it, and for this purpose there is nothing better than, from six to eight drams of Barbadoes aloes, given as a pill or ball; give in the same way as the chloral.

COLIC—FLATULENT.

Is the result of indigestion from various causes, among which are change of diet, innutritious and unwholesome food, food given while the animal is exhausted from over-exertion and long fasting, large quantities of green food,

new hay, new oats and new corn, too much exertion while the stomach is full, or any other cause that interferes with the digestive process.

Symptoms.—Unlike spasmodic colic, the pain is continuous, but at first not so severe as in the former, the horse is dull, paws occasionally, he may, or may not, lie down, the abdomen is more or less swollen, and by percussion, or tapping with the ends of the fingers, high up in the flank, a hollow or drum-like sound will be emitted. As the disease progresses, the breathing becomes difficult, the lips retracted, the extremities cold, twitching, or more properly trembling of the muscles of the fore limbs, and if relief be not very prompt, death will soon relieve the sufferer.

Treatment.—If the distention be very great, relieve it as soon as possible by the use of the trochar and cannula, then give the same treatment as for spasmodic colic, or give three or four drachms carbonate of ammonia wrapped in soft paper every half hour until relieved; the advantage of the chloral in this trouble is, that while it relieves pain, it also acts as an anti-ferment; should the distention be moderate, I do not advise the use of the trochar.

IMPACTION OF THE COLON AND CAECUM.

Is the result of abundant feeding of hay and other food containing large quantities of woody fibre, and the over-feeding of dry grain, and especially of rye.

Symptoms.—Slight abdominal pain, the abdomen full, but little if any distention by gas; the pain may disappear for a day, or more, only to return with greater violence;

the contents of the bowels are passed more frequently, but the quantity is diminished and is dry and hard; the horse occasionally paws and looks round at his sides, walks about, backs up against the wall and presses hard against it with the tail; he soon lies down and stretches out to his full length, he will occasionally raise the head, and look at the flank, he will lie in this position ten or fifteen minutes, when the same maneuvers are repeated, if the attendant attempts to introduce the hand into the rectum, the animal will strain violently to expel it; likewise, if he attempts the administration of an enema. The bowels have now ceased to move at all, and if this condition be not soon relieved, the pulse becomes rapid and feeble, which, up to this time, has been but little changed from the first, it then being full and sluggish.

Treatment.—

Give at one dose, one pound epsom salts, common table salt, half pound, croton oil fifteen drops, mix all together and dissolve in one or two quarts of warm water, and give as a drench. Keep water constantly before him, give half ounce tincture belladonna and two drachms tincture nux vomica every four hours; give an enema of warm water and soap, turpentine or glycerine every hour.

CONSTIPATION.

In adult horses, is usually the result of long continued diet of dry or innutritious food, lack of water supply, lack of exercise, or deficient intestinal secretions, sometimes accompanied with symptoms of colic. When colic symptoms are present, give a cathartic of Barbadoes aloes, six to eight drachms and two to three drachms pul-

verized ginger root, made into a ball, and follow twice a day with one drachm tincture capsicum in one pint of water, for two or three days; if no colic symptoms are present, give bran mash and other laxative diet for a few days, or until the difficulty is removed; then give generous diet of nutritious, easily digested food should the secretions of the intestines be deficient, give from one to three drachms extract belladonna every four of five hours, with daily doses of four ounces sulphate of magnesia (epsom salts). Should the trouble occur with the sucking foal give frequent enemas of warm soap-suds, and, if necessary, three to four ounces castor oil.

GASTRIC CONCRETIONS—STONE (OR CALCULI) IN THE STOMACH.

Causes.—

The accumulation of calcareous and other foreign substances in the stomach.

Symptoms.—

Occasional symptoms of colic; at times the symptoms of engorged stomach, sometimes constipation; at others the reverse, the animal, at times sits upon the haunches, in fatal cases the symptoms are those of obstruction, followed by those of inflammation.

Treatment.—

Is usually of little avail, and should consist of an oleaginous cathartic, and anodyne, such as raw linseed oil one quart and chloral hydrate, one ounce; but do not be sanguine of relief, for it is extremely doubtful.

INTESTINAL CONCRETIONS.

Causes, Symptoms and Treatment.—

Same as for concretions of the stomach; the

result is usually, sooner or later, fatal, and furthermore I am of the opinion that there are no positive diagnostic symptoms of gastric, or intestinal concretion during life; neither for intussusception (or invagination) of the bowels, or volvulus, twisting, or tying of the intestines.

INTUSSUSCEPTION OR INVAGINATION.

Consists of one portion of the intestine becoming invaginated, or slipped into the part immediately contiguous to it.

Causes.—

Spasm of the bowel from colic, enteritis, etc.; also from paralysis of a portion of the intestine when the peristaltic action causes the paralyzed portion to be invaginated, or swallowed up, by the portion immediately behind it, strangulation of the part is frequent; should the complication exist in the small intestines, the case will invariably terminate fatally; but should the colon, or caecum be involved, recovery is barely possible, in a very small ratio of cases; before recovery from intussusception is possible, the opposing peritoneal surfaces must become adherent and the strangulated portion be separated by ulceration or sloughing.

Symptoms.—

Severe pain, restlessness, in some cases approaching frenzy, rearing, rolling on the back, crouching, sitting on the haunches, profuse perspiration, anxious countenance, abdomen normal size, at first, but usually becomes fuller and sometimes greatly distended, according to the location of the lesion, pulse feeble, but frequent; as death approaches, the extremities become cold, the animal looks back from side to side, finally, just prior

to the culmination, there is freedom from pain, sighing, or snorting, and death has relieved the sufferer.

Treatment.—

Some authors advocate cathartics, but I am of the opinion that more harm than good is accomplished by their administration; I prefer anodyne and antispasmodic treatment—full and frequent doses of opium, sulphuric ether, chloral hydrate, etc.

VOLVULUS—OR GUT TIE.

Is often the result of the violent manner in which the animal throws himself upon the ground, when suffering from spasmodic colic.

Symptoms and Treatment.—

Are the same as for intussusception.

ENTERITIS—INFLAMMATION OF THE INTESTINES.

An inflammatory disease of the intestines; is confined to no particular portion, but may be present in any portion of the canal; it is very rapid and almost universally fatal in its action.

Causes—

It may result from various causes; among which, are, drinking large draughts of cold water when fatigued and over-heated, driving through cold water, or washing all over when in the same condition; from the administration of irritant or corrosive poisons, unwholesome food—intussusception, volvulus, the presence of calculi, etc.

Symptoms.—

Are, first, some degree of constitutional dis-

turbance, accelerated breathing, frequent but small discharges of faeces, rigors and general depression, pulse hard and rapid, often eighty to one hundred and twenty per minute; temperature one hundred and three to one hundred and five degrees F.; the membranes of the nose mouth and eyes red and congested, the tongue dry and contracted; occasionally of a brownish color; abdominal pains are continuous, the abdomen tender upon pressure; if no distention be present, will seem to be drawn and smaller than natural. As the symptoms of depression give way to those of excitement and pain, the animal walks about his stall, paws, lies down carefully and generally turns on his back by the side of a wall, or other object, and remains in this position for some time; he turns the eyes anxiously to the flanks, the countenance assumes an anxious expression, he blows and pants with agony, perspiration is profuse, the pain is continuous. He will sometimes stand with the head in a corner and paw for hours at a time, with one or both fore feet alternately; as the disease advances; the pulse becomes thready and almost imperceptible; the animal groans with agony, the perspiration increases, the skin being alternately hot and cold, the legs and ears cold, the pupils of the eyes dilated and expressive of delirium; he may walk about incessantly, or throw himself about violently. Then he will stand quiet and seem to be balancing himself; the legs suddenly give way and he may fall and die after a few struggles, or suddenly all symptoms of pain may subside, the breathing becomes less excited, he stands quietly and evinces a desire to partake of food and drink; but the haggard expression never for a moment leaves the countenance, the pulse continues thready and

almost imperceptible, the abdomen becomes distended, cold sweats bedew the whole body, the mouth and breath are cold, the latter foetid, the lips hang pendulous, the eyes more dilated, the legs and ears become, if possible, more cold than before, he trembles incessantly and death comes to the relief of the sufferer.

Treatment.—

While I consider the success of treatment very doubtful, of course it is our duty to alleviate the suffering as much as possible. All treatment must be calculated to soothe and quiet the inflammation as much as possible, and in most cases to prevent movement of the bowels, as there is danger of rupture of the blood vessels of the inflamed portion, or even of the intestine, if we induce extra peristaltic action of the portions in front of it, by the administration of cathartics and the consequent forcing of faeces to that part, which cannot be stimulated sufficiently to carry them further. We have nothing better than opium and its compounds for the purpose of allaying intestinal inflammation and irritation; give the animal three to four drachms powdered opium every three or four hours, in connection with one dram extract belladonna. Or, give hypodermically, forty grains chloral hydrate, and five grains sulphate of morphine every hour; and in addition to the latter, give in the same way one-half grain of atropia every four hours; apply hot fomentations continually to the belly, if possible, but if the animal is so restless that it is not practical, apply one ounce croton oil and four ounces linseed oil mixed; if this cannot be had, rub a paste of mustard well into the skin of the abdomen. Thirty drops carbolic acid

made into a ball with linseed meal and mucilage, or creolin, one drachm, in one ounce glycerine every three hours, will materially assist in checking the tendency to gangrene and consequent certainty of fatality. Could the true character of the trouble be discovered early, and the pulse be moderately full and there be no depression, the abstraction of a quantity of blood, commensurate with the strength of the vital powers, will sometimes be followed by abatement of the symptoms; of course if the trouble be due to the previous existence of concretions, volvulus or intussusception, the treatment must be governed by that fact and circumstance. If there be some abatement of the symptoms within three or four hours from the commencement of the attack, if the pulse become fuller and soft, if the skin becomes dry, the anxious expression leaves the face, if there be a passage of faeces or platus, we may hope for a favorable termination. Unfortunately the abatement of symptoms rarely occurs; but should we be fortunate enough to obtain this result, do not, under the mistaken notion that the bowels should act, give a cathartic; but give absolute rest, and nature will do all that is necessary. The duration of the disease is usually very short, from six to twelve hours; although horses have been known to survive it for several days.

DIARRHOEA.

Is a condition productive of frequent, watery or semi-fluid, discharge of faeces.

Causes—

Are numerous, among which are unwholesome food, changing from dry to green or succulent forage, impure water, copious draughts of cold water when

the animal is heated, parasites, derangement of the liver, medicines of a drastic cathartic action; in fact, any irritating substance that finds lodgement in the alimentary canal, or it may be a spontaneous effort of nature to discharge any substance that is offensive, either to the intestines or the general system; it may also exist as a complication of other diseases.

Symptoms—

Are purging at times with, and at other times without pain, the discharges being watery, and, if clay-colored, are offensive; but if of a dirty brown, are usually void of odor. If long continued the animal loses appetite, fails in strength and loses flesh; (ascites) dropsy of the abdomen, farcy and glanders may occasionally result.

Treatment—

If due to some irritant, give a purge of linseed or castor oil, one quart of the former, or one pint of the latter, to an ordinary sized animal; small ones and colts accordingly. The discharges will usually cease with the action of the cathartic. If necessary, stir one pint wheat flour in a bucket of water and give the animal to drink; or half dram of sulphuric acid in one pint water, three times a day; or give one ounce doses of camphorated tincture of opium and sub nitrate of bismuth every three hours, in the proportion of one ounce of bismuth, to six of the tincture. Should an animal be predisposed to the trouble, as some are, always feed and water as long before hitching for a journey as possible; should the discharges be offensive, the administration of sulphite or hypo-sulphite of soda will be attended with advantage; dissolve and use as a drench. Some authorities recommend half ounce doses of oil of turpentine, and one ounce camphorated

tincture of opium, beaten with eggs and given every three or four hours; should there be much depression, one to two ounces nitrous ether are to be given every two hours until relieved.

SUPER-PURGATION.

Is the result of the action of drastic purges, and should be treated as a case of diarrhoea; the symptoms have been enumerated in describing the former disease.

DYSENTERY OR BLOODY FLUX.

(Seldom Seen in the Horse.)

An intestinal inflammation, of a specific and gangrenous character.

Causes—

Are almost identical with the causes of diarrhoea, and may often result from a long continued case of the former.

Symptoms—

The first symptom is a chill, but in the majority of cases it escapes notice; the evacuations are characterized by a bloody or coffee color, very offensive in odor, mostly liquid, but occasional lumps of solid matter floating in the liquid portion; portions of mucous membrane and blood are passed, or the evacuations may be of a muco purulent character; there is much straining, but rarely any symptoms of pain otherwise. The temperature is elevated, the pulse accelerated, the animal lies down most of the time; the appetite may be but little impaired, there is much thirst, the animal becomes rapidly emaciated and the bones may almost be counted.

Treatment—

We must place our dependence mostly on

good care and food; place the patient in a comfortable, well-ventilated place, groom well, blanket if necessary, bandage the legs with flannel, give pure fresh water in small quantities, nutritious, easily digested food. Medicinally, give a light oleaginous cathartic, as recommended in diarrhoea, but in half the quantities; and pursue the same line of treatment otherwise, as recommended in the former trouble. Keep up the strength by stimulants, such as nitrous ether, milk punches, brandy, etc., or oatmeal gruel, beef tea or eggs; starch enemata containing tincture of opium are often of great benefit. Do not neglect the administration of sulphite or hypo-sulphite of soda, or carbolic acid, or creolin, half dram of the former, or one dram of the latter, in four ounces of glycerine, every four hours.

HAEMORRHOIDS—PILES.

An affliction, fortunately, rare in the horse, but we occasionally meet with it.

Causes—

Constipation, irritation and super-purgation, especially if aloes be the cathartic employed.

Symptoms—

Are bright, irregular tumors, usually appearing after defaecation; they are livid and congested and more or less painful.

Treatment—

Regulate the bowels, have the faeces moderately soft, but do not purge; wash the tumors in tepid water, scarify them and press out all the liquid that can be done safely; apply the glyceite of tannin, and tincture of opium, in equal parts to the tumors, and replace them

as gently as possible ; if they return, repeat the whole proceeding.

INTESTINAL WORMS.

Are of several varieties, but the ones that most commonly infest the intestines of the horse are few, among which, are the long round worm (Lumbricoid), usually measuring from four to twelve inches, but sometimes much longer, varying in size from one-eighth of an inch in thickness, down to quite small, being of the greatest diameter in the middle, tapering both ways ; they generally infest the small intestines in masses, but sometimes singly. The tape worm is white, broad, flat, and pointed, having the head on the small end. Pin worms or ascarides found mostly in the large intestines, are small, round worms, an inch to two inches in length, pointed at both ends, having a small black head. Worms are most frequently seen in young horses, and those that are fed on unwholesome food, and that are consequently debilitated, also those that drink stagnant water.

Symptoms—

At times the animal evinces signs of abdominal pain ; itching of the anus, rubbing the tail against the wall and continually switching it around ; coat staring, appetite capricious, usually ravenous, condition bad, hide bound, pot-bellied ; a whitish yellow substance about the anus. If the worms get into the stomach, he will bite the woodwork of his stall, turn up his upper lip, rubs it against the wall, licks the wall, and sometimes bite and lick the hair off from portions of his body.

Treatment.—

There are numerous vermifuges, but I will

give only a few of the most efficient; any of which, should be administered after a fast of several hours

Treatment—

For Lumbicoid or round worms, give forty grains santonine, in five or six ounces of mucilage, sweet milk or syrup; follow in twelve hours with one ounce aloes, given as a ball. Or give one ounce turpentine, and three or four of linseed oil twice a day, for three or four days, and follow with the aloes. For tape worm, give two drams etherial oil of male fern, and half ounce arca nut, powdered and made into a ball; repeat next day and follow with aloes.

For ascarides or pin worms, give sulphate of copper, two drams; and tartar emetic, one dram; once a day for a week. Give enemias of infusion of quassia chips, or tobacco, in proportion of half pound, to one gallon water, twice a day, for a few days. Never neglect to give the aloes after the administration of other medicine to expel the worms. The aloes are in themselves an anthelmintic.

As I have before stated, worms are usually found in horses in poor condition; it rationally follows, that we must build them up—the general system—to prevent a return of the parasites. We must improve the digestive condition by the administration of iron and the bitter vegetable tonics, gentian, quinine, fœnugreek, etc.; also stomach stimulants, ginger and capsicum in proper quantities.

The following is an excellent preparation: Muriated tincture of iron and tincture of gentian, of each four ounces; tincture of nuxvomica, six ounces; tincture of capsicum and sulphate of quinine, of each, one ounce;

water to make one quart. Shake well, and give two table-spoonsful (one ounce) three times daily.

ABDOMINAL DROPSY (ASCITES.)

Usually results from sub-acute, or chronic peritonitis, but may result from disease of the heart, lungs, or liver, and portal blood vessels, or from weakness of the heart in some debilitating diseases, also from the indigestion of foods deficient in nutriment.

Symptoms—

The animal becomes dull and sluggish, awkward and unnatural in the movement of the hind limbs; abodemen enlarged, slight tenderness and aversion to pressure, occasionally, symptoms of colic are exhibited by striking at the belly with the hind feet and looking around to the seat of the trouble; although, as a rule, the colic symptoms are not present. The bowels are alternately constipated and the reverse; dropsical effusions appear on the under portion of the belly and on the legs; by suddenly pushing the abdomen we are enabled to hear the movement of the water, and by percussion, we find the abdominal walls to emit a dull sound up to the same height on either side.

Symptoms—

In the majority of cases, when due to organic disease of the heart, lungs, or liver, treatment is of very doubtful utility, but we should always alleviate the suffering as much as possible and we usually find temporary relief by the operation of paracentesis--abdominis, or tapping of the abdomen, which operation should only be attempted by a competent veterinarian, and should be followed by one dram of iodide potash and one ounce nitrate

of potash three times a day, in order to prevent, if possible, a recurrence of the dropsical condition; also give tablespoonful doses of the following mixture three times a day. Muriated tincture of iron, tincture of gentian and fluid extract of ginger, of each four ounces, tincture nuxvomica, three ounces. Should the trouble be the result of insufficient or improper food, give the same treatment, but in addition the sulphate of magnesie (Epsom salts), or sulphate of soda (Glauber salts) are indicated in full doses (one to one and onehalf pounds), often enough to insure frequent and copious watery discharges from the bowels, thus eliminating, through the excretory organs, the excess of fluid accumulated in the abdominal cavity. Should the animal have no appetite and the trouble be due to a lack of albumen in the blood, then we may get good results from the administration of eggs in generous quantities; if he will still eat, give generous diet of oil cake and other nutritious food.

DISEASES OF THE LARYNX AND TRACHEA.

Acute laryngitis is an inflammation of the lining membrane of the larynx.

Causes—

The same as for colds, the swallowing of irritating substances, etc.

Symptoms.—

Considerable rise of temperature, throat usually more or less swollen externally, but sometimes the swelling is confined to the inside. The parts sensitive to the touch, the nose protruded, usually accompanied by a dry painful cough, becoming more moist after two or three days. As the disease advances, the eyes become

prominent, the conjunctiva inflamed and red. When the animal attempts to drink, the water it is returned by the nostrils, the breathing now becomes very difficult and harsh, particularly the act of inspiration, being accompanied by a harsh rasping sound. The food and water is often returned by the nostrils, on account of inability to swallow. All the visible mucous membranes now assume a livid hue, due to an insufficient supply of oxygen in the blood. The countenance appears haggard and care-worn, tears flow profusely over the face, the legs and ears are now very cold, the head and ears droop. Perspiration now bedews the body, he frequently stamps his feet, especially the front ones. His strength and vitality are rapidly failing, and unless soon relieved he staggers, falls and after a few ineffectual struggles, yields to the common reaper.

Treatment—

First reduce the temperature by the administration of forty drops, every two hours, of the following mixture; tincture aconite root and tincture gelsemim, of each, two drams; tincture belladonna and tincture digitalis, each, three drams. The inhalation of medicated steam, is also urgently advised, this may be accomplished by putting a quantity of bran or hay into a bag of canvas, or some close material, that will confine steam as much as possible; then pour one or two teaspoonfuls of carbolic acid and one ounce turpentine over it, then pour boiling water over all of it, and introduce the animal's nose into the opening at the top. As the water cools, pour in more, and compel him to inhale it until relief is obtained, if that be possible. Then inject well back into the throat, by means of a syringe, two tablespoonsful of

the following mixture: Glycerite of tannin, six ounces; tincture iodine and chlorate of potash, each, one ounce; atropia sulphate, six grains, water, six ounces. Dissolve the potash and atropia in the water by heating, then mix all together. Use every four hours, or inject well back in the throat, with syringe, every two hours, the following: Fluid extract hydrastis canadensis, one teaspoonful, and two table spoonsful of water. Rub the swollen and tender parts. externally, once a day with a mixture of olive oil, six parts; tincture cantharides, aqua ammonia, and spirits turpentine, each, one part. But should immediate danger of suffocation seem probable, the operation of tracheotomy must be promptly resorted to; and the tube allowed to remain until the respiratory organs have sufficiently recovered to perform their natural functions. But before inserting, the tube must be thoroughly cleansed by allowing it to remain about thirty minutes in a twenty per cent. solution of carbolic acid. Remove tube once a day and cleanse in the same way; dress the wound each time, keeping clean and pure with the same preparation, or strong solution of salicylic acid. After recovery, the tube may be removed and the opening allowed to heal and close up. Give generous diet and some of the bitter tonics, such as gentian, fenugreek, quinine, or strychnine.

ROARING.

Is sometimes the result of laryngitis, in some cases the mucous membranes of the organ become thickened. when such is the case—

Treatment—

Blisters, or cauterly externally, and iodide of

potassium internally, in half ounce doses, twice a day, for a week or ten days. If due to atrophy of the laryngeal muscles, there is nothing within my knowledge so effectual as the administration of graduated doses of the sulphate of strychnine, dispensed in the following manner: Divide sixty grains into thirty powders, the first to contain one grain, the thirtieth to contain four grains, gradually increase from number one, up to number thirty; number each powder 1-2-3, etc., from smallest to largest, give one on tongue once a day, according to number, commencing with number one. Should any muscular twitchings be observed at any time during the course of treatment, the drug must be discontinued at once, or the animal will die from strychnine poisoning. Redivide the remainder in smaller doses and resume treatment as before, commencing with minimum dose. The treatment may be somewhat hastened by the administration of two dram doses of chlorate of potash in solution twice daily, and the application of blisters to the larynx externally, twice a week. In severe cases it may be necessary to persevere with the administration of the drugs for several months to effect a cure, always being careful to have the strychnine dispensed as directed, and should it be practical to use it as an intra tracheal or intra laryngeal injection, it is still more effective, as it comes in direct contact with the diseased muscle, but this is safer if left for the professional man. Should roaring be the result of ulceration of the fissure, between the vocal cords of the larynx, apply a 20 per cent. solution of argenti nitras (nitrate of silver) to the affected parts. If follicular growths be the cause, treat with an eight per cent solution of bichloride of mercury; these solutions should be

applied with a soft sponge, attached firmly to a stick, or rod. This trouble is also frequently the result of other causes, such as fracture and depression of the frontal bones of the face, nasal polypi, tumors of the larynx, or trachea, pressure on or injury of the recurrent laryngeal nerves, et. ; if from depression of bones over the air passage of the nostrils, they must be removed either by the saw or trephine, or in some way elevated, in order to leave the air passage free from obstruction; if from polypi or tumor, remove by surgical operation; when due to pressure on recurrent nerve, remove the cause, if it can be located. Among other causes may be cited osseous tumors in the nostril, tumors of the posterior nares, tight reining, causing pressure on and distortion of the larynx, and many other causes of no interest to the non-professional reader; and most important of all, is to be careful to avoid purchasing a horse with any symptoms of the malady; be sure to test him by turning him short about, give a smart gallop, throw the whip suddenly near him and if in any of these tests he grunts or emits any unnatural respiratory sound, by all means avoid him. Be sure to examine his halter to see that there are no springs or other contrivances in the nose-band to compress the nostrils, as it is a trick of jockeys when they have what is called a high blower, to attach a spring in the nose-band of the halter in such a way as to compress the nostril, and as this is usually the result of nasal polypus and the noise is caused by the flapping of the growth as the air rushes past it pressure prevents this, and the unwary trader is swindled, when a little knowledge or forethought would have saved him. Another one of the many dishonest tricks to cover this disease is to intro-

duce up the nostril, a small oiled sponge on each side of the nostril, and as it comes in contact with the growth, it prevents its movement, and being in itself porous, the air passes readily through it, and no apparent inconvenience is experienced from it. Always look out for this imposition.

CHOKING.

A trouble designated by horse men as a choker. Is usually the result of paralysis of the nerves of the larynx, especially of the left inferior; but is sometimes due to laryngeal tumor or abscess, and both of these conditions are usually preceded by an acute attack of laryngitis.

Symptoms.—

If the animal is forced to trot or gallop, he soon exhibits signs of great distress, emits a wheezing or roaring sound; and if not allowed to stop, will soon fall and seem to be in the throes of death, for some minutes. When the breathing again becomes nearly or quite normal, and he rises and seems as though nothing out of the ordinary had happened.

Treatment—

The same as laid down for roaring from atrophy of the laryngeal muscles.

BRONCHITIS.

Congestion of the bronchial tissues, is the result of inhaling irritating vapors or gases, often supervening colds, sore throat, laryngitis, specific fevers, and the introduction of foreign and irritating substances. It may be confined to the large tubes, or may affect only the smaller, or both the large and small; and it may affect only the mu-

cous lining of the tube, or it may involve the whole tissue.

Symptoms.—

Of first stage are dullness of appearance, drooping of the head, loss of appetite, rise of temperature, pulse hard and quick, respiration accelerated, dry barking cough; but with the progress of the disease, the dry cough gives way to one more moist, the visible membranes of the nose are red, the mouth hot, the cough becomes hoarse and paroxysmal; the respiration becomes exceedingly rapid, and out of proportion with the pulse; the pulse may be only seventy or eighty per minute and the breathing as many or even more; in such cases the smaller tubes and alveolar walls are affected and we have a catarrhal pneumonia. There is a discharge from the nostrils of a whitish or gray color; it is frequently tinged with blood; and sometimes has a red or brown appearance, a hissing or wheezing sound may now be detected, by placing the ear to the side of the chest; but if it be the large tubes affected, a hoarse snoring sound will be detected; but when the dry stage is succeeded by the moist, the ear will detect a different sound, as the air passes through the exudate of inflammation bubbles are formed, and the bursting of these bubbles, accounts for the rales or rattling sound. While the breathing is short, quick and labored, it is not painful. As it is both abdominal and thoracic, the patient persists in standing during the attack, he will sometimes walk about the enclosure if at liberty, but usually stands most of the time with the head to the door or window, in order to secure as much fresh air as possible; the bowels are generally con-

stipated and the faeces are covered with slimy mucus; the urine is darker than usual and deficient in quantity. Considerable thirst is present. Bronchitis of the larger tubes is not usually a very serious trouble and never fatal except by producing collapse of a large breathing surface; the collapse being due to occlusion of the air passages of that portion of the lung.

Treatment—

Reduce temperature by dram doses of acetemilid every hour until a marked improvement is perceptible, or if preferable, give tincture aconite root and tincture gelsemium, of each, one ounce; artopia sulphate, five grains; mix, shake and give thirty drops every four hours. Support the animal by stimulants, such as carbonate of ammonia, two drams, made into a ball, to be given every four hours, or two ounces of brandy or whiskey every hour, as long as necessary; give one ounce nitrate potash in drinking water three times a day; have recourse at once to the medicated steam recommended in laryngitis; this will mollify the dry and inflamed parts. Clothe the animal according to weather, bandage legs and keep them warm. If necessary to produce sufficient warmth of legs, apply the liniment recommended in laryngitis also; rub in well over the lungs, being sure to cover more space than the area of the lung. Repeat in four or five days; give soft, easily digested food, grass if in season; keep plenty of cold water in reach. In severe cases, it is advisable to rub well into the sides and front of chest, a good quantity of the liniment recommended for the throat in laryngitis; repeat in three or four days if necessary. When the fever and acute inflammation have

subsided, give two tablespoonsful, three times a day, of the following mixture: Muriated tincture of iron, tincture of gentian, of each, one and one-half ounce; sulphate of quinine, one ounce; water to make one pint; mix, shake and give as directed. Should recovery seem tardy, give, in addition, one dram doses of iodide of potassium, three times a day, one hour before feeding.

BRONCHITIS—(Chronic).

Is often induced by much the same causes as the acute form, and is sometimes the result of an acute attack; and in a majority of instances is associated with a thickening of the walls of the tubes, and alveola, and often causes chronic cough and thick wind, or quick and labored breathing. It is slower and less severe than the acute pain, there being less fever. In some cases the cough is hard and clear, and in others, soft or smothered, the nostrils discharge a whitish and at times a curdled substance; in some cases the animal seems to retain its strength and looks tolerably well, while others lose appetite and flesh and great debility, by (auscultation) placing the ear to the sides of the chest, the air may be heard passing through the mucus within the ramifications of the lungs.

Treatment—

Give much the same treatment as in the acute form; should the case fail to progress satisfactory, give, night and morning, the following mixture for two weeks: Hydrocyanic acid, twenty or twenty-five drops, nitrate of potassium, three drams; bicarbonate of soda, one ounce; water, one pint. Or give twice a day, arsenious acid and sulphate of strychnine, of each, two grains; sulphate of

copper, one dram; give generous and nutritious diet.

DISEASES OF THE CHEST.

Congestion of the lungs, or pulmonary apoplexy, is usually the result of over exertion, when the animal is not in condition to withstand extraordinary fatigue; or it may result from improper ventilation and consequent impure air.

Symptoms—

The animal stands with the head down, legs spread out, eyes wild and blood-shot or dull and sunken, the nostrils flap, or open and close rapidly, the flanks heave tumultuously, he seems to fight for breath, there is a tremor over the surface, a cold sweat bedews the body, which may soon dry and leave the legs and ears deathly cold, the pulse is rapid. In extreme cases, running one hundred, to one hundred and fifty beats per minute, a loud murmur, or perhaps a fine crackling sound may be heard, if the ear be placed immediately behind the elbow; in some cases a discharge of frothy blood from the nostril will be observed; in other cases it is absent. If the jugular vein be opened, the blood will trickle from it slowly, being thick and very dark in color; due to an insufficient supply of oxygen to purify it.

Treatment—

The first essential is that the animal be supplied with an abundance of pure fresh air, and, second, to relieve, if possible, the engorged blood vessels of the lungs of the extra amount of blood they contain, and determine it to the more superficial circulation; in order to do this, we must have recourse to stimulants to equalize the circulation; we may give alcohol, two ounces; in one pint water, every two hours. Or sulphuric ether,

two ounces; every hour in pint of water. Whiskey or brandy, four ounces every hour. Tincture arnica, two ounces.; every two hours. Or carbonate of ammonia, two or three drams; pulverized and wrapped in soft paper and pushed down the throat, as a ball is given. Any of them are stimulants, and, therefore, indicated; and to assist in re-establishing general circulation, have the legs and body briskly rubbed with wisps of hay or straw; clothe warmly; should the legs still be cold, rub well into them the liniment recommended in laryngitis; also rub well into the sides, over the region of the lungs. Bandage the legs from the hoofs to the knees and hock joints with flannel; should all these fail, after six or seven hours; then recourse must be had to bleeding; take from four to six quarts from the neck vein. Should we be successful in relieving the congestion, we must remember that it may be succeeded by inflammation of the lungs (pneumonia), and the case requires careful treatment. Keep the animal comfortable, supply pure air; an abundance of cool fresh water, in each bucketful dissolve half ounce nitrate of potash; feed on light, nutritious, easily digested food. Remove bandages and clothing by degrees, as convalescence advances.

SPASM OF THE DIAPHRAGM.

Thumps is a spasmodic, jerky, affection of the diaphragm; it is sometimes confounded with palpitation of the heart. If the ear be placed over the heart, it will at once be seen that there is no connection, as their movements are not simultaneous, and, as the diaphragm is the essential muscle of respiration, and thumps, or its spasmodic action, is produced by the same causes which

produce congestion of the lungs, and is often seen in connection with it and usually when there is failure to relieve it, death ensues from congestion of the lungs; as it is impossible for them to receive proper aeration, when the principal muscle of inspiration is failing to perform its proper functions. The malady is identical with hic-cough in the human subject.

Treatment—

Same as for congestion of the lungs.

PNEUMONIA, OR LUNG TROUBLE.

The causes are usually identical with those of laryngitis, bronchitis, etc.; standing in draughts, exposure to wet and cold, improper ventilation, breathing of smoke, noxious gases, being worked or driven when debilitated from a cold; or it may result from punctured wounds penetrating the thoracic cavity, but the latter does not necessarily do so. It affects one or both lungs, usually only one, and in the majority of cases it will be the right lung. When both are affected, it is known as double or bilateral; when only one, as single or unilateral.

Symptoms—

It is usually preceded by a chill or rigor, respiration is accelerated, circulation may be anywhere from seventy to one hundred to the minute; it may be hard or soft and feeble, large or small, and sometimes inter-mitting. Temperature usually 103 degrees F. or 104 degrees F., or it may even run up to 106 degrees F. Should the ear be placed to the side over the region of the lung, there will be heard an abnormally loud and hoarse murmur, as the air passes through the cells of the inflamed organ; there will also be heard a fine crackling

sound, that is absent in the healthy lung; and in order to understand these disagnostic symptoms, it will be necessary for the novice to acquaint himself with the sound of the healthy organ during the act of respiration. The mucous membrane of the mouth feels hot and sticky to the touch, the head droops, and the general appearance is dull and listless; there is usually a dry cough from the start; but with the progress of the disease the nature of the cough changes, and becomes more moist, unless pleurisy ensues, when it is abbreviated by an effort to suppress it, as it now produces excessive pain. At times the nasal discharge will be tinged with blood; while in others, it has the appearance of matter or pus; thirst is excesssive, appetite impaired, membrane of nostrils dry and red at commencement, but later becomes more moist; the legs are cold, urine scant and darker than when in health, bowels usually more or less constipated, the faeces flaked with mucus. It will be observed he prefers to stand with the head to the door, window or other opening, where he can obtain the most abundant supply of fresh air; he persistently stands unless there be a complication of pleurisy; in which case, he appears restless, and will occasionally lie down for a few minutes; but he soon rises as the recumbent position only increases his trouble by compressing the lungs, and curtailing their already insufficient supply of air, as well as increases the pain. When the breathing is very rapid, he will stand with the elbows turned out and the toes turned in, as pleurisy is now present and this position is assumed to avoid the pressure against the thoracic walls; however, if great prostration ensues, the position of the limbs will be reversed, the feet will be spread apart and the

elbows turned inward; he seems to be standing braced, as if to avoid falling. While in pneumonia the breathing is rapid, it is not painful, but difficult; but if pleurisy also be present, the breathing is accomplished as much as possible by the abdominal muscles, and the ribs kept as still as possible. The duration of the fever is from five to ten days, the character of the nasal discharge is also of great diagnostic importance in catarrhal pneumonia and bronchitis; it is more or less purulent, and when excessive indicates a condition of gravity; but in croupous pneumonia it is not so abundant and is viscid and amber colored.

Treatment—

The first care must be to provide comfortable quarters, with plenty of fresh air, but free from draughts, and be sure, also, that there are no foul odors. It is always safest to sprinkle the premises with lime or other disinfectant. If the temperature be high, give dram doses of acetanilid, every hour, until it begins to fall; then give it less frequently; or as often as necessary to hold in check. If legs be cold, hand-rub them until warm, and bandage with flannel bandages, from the hoofs up as high as they are cold; clothe according to the weather; rub region of lungs with liniment. Should the animal seem depressed, give quinine sulphate, in dram doses, every four to six hours; but if this has a tendency to increase the temperature too much, give spirits nitrous ether and rectified spirits, of each, two ounces. Or six ounces good whiskey or brandy every five or six hours. But if any of these seem to excite the patient, discontinue them; and if they cause him to have more appetite, con-

tinue. Watch the temperature and keep it within reasonable bounds, keep a good supply of pure, cold water within reach of the animal at all times; if the kidneys seem inactive, or the fever excessive, dissolve one ounce nitrate of potash in each bucket of water consumed, as it has a cooling effect on the whole system, as well as a diuretic action. Or substitute bicarb. potash, one ounce; but if the patient seems much depressed, do not use either; but use spirits of nitrous ether, as before directed. If the appetite be fairly good, feed mostly on scalded oats, bran mash, and good bright hay; or grass, if in season; but if the appetite be poor, try different articles of diet, give anything he will eat, as very much depends on keeping up the strength and vitality, but never force food of any kind. Should the heart become very much weakened, give hypodermically, one-half grain sulphate of strychnine; and in four hours administer one-fourth to one-half grain nitro-glycerine in the same way; continue this until the heart resumes a better tone. Remember that judicious nursing and sanitary surroundings are more than half the battle in pneumonia; and that it is better to do too little than too much. When convalescence begins, give one ounce doses (two tablespoonsful) of the following mixture three times a day: Muriated tincture of iron, and tincture of nuxvomica, of each, five ounces; tincture of gentian, six ounces; sulphate of quinine, one ounce. Mix and shake, give three times a day. The safest way to give all liquids is with a hard rubber syringe, holding about one to two ounces; draw the medicine into syringe, place the thumb of one hand in roof of the mouth, elevate the head, and having the syringe

in the other hand, throw the medicine well back in mouth and he will generally swallow it with but little trouble. If you should be so unfortunate as to strangle him, let the head down at once, as it is better to lose the medicine, than to get any foreign substance into the already inflamed lung. It is also well to remember that the administration of ammonia and quinine together is not admissible; allow the intervention of one or two hours between them. We often find forty-drop doses, every four hours, of equal parts of tincture aconite root and tincture of gelsemium, to have a very happy effect in lowering temperature; but in the use of these drugs, be sure to watch the action of the heart, and counteract undue depression by stimulants. Should the lung become solidified, or hepatised, rub well into the sides over the lungs the liniment recommended in laryngitis and bronchitis; if necessary, it may be repeated on alternate days.

PLEURISY.

Inflammation of the serous membrane, lining the thoracic cavity covering the lungs and other organs of the chest. Usually results from colds and other causes so prolific of pneumonia; in fact, pleurisy and pneumonia are generally, but not always, associated. In a normal state, this membrane is of a smooth, shiny appearance, and excretes a fluid called serum, which keeps the surface always moist; thus preventing friction between the lungs and wall of the chest, during expansion and contraction of the lungs, in the act of respiration. It may be affected, also, by wounds penetrating the chest, a fractured rib, or in connection with bronchitis, influenza and

often rheumatism. It may affect one or both sides.

Symptoms—

When existing independent of other diseases, it is preceded by a chill, which usually escapes notice. The animal, as will be observed, is very averse to turn short, or move about; and when compelled to do so, evinces great pain, evidenced by a groan or grunt. The respiration is rapid and incomplete, the ribs move very little, but the abdominal muscles are brought more into use than natural. He may, at the commencement of the attack, appear to have a slight colic; may be restless, and even lie down, but as he finds no relief, he soon rises. Every movement of the chest causes intense pain. The cough is short and suppressed, as the animal endeavors to suppress it altogether. The temperature ranges from 102 degrees F. to 105 degrees F. Bowels usually constipated. Urine scant and dark in color; pulse hard and wiry, beating seventy to eighty per minute; legs and ears cold. If the sides, over the region of the lungs, be tapped with the knuckles of the hand, or pressure be made with the ends of the fingers between the ribs, commencing just back of the elbow and extending over considerable space, the point of trouble may be located, by the amount of pain evinced. Or if the ear be placed over the lung at different points; it may also be detected by the sharp, rasping sound emitted by the contact of the dry surfaces of the lung and pleura, during the act of respiration. Within two or three days, the violent symptoms will probably be somewhat abated, owing to the exudation of fluid into the lung cavity. This stage of the disease is known as hydrothorax, or dropsy of the

chest. Should there be gradual absorption of the exudate, the case will probably terminate in recovery, in from ten to fifteen days; but, should the quantity of effusion be great, the process of absorption will necessarily be slow, and convalescence retarded.

Treatment—

In the early or acute stage, when the pain is severe, the administration of opium is indicated; give one ounce of the tincture, in one pint of raw linseed oil. If the pain continues, repeat the opium, in three or four hours. Apply hot fomentations over the lungs; if the pulse remain hard, give tr. aconite root, in ten-drop doses, every hour.

The general treatment varies but little from that of pneumonia and bronchitis, but do not fail to continue the hot fomentations to the sides, until the pain subsides. After a few days the liniment, recommended in the treatment of pneumonia, should be rubbed well into the sides over the lungs, but covering much more space, as it will promote absorption of effusion, and has a tendency to obviate hydrothorax. If in ten or twelve days, the case is not progressing satisfactorily, the trouble is due to failure of the system to absorb the effusion or fluid in the cavity, and we have a case of hydrothorax. We must now put forth our best efforts to assist nature in the task of absorption; give three times daily, one-half ounce tincture of perchloride of iron; and one ounce of tincture of gentian; with half pint of water. It may be given as a drench, if care is taken to avoid strangling the patient. One or two hours previous to feeding, night and morning, give one dram of iodide of potassium. Should we

fail in our efforts to effect absorption, of the exudate, we must resort to the operation of paracentesis thoracis, or more plainly speaking, tapping the chest and drawing off the fluid; but this requires the service of the veterinary surgeon. It should not be delayed until the animal is so much prostrated as to be beyond recovery.

ASTHMA, HEAVES, OR BROKEN WIND.

Causes—

From which this trouble arises seem to be somewhat obscure, different authorities differ in opinion regarding it; therefore, I shall give only the most probable causes; among which, are, dusty and unwholesome food, especially, dusty hay and fodder, over driving, etc. Asthma is generally thought to be the result of spasm of the circular muscles surrounding the bronchial tubes, the continuance of this affection results in paralysis of the muscles. Some authors say there is rupture and enlargement of some of the air cells of the lungs. I am personally inclined to this view. Some are of the opinion it is due to a lesion of the pneumogastric nerve; however that may be, all the organs supplied by branches of these nerves, are liable sooner or later to become involvd, viz.: the heart, bronchial tubes, lungs and stomach, and it is certain that the trouble is accompanied by some serious digestive trouble.

Symptoms—

The act of inspiration, or of drawing the air into the lungs, seems to be normal, or nearly so, perhaps a little quicker than in health, but scarcely enough to be noticeable. But the act of expiration, or expelling, the air from the lungs, is accomplished by two distinct ef-

forts, at the conclusion of which the muscles relax and the flanks fall with peculiar force. The malady is attended with a short cough, more like a grunt, if the case is of recent origin, or the affection slight, it may not be noticeable, except after a certain amount of exertion. But the symptoms are so well known, they need no extensive description.

Treatment—

I am of the opinion that when the disease is once established, there is no permanent cure for it; but it may, in most cases, be greatly alleviated. Being aware that deleterious, unwholesome and bulky food aggravates the symptoms, it should be our first care to remedy this; give water before feeding always, and give but little hay and that but once a day; plenty of sound corn or oats three times a day; dampen all food with salt water, this answers the two-fold purpose, of getting rid of any dust in the food and stimulating the flow of gastric juices, thus assisting digestion. Give the horse the following treatment: Two grains sulphate strychnine in feed, night and morning; also give calomel, digitatis, opium, and camphor, of each, one ounce; divide into eight powders and give one powder each day, until all are given; then repeat, leaving out the calomel. Allow the animal to wear his bridle with about half a dram solid extract of stramonium, wrapped on the bit, it gives great relief. The horse shank, knowing the animal breathes reasonably well when the stomach is empty, keeps him short of food and water for the purpose of fleecing the unwary. They even resort to pouring shot down his throat, giving large doses of stramonium, belladonna, opium, etc. All

of which seem to temporarily relieve the difficulty; but it is only for a short time. The most dangerous one with which the unsuspecting is liable to be swindled, is the trick of pouring one quart of melted lard down the heaver, the effect lasts from twelve to twenty-four hours; but it is always safest when dealing with a man in whose honor you have not the utmost confidence, to require him to allow you twenty-four hours in which to try the horse, and in the meantime give an abundance of hay, and water him after he has eaten all he will, and if anything s wrong it will then show up.

CHRONIC COUGH.

In a majority of instances results from indigestion, in other words, it is a liver cough.

Treatment—

Give Barbadoes aloes, from six to eight drams; powdered ginger, three drams; make into a ball and give at once. When the cathartic effect has passed off, give the treatment recommended for heaves, and in addition, give tablespoonful oil of tar, three times a day, for eight or ten days.

DISEASES OF THE HEART AND ITS MEMBRANES.

PERICARDITIS.

Inflammaton of the pericardium or membrane enveloping the heart

Causes—

The causes are similar to those from which pulmonary or lung troubles arise; rheumatism, etc. It

may also result from traumatism or wounds especially from a broken rib.

Symptoms—

Excessive fever, pulse hard and irritable, indicating irritability of the heart, the action of which is often irregular, at times, full, bounding, and violent; breathing quick, extremities cold; we often notice cramps or spasms of the superficial muscles, especially of the neck and the pectoral region, the muscles of the hind extremities are occasionally violently affected. Fever is highest in the evening, and lowest in the morning; pulse corresponding to temperature; by placing the ear to the left side, over the region of the heart, a rasping sound may be detected in unison with the heart beats, and is known to practitioners as the *to and fro* sound, but somewhere from the second to the fourth day this sound may disappear, from the same reason that the friction sound in pleurisy disappears, viz.: that the envelope is distended by an effusion or exudate, and the contact of heart and envelope is prevented. In some cases a distinct sound as of water being displaced by some violent movement, and then rushing back to its former place; this is due to the violent contraction and expansion of the organ, surrounded as it is by the undue amount of fluid. The disease may always be regarded as of serious import.

Treatment—

If the pain be severe, give two ounces tincture opium, every six hours, until some abatement of symptoms takes place; also give, every hour, twenty-five or thirty drops of tincture of digitalis, and tincture of aconite root, mixed in equal quantities; until pulse and tem-

perature are reduced. Keep the bowels regular with moderate doses of raw linseed oil; should the limbs be cold, rub them well with some stimulating liniment, or tincture of capsicum, then bandage; keep the body warmly clothed; give, half ounce doses, nitrate of potash in drinking water, three times a day; after the lapse of three or four days, give iodide of potash, in two-dram doses, instead of the nitrate of potash. Apply the liniment (recommended in bronchitis) to the sides of the chest in the early stages, rub in well. Should the disease become chronic, give two tablespoonsful of the following mixture, three times daily: Iodide of iron, one ounce; tincture of gentian, eight ounces; water, eight ounces; dissolve the iodide of iron in the water and add the gentian, shake before using. Continue the iodide of potassium three times a day, for two or three weeks. When the effusion into the envelope is sufficient to endanger life, then the operation of tapping or paracentesis, must be performed; but only the competent veterinary surgeon should attempt this.

ENDOCARDITIS.

Is an inflammation of the membrane lining the cavities of the heart.

Causes—

It is a very frequent result of articular rheumatism.

Symptoms—

Similar to those of pericarditis; the most noticeable difference being that by auscultation we find, instead of the to and fro friction sound noticed in pericarditis, a blowing or cooing sound.

Treatment—

If the pulse is irregular or irritable, give tonic treatment, as recommended in pericarditis; in fact, the treatment should be much the same, with the exception, that any heart sedative must be administered with extreme caution. Tincture of aconite is particularly useful in quieting an irritable condition, but it must be given with an equal quantity of tincture of digitalis, to counteract the depressing influence on the heart; for anything calculated to lower the heart's action promotes fibrinous coagulation. Or twenty to thirty drops tincture veratrum viride and same amount of tincture of digitalis may be given every hour, until the symptoms abate. If much debility be present, give stimulants; carbonate of ammonia, in two or three dram doses, until the depression is less marked; avoid all blisters, or other so-called counter irritants, they only increase the trouble. But should the animal survive, the chances of being of much value are very remote, as they seldom recover sufficiently to be of much service. There are many other affections of the heart, but symptoms are so common to all; that it would be impossible for the ordinary reader to distinguish one from the other and I will not take the space to describe them here.

DISEASES OF THE BRAIN AND ITS MEMBRANES.

CEREBRITIS.

Inflammation of the brain substance.

Causes—

Causes are many. The most common are cystic and calcareous tumors, exposure to extreme heat or

cold; direct injury to the brain, as concussion, fracture of the cranium, rupture of meningeal blood vessels; or it may result from influenza, or a poison that has a direct influence on the brain substance.

Symptoms—

Are as varied as the causes, and when unaccompanied by other disease is seldom recognized during life. The symptoms usually develop slowly, but persistently; vertigo or giddiness is continuously present; he stops, staggers and shakes the head, seeming to be uncertain in which direction to go; muscles of side of face and neck drawn and tense; the pupils of the eyes contracted; pulse small, hard, sometimes fast, and sometimes slower than normal; slight increase of temperature; respiration or breathing slow, and deep; appetite uncertain, bowels constipated, loses flesh rapidly. These symptoms may continue for a period of from seven to fourteen days, when he may become comatose; the pulse becomes intermittent, the pupils of the eyes dilate, the muscles which were rigid are now relaxed and paralyzed; he finds it difficult to swallow, the urine may be involuntarily discharged, or it may be retained; he may linger in this condition for several days and then die in a paralyzed and unconscious condition. But more frequently the paralysis is sudden and complete, from extensive brain lesions; and it is only a matter of a few hours.

Treatment—

Is of little avail except to keep the bowels open by the use of cathartics, and prevent the animal from injuring itself.

CONGESTION OF THE BRAIN—MEGRIMS.

Is due to engorgement of the blood vessels of the brain; it may result from hypertrophy of the left ventricle of the heart, undue exertion, sudden fear or other excitement, extreme heat, etc. This is known as the active form, the passive form may be due to any mechanical obstruction of the blood in its return to the heart, such as tumors, abscesses, or it may be from organic lesion of the heart; tight fitting collars, etc. Animals of plethoric condition, with short thick necks, are particularly subject to this trouble.

Symptoms—

Usually manifest themselves very suddenly, and are of short duration; the animal may stop suddenly, shake his head, or he may stand quietly, but appears to stand bracing himself for a moment; then stagger or pitch forward and fall; the eyes are staring, nostrils dilated, respiration hurried and stertorous. Generally the symptoms disappear in a short time, or coma and death quickly follow; should the symptoms abate, he may be weak and staggering for several days. If it be the result of diseased blood vessels in the brain, or organic lesion of the heart, then the symptoms may be slow of development, and are manifested by stupor, dimness of vision, imperfect control of voluntary movements, diminished sensibility of the skin, unconsciousness, delirium and death. In the milder cases partial recovery may ensue, and be followed by paralysis and other complications.

Treatment—

Should the trouble arise from mechanical obstruction, remove it, as speedily as possible. If from

tight collar, loosen it; if from tumor or abscess, it will require the services of a veterinary surgeon. Should the animal be partially or wholly unconscious, apply cold compresses to the head, should this fail to give relief; bleed, to lessen arterial tension. Give tincture aconite root, or Norwood's tincture veratrum, every hour, in 20 drop doses, until consciousness is restored. Should the limbs be cold, rub them well with some stimulating liniment. After two or three days give Barbadoes aloes, as directed in the treatment of meningitis. Also give iodide of potassium, night and morning, in dram doses.

SUN-STROKE, OR EXHAUSTION FROM HEAT.

Causes—

Excessive heat and consequent exhaustion, either from the rays of the sun, or long continued and violent work.

Symptoms—

The animal stops suddenly, drops the head, staggers and falls in an unconscious heap; pulse slow and irregular; breathing stertorous or snoring, portions of the body break out in a cold perspiration. If the trouble arises from heat, he usually shows signs of sluggishness; perspiration ceases sometime previous to the more noticeable symptoms, he becomes weak and staggering in his movements; breathing quick, eyes blood-shot, nostrils dilated, the mucous linings assuming a deep red or purplish hue; pulse very rapid, but weak; unconsciousness soon follows, and unless soon relieved, death is inevitable from active congestion of the brain.

Treatment—

Consists in the application of heat to the head

and along the spine, either in the form of hot water cloths or dry heat; stimulants, carbonate of ammonia, three to four drams; wrap in tissue paper and shove down the throat. Or give four ounces alcohol, or half pint of whiskey, in half pint water, every hour; rub the limbs briskly, apply some stimulating liniment to them, continue the stimulants until the circulation is nearer normal—both in frequency and tone. Should the trouble be due to other causes than heat, the treatment should be the same except cold applications to the head and spine should take the place of hot ones. But, under no circumstances, should blood letting be resorted to; and when reaction occurs, administer iron and bitter tonics; give three times daily, two tablespoonsful of the following mixture: Muriated tincture of iron, tincture gentian, tincture nuxvomica, each, five ounces; sulphate of quinine, one ounce. Mix all together, shake well, and give as directed.

MENINGITIS—MAD STAGGERS.

Causes—

Excess of heat or cold, wounds of the head, rupture of meningeal blood vessels, influenza, rheumatism, deleterious food, etc.

Symptoms—

In acute meningitis, appear very suddenly. The animal flies back in the halter, runs or plunges forward, paying no attention to obstacles; pulse rapid, respiration hurried, temperature from 103 degrees F. to 107 degrees F., according to severity; muscles quivering. Pupils of eyes contracted, head elevated; muscles of sides of head and neck rigid; eyes retract in their sockets,

twitching of eyelids; furious delirium or convulsions, coma and death unless soon relieved. The least noise or excitement is apt to produce symptoms of the most violent nature; but during the intervening periods, the animal appears dull and drowsy; there is volent effort to expel the contents of the rectum; the urine is ejected in spurts, or by convulsive efforts. In the sub-acute form, the symptoms develop more slowly; it may be distinguished from encephalitis or cerebritis, from the fact that there are no symptoms of coma or of localized paralysis, until the near approach of death, but on the contrary the animal shows increased sensibility, delirium and violence.

Treatment—

In the initial or early stage of menengitis, when the pulse is full and the blood vessels engorged, the danger to life is from the rapid accumulation of inflammatory products; the first object then is the early and rapid unloading of the engorged vessel, thus relieve the pressure on the brain in all inflammatory attacks of the brain and its membranes, including menengitis, encephalitis, cerebritis, etc. Another most expeditious means at our disposal, is the abstraction of blood from the jugular or neck vein, and in the acute form of menengitis, it is imperative; keep the finger on the pulse and when there is a marked softening or fluttering discontinue, and give a smart purge, composed of six or eight drams of Barbadoes aloes; and one-half dram of calomel, made into a ball. Control the temperature by an occasional dose of 20 to 30 drops of tincture of aconite root, place the animal in a quiet place, as free from

noise as possible. Give from twenty to twenty-five drops Norwood's tincture of veratrum every hour; place cloths wrung out of hot water on his head and renew them frequently for twelve or fourteen hours. If the symptoms do not abate, give one and one-half, to two grains of atropine sulphate, twice a day, hypodermically. Or instead of all other medicine, give two grains, each, of eserine and pilocarpine; repeat the pilocarpine in one grain doses, twice daily, by intra-tracheal injection. Keep plenty of cool water in his reach, in which has been dissolved one-half to one ounce nitrate of potash. Should this treatment fail to give relief in twelve hours, we must resort to the hypodermic injection or ergotin, in five grain doses, every six hours, add one dram of water to each dose of ergotin. Cover the animal warmly, unless there be excessive perspiration. Hand-rub the legs to promote free circulation, or rub them with some stimulating liniment, or with strong mustard water. Cold water to the head now, in place of the hot. Should it pass into the chronic form, give twice a day, two drams of iodide of potassium; and two drams calomel, once a day. If there is no fever present, give iodide of iron, one dram; and two drams of powdered hyprastis, three times daily. Apply cantharidal collodion or fly blisters back of the poll. Should there be paralysis of any of the parts, give two tablespoonsful of the following tonic, three times daily: Equal parts tincture of iron muriate; tincture of gentian, and tincture hydrastis canadensis. And in addition, give two grains sulphate of strychnine, on tongue, night and morning, until muscular twitchings are detected, when the strychnine must be discontinued.

SLEEPY STAGGERS—COMA.

Is a disease resulting from a variety of brain affections; such as chronic menengitis, accompanied with effusion; atrophy, tumors in the lateral ventricles, etc.; a mild form of congestion, and is attributed to engorgement of the stomach with bulky and innutritious food and lack of proper exercise.

Symptoms—

Drowsiness, sluggish and often staggering gait, partial insensibility, the animal may be eating, when he suddenly drops the head in the box, or manger; usually with the mouth full; you may place his feet in any position you choose, and he will remain as you place him, for a long time. He seems perfectly insensible of all that is passing. The pulse is slow and soft, temperature normal; he may remain in this condition for weeks, or even months, without any apparent change, or he may lose consciousness entirely, or he may become delirious and die in convulsions.

Treatment—

Bleeding from the neck vein, one to two gallons, according to the size of the horse; give at once, Barbadoes aloes, seven drams; croton oil, five to ten drops; powdered capsicum, one to two drams; made into a ball. After the effect of the ball has passed off, give, three times a day, one tablespoonful of the following mixture: Powdered ginger, powdered hydrastis, canadensis, ground cloves and bicarbonate of soda, of each, four parts, and powdered capsicum, one part; mix thoroughly. Or give the iodide of potassium, and calomel, as directed in menengitis. Should there be deep coma, or

almost continuous unconsciousness, apply cold water; or ice to the head.

PARALYSIS.

Paralysis is a malady usually resulting from some disorder of the brain, injury to the spinal cord, tumors, disease of the blood vessels of the brain, etc.

Treatment—

When due to tumors, or pressure on a nerve, treatment consists in removing the cause by surgical interference, and if from other causes, any agent that will impart tone and vigor to the general nervous system, is indicated; among which remedies strychnine and electricity are the most prominent anti-paralytics. Strychnine may be given in two-grain doses, twice a day, until muscular twitchings are observed; it must then be discontinued for a few days (as its effect is cumulative); it may then be resumed, but be careful to watch for the physiological effect or muscular twitching.

DISEASES OF THE LYMPHATIC SYSTEM.

Inflammation of the lymph glands usually occurs in connection with some inflammatory process in the region from which its lymph is drawn; in cases of strangles, nasal catarrh, ulcerated teeth, etc. The lymph glands, situated beneath the lower jaw, almost invariably become involved, and abscesses form, unless preventive treatment be promptly employed.

Symptoms—

The glands swell, are painful to the touch, abscesses usually form; temperature high.

Treatment—

Foment with hot water, after which apply camphorated oil, or camphorated soap liniment, to prevent suppuration, if possible. But if there is indication of an abscess apply, over the swollen part, a blistering ointment, composed of two ounces of vaseline, one-half ounce powdered cantharides, and three drams of biniodide of mercury; or the liniment used in bronchitis; or hot flax seed poultices instead; as soon as fluctuation can be felt, open freely with the lancet, and allow the pus to escape; dress the wound with a solution of one dram each of chloride of zinc and two drams borolyptol, in one pint water; wash out the cavity with syringe, two or three times daily, or use dioxogen in the same manner. Hypertrophied, or enlarged lymphatic glands in the region of the larynx sometimes produces wheezing, or roaring, by pressing on the recurrent laryngeal nerves. Treatment consists in blistering, with sweating and absorbent blisters; vaseline, two ounces; powdered cantharides, six drams; bin-iodide of mercury, three drams; mix well and apply every fourth day. Should this fail, it will be necessary to remove it with the knife.

LYMPHANGITIS—ELEPHANTIASIS.**Causes—**

Horses of a lymphatic, or sluggish temperament, are especially predisposed to this ailment; well fed animals are more subject to it than leaner ones; in such cases, it is probably due to an excess of nutritive elements in the blood, or it may be the result of sudden changes in the work, or habits of the animal; or he may be ridden, or driven, until exhausted, then over-fed and

not given the proper attention; this is a prolific source of the malady.

Symptoms—

It is usually ushered in with a chill, but this is seldom noticed and is followed by high fever and uneasiness, lameness in one or both hind legs, soon follows; swelling appears on the inside of thigh, gradually extending around the whole limb and extending to the foot; the limb is very hot and sensitive to the touch; the breathing is accelerated; temperature high, sometimes reaching 105 degrees F. or 106 degrees F.; pulse hard and rapid; bowels soon become constipated; urine scanty. Symptoms usually increase in severity for two or three days. When the condition remains unchanged for several days; the fever then begins to abate; the swelling subsides, and the limb is less painful to the touch. It is very seldom that all the swelling leaves the limb, but generally leaves some permanent enlargement, and the animal is very subject to a recurrence of the trouble.

Treatment—

Give fifteen drops, each, of tincture of aconite root and tincture of digitalis, every hour, until the pulse and temperature are considerably lessened. Foment the affected limb with hot vinegar, in which salt has been dissolved, in proportion of one-half pint, to one gallon of vinegar; also dissolve two ounces nitrate of potash in the same mixture; keep this up almost continually for six or eight hours, when the limb should be rubbed perfectly dry with flannel cloths; then rubbed well with camphorated soap liniment; give half ounce doses of nitrate of potash in drinking water, three times a day; also

give him iodide of potassium in two-dram doses, three times a day, for two or three weeks. Give perfect rest and green food, if in season; if not, keep bowels open by bran mashies.

DISEASES OF THE URINARY ORGANS.

DIABETES—INSIPIDUS.

Usually resulting from feeding deleterious and unwholesome food, either directly or indirectly; but in some cases it may be due to indigestion, and disappears with the restoration of the digestive organs to their normal condition.

Symptoms—

Great thirst and excessive discharge of pale, odorless urine; in fact it is almost as white as pure water (in health it is of a deep amber color, and of strong odor); there is a rapid wasting of tissue, and extreme emaciation, failing of the appetite, the skin becomes tense, the hair erect and lusterless, the eyes dull and withdrawn into their sockets; he has no power of endurance, and perspires with the least exertion.

Treatment—

First remove the cause, if known, then give two tablespoonsful doses of a solution, one ounce of iodide of iron; to one pint of water; three times daily. Tablespoonful of bicarbonate of soda, in drinking water, two or three times a day. Or give two dram doses of iodine, twice a day, until the thirst disappears.

AZOTURIA—CONGESTION OF THE KIDNEYS.

Is due to too much nitrogenous food, without proper exercise; and is confined almost invariably to horses of

short, blocky build. He is allowed to stand in the stable for several days with no exercise; is fed high, the blood becomes charged with an excess of nitrogen, and on coming from the stable seems to possess more than his usual amount of vitality; but after going a short distance, he suddenly goes lame in one hind leg; he perspires profusely, soon goes lame in the other hind limb, and in a few minutes he generally comes down in a heap, and when down, he usually struggles violently, but is utterly unable to regain his feet. The membranes of the eyes and nose assume a brownish tinge, the pulse and respiration are much accelerated, the urine is of a dark brown or red, and sometimes almost black. In the milder form, the animal may not fall, but the malady may only appear as a sudden lameness, upon being put to work after an unusual period of rest and high feeding.

Treatment—

The more severe cases should receive a smart purge, of from six to eight drams pulverized aloes; and should the kidneys seem inactive, give one ounce sweet spirits nitre; or one-half to one dram of powdered Colchicum seed, twice daily. Should he seem particularly restless, give half ounce doses of bromide of potassium, every four of five hours, as long as necessary. Do not apply irritating liniments or hot applications to the loins, as it only renders him more restless, and causes him to struggle and do enough harm to counteract the good that might otherwise result. Provide good shelter and bed; keep him as comfortable as possible; turn him from side to side, two or three times daily. After two or three days, try to assist him to his feet; if necessary, put him in the slings, have the limbs briskly hand-rubbed to get

up good circulation, and as soon as he is able to walk, give him very gentle exercise. Should there be any indication of remaining weakness or paralysis, give two grains sulphate of strychnine, twice daily; he may recover almost as suddenly as he was taken, or it may end fatally in a few days, or even in a few hours. In some sudden cases, if the animal be stopped immediately, kept perfectly quit, and given three or four drams bromide of potassium, all symptoms of the malady subside, and no further trouble is experienced.

ACUTE INFLAMMATION OF THE KIDNEYS.

Causes—

The causes are many and varied, but we will only enumerate such as may be understood and prevented. The most prolific among which is a disordered liver, it fails to perform its work of eliminating poisonous and effete material, and the kidneys attempt this part of the work of both organs, and the consequence is the overwork and inevitable lesion of the kidneys. Or it may be the result of irritating diuretic plants in the forage; injudicious administration of diuretics, the infliction of blows or sprains on the loins; the application of cantharidal, or Spanish fly blisters to large surface, the dripping of cold water on the loins, etc.

Symptoms—

Accelerated pulse, rise of temperature, back or loins arched, straddling gait, flanks tucked or drawn up, stiffness of the back, seeming difficulty in lying down and getting up, looking back at the abdomen, apparent signs of colic, tenderness of the loins to pressure; frequent attempts at urination, but small quantity is voided

at a time, and is of a high color and at times, mixed with blood or pus.

Treatment—

Remove the cause if known, throw the work of elimination on the liver, and thus relieve the kidneys by giving one pint of castor oil; as this arouses the liver, and does not irritate the kidneys. Place in warm stall, if possible, and clothe well to promote perspiration; should this be impracticable, give dram doses of dovers powders, every hour, until the severity of the symptoms has subsided. Hot fomentations should be persistently applied over the region of the kidneys, wring blankets out of water as hot as can be borne by the hands, place over the loins and cover with dry ones; if not possible to do this, make a thin paste with the white of eggs and mustard, and rub in well over loins and cover with paper, and blanket to retain the fumes of the mustard and keep the body warm; leave on three or four days, as it will not actually blister when mixed in this way. Keep the bowels open by the use of one to two drams of aloes daily; after the commencement of recovery, give him two tablepoonsful doses of a mixture of tincture of nuxvomica, tincture gentian; and muriated tincture of iron, each, five ounces; and one ounce sulphate of quinine; mix and shake before giving. Keep the patient comfortable, do not allow any exertion for some days or even weeks after all symptoms have disappeared.

CHRONIC INFLAMMATION OF THE KIDNEYS.

Causes—

May be from sprains or other injuries to the loins, exposure, indigestion, diseases of the heart, lungs

or liver, faulty assimilation of the blood, and many other circumstances too obscure to the non-professional to be of any value.

Symptoms—

Stiffness, weakness, extreme sensibility to pressure in the region of the kidneys; the flow of urine may be less or it may be more than in health, or altogether suppressed, or again it may be normal in quantity; swelling of the limbs, dropsy may also manifest itself along the under surface of the chest and abdomen, the hair is lusterless, the skin scurfy, appetite poor, no vitality, inability to stand continued exertion, emaciation, flabby muscles, membranes of the eyes and nose pallid, sometimes there are eruptions of the skin. the urine, if tested, will be found to contain casts and albumen.

Treatment—

Is frequently very unsatisfactory, from the fact that the cause of the trouble is contained in the disorders of other important organs. Should this fact be ascertained, the evil must be treated at the same time, or previous to the treatment of the inflamed kidney. Be sure the liver is in condition to perform its office; build up the general system by giving the tonic recommended in the convalescence of acute inflammation of the kidneys, give one-half to one dram nitro muriatic acid in drinking water, once a day. Apply hot fomentations and the mustard paste as in the acute form; should there be suppression of the urine, apply an infusion of digitalis leaves to the loins. Be chary of diuretics.

DISEASES OF THE BLADDER.

Causes—

Are numerous, among which are long, hard drives without opportunity to void the urine, colic, impaction of the colon, standing in cold rain, cold draughts when fatigued, or wet with perspiration, the injudicious administration of diuretics, extensive fly blisters, diuretic plants in the provender, stone in the bladder, etc.

Symptoms—

Frequent stretching with efforts to void the urine, the effort is ineffectual, there may be a slight dribbling but nothing more; in the effort, he evinces pain by his groans; he paws uneasily, shakes the tail, kicks at the abdomen with the hind feet, looks back at the flanks, lies down but soon rises, and likely attempts again to urinate.

Treatment—

First, by enemas of warm water, into which tincture of opium in proportion of one ounce to half gallon of water, has been mixed; if this fails, the horse catheter must be used to draw off the urine. The catheter used for this purpose is about three and one-half feet long; draw the penis out of its sheath, have an assistant to hold it and to introduce the catheter, now have one hand well oiled and introduce it into the rectum, have the assistant to push the catheter up, until it reaches the ischial arch, just beneath the anus, where it can be felt from the outside, as it moves along the urethra, and can also be felt by the hand within the rectum, and must be guided by the hand, into the bladder as the assistant pushes it forward. The catheter for the mare is more

easily introduced, and moreover, is seldom needed, as the oiled hand may be introduced and two fingers open the mouth of the bladder, and allow the escape of the urine.

INFLAMMATION OF THE BLADDER.

Causes—

Abuse of diuretics, stone in the bladder, retention of urine, irritation of the inner lining and the destruction of epithelial cells by ammonia generated by decomposing urine, the application of Spanish flies or turpentine over large areas, the eating of irritating plants in the provender, exposure to cold when tired and warm.

Symptoms—

Colic pains, uneasy movement of the hind limbs, kicking at the abdomen, looking around at the flank, frequently lies down, but soon gets up; frequent efforts to void the urine; the passage of small quantities of clear, red, or flocculent urine, it is always voided in spurts or jets, and accompanied by signs of pain; after the discharge he continues straining and groaning; the penis hangs from the sheath, in the mare the vulva is frequently opened and closed; should pressure be made in the region of the sheath, or udder, severe pain is evinced.

Treatment—

Remove the cause, if known. If from retention and decomposition of urine, it must be drawn off by the catheter, and the bladder thoroughly washed out with a solution of one teaspoonful of borolýptol, and one-half teaspoonful of carbolic acid, to one gallon of tepid water, twice a day. Give light diet and mucilaginous drinks; after acute symptoms have subsided, give

daily doses of fluid extract of buchu, half ounce. Also give the tonic recommended in other cases, consisting of tincture gentian; tincture nuxvomca; muriated tincture of iron; of each, five ounces; and one ounce of quinine. Shake and give two tablespoonsful three times daily.

DISEASES OF THE EYE AND ITS MEMBRANES.

The lids of the eye are subject to many accidents and diseases; in fact, too many to be mentioned separately; but most of them consist of lacerations or slight inflammations, and where the trouble is strictly local, may be successfully treated by cooling and astringent lotions, such as one grain, each, of sulphate of berberinè and morphine, to an ounce of water; apply to the affected parts, three or four times daily. Or use chloride of zinc, two grains; to an ounce of water. But when due to some constitutional disturbance, treatment will have to be in accord with the trouble.

OBSTRUCTION OF THE LACHRYMAL DUCT.

The lachrymal ducts are openings situated at the inner angle of the eye, and terminating in the lower extremity of the nostril, and are intended for the escape of the tears or lachrymal fluid.

Causes—

Swelling from inflammation of the eye, colds, closing of the extremity by mucons or dust.

Symptoms—

An overflow of tears over the outside of the face, sometimes fever.

Treatment—

Open them by steaming the head, by the in-

troducton of a small silver probe, the forcing of liquid through them from the lower extremity by suitable syringe, the introduction of the solution recommended for inflamed lids into the eye and through the duct by means of the syringe.

CONJUNCTIVITIS—EXTERNAL OPHTHALMIA.

An acute inflammation of the conjunctiva, or membrane covering the outer portion of the ball, and the inner portion of the lids.

Causes—

Are generally local in character; such as blows, or the introduction of any irritating substance into the eyes, sometimes it is an accompaniment of catarrhal fever or pink eye.

Symptoms—

Redness of the eye and membranes, copious flow of tears, the cornea is of a bluish opaque appearance; usually the temperature is somewhat elevated, but not always.

Treatment—

Remove all local causes, as fas as possible, Have stables clean to prevent the accumulation of ammonia. Have the stall partially darkened, bathe the eyes in some cooling lotion or simple cold water, then treat with the following: Two grains, each of morphine, berbenine, and atropine in one ounce of water; a few drops in the eyes three or four times daily. Should opacity of the cornea result from the disease, drop into the eyes, once or twice daily, a few drops of a solution of three grains of nitrate of silver, in an ounce of water.

INTERNAL OPHTHALMIA.

Causes—

Are usually the same as for external ophthalmia, except they are intensified; and in addition may be those of digestive troubles, disordered liver, exposure to extremes of weather, getting wet when perspiring, or plunging into cold streams, brain troubles. Also to the persistent irritation of the jaws during dentition; and while the animal may become affected with the *malady* at any time during life, if he passes unaffected through this stage, to that of the fully matured horse, he is not nearly so susceptible to it; and it is for this reason that most men have the idea that a horse will never go blind after a certain age.

Symptoms—

Vary according to the cause, if the trouble be due to local or physical injury, the conjunctiva may show as severe inflammation as do the inner structures; but if from constitutional disorders, it may be confined to the inner eye, and the inflammation of the superficial membranes will be less noticeable. There will be a whitish ring around the cornea, if the inflammation be severe, and of some days' standing; there may be seen in the lower portion of the chamber of the eye, a deposit which has the appearance of pus; there is extreme sensitiveness to a strong light; the lids are usually closed, but if opened it will be observed that the pupil is much contracted, even though having been kept in a dark stall, although there are exceptions to this. When the retina has become paralyzed by excessive inflammatory exudation into the globe of the eye, or into the substance of the retina it-

self, then the pupil may be dilated and the ball become hard and tense.

Treatment—

Remove any local cause, keep in darkened quarters, avoid exposure, open the bowels by the administration of six or eight drams powdered aloes. If due to rheumatism, give half ounce salicylate of soda, three times daily; and same amount nitrate of potash in drinking water, three times a day. Use the lotion advised in conjunctivitis, blister beneath the eyes, or beneath the ears; in severe cases puncture of the eyeball is advisable, but should only be attempted by the competent surgeon. Inject into the eye, three times daily, a few drops of a solution of atropia; four or five grains in one ounce of water; this should be continued for a month or more after the subsidence of all active inflammation. Although the solution of atropia causes the pupil to have the appearance of a case of blindness from glaucoma, and is often resorted to by the horse jockey to cause his neighbor's horse to be virtually blind for several days, it is in no way injurious; and the effect will pass off in a few days, if let alone, or, it may be counteracted in a very short time by the hypodermic administration of from one-half to one grain of hydro-chlorate of pilocarpine.

PERIODIC OPHTHALMIA—MOON BLINDNESS.

Is an inflammation of the internal structures of the eye.

Causes—

Are attributed to damp soils, marshy grounds, soils that are frequently inundated by the overflow of rivers. It is very prevalent in the Southern United States,

but in the high lands of the northwest it is seldom met with. The period of dentition also has a tendency to produce it; local irritation must also be considered as one of the primary causes, unwholesome food, intestinal worms, debilitating disease, over work; in fact, anything that weakens the general system, renders it more susceptible to an attack of this kind. But the most potent cause is heredity, and an animal that has once been afflicted, should under no circumstances be used for breeding purposes, whether it be mare or stallion.

Symptoms—

In some cases there is high fever, while in others it is scarcely perceptible, but there is always depression and lack of energy. The local symptoms vary but little from those of internal ophthalmia; six or seven days after the attack the floculi will be seen to have dropped into the lower part of the chamber, at which time the process of absorption begins, and the eye begins to clear up, and in two weeks or soon after from the beginning of the attack the eye is (to the mind of the casual observer) as good as ever; but not so, for it will recur again and again, until the eye is totally blind. The ears are generally carried very erect; the affected eye looks smaller than the other, the upper eye lid presents a peculiar appearance, instead of representing a continuous arch, there is an abrupt bend about one-third of its length from the inner angle, caused by the contraction of its levator muscle.

Treatment—

Is far from satisfactory, but if attempted, differs very little from that of internal ophthalmia. During

recovery, give two grains powdered sulphate of strychnine on the tongue, night and morning, after feeding; continue until muscular twitchings are noticed, when it should be discontinued for a week or ten days; then begin the administration of the drug again, and continue until the same physiological effect has again been produced.

AMAUROSIS—PARALYSIS OF THE OPTIC NERVE.

Causes—

Are tumors or other diseases of the brain, injury to the nerve from disease of the eye, pressure of the nerve from dropsical effusion, profuse haemorrhage, over distention of the stomach from pressure of the foal in the uterus.

Symptoms—

Pupils widely dilated, showing no dilatation or contraction from different degrees of light and darkness

Treatment—

Is of no avail, except when the malady is only symptomatic of some removable cause, as congestion of the brain, over loaded stomach, pregnancy, etc. Should the termination of these conditions be not followed by recovery, apply blisters behind the ears, and give two grains powdered sulphate of strychnine on tongue; twice daily.

LAMENESS.

Causes—

The causes are legion, and we will mention only the most common ones, as we come to them, by far

the most prolific cause is corns, they being generally situated on the inner quarters of the front feet, and are most frequently the result of throwing too much weight on the sole of the quarter by improper paring when shoeing; sometimes they are the result of contraction of the feet.

Symptoms—

Vary in degree, according to the extent of affected tissue; lameness is slight at the start, but rapidly increases from day to day; if the foot be tapped with the hammer, he will evince pain when the blow is near the affected part, or if pressure be used over the sensitive portion he quickly jerks away from it. If he has corns in both feet, he will point first one then the other; should they be slight, he may warm out of the lameness after traveling some distance; but if they be severe, and especially if they be suppurating corns, he will continue very lame. Exercise does not diminish it; he refuses to put his weight on the affected member, he barely touches the toe to the ground, increased heat will be felt by the hand in the lame foot.

Treatment—

Remove the shoes, pare out the sole down to the bottom of the corn, into the quick, if necessary; pare off the wall sufficiently to relieve all pressure of the shoe to the affected part. Replace the shoe, soak the foot in hot water for half an hour, and drop a few drops of muriatic acid in the corn (being careful not to touch the skin with it), then pack under the shoe with oakum saturated with coal tar, remove the oakum once a day and apply the acid, and replace the oakum; continue until it is well.

CONTRACTION OF THE WALLS OF THE FEET.

Causes—

Fever, laminitis, thrush sprained tendons, navicular disease, corns, standing on plank floors, wearing the shoes too long without resetting; in fact, any lameness that causes the horse to favor the foot, he does not throw sufficient weight on it to spread it naturally, sometime both feet contract from the same cause, or causes.

Treatment—

Remove the cause, if possible, take off the shoes, pare the feet down to the proper dimensions, pare the sole as thin as it will bear, or until it will give under the pressure of the thumb, leave the frog as full as possible. Take the ordinary hoof knife and cut a crease from the coronet to the toe, directly in the front of the hoof; then cut two on each side in the same manner, leaving a space of one to two inches between the creases; now concave the foot from the heel to the quarter. Make the shoe to slope from the inner edge to the outer edge, from the quarter to the heel, make it fit perfectly; then nail on, being careful to get no nail back of the quarter. Anoint the hoof and sole twice a day, with a mixture of equal parts of boiled linseed oil and glycerine; this will soften as well as toughen the horny substance, and when the weight is brought to bear on the sloping surface of the shoe, the foot easily expands. Blister once a week around the coronet with the fly blister.

GRAVEL.

May work up between the wall and lamina of the foot and cause serious lameness.

Symptoms—

Severe lameness, increased heat in the part,

sooner or later swelling at the coronet, and subsequent suppuration.

Treatment—

Pare away the hoof and sole in the vicinity of its entrance; probe the wound to see if the offending matter still remains, if so, remove it; syringe the wound once a day with dioxogen; then with a solution of one dram of iodoform, in one ounce of sulphuric ether. Do this night and morning, after soaking in hot water half an hour; keep the wound covered, to prevent the introduction of dirt or a second gravel. Should there be an inclination to exuberant granulation or proud flesh, dress twice a day with a solution of one ounce of chloride of zinc; to one quart of water.

CANKER.

Canker sometimes results from badly treated cases of wounds of the feet, unsanitary conditions, etc. It is really due to a vegetable parasite. The development of canker is dependent upon moisture, or in other words, the parasite cannot exist without moisture; thus filthy stables and muddy roads are favorable to the setting up of the disease; it is very seldom seen in high, dry districts, and then, only in rainy seasons; thus we readily see that wounds of the feet, thrush, etc., which expose the soft tissues, renders the animal more susceptible to the trouble by furnishing free ingress to the parasite. The odor is exceedingly offensive.

Symptoms—

The disease may affect all of the feet at once, or attack first one then another, until all are affected; but it is in the majority of cases confined to one foot, when

resulting from a wound it is always so. It usually commences in the frog, and spreads rapidly to the sole and sometimes to the sensitive lamina of the foot; it is most prevalent in heavy draught horses of lymphatic temperament.

Treatment—

Is tedious and often very unsatisfactory. The first step should be the removal by a competent surgeon of all the diseased parts, but if one cannot be had, the best treatment is, first, to soak the foot in not water, to which has been added carbolic acid, in proportion of one ounce to one gallon of water; then cover the affected part with charcoal that has been corbolized; dress in this way once a day. Or, apply powdered sulphate of copper; or strong solution of chloride of zinc; or carbolic acid, one part, and glycerine, five parts. Keep as dry as possible, when one of these remedies seems to lose its salutary effect, try another; be persistent and success may crown your efforts.

RINGBONE.

Is an exostosis or bony growth on the pastern, and may embrace the upper or lower joint, or both.

Causes—

Sprains, blows, or other causes that produce an inflammation of the periosteum, (or covering of the bone), thus causing it to throw out plastic matter. It may also be hereditary.

Symptoms—

When the exostosis begins to form, the animal starts off lame but warms out of it; more or less heat in

the ankle of the affected limb. If in the front limb, the heel strikes the ground first; and if in the hind limb, the toe strikes it first, unless the growth is under the front tendon, or involves the navicular bone; in which case, the heel strikes the ground first.

Treatment—

If in the front, apply a thin-heeled bar shoe; if behind, apply a high-heeled shoe with short toe; except in cases where for reasons already mentioned, the heel strikes the ground first, then apply a thin-heeled shoe. Fire with the heated points; and apply every fourth day the blistering ointment compose of two ounces of vaseline; one-half ounce powdered cantharides; and three drams of bin-iodide of mercury; it may be necessary to repeat the firing in three or four weeks. Give absolute rest.

SIDE BONE.

Causes—

The causes are much the same as for ring bone.

Symptoms and Treatment—

Same as cases of ring bone. In cases that are incurable by any of these methods of treatment, either in ring bone or side bone, the operation of neurotomy may be performed as a last resort, but this must be performed by a competent veterinary surgeon.

SPLINTS.

Causes—

Splints are of the same nature as the ring bone, but

are situated on the cannon bone below the knee; usually on the inside.

Causes—

Splints are usually the result of bruises of the bone, concussion from fast driving on hard roads, and it may be on the surface, or it may be under the periosteum; if the former, it seldom causes serious lameness; but otherwise, it is extremely painful.

Symptoms—

In the early stage the animal goes sound in a walk, but goes lame if made to trot, especially if the trouble be near the knee joint; in the later stage, an exostosis or bony lump is plainly visible; and if one inch or more below the knee, and well forward on the cannon bone, it is not likely to do much harm; but if near the joint, or far enough back on the cannon bone to press on the metacarpal nerves, it will be a source of severe lameness.

Treatment—

Fire and blister as for ring bone. Or, open the skin over the enlargement at the lower extremity and pass a small blade of a knife, flat ways, up under the skin and turn the edge toward the growth, and press hard and draw the knife back; repeat this on different portions of the enlargement, until the surface is well marked by the knife; thus allowing free egress to the inflammatory exudate. This operation is called periosteotomy.

BONE SPAVIN.

Is an exostosis or bony tumor usually on the lower and inner part of the hock joint, is a result of an inflammation of the cuneiform and metatarsal bones; or, it may be

occult or unseen.

Causes—

Are concussions applied to the parts, or extension of inflammation of the interosseous ligaments, and in the occult form the space between the cuneiform and metatarsal bones may be filled up with ossific matter ; but there is no visible outward formation of bone. It is also undoubtedly hereditary in many cases.

Symptoms—

In its incipency there is lameness, more or less severe, according to the extent of the lesion ; there is a peculiar stiffness of the limb exhibited in backing, or moving from side to side ; he goes off on the toe, but as he progresses the lameness gradually becomes less until it almost entirely disappears, from the fact that movement of the limb causes the synovial or joint oil to be secreted in greater abundance, and the joint is thoroughly lubricated and the pain is removed. When standing the secretion ceases, and the parts become dry and there is friction and consequent lameness ; the parts show heat and tenderness to pressure. By standing about a yard from the shoulder, the enlargement may be more readily discerned just above the upper end of the cannon bone.

Treatment—

Is not always successful, failure is generally due to ignorance ; or failure to persist long enough ; especially if the animal be young. In the majority of young horses affected, a cure may be accomplished ; the general treatment is the same as for ring bone and splint. There are other operations to which recourse may be

had when these means fail, viz.: Tenotomy and neurotomy, but they must be left to the surgeon or some one acquainted with the anatomy of the parts. It is a common practice among unscrupulous dealers to inject a four per cent solution of cocaine, hypodermically, over the point of lameness; and he goes sound for an hour or more, in which time he may be shown without danger of the lameness being detected; but if anything of the kind be suspected, keep the animal under your eye for two hours, and if he has been cocained it will die out by that length of time, and he will go as lame as ever. The same trick is resorted to in cases of ring bone and splint, and may be detected in the same way. It is also a common practice among the same class of traders, when they have a horse with a bone spavin, to produce on the opposite joint an enlargement of about the same dimensions, and in this way render the trouble less noticeable; it is done by puncturing the skin at the top of the place they wish to enlarge and introducing a small stick of nitrate of silver, which causes a thickening of the tissues and skin, and gives it the same appearance as the other side. They will say, if it is detected, that it is natural; the animal was foaled that way; but if you examine it you will discover at once that it is simply thickened tissue, for it will move about with a little manipulation, while the genuine spavin is hard and immovable; it is known as causticking.

QUITTOR, OR FISTULA OF THE FOOT.

Usually results from nail wounds, gravel, suppurating corns, etc. Generally appears on the inner quarter, but may be on the outside.

Symptoms—

The horse goes lame for some time before any swelling appears; when the foot swells at the coronet, and in the course of two or three days the pus breaks through at the point of greatest prominence, the escape of the pus somewhat relieves the pain which has been intense, so much so, that he will scarcely allow the member to touch the ground; after two or three days of discharge the tissues around the opening assume a purplish hue, become soft, pus spreads each way, but more towards the front, the fistulous sinuses or pipes extend in all directions; and if allowed to go without treatment, the walls of the pipes become much thickened and hardened, and the enlargement at the coronet grows rapidly; there is a tendency to walk on the heel with the toe turned up.

Treatment—

Poultice with hot flax seed, carbolized; open at the sole to allow the escape of pus, introduce nitrate of silver, or chloride of zinc well down into the opening at the top, and plug the opening to keep the caustic in the wound, allow it to remain for forty-eight hours, then syringe out with dioxogen as recommended for gravel, and same treatment, otherwise; if necessary, repeat the caustic application, should it not yield to this treatment, remove a portion of the wall to allow free escape of pus and treat as before.

SAND, OR QUARTER CRACK.**Causes—**

The hoof is hard and inelastic on account of poor assimilation and insufficient nutrition of the hoof, and in this condition they are unable to withstand the heavy concussion to which they are subjected, consequent-

ly they crack. Sometimes only the outside of the wall cracks, it does not reach the sensitive portion and he is not apt to go lame; but in other cases the wall cracks right through, when severe lameness ensues; he points or extends the injured member.

Treatment—

Remove the shoe; remove the bearing from the injured quarter, and if cracked through into the quick, pare out the edges so they do not meet and pinch the sensitive portion with every step; then either cut or burn a narrow crease above and crossways of the crack, clear through the wall. Keep the foot well anointed with the softening mixture recommended in contraction of the hoofs, and use the blistering ointment in the same way. Allow the animal to wear a bar shoe.

SEEDY TOE.

Is due to some injury to the toe, and is characterized by a dry, easily broken substance between the wall and the sensitive portion of the foot at the toe; this substance consists of the decayed lamina of the hoof.

Treatment—

Remove all decayed matter, pare the wall and sole away until there is no pressure from shoe at that point; pour the space full of hot pitch, and fill with oak-um; apply the shoe. Dress once a week in same way and apply blister to coronet.

NAIL WOUNDS.

Are received in various ways, sometimes they are pricked in shoeing.

Symptoms—

Sudden lameness; and if in the hind foot, he

usually walks on the toe, regardless of the location of the wound; if severe the temperature will be high, excessive pain, especially if in hind foot, or if the tendon or navicular joint is wounded; in such cases there will be a discharge of synovia or joint oil. In some cases loss of appetite, continual holding up of the foot, the leg usually swells, there is great heat and tenderness in the leg and foot; there is a hard, hot swelling in the pit of the heel.

Treatment—

Pare out the sole until the wound is located; then pare out well to the quick, and well around it to remove pressure as much as possible, soak the foot for half an hour in carbolyzed water, as hot as can be borne by the hand, then treat the wound as for gravel. Give at once a pill of powdered aloes, one ounce; and of ginger, three drams; should the pain be excessive, cover the wound with solid extract of belladonna, after having made the other applications. If there seems to be a probability of tetanus, give internally, one to two drams solid extract of canabis indica, every four hours, until the severity of the symptoms abates.

LAMINITIS—INFLAMMATION OF THE LAMINA OF THE FEET, COMMONLY CALLED FOUNDER.

Causes—

Are many, the most common are hard driving, exhaustion, concussion of the feet, sudden changes of temperature, superpurgation, metastasis, or moving of fever from some other part of the body to the feet; drink-

ing large draughts of cold water when in a heated condition, driving through streams or ponds, or washing the feet and legs in cold water while the animal is hot, thus producing a congestion of the foot, by preventing the return of the blood from the feet.

Symptoms—

Pulse full, hard and much accelerated. Temperature anywhere from 102 degrees F. to 106 degrees F., usually ranging from 102 degrees F. to 106 degrees F. Respiration rapid and panting, the facial expression indicates acute suffering; the nostrils dilated, the mucous membranes highly injected, more or less perspiration, urine scant and high colored, great thirst, appetite usually impaired. The affected members dry and hot to the hand, very sensitive to tapping or jarring, the pulsation of the metacarpal artery (if in the front feet, and the metatarsal, if in the hind feet) may be distinctly felt by the finger. The fore feet are more likely to become affected than the hind ones, from the fact that they bear the greater part of the animal's weight, and are therefore more subject to concussion; it may affect one foot, or all of them; when both fore feet are affected, the peculiar mode of progression is very marked; he keeps the front feet extended as far in front as possible, in order that the heels may receive the weight instead of throwing it on the toe, for the inflammation seems to be mostly in the toe; the hind feet are brought well forward under the body, in order to relieve the affected members of the weight of the body as much as possible. If he be compelled to move the lameness is extreme; but after moving a short distance the pain seems to decrease, and he

walks better, he usually retains the standing position until nearly recovered. But in some cases he will lie down nearly all the time; when down, he usually stretches out the head flat on the ground, the feet and legs extended; if the trouble be in the hind feet, the front ones will be set well back to receive all the weight possible; the hind feet assume the same position they did when the affection was in the front feet, but for a different purpose, it is for the same reason that the front ones were extended when they were affected, viz.: to throw the weight on the heels instead of the toe. He seldom stands long at a time.

Treatment—

Clothe the body warmly, place the feet in hot water for an hour, then replace the warm with cold water; reduce his temperature by giving fifteen drops of tincture of aconite root, every two hours. Give one ounce, nitrate of potash, in drinking water, three times a day. If the bowels are constipated, give from two to four drams aloes. If the animal is lying down the feet may be kept damp by the use of cloths wrapped about them, and kept continually wet. After five or six days, if the symptoms have not greatly decreased, apply a cantharidal blister to the coronet, and omit the nitrate of potash; repeat the blister in two or three days if the soreness is not relieved. If the case has become chronic; I find he may be greatly benefited, by hollowing the foot in front in such a manner as to take all pressure from the toe (when the shoe is on) for a space of half the width of the foot. Keep the feet well annointed with the glycerine and oil used in contraction.

PUMICED FEET.

Is the result of delayed or improper treatment of acute laminitis, the sensitive and the insensitive lamina are separated by the infiltration of serum and the consequent soaking apart; thus allowing the bones to rest on the sole and push t down in the center.

Symptoms—

The sole is convex instead of concave, in other words, it bulges downward.

Treatment—

May palliate but never cures. If it is not too bad, shoeing with shoes well concaved on the bearing surface, to keep all pressure from the sole, will alleviate the trouble.

THRUSH.

Is an ulceration of the frog.

Causes—

Filthy stalls, failure to keep feet clean.

Symptoms—

There is a discharge of black offensive matter from the cleft between the heels, animal sometimes lame, but not often.

Treatment—

Pare off all dead or ragged tissue, cleanse and insert chloride of zinc in solution, one ounce chloride, to four ounces water; saturate cotton and pack the opening. Or drop a few drops muriatic acid in them once a day, being careful not to touch the skin.

NAVICULAR LAMENESS.

Is caused by an inflammation of the tendon, known as the flexor pedis or the navicular bone itself; it is situ-

ated within the walls just above the frog; this inflammation may be the result of nail wound, or by contraction of the wall.

Causes—

When at rest he points with the affected foot, if but one be affected; but if he suffers in both, he points first with one and then with the other. He goes out very lame, but as he goes farther, the lameness decreases; but does not go entirely sound; the toes strike the ground first, and he is liable to stumble on that account. If the foot be examined, the pit of the heel will show tenderness on pressure, and usually some swelling.

Treatment—

Prepare the foot and shoe in exactly the same way as for contraction, except to pare down the frog as much as possible, and raise the heels of the shoe to prevent the frog from striking the ground; and to relieve tension on the tendon. Keep in hot poultices or hot water for ten days or two weeks; if at the end of that time there be swelling in the hollow of the pastern, apply a fly blister; but if there be no swelling, do not blister. Keep foot soft with oil and glycerine. When a bogus trader owns a horse lame in only one foot from navicular or other trouble, he sometimes has the other foot pared so thin at the toe as to cause the pressure of the shoe to render him slightly lame in that one; thus giving him the appearance of having what is known as a rolling gait, and he passes with the unsophisticated as a sound horse.

BOG SPAVIN.

Is an enlargement situated on the front part of the

hock joint, caused by an inflammation of the joint, which extends to the synovia bursa, or sack containing the synovial fluid, joint oil; it is soft and fluctuating to the touch, it very seldom causes lameness.

Treatment—

It may be removed by persistent use of blisters, the same as used in ring bone and spavin; but the best and most humane treatment, is by the application of the bog spavin truss, which can be obtained from any veterinary instrument maker.

THOROUGH PIN.

Is of the same nature as bog spavin, and what is usually designated as wind galls, and is produced by the same causes; but is situated at the top part of the joint, forming an enlargement directly between the os calcis or point of the hock, and the rest of the joint.

Treatment—

Same as for bog spavin, and in the majority of cases where one exists, the other is likely to be present; if so, and it is desired to use the truss, there is a combination of the bog spavin and thorough pin truss, that may also be obtained from the same source.

BLOOD SPAVIN.

Is an enlargement of the front and inner part of the hock joint, and is due to the distention of the saphena vein as it passes over the region of the bone spavin; it is soft and easily rubbed down; it seldom causes lameness.

Treatment—

Should be the same as for bog spavin and thorough pin.

CURB.

Is an enlargement on the back part of the hock, below the cap or point.

Causes—

Sprains and consequent inflammation of the calcaneo-cuboid ligament; usually caused by running, jumping, rearing, etc.

Symptoms—

If of recent origin, there is heat and tenderness to the touch, lameness, which does not decrease, but seems to grow worse with exercise. Stand to one side of the animal and opposite the hocks, and you will perceive, just below the hock, a fullness, which destroys the straight line observed in the normal limb, from the point of the hock, to the fetlock joint.

Treatment—

Bathe the parts well with the following, three times a day, for a week, or until all inflammation has subsided: Two ounces, each, spirits camphor, spirits nitre, tincture arnica, tincture of opium, and one ounce of tincture of iodine, and seven ounces extract of Witch Hazel. After each application, bandage with flannel bandage, wet in boiling water, and run on as hot as the hand can bear; when all inflammation has subsided, fire and apply the blister used for ring bone and spavin.

SPRAIN OF THE BACK TENDON.

Is a very common occurrence; its causes are numer-

ous, among which are running, jumping, slipping, stepping on some small object with the toe, allowing no support for the heel; one, or all, of the tendons and ligaments may be implicated in the lesion.

Symptoms—

Severe lameness, heat and tenderness of the parts, usually more or less swelling; if pressed hard the animal will rear up, in his effort to release the sensitive member from your grasp; if at rest, he puts the foot forward with the ankle joint flexed.

Treatment—

Apply a high heeled shoe to relieve the tension, and give subsequent treatment as for curb. Administer a purge of aloes, seven or eight drams; allow perfect rest. This is another injury which is simulated by the trickery of the rogue; he will take a small hair from the mane or tail, place it in a straight surgeon's needle and slip it through the limb immediately in front of the large tendon, about half way between the knee and fetlock, cut the ends just a little shorter than the hair on the leg and leave it there, it soon produces an inflammation and swelling and being in such close proximity to the metacarpal nerve, the animal soon becomes very lame; and if the perpetrator of the outrage has been careful to select hair of the same color as that on the limb, it is a matter of impossibility to relieve it, unless there be a knowledge of the trick, in which case it is very easy to shave off the hair and see the point of entrance or exit and remove it, and the animal soon recovers his usual condition, with little or no treatment, and the object of the rascal is defeated. Should your animal become suddenly

lame in this region, and does not respond to treatment, look out for the fraud.

CAPPED HOCK.

Is an enlargement at the point of the hock, usually resulting from a bruise and subsequent infiltration of an inflammatory exudate; they do not usually cause lameness.

Treatment—

If recent, give same treatment as that of curb, remove all chance of continued bruising. Should the tumor become filled with pus, it must be evacuated by the use of a narrow bistoury, inserted at its lower extremity. If its contents are of a serous nature, draw off with a small trochar and canula; cleanse well by syringing out with dioxogen, and, if the thickening continues, inject pure carbolic acid, one part, and glycerine, two parts. Or pure tincture of iodine or saturated solution of iodide of potash; apply tincture of iodine to the exterior, once or twice daily.

CAPPED ELBOW OR SHOE BOIL.

Causes—

Bruises from the heel of the front foot while lying down, or bruising on hard floor.

Symptoms—

An enlargement at the elbow joint, hot and painful.

Treatment—

Same as for capped hock; except that when all else fails, it must be removed either by the knife, ligature or cauterly; dress subsequent to excision with oxide of zinc, twice daily.

CAPPED KNEE.

Is a swollen oedematous condition of the front of the knee.

Causes—

Bruising the parts in various ways.

Symptoms—

The swelling is hot and painful.

Treatment—

Same as for capped hock, except the tumor should always be evacuated by small trochar and canula. Sometimes the skin of the knee is broken, if such be the case, thoroughly cleanse by first opening at the lower extremity the sack or pocket, almost universally existing below the break in the skin; and syringe out, first with warm carbolized water, then with dioxogen. Carefully close the wound with interrupted sutures; have him shod with a shoe reaching well back of the heels, have a hole through the heel of shoe on each side, now have a steel brace made long enough to reach from the shoe to a point just below the elbow, with the lower end forked to fit into the holes in the shoe to prevent turning; at the top of the brace fasten crossways a piece of strap iron, two inches wide, and bend in such a manner as to form a half circle, or to fit the leg at the point designated; pad the circle to prevent injury to the leg, now fasten the lower, or forked end, of the brace to the heels of the shoe with the shaft of the brace directly behind the limb; place two bandages around the brace and leg together, one above and one below the knee, thus holding the knee straight and preventing the breaking of the sutures, tie the head up so he cannot bite the wound; cover the wound with absorbent cotton, fasten with roller bandage,

then keep damp with solution of one ounce, each, of chloride of zinc, and carbolic acid, in two quarts of water.

KNEE SPRUNG.

Is too well known to call for description ; it is a peculiar flexion of the knee, giving it a bowed appearance ; it is caused by sprain or injury to the suspensory ligaments, causing contraction, and makes the animal unsteady on the feet, often causing him to stumble and fall to his knees ; it seldom causes lameness.

Treatment—

Is of no avail except in very recent cases, and not often then ; but if attempted, rub in well the blister used in spavin and ring bone, over the back tendons and side, or suspensory ligaments ; apply once a week, turn out to a long rest in pasture.

COCKED ANKLES.

A nuckling forward of the ankle joints, results from sprains of the suspensory ligaments, lameness in the synovia bursa of the perforans tendon, thrush, corns, quittor, navicular disease, nail wounds, etc. Anything that causes the horse to rest the heels, in such manner as to allow the inflamed tendon and ligaments to contract, the knuckling is not a disease in itself, only a symptom of disease.

Treatment—

Remove the cause, and the symptoms will usually disappear and leave the ankle in a normal condition ; in some cases of long standing, the contraction is so great that it is impossible to affect a cure, except by surgical interference ; in which cases the operation of

tenotomy, should be performed, but this requires the services of the veterinary surgeon.

SHOULDER LAMENESS.

Causes—

Sprain of the muscles or ligaments around the joint.

Symptoms—

Lameness, the shoulder and leg carried forward altogether, the leg carried with an outward swinging motion, no knee action; it is impossible to raise the leg over any object of considerable height, but the limb is dragged over; there is heat and tenderness, usually some swelling.

Treatment—

Foment with hot water three or four times daily, for half or three-quarters of an hour, and when thoroughly dried, rub well with the linament recommended for sprain of the back tendon; or with camphorated soap liniment. After the inflammation subsides, apply the blistering ointment used in spavin and ring bone; or still better insert a seton over the seat of lameness; let it go just beneath the skin, smear the with a little fly blister, or fluid extract of poke root, twice a week; allow the seton to remain two or three weeks in slight cases; and from three to six weeks in bad cases, use clean strips of muslin for setons, wash the shoulder once a day with hot water, to keep as clean as possible.

STIFLE LAMENESS.

Is caused by sprains of the ligaments of the joint.

Symptoms—

A peculiar lameness, being more severe in

going up hill than elsewhere, and a leaning from the affected side in going down grade, it seems to be an effort to bring the limb forward and the line of motion forms a segment or semi-circle; it is carried further forward than when in a normal condition; he rests the limb when at rest, there is tenderness on pressure.

Treatment—

Apply high heeled shoe, raise heels one and one-half inches; apply hot water continuously for half an hour, three times daily; rub dry, and then rub well with the liniment used for sprained tendons. As soon as the inflammation subsides, blister thoroughly all round and over the joint, with the blister used in spavin. Give absolute rest, and repeat the blister once a week until a cure is affected.

Is known by the position of the limb; it protrudes as far backward as possible, the front of the foot resting on the ground, he is utterly powerless to bring it forward.

Treatment—

Have a shoe made with an eye in the toe, large enough to admit a half inch rope; have it nailed on the foot of the affected limb, tie the end of the rope into the eye of the shoe; have an assistant to take hold of the rope and pull the foot forward, while the operator presses the joint toward the flank with power enough to force it into its place; this accomplished, put a collar and hames on the animal and tie the rope to the hame in such manner as to hold the foot as far forward as if he were standing naturally now apply the blister as for stifle lameness; leave the rope and shoe on for five or six days, when it

may be removed; but the animal must be kept quiet and the blister repeated once a week for four or five weeks.

Hip Joint Lameness—

Is of very rare occurrence in the otherwise healthy animal, it is an inflammation of the head of trochanter, hip bone.

Symptoms—

There is a hopping motion, with an apparent catch in the affected limb, the whole quarter is moved with but little motion or flexion of the hip joint; when standing he will be observed to often elevate the foot as if in great pain; there is a distinct swelling of the region, heat, pain caused by pressure or percussion, atrophy or shrinking of the hip soon ensues.

Treatment—

Is essentially that of shoulder joint lameness persistently used; high heeled shoe, with absolute rest for an indefinite period.

ELBOW JOINT LAMENESS.

Causes—

Disease of the joint, sprains of the lateral ligaments, laceration of the triceps, extensor brachii muscle, and giving way of the muscles of the olecranon or elbow joint.

Symptoms—

Extreme lameness, the knee and lower part of leg flexed, the toe resting on the ground with the heel raised when standing; when in motion there is an entire dropping of the whole front part of the body, no weight being carried on the disabled member; often swelling heat and pain in the muscles of the elbow, or there may

appear a depression near the back or posterior border of the scapula, or shoulder blade.

Treatment—

Consists in giving perfect and absolute quiet and rest, allowing as little exercise as possible; bathe frequently with some cooling or anodyne application. Any small wound or puncture on or near the joint will produce a peculiar result, when the animal is in motion, even though the wound be so small as to escape attention, the motion causes air to be drawn through the opening into the subcutaneous tissue, and if the movements be long continued, the inflation will extend over the whole body until he hardly bears any resemblance to a horse; the knowledge of this fact has led the unscrupulous jockey to puncture his neighbor's horse to produce the symptoms. Should such symptoms exist, do not be alarmed, but examine the region of the elbow joint carefully, and you will find the wound, and if you will close the opening and keep the animal quiet a short time the air will be absorbed, and he will again assume his normal appearance; should the nostrils be so much inflated as to interfere with his breathing, simply puncture the skin in a few places and press out the air.

SCRATCHES, CRACKED HEELS.

Causes—

Overfeeding, unwholesome food, illy ventilated stables, standing in filth, mud and cold draught, snow, the use of strong soap when washing, failure to dry the limbs after washing, disease of the heart, liver or kidneys, &c.

Symptoms—

Swelling, heat and tenderness of the hollow of the

heel, lameness, cracks, supuration, an exudation of a yellow, viscid matter, the same conditions may exist behind the knee and in front of the hock, the former known as malanders, and the latter as salanders.

Treatment—

Administer a purge of one ounce of aloes. Give nitrate of potash, half an ounce in drinking water three times a day; wash the affected parts well with hot water and castile soap, rub until perfectly dry, and rub well with a mixture of one part carbolic acid and five parts glycerine; repeat the washing and local application once a day; furnish good sanitary surroundings.

GREASE HEEL.

Is due to a parasitic fungus, although the predisposing causes are the same as for scratches, and while the fungus is essential to the disease, it remains dormant unless the predisposing factors exist.

Symptoms—

Legs are swollen to the knees and hocks, there is an oozing from the pores, both above and below the fetlock, of a greasy, offensive matter. If bad there is lameness; if neglected, proud flesh appears through the places of exit made by the pus.

Treatment—

Remove the cause, give aloetic purge; nitrate of potash in drinking water; give same treatment as for scratches.

FISTULA OF THE WITHERS.

Is caused by bruises or punctured wounds.

Symptoms—

At first a hard tumefaction, hot and usually ten-

der, later pus forms, running sores and pipes or fistulous sinuses from which there is a constant discharge.

Treatment—

If in the first stage, or before the formation of pus, open the skin at the point of greatest prominence and insert twenty or thirty grains each of arsenious acid and morphine wrapped in tissue paper or in a capsule, plug up the opening and let alone for two weeks or more, when there will be a deep slough; dress twice daily with a solution of one ounce each of chloride of zinc and carbolic acid in three quarts of water; the result is generally complete recovery. If pus and pipes have formed, open at the top and evacuate as completely as possible by syringing out with dioxogen, then putting in a quantity of pure chloride of zinc in the opening, also put in morphine to allay or counteract the painful effect of the caustic; stop the opening at the top, grease the shoulder well on each side to prevent excoriation of the skin from any overflow of the caustic, in two days open and syringe out well with warm carbolized water, grease well inside and out with carbolized vaseline; in a few days the whole interior pipes, and all may be removed with the forceps, dress twice daily with the solution recommended for the first stage; occasionally alternate with iodoform. Some prefer to remove them with the knife, but this requires the services of the veterinary surgeon.

POLL EVIL.

Poll evil is an affection of the poll, or top of the head, identical with fistula of the withers, except in point of location.

Causes, symptoms and treatment are the same as for fistula of the withers.

SITFASTS.

Are hard, callous excrescences, and are due to continued pressure, either from the harness or saddle.

Treatment—

Removal with the knife is the only rational method, then treat as an ordinary wound; prevent the animal from biting or irritating the wound.

WARTS.

Are morbid excrescences and should be removed with the knife, or by strangulation; the latter may be accomplished by wrapping a small rubber band several times about the base of the wart, and allowing it to remain until the wart drops off; it cuts off the circulation by its elastic force, thus causing it to be deprived of its vitality; treat as an ordinary wound after it is removed whether it be by one method or the other. It may also be accomplished, though not so quickly, by the introduction into the body of the wart a small quantity of arsenious acid, which kills any tissue with which it comes in contact; in the course of ten days or two weeks it will drop off.

MELANOTIC TUMORS.

Melanosis usually appears as a rounded tumor, small at first but gradually increasing in size in every direction. They are generally, but not always, cancerous in their nature, and are sometimes designated as black cancer. They are almost entirely confined to white or gray horses; notwithstanding this fact, the tumor is al-

most universally black on the surface, as well as in its internal structure. They usually appear on the hairless portions of the body, around the root of the tail, on the arms, both inside and out, on the penis, and in the mare about the udder; in cases that are malignant or cancerous, they will usually be found on post mortem examination to exist on the vital and other internal organs and membranes.

Treatment—

{ The treatment of the malignant type is of little avail, but upon the first appearance of the excrescence it is well to remove it with the knife, and treat as an ordinary wound.

SURFEIT. NETTLERASH.

Is an eruption of the skin in the form of nodules, appearing mostly in the well fed, fleshy young animal; more frequently in the spring of the year than at other seasons; sometimes attended by colic pains, diarrhoea, or constipation; the swellings appear very suddenly, and usually disappear just as rapidly, or it may continue for many days. It is very annoying to the animal, rendering him at times almost frantic.

Treatment—

Deplete the system by cathartic and cooling agents. Give one ounce of Barbadoes aloes made into a ball; also give one ounce of nitrate of potash in bucket of water three times daily. If the animal be excessively fat, the abstraction of four to six quarts of blood from the neck vein will greatly assist in relieving the patient. Follow any depleting treatment with some of the bitter tonics.

PERITONITIS. INFLAMMATION OF THE PERITONEUM.

Is an inflammation of the serous membrane lining the cavity of the abdomen, and covering the viscera of the cavity.

Causes—

Wounds from severe blows or kicks, puncture of the walls of the abdomen, any severe lesion of the intestines, rupture of the stomach, intussusception of the bowel, strangulated hernia, or it may, and often does, result from the operation of castration.

Symptoms—

The first symptom of peritonitis is a chill, stiffness or soreness in movement, he paws and sometimes strikes at the belly with the hind feet; he lies down very carefully, but as the recumbent position only augments the pain, he soon rises and remains standing most of the time. He walks about in an uneasy manner, the bowels are usually constipated, pressure on the belly causes extreme pain, the abdomen draws, the legs, ears and nose cold; temperature ranges from 102 F to 104 F; pulse hard and fast, breathing from 70 to 90 beats per minute.

Treatment—

Is essentially the same as for enteritis, very much depending on the thorough application of counter irritants to the surface of the abdomen; avoid cathartics as a rock at sea.

DROPSY OF THE ABDOMEN. ASCITES.

Causes—

Indigestion, insufficient or unwholesome food,

disease of the liver, the heart, or the portal blood vessels. It may also result, in rare instances, from chronic peritonitis or pericarditis.

Symptoms—

Swelling of the legs, sheath and belly, due to infiltration of fluid into the tissues, the mucous membranes are pale, appetite generally poor, the animal weak and emaciated.

Treatment—

If possible, remove the cause; should indigestion be due to faulty teeth, remedy it by having them put in proper condition; if the liver is not performing its functions, give one ounce of aloes, follow this by the administration of half a drachm of calomel once a day for one week, at the end of which time the calomel should be discontinued and give night and morning two drachms iodide of potassium and one ounce nitrate of potash in each bucket of water consumed. Also give two table-spoons full of the following mixture three times daily: Tincture of iron, tincture of gentian and tincture of nuxvomica, equal parts; continue as long as necessary. Give generous diet of nutritious, easily digested food. Should the treatment fail to give the desired results and the accumulation of fluid in the cavity be not absorbed, the operation of paracentesis abdominis, or tapping of the belly may be resorted to, but the prognosis is generally unfavorable, regardless of all our efforts.

CHRONIC CATARRH. NASAL GLEET.

Is a chronic inflammation of the mucous membranes of the nasal organs. †

Causes—

The causes of chronic nasal catarrh are neglect-

ed colds, fracture of the bones of the face, especially those that involve the membranes of the sinnses, rupture of blood vessels, and the consequent escape of the blood into the sinuses, where it sets up an inflammation, decaying teeth mad also involve a sinus and cause a discharge from the nostrils.

Symptoms—

An offensive discharge from the nostril, usually from one nostril only; the bones of the face seem full, and in severe cases the facial bones on each side may be bulged from the accumulation of pus within the nasal cavity; when tapped with the ends of the fingers they give out a dull sound, and the animal evinces severe pain.

Treatment—

Syringe out the nostril with dioxogen once a day, and once a day with a solution of one ounce of listerine and twenty drops carbolic acid in one pint of water. Give night and morning in feed, two drachms each of sulphate of copper and sulphate of iron, continue for two weeks; then substitute the same amount of powdered gentian root and powdered blood root (*Sanguinaria Canadensis*) for two weeks; when the iron and copper salts should again be given instead; continue these medicines alternately in this way until recovery is effected. In some cases where the pus has accumulated in the cavity in such qauntity as to prevent the entire evacuation, it is necessary to trephine the facial bones in order to reach the affected part and properly treat it; if the trouble results from decaying teeth, it will be necessary to extract thm; if from fracture of the bones of the face they will also require special surgical attention.

in each of these operations the services of a veterinary surgeon will be required.

PARALYSIS.

Is a condition of complete or partial muscular relaxation, due to diminution of contractile power of the muscles.

Causes—

Are numerous, among the most prolific being acute affection of the brain and spinal cord, wounds, tumors, etc.

Treatment—

The treatment of paralysis will depend largely on the cause; if the cause is known, remove it if possible; the most reliable antiparalytics are strychnine and electricity judiciously administered.

TETANUS. USUALLY CALLED LOCKJAW.

Causes—

Tetanus usually results from a wound of some kind, nail wounds in the feet being the most common cause. It is stated on good authority that it may be either idiopathic or traumatic, and by others that there is no such thing as tetanus without traumatism or wound. However that may be, the form is immaterial to our purpose.

Symptoms—

The first symptom noticeable, generally, is stiffness of the muscles of the jaw, some difficulty in chewing and swallowing, the head more or less extended, the haw of the eye (the nictitans) drawn back over the eye; if the head be elevated or moved quickly, the slightest noise

or excitement produces increased alarm. The bowels soon become constipated; the symptoms rapidly increase in severity, until all the muscles are rigid, the tail elevated and rigid, the ears erect and stiff, temperature, and pulse not much changed. A tremor of the muscles is noticed, cold sweats now break out on the body, owing to spasm of the respiratory muscles, the breathing becomes painful; the jaws set, the eyes retract, the nostrils dilated and tense; he has a haggard and frightened look; the pulse is now quick and hard on account of spasms affecting the heart. In sub-acute cases, the symptoms are not so severe.

Treatment—

Place the animal in a darkened stall, where he will be free from annoyance by other stock or curious spectators. Give Barbadoes aloes, one ounce; solid extract of belladonna or solid extract cannabis indica, two drachms, made into a ball; if it be impossible to administer the ball, give two grains of esersine hypodermically. Locate the wound if possible and keep thoroughly antiseptized. If the anti-tetanic serum can be obtained within a reasonable time, I prefer that mode of treatment, but it makes no difference what mode of treatment is pursued, remember that much depends on quiet and absence of exciting noise, or intrusion by the morbidly curious.

RHEUMATISM. ACUTE.

Rheumatism is due to uric acid in excessive quantities in the blood, or it may result from other diseases, epizootic, pleurisy, etc.

Symptoms—

Sudden lameness, either with or without swell-

ing of the joints. The lameness may be preceded by some fever. It is likely to leave one joint or limb suddenly, and appear in another; the bowels generally costive, an abnormal amount of fibrin in the blood. When not preceded by some epizootic disease the fever is acute and excessive, ranging 104 F to 106 F. Should it run higher than 105 F, the case is serious.

Treatment—

Free administration of nitrate of potash in the drinking water, give an aloetic purge; blister the affected joints well; give tablespoon full doses of salicylate of soda every four hours till the system becomes thoroughly charged. Keep in comfortable quarters, feed well on light, easily digested, nutritious food. In the chronic form the symptoms are much the same as in the acute, except they are modified in severity, and the elevation of temperature may be entirely absent.

INFLUENZA. TYPHOID FEVER. PINK EYE. CATARRHAL FEVER, ETC.

Causes—

The causes of influenza are very obscure, but the concensus of opinion is that it is atmospheric, though just what the specific cause, is not known. It usually appears in a community spontaneously, although there are undoubted circumstances indicating its contagion and infectious tendency. The predisposing causes are the crowding of animals into unsanitary quarters, neglect, unwholesome diet, debility, etc., all of which render the animal more susceptible to this, as well as other diseases. The fact that the fever may have various complications,

renders it more serious, and makes the successful treatment a very difficult and doubtful matter. The fever may be without complication, in which case it seldom proves fatal, or any, or even all, of the organs may be involved.

Symptoms—

The animal first appears dull and sluggish, extreme weakness, perspires freely, failure of appetite, the eyes are very red and eyelids swollen, sometimes so much as to entirely close the eyes; pulse 70 to 80 beats in a minute, respiration hurried, temperature may be 105 F, or even 107 F. This condition may be reached in the course of ten or twelve hours, the next few hours may be marked by symptoms of colic; there is constipation, the excrement is dry and hard and covered with a white mucous or slime, indicating an inflamed condition of the bowels; the legs are hot and swollen, very sore to the touch, mouth hot and generally dry, the eyes running water, the eyelids swollen until the eye is often entirely closed; there is excessive thirst, swelling of the carotid and submaxillary glands, usually there is a cough, a watery discharge from the nostrils, should there be no complication, he lies down a great deal of the time, but if the lungs become involved he persists in standing.

Complications:—As stated before, all the organs of the system may become involved, but the ones more commonly implicated are the brain, lungs, intestines and sensitive lamina of the feet. Should there be a complication of the brain, the animal suddenly becomes restless, commences to walk, generally in a circle, owing to the fact that there is a greater degree of congestion of one side of the brain than of the other. Should he be in

an inclosure he walks until his head comes in contact with some object of sufficient resistance to stop him, when he continues his efforts to move forward until the head is released from its contact with the opposing object, when the walk is resumed, following the wall, rubbing the nose and head against it, until he again comes in contact with some other object that compels him to stop again, he may become violent, rear, plunge, stamp with his feet, etc.

Complications of the lungs:—May be due to cold draughts of air and other circumstances that would produce congestion of the organ where influenza did not exist yet, in from three to five days after the commencement of the fever, the complications may be established without any apparent cause, the breathing heavy and labored, heaving of the flanks, the nostrils dilated, often a swaying or staggering gait, no appetite, the temperature, pulse and respiration each accelerated.

Complication of the intestines:—The animal paws unasily with the front feet, he looks from side to side, the belly very sensitive to pressure, he may lie down carefully; there is constipation, excrement being mixed with mucous, and even false membranes; this is soon followed by diarrhoea; he rapidly loses vitality, the pulse becomes more soft and weaker, the respiration faster, the temperature higher.

Complications of the feet:—The symptoms of this complication are those of a severe case of laminitis.

Treatment—

The main object in the treatment of an uncomplicated case of influenza is to sustain the vital en-

ergies and control the temperature, always bearing in mind that in the horse, as well as in the human subject, typhoid fever runs a definite course, and can hardly be cut short by any treatment; therefore, the relief of distressing symptoms, the allaying of irritability and supporting the patient is all we may hope to accomplish. Our first care must be, good sanitary surroundings, comfortable clothing to the body and limbs, nourishing and easily digested food (scalded oats and bran, good, bright hay, etc.), fresh water continuously within his reach in which has been dissolved one-half ounce nitrate of potash in every bucket of water consumed. Control the fever by ten drops, each, of tincture of aconite root and tincture of gelsemium every hour. The inhalation of medicated steam for an hour, two or three times daily; blister the throat with cantharides ointment. Should there be great prostration, give one and one-half to two ounces spirit nitrous ether, or carbonate of ammonia three times daily. One to two drachms iodide of potash night and morning. Should brain complications exist, give aconite in large doses; should the heart be weak, give digitalis in teaspoonful doses every three or four hours. If the lungs are involved, treat as for pneumonia; also give night and morning two drachms iodide of potash, and in intestinal complication, give one to two ounces every four hours, of the following mixture: Camphorated tincture of opium, eight ounces; sub-nitrate of bismuth, two ounces; shake well before using. Should laminitis be present, bleed from the coronary plexus, blister around the coronet, or poultice the feet.

GLANDERS. ACUTE.

This is a malignant, contagious and fatal disease of the horse, mule, dog, sheep, goat, hare, mouse, guinea pig, also communicable to, and fatal to man, but not to horned cattle or fowls.

Causes—

The causes are obscure, but the animal is more susceptible to its influence when crowded together in great numbers, especially if the sanitary surroundings are not good. It often arises as a sequel to debilitating diseases, old age, etc., as well as by the introduction of the virus of the affected animal into the system by actual contact with the tissues. There is a difference of opinion regarding its contagion in any other way. The period of incubation is variable, from one week to two months, and sometimes even more.

Symptoms—

Extreme elevation of temperature, rigors, temperature often 106 F, and in extreme cases as high as 109 F, pulse feeble and rapid, breathing quickened, failure of appetite, urine pale and excessive in quantity, enlarged submaxillary glands, eyes weak and red, the schneiderian membrane of the nostril ulcerated, at first a watery discharge from the nose which soon becomes yellowish and has a sticky tendency. The odor is now very offensive; sometimes bleeding of the nose. In primary glanders or farcy there is swelling of the hind legs and along the under portion of the abdomen. These latter symptoms are also sometimes produced artificially by the unscrupulous, viz: The ulceration of the membrane of the nose by the application of caustics, especial-

ly of the nitrate of silver, and the nasal discharge by the introduction into the nostrils of small sponges charged with some foul smelling substance. The swelling and ulceration of the limbs and abdomen by touching with fine points which have been dipped in croton oil. These artificial symptoms may be easily known from the genuine by the absence of all the other characteristic signs of the malady, and no one need be deceived. The symptoms of chronic glanders are a modified form of those in the acute form, the appetite is not usually impaired until near the culmination. Acute glanders is a rapidly fatal disease; in the chronic form it is no less fatal in its tendency, but the animal in rare instances may live and work comfortably for many months, and even years, and may then die from other causes; but during all this time the disease is as actively contagious as it is in the acute form, and the animal should be destroyed at once, as treatment is utterly futile. Should the owner wish to be positive about the correctness of diagnosis, he may inoculate the guinea pig (the male preferred) with some of the virus, and if it be glanders about the twelfth day there will be redness and tumefaction of the testicles, rapidly followed by glanderous ulcers on different portions of the body, and the pig will die from the fifteenth to the thirtieth day; or have a veterinary surgeon to make the test with a preparation known as mallein. This will determine the matter much sooner.

Treatment—

Primary glanders or farcy, may be treated with general success. Give internally two grains sulphate of strychnine and five grains assenious acid twice a day.

The treatment should be essentially tonic. Give sulphate of copper and sulphate of iron, each, two drachms, twice a day, or some of the fluid tonics given in miscellaneous formulas, especially those containing iron, gentian, nuxvomica, quinine, etc. Apply to the ulcers every four or five days the blister used on ringbone, spavin, etc. Give tablespoonful doses sulphate of soda, three times daily; feed liberally. In any case of glanders or farcy, isolate the animal.

RABIES. HYDROPHOBIA.

A contagious disease.. Is invariably fatal in its effect.

Causes—

The introduction into the system of the virus contained in the saliva of an affected animal, usually through the medium of the teeth; the period of time elapsing from the moment of inoculation to the development of any symptoms, may vary greatly in different cases, the variation being from eight days to several months; usually from three to four weeks.

Symptoms—

The horse becomes wild and frenzied with pain and fever; he bites anything within his reach, pawing, stamping, usually biting and tearing its own flesh wheaever he can reach it with the teeth; craves water but is unable to swallow.

Treatment—

Is of no avail. Should any symptoms of this terrible malady manifest themselves, isolate and securely confine the animal and as soon as there is a reasonable

certainty that he is affected by rabies, destroy him at once.

STRANGLES—DISTEMPER.

Is an infectious disease, more prevalent among young horses and colts than older animals.

Causes—

It may arise spontaneously among young stock, or it may be from contact with an affected animal, or from eating and drinking from the troughs from which an affected animal has been fed or watered.

Symptoms—

Are elevation of temperature, acceleration of pulse and respiration, mouth hot, extremities cold, swelling of the throat, usually a cough, which causes much distress on account of the swollen and inflamed condition of the larynx; he usually evinces a desire for food, but is unable to swallow it; at first, a mucous discharge from the nose, which soon becomes purulent, the eyes inflamed and running water.

Treatment—

Control the fever by teaspoonful doses, every three hours, of the following mixture: Fluid extract of belladonna, tincture aconite, and tincture gelsemium, of each, one ounce; tincture of digitalis, two ounces. Keep up the strength by some of the bitter tonics in combination with iron. Supply comfortable quarters, protect from storms and sudden changes of temperature; apply hot flax seed poultices to the throat and as soon as the swelling exhibits any signs of containing pus, open it and allow the pus to escape, syringe out the abscess twice daily with dioxogen.

OSTEO—POROSIS.

Commonly known as big head, is a disease of the osseous or bony structure; there is much speculation as to its origin, but the general opinion of authority favors the theory that it is due to a deficiency, either in the food or water, of some of the elements necessary for the normal support of the bone, also an excess of other elements.

Symptoms—

Usually the bones of the head, especially of the lower jaw, are enlarged and thickened; there is stiffness of gait; flanks tucked up, mucous membranes pale, urine scant, bowels usually constipated, weak in the loins, sometimes swelling of the joints, symptoms of rheumatism, soreness of the bones upon pressure.

Treatment—

While I do not consider the disease susceptible of a radical cure, it may often be alleviated by relieving the rheumatic symptoms, for which the administration of stramonium seed, or the extract, seems to exert a good effect. Our next object should be to supply to the bones the elements in which we know them to be deficient, and as all experiments seem to indicate a deficiency of the lime salts, the indications are for the administration of calcium phosphate; commence treatment by the administration of one large tablespoonful of ground stramonium seed in wet wheat bran on alternate days, for ten days, on the intervening days give two large tablespoonfuls of sulphur in bran; this will make five doses, each of stramonium seed and sulphur; then change the medicine and give one-half ounce, each, of hyposul-

phite of soda and calcium phosphate in bran; continue this for ten days, then return to the first treatment; and so continue each for ten days, until the animal shows marked improvement. Always remember to keep the animal protected from rain and storms; give no grain, but about six or eight quarts of wheat bran daily, if grass is not in season give good bright hay or fodder; if in summer, give nothing in the way of food but bran and grass; keep a supply of salt always in reach of the animal; after the patient is taken off the treatment, he should be given lime water to drink for an indefinite period. The disease is seldom, if ever, known in limestone districts.

THE HORSE'S AGE.

We may, with considerable certainty, approximate the age of the horse, from his early colt hood. ., up to twenty-nine years; but we must take into consideration that pasturage, and manner of feeding, makes a vast difference in the marks of the teeth, by which we must be guided in determining the age. The horse that runs on short, sandy pasturage, wears the teeth much faster than if kept on luxuriant growth, on clay lands, or if not allowed to run at pasture at all. We must also take into consideration the irregularities sometimes met with, such as parrot mouth, when the front teeth of one jaw, overlap those of the other jaw, and by this unusual condition, prevent the wearing surface, or crown of the teeth, coming in contact. There is, also, what is known as shell teeth, viz.: teeth, in which the cup is simply a groove, running down the inside, or back portion of the incisor teeth; thus making it a matter of impossibility to eradicate it by wear. Then, we have the crib biter; his teeth may also deceive

us in his age. But to the critical observer, the rounded appearance of the outer edge of the incisor teeth, especially of the upper jaw, will leave no doubt that he is a victim of this pernicious habit. In from two, to three weeks after birth, the two middle incisors, or nippers appear; in from four to six weeks the teeth on each side of the nippers (called middle teeth) make their appearance; in from six to eight months, the corner teeth; the colt now has a full set of milk teeth, all of which, have cups, or depressions, in the cutting surface, from the top downward, leaving a sharp edge all round the cavity, the outer edge always being a little higher than the inner, thus bringing them in contact sooner. At the age of one year, the cups have disappeared from the lower nippers, the outer edges of the middle teeth much worn and the inner edge slightly worn; the outer edge of the corner teeth considerably worn. At two years, the cups have disappeared from the middle teeth, and the inner edges of the corner teeth begin to show wear. At two and one-half years, the cups have disappeared from the corner teeth and he has shed the center milk teeth (nippers), and the horse nippers are beginning to push through the gums. At three years old, the permanent, or horse nippers, are full. At three and one-half, the middle colt teeth are shed, the permanent teeth begin to show in their stead; the outer edges of the nippers begin to show wear. At four years, the middle, permanent teeth are full and the inner edge of nippers, show wear. At four and one-half years, corner colt teeth are shed, and permanent teeth begin to show; the outer edges of middle teeth show wear. At five years, the corner teeth are full, the

nippers are worn down, until the cups have almost disappeared, and the outer edges of the middle teeth are down even with the inner edges. At six years, the nippers are worn down even, with the middle teeth; which, latter, still retain the cups, and the outer edges of the corner teeth are worn down even with the inner edges. At seven, the middle teeth have lost their cups, and both edges of the corner teeth are worn smooth, but still retain a small cup. At eight years, the incisors are all smooth, and only a trace of the cavity remains in the corner teeth. At nine years, the cups of the upper nippers have disappeared, but are still visible in the middle teeth, and are comparatively well defined in the corner teeth. At ten years, the cups have disappeared from the upper middle teeth. At eleven years, the cups have disappeared from the upper corner teeth. At twelve years, the lower nippers are nearly round, or as thick as they are broad. At thirteen, the lower middle teeth are nearly round. At fourteen, the lower corner teeth are nearly round. At fifteen, the upper nippers are round. At sixteen, the upper middle teeth are round. At seventeen, the upper corner teeth are round. At eighteen, the lower nippers are triangular. At nineteen, the lower middle teeth are triangular. At twenty, the lower corner teeth are triangular. At twenty-one, the upper nippers are triangular. At twenty-two, the upper middle teeth are triangular. At twenty-three, the upper corner teeth are triangular. At twenty-four, the lower nippers are twice as thick, as they are broad. At twenty-five, the lower middle teeth are twice as thick, as they are broad. At twenty-six, the lower corner teeth are twice as thick,

as they are broad. At twenty-seven, the upper nippers are twice as thick, as they are broad. At twenty-eight, the upper middle teeth are twice as thick, as they are broad. At twenty-nine, the upper corner teeth are twice as thick, as they are broad. There is another mark by which we may closely approximate the age from the tenth to the twenty-first year, viz.: at ten years a groove may be seen, starting from the gum in the middle of the upper corner teeth, and at fifteen, it has reached the middle of the tooth from the top downward, and at twenty-one, it has reached the end of the tooth; now to ascertain the age between the tenth and twenty-first years, we must approximate it, by the ratio of distance, from the gum to the bottom of groove, as compared with full length of the tooth.

MISCELLANEOUS FORMULAS.

FEVER MIXTURE.

No. 1—

Tincture aconite root and tincture gelsemium, of each, 1 oz.; tincture digitalis, 2 ozs. Mix and give 30 drops every two hours.

No. 2—

Tincture aconite root and tincture gelsemium, of each, 1 oz.; nitrous ether, 8 ozs. Mix, shake and give two teaspoonfuls in table tablespoonful of water every hour.

No 3—

Sulphate of quinine, half oz.; tr. chloride iron, 3 drams; nitrous ether and alcohol, of each, 3 ozs.; monox-

ide of hydrogen, sufficient to make one point. Mix and give 2 tablespoonfuls every 2 hours.

No 4.—

Acetanilid, 1 oz.; powdered digitalis, 2 drams. Mix thoroughly and divide into 8 powders; give one every hour.

COLIC MIXTURE.

No. 1—

Camphorated tincture of opium, 2 ozs.; nitrous ether, 1 1-2 ozs.; tincture of capsicum, 2 drams; tincture aconite root, 30 drops. Mix and give at once; if necessary, repeat in one hour, leaving out the aconite.

No. 2—

Creolin, 1 dram, in 2 ozs. glycerine, every hour.

No 3—

Chloral hydrate, 1 oz., every hour.

No 4.—

Carbonate of ammonia, 4 drams, every hour.

No. 5—

Solid extract cannabis indica, 1 dram, every hour.

No. 6

Chloroform, 1 oz.; linseed oil, 1 pint. Mix, shake and give at once.

No. 7—

Sulphuric ether and tincture opium, of each, 8 ozs.; fluid extract of belladonna, 1 oz.; tincture aconite root, 1 dram. Mix and give 2 ozs. every half hour until relieved.

No. 8—

Eserine and pilocarpine, of each, 1 grain, hypodermically, repeat the pilocarpine in 2 hours, if necessary.

LINIMENTS—ANODYNE.

No. 1—

Tincture of opium, tincture of arnica, spirits of camphor and nitrous ether, of each, 2 ozs.; tincture of iodine and tincture of aconite root, of each, 1 1-2 ozs.; extract of Witch Hazel, 16 ozs. Mix, shake and use 3 or 4 times daily.

No. 2—

Soap liniment and tincture aconite root, of each, 2 ozs.; veratria, 3 drams. Mix, shake and apply every 2 or 3 hours.

No 3—

Chloral hydrate and gum camphor, of each, 1 oz.; tincture of iodine, 8 ozs. Mix and apply as often as necessary.

No 4.—

Tincture of arnica, tincture of opium, sulphuric ether and spirits camphor, of each, 3 ozs.; tincture aconite root, 2 ozs. Mix and apply every 3 or 4 hours.

No. 5—

Equal parts sulphuric ether, spirits of ammonia and tincture opium. Mix and apply as often as necessary.

No. 6—

Spirits camphor, 4 ozs.; oil of cloves, oil of sassafras, oil of turpentine and chloroform, of each, 3 ozs.; tincture opium, 5 ozs.; alcohol, 11 ozs. Mix, shake and use internally, or externally; good for colic.

No. 7—

Gum camphor, chloral hydrate, chloroform, sulphuric ether, tincture of opium, oil of origanum, oil of sassafras, oil caryophyllis and oil peppermint, of each, 3 ozs.;

alcohol sufficient to make one gallon. Shake and use either externally or internally; good for colic in 2-oz. doses, every hour; if used for this purpose, add 10 drops tincture aconite root to each dose.

BLISTERING LINIMENTS.

No. 1—

Bichloride of mercury and gum camphor, of each, 1 oz.; alcohol, 4 ozs.; dissolve the mercury and camphor in the alcohol and add olive oil to make one pint. Mix, shake and apply once in 4 to 7 days.

No. 2—

Oil sassafras, oil organum, stronger ammonia and tincture cantharides, of each, 2 ozs.; bichloride of mercury, 3 drams; gum champhor, 1 oz.; oil turpentine, 8 ozs. Mix, shake and apply.

No 3—

Stronger ammonia, tincture cantharides, oil sassafras and oil of spike, of each, 2 ozs.; oil turpentine and olive oil, of each, 4 ozs. Mix and apply daily.

No 4.—

Tincture cantharides and stronger ammonia, of each, 1 oz.; oil turpentine, 1 1-2 ozs.; oil sassafras, oil organum and gum camphor, of each, 1-2 oz.; olive oil to make one pint. Mix, shake and apply once daily.

CAMPHORATED SOAP LINIMENT.

Dissolve 5 ozs. white castile soap, in 8 ozs. water, then dissolve 2 1-2 ozs. camphor gum and 4 1-2 drams oil rosemary, in 41 ozs. alcohol. Mix the solutions and add water enough to make 56 ozs. or 3 1-2 pints; filter and it is ready for use.

BLISTERING OINTMENTS.

Vaseline, 2 ozs.; powdered cantharides, 4 drams; biniodide of mercury, 3 drams. Mix and apply every fourth to seventh day.

FLY BLISTER.

Vaseline, 2 ozs.; powdered cantharides, 4 drams. Mix and apply every two or three days.

ABSORBENT OINTMENT.

Vaseline, 3 ozs.; iodide of potash, 4 drams. Mix and rub in well twice daily.

EYE LOTIONS.**No. 1—**

Sulphate of morphine, sulphate hydrastine, sulphate zinc, of each, 2 grains; water, 1 oz. Mix; a few drops in eye three or four times daily.

No. 2—

3 grains, each, of morphine and chloride of zinc, to 1 oz. water. Drop in eye 3 times daily.

No 3—

Nitrate of silver, 5 grains; morphine, 2 grains; water, 1 oz. Mix, drop in eye 3 times daily.

No 4.—

Atropia sulphate, morphine sulphate, and berberine, of each, 2 grains; water, 1 oz. Mix, drop in eye 3 or 4 times daily.

HEALING LOTIONS.**No. 1—**

Chloride of zinc, 1 oz.; water 3 quarts. Mix, shake and apply 3 times daily.

No. 2—

Carbolic acid, 1 oz.; borolyptol, 2 ozs.; water, one gallon. Apply 3 times daily.

No 3—

Bichloride of mercury, 8 grains; water, 1 pint;. Mix, apply 3 or 4 times daily.

No 4.—

Acelate of of lead and sulphate of zinc, of each, 1 oz.; water, 1 quart. Shake and apply 3 or 4 times daily.

No. 5—

Compound tincture benzoin. Apply 3 times daily.

HEALING POWDERS.

No. 1—

Acetanilid and oxide of zinc, of each, 1 oz.; carbolic acid, 15 drops. Mix in a mortar until the acid is thoroughly incorporated with the powder. Apply 2 to 4 times daily.

No. 2—

Iodoform, acetanilid and oxide of zinc, of each, 1 oz.; carbolic acid, 10 drops. Appply 3 or 4 times daily.

CONDITION POWDERS.

No. 1—

Sulphur, nitrate of potash, bicarbonate of soda and sulphate of iron, of each 4 ozs.; powdered gentian root and foenugreek seed, of each, 3 ozs.; caryophyllis powdered, 2 oz. Mix ad give large tablespoonful 3 times a day.

No. 2—

Sulphate of iron and bicarbonate of soda, of each, 4 ozs.; foenugreek seed, ginger, nitrate of potash and nuxvomica, of each, 2 ozs. Mix and give tablespooonful

3 times a day. Should the animal be very feeble, the addition of quinine in proportion of 1 dram to each dose is good.

COUGH MIXTURE.

No. 1—

Calomel, digitalis, opium and camphor, of each, 1 oz.; powdered belladonna leaves, 2 drams. Mix and divide into 8 powders; give one every day. Should it be necessary to continue longer than 8 days, leave off the calomel.

No. 2—

Tincture aconite root and tincture gelsemium, of each, 1 oz.; tincture digitalis and tincture belladonna, of each, 2 ozs.; camphorated tincture of opium, 4 ozs. Mix, give tablespoonful 3 times daily.

No 3—

Oil tar, tablespoonful 3 times daily.

DIARRHOEA MIXTURE.

No. 1—

Camphorated tincture opium, 8 ozs.; subgallate of bismuth, 1 oz. Mix, shake and give 3 tablespoonfuls every hour until checked.

No. 2—

Substitute subnitrate of bismuth for the subgallate and give the same way.

FOR SCRATCHES AND GREASE HEEL.

No. 1—

Glycerine, 8 ozs.; carbolic acid, 1 oz. Mix, shake and apply once a day.

No. 2—

Pure white lead, mixed with oil. Apply once daily.

PURGATIVE BALL.

Barbadoes aloes, 6 to 8 drams; ginger powdered, 3 drams. Make into a ball, give at once.

FOR MENINGITIS AND OTHER BRAIN AFFECTIONS.

2 grains each of pilocarpine and eserine, hypodermically; give by mouth, 1 oz. aloes and 30 grains calomel, made in to a ball.

COMBINATION SYSTEM OF HORSE TRAINING.

A system by which we readily break, tame or train the wildest or most vicious horse or mule and subject them to the will of man through the medium of the reasoning faculties. A system by which we may cure the most vicious horses of the habits of balking or kicking; also the habit of shying, running away, pulling at the halter, jumping fences, or pitching under the saddle; it will enable any one to ride any horse or mule without saddle or bridle with perfect safety; also to drive without bridle or lines. But we will first consider the management of colts, as we think it advisable to learn the colt that there is some restraint upon him; take him and learn him the performance of his duties as he grows up, learn him strict obedience to your commands and by the time he is old enough to ride or work, he has become familiar with you and you have gradually familiarized him with the halter, bridle, saddle, and harness and he is ready to be put to work without trouble. When he is five or six months old, he should be learned to lead and to stand tied with a halter and to submit to being handled and

to be quiet and gentle, and if we properly manage him the task is very easy.

How to Manage the Colt.

Turn him into an enclosure fifteen or twenty feet wide and twenty-five or thirty long, have him loose; it is now necessary to have his strict attention in order to learn him what we expect him to do, and if we fail to do this, we will fail to learn him the lesson we wish, just as we fail to learn the child, when we are unable to keep his mind upon the matter we wish to impress upon him; and in order to get his attention the operator now goes into the enclosure with the animal and if it has never been handled it will at once try to get as far away from the trainer as possible; he must be provided with a long keen whip and when the colt turns the heels to him use the whip sharply about the hind legs, this will cause the colt to turn his head to his trainer to investigate the cause, then it is the duty of the trainer to approach him quietly with the hand extended, should the colt turn away from him he should use the whip as before, then again attempt to approach him. Continue this until you can get your hand upon him, then rub and caress him until he loses his fear, then step quietly back from him (keeping the face to him) and tell him to come on and if he does not do so, reach back and tap him lightly on the hind parts with the whip, this will cause him to start toward you, then approach him and caress him to make him understand that he has done what you wished him to do; repeat this a few times and he will follow after you wherever you go, and you have him virtually halter broke before you put a halter on him, but now have a good

leather halter that will fit his head nicely and comfortably, put it on him and lead him about, turning him first one way and then another until he becomes used to the halter, then tie him and walk away, leaving him alone for a while and he, by having become used to yielding to the pressure of the halter while you were leading him, will hardly ever try to pull loose; he may now be handled a little every day, lead him to water each day until he becomes thoroughly acquainted with you and your mode of handling him. Keep him gentle by frequent handling and when he is old enough to work he will have become so accustomed to being handled he will very seldom resist you if he understands your wishes.

How to Manage the Wild or Vicious Horse.

This is a question of much import to people generally, as there are such vast numbers of horses sold throughout the United States that have been raised on the western ranges; they are, many of them, getting quite old before they are ever handled and they are, of course, very wild, and unless properly handled they exhibit such a degree of viciousness that they are seldom made trustworthy; but if properly managed are perfectly kind and tractable. If we have such an animal to contend with, we place him in an enclosure the same as we would the colt and of course when we enter it with him he is almost wild with fright, and we must be very quiet with him, tap him gently around the hind legs with your whip and when he turns the head to you step gently toward him with one hand extended, always remembering to keep the hand perfectly quiet, so as to avoid frightening him any more than you are compelled to do; if he turns

away, do not fail to use the whip as directed, and he very soon turns back; now attempt to again approach him, and when you once get the hand on him, rub him until he will submit to it quietly, then pat him gently with quick, light strokes. When he is quiet under these circumstances, rub gently from the shoulder down on the front leg, and if he cannot bear this, return to the neck or shoulder and work back gently; keep repeating this quietly until you can rub him clear down to his foot. Do not be impatient, but continue your caresses until he is perfectly easy in your presence and the eyes lose their look of excitement. Now step away from him and tell him to com to you, and at the same time touch him lightly with the whip behind; should he make a move toward you, command him to stop; go up to him quietly and repeat your caresses. Then repeat the operation until he will follow you in any direction. Always be very careful to avoid striking the animal about the head, as that would only repel him, and he would never comprehend your wishes toward him. The next step is to learn him the meaning of the command to stop, and at the same time to learn him that he must obey that command; the latter you cannot teach him in many days with no other means than the bridle or halter, as he can go either ahead or sideways; consequently, we must have a mechanical advantage whereby we may at once compel him to stop instantly when he is commanded, and for this purpose we have a leather belt, made in two pieces, the lower piece or the part intended to work under the belly, is forty-two inches long and three inches wide, having a buckle attached to each end. Now attach

a ring two or three inches in diameter to the center and crossways of the strap on what will be the outside when placed on the horse; secure one eight inches distant on each side of the first one, but place them longways of the strap. Now take another strap three feet in length and make it to buckle to the first one at each end. Then have two small straps long enough to go around the front limb between the hoof and the fetlock joint; put them quietly in place and buckle them; pass a small rope through one of the outside rings in the belt, down through the ring at the foot (on the same side), bring it up and pass through the center ring, now down through the ring at the other foot, then up through and tie in the outside ring in the belt. It now assumes the shape of the letter "w." Now by taking hold of the loose end of the rope you may stop him immediately by bringing a few pounds of pressure on the rope. Always give him the command to stop and at the same time pull the rope; if he does not immediately obey, his feet are taken up and he falls on his knees, but the feet being pulled straight up, there is no danger straining the animal in any way. Hold him until he becomes quiet, then go to him and caress and reassure him, so that he will understand that when you command him to stop he must do so and keep quiet, and that when he does this he will be protected and kindly treated; when he is in this condition, handle him all over, but do it quietly and gently. Should he make any vicious movements, pull the rope and let him fall; he soon sees that the only danger he incurs is by trying to get away and he is soon perfectly quiet; wrap the rope all about the hind legs and if he resists it in any way, pull the rope

and again let him fall to his knees. Keep repeating this until he will stand it and be perfectly quiet. You may now safely mount him, but always keep a firm hold of the rope; jump onto him quietly, then get down; repeat this two or three times, for the purpose of getting him accustomed to your motion and appearance on his back. Should he move, command him to stop and at the same time pull the rope and compel him to do so. Now have an assistant to take the whip and step in front of him and tell him to come; he will start off to follow the assistant, and when he gets to moving quietly you may safely get down and take off all of the hampers and ride him without anything on him. He is now perfectly gentle in the enclosure, but if you take him outside to ride, he may conclude he is at liberty and try to get away, and it should be the object of the trainer never to allow the animal to gain a point, and for this reason it is always advisable to have the belt and foot rope on him when first taken out; ride him a short distance with this on, and if he shows any disposition whatever to pitch, remember to command him to stop and at the same time pull the rope and compel him to obey the command. He soon understands that you can control him as well outside as in, and he will not again attempt it. When you harness him and hitch him to a buggy or wagon, he is more than likely to become frightened at the rattle of the vehicle, and if he attempts to get away, control him just as you did in riding, but never fail to go to him and reassure him when he becomes quiet. He will soon be so you can take all off but his harness and drive him with safety; he has come to the conclusion that while you are his master in

all respects, you are his protector in all things, if he does not attempt to get away from you, and he is then punished by his efforts to leave you. If you have hitched him alone he will not know what you expect of him, and you must show him. In order to do this, step up to his shoulders, take hold of the collar and push him gently from you and then pull him toward you; get him to move in this way, then step out in front of him and tell him to come and he will follow you. When he sees that you wish him to go and to pull, he is willing to do so and you may gradually drop back and at the same time guide the animal by use of the lines. Should he attempt to turn around, do not try to hold him by steady pulling on the line, for if you do he will simply turn the head and go the way he started in spite of all your efforts to the contrary, but if you will pull the line with a quick, light jerk and let it loose, he will almost invariably obey it. Should you hitch him by the side of another horse (which is always advisable) be very quiet in starting him off, for he is unaccustomed to loading and if the collar should be pulled suddenly upon his neck, he is more than likely to resist it, and pull backward and throw himself. Should he do this, do not try to force him to get up while he is hitched, for if he finds himself hampered he will not try to get up; go quietly and unhitch the traces, lines and breast-yoke, so that there will be nothing to hinder him. Now command him to get up, and if he does not do so, strike him lightly on the end of the nose with a light, keen whip and he will jump to his feet now refasten the breast-yoke and lines; start the gentle horse toward the young one and get him on a circle; turn them first one

way and then the other; if the young horse does not move fast enough, tap him lightly with the whip, until you can move him in any direction. You may then hitch him again to the wagon and drive him off without any trouble. Never load too heavily when your animal is unaccustomed to work; if you are in no hurry for the services of the horse, a good plan to accustom him to pulling is to put the harness on him and place him in a stall where he cannot turn around. Have a post set in the ground directly behind him, with an open pulley about three feet from the ground. Now attach a singletree to the traces; have a rope attached to its center; run the rope over the pulley and fasten two or three hundred pounds to the end of it; tie the animal to the manger with a halter long enough to allow him to step back until the weight on the end of the rope will rest on the ground; place his feed and water in the manger and go away and leave him alone; after a while he gets to reaching after the feed; he finds he can move the weight and he raises it and stands and holds it while he eats; thus gradually becoming used to the pressure of the collar and when you see he lifts this weight readily, keep adding more from time to time until at the end of a few days your horse has learned to draw a heavy load and he has learned it so gradually and quietly, he does not realize that he is working, and when you hitch him up he does not chafe and fret about the pressure on his shoulders and if you wish to stop him in going up hill with a loaded wagon, he will stand and hold it; something he learned while holding the weight in the stall.

How to Manage the Runaway Horse.

We handle him just as we do the wild horse in the first place; we then put our belt and foot rope on him and hitch him, and when we tell him to stop we compel him to do so or fall, until no difference how fast his speed, he will stop instantly at the command and stand perfectly quiet until commanded to go on. The horse that is inclined to shy and become frightened at every object he sees, is treated in the same manner; we frighten him with anything that will accomplish the purpose, but keep hold of the rope and if he tries to run, command him to stop and at the same time pull on the rope and let him fall and when he becomes quiet, caress him. Keep on repeating these maneuvers until he learns that the only danger to him is in trying to get away; that when he keeps quiet you always protect him and treat him kindly; you thus gain the confidence of the horse and as long as you are with him he feels no fear; sometimes we have a horse that is a good saddle animal if we can mount him, but the moment we attempt this he will spring away and it is almost impossible to get into the saddle, for such a horse we simply put the belt and foot rope on him and hold the rope when we wish to mount and when he makes his spring we drop him to his knees; repeat this a few times and he will never try that trick again.

How to Manage the Kicking Horse.

Handle the animal in the first place as we direct to handle the wild or running horse; when you have the belt and foot rope on him, place a strap with ring, on the hind feet in the manner directed for casting, now have a

half-inch cotton rope twenty-five or thirty feet in length, double it in the middle and tie a square knot to form a loop six or eight inches long, now tie another knot eighteen or twenty inches from the first, according to the length of the animal's head, slip the first loop into the mouth and around the upper jaw so the knot will rest against the front of the nose, bring the rope up between the ears and let the other knot rest on the top of the head just behind the ears, bring one end down on one side of the head and the other end on the other side, bring the two together under the throat and twist them two or three times together, now bring one end through the loop that goes in the mouth and the other end through the loop on the other side of the mouth, always bring them through from the back side of the loop. This is what we call our kicking bridle (by the way, it is the best bridle we can use for handling the young horse); pass the end of the rope back through the upper ring of the belt on the same side and back through the ring at the hind foot and fasten it; arrange the rope on the opposite side in the same manner; it is now the object to compel the animal to kick and let him see the evil of it. The surest way to accomplish this is to pass a rope around the flanks in a noose and pull it quickly; this will cause the animal to kick violently and every time he does he gets the effect on the front of the nose; it does not hurt the mouth, as the rope runs straight through; thus throwing the pressure on the nose. When he ceases to kick at this, pass the rope between the hind legs and pull it about the legs, continue this treatment until he will not kick at anything, then remove the kicking bridle, but retain the

belt and front foot rope and allow him to walk about ; at the same time draw the rope about the flanks and hind legs. Should he attempt to kick pull the belt rope and let him fall ; continue this until he will not attempt it under any circumstances, then when he has ceased kicking, go to him and caress and treat him kindly, thus making him understand that when he kicks he is always punished by his own actions and when he does not, he is protected. There is hardly any horse that will ever again attempt to kick under any circumstances, but should the animal be extraordinarily vicious, it is advisable to repeat the process in a day or two. After that he is safe anywhere ; but always, as in the case of wild horses, hitch him up at the commencement with the belt and foot rope, as he is liable to think when you take him out of the enclosure he is at liberty and it is our object to never allow him to gain a single point in disobedience of our wishes. Should he possibly make an effort to kick, pull the foot rope and let him fall, and he at once sees it is worse than folly, but this is not always convenient and we must have a means of preventing the animal from kicking. In such cases secure an iron ring to the crupper strap just where the hip straps come across the hips, put on what is called a gag ring bridle, in other words, a bridle having loops on each side of the head-stall used to pass the bridle reins through, now take a small rope and secure one end to the ring of the bit, run the other end through the loop at the top of the bridle and back through the line ring on the back band, then through the ring on the crupper strap ; put another rope on the opposite side in the same manner ; bring the end of the first

one down across the hip to the shaft on the same side, the other side in the same manner; now draw the animal's head as high as he can carry it and travel conveniently, and secure the ropes to the shafts, being careful to have the shafts well fastened down in front and it is impossible for the animal to kick up and hit the vehicle, as it is absolutely necessary for the animal to be able to throw the head down in order to raise the hind parts, and the ropes running from the bit up through the loops at the top of the bridle and back through the stationary ring at the hips, and the shafts being fastened down so they cannot raise, as a matter of course if the animal attempts to raise the hind parts, the ropes are pulled right through the ring and the result is that the head must raise up instead of dropping and the animal finds it impossible to raise up to kick. He can kick back with one foot at a time, but cannot kick high enough to hit the buggy or do any damage whatever.

How to Manage the Balky Horse.

This is something that requires some knowledge of the nature of the animal and some knowledge of the reasons for the difficulty in order to successfully overcome the habit. In the first place, there are various causes for this habit, sometimes it is the result of overloading and then trying to compel the animal to do what is not in his power to do, at other times the animal chafes and frets on account of injudicious management in other ways, such as jerking, whipping, etc.; and after the animal has learned that by a little resistance (even after he fully comprehends what you wish him to do), he will not attempt it; he will

obey you under ordinary circumstances, but when you place him under difficulties he absolutely refuses to obey you; he has conceived the idea that you cannot compel him to move; well it must be our aim to teach him that, no difference how great the difficulty, he must obey or at least make the attempt and we must also dispel the idea that we are unable to move him; in the first place, we handle him just the same as the wild one or the kicker, that is learn him to follow at our bidding and to do it promptly with no hesitation whatever. When this is accomplished we must place him under difficulties and learn him prompt obedience in that; in order to do this, we put the kicking bridle on him in the same manner we do with the kicker, only we tie the head back very close and make it almost impossible for him to travel at all; we now step in front of him with the whip and command him to come. If he refuses, we throw the whip back around the hind parts until he will come and come promptly and without the aid of the whip. You may now remove all of the rigs and hitch him up and he is ready to obey any command you give him, if he understands it, and this is one he does understand, but did not wish to obey. There is not one case in a hundred where he will again refuse after having been subjected to this treatment, but if he should possibly do so, unhitch him and replace the kicking bridle, tie him still shorter, be more severe and make him more prompt in his obedience and he will never refuse again unless he is abused and forced into rebellion.

We cannot always have the means at our command to do this, as we are liable to buy or trade for a balky horse at a nytime and we must be able to drive him to our desti-

nation and unless we convince him that we are able to compel him to move without any exertion upon our own part, we will fail to drive him. All we have to do in order to accomplish this is to unhitch him and take him to a piece of level ground, tie a knot in the tail, run the bridle or halter rein through the knot and draw the head around to one side and fasten it there and when you let loose of him, the position in which he stands will compel him to turn around in a circle; if he does not move fast enough, tap him with the whip occasionally; he will probably fall in a few minutes, but if he does, he will fall the opposite way from which his head is turned and will do himself no injury. He knew what you wished him to do, but did not wish to do it, and thought you were unable to compel him to move, but you have shown him conclusively that you can make him do so, and he would rather move in any other way than the one in which you have compelled him to do, and when you unfasten him and allow him to get up, he is more than willing, he is anxious to go in any direction you wish him, rather than submit to the same process again; you may subject him to this treatment today and you may have to repeat it tomorrow, but when the animal learns that every time he refuses to go he will be treated in the same manner, he will give you no further trouble. This works equally as well whether the animal balks either in single or double harness, or under the saddle. There is another method we have of starting the balky horse in double harness and that is to take a small seagrass rope about three-sixteenths of an inch in diameter, double it in the middle and put it under the tail, cross the two ends over the back,

bring them forward through the rings at the loggerhead to keep them in place and tie them to the end of the tongue, having the balky horse a little in advance of his fellow, now start the true horse quickly and this brings the pressure to bear underneath the tail, where he can stand but little pressure and he immediately moves on and being in the lead is compelled to pull; he may attempt to kick, but in order to do so, is compelled to slacken his pace, which is the worst thing he could attempt, as it makes the punishment more severe, which he very soon learns, and he will get up in the collar and remain there as long as the rope is on him; two or three days work with it will effectually break any horse of the habit of balking.

In order to break the horse from pulling at the halter, we use the rope in the same way, except we run the ends through the rings of the bridle bits or the halter and tie by the ends of the rope, and when he runs back he is taken by surprise, as well as being caused considerable pain, and he quickly jumps forward, when the pressure is relieved; he may try this two or three times and when he finds the punishment is inevitable when he pulls, and relief is certain if he does not, he cannot under any circumstances be induced to again attempt it; but always try him both in the barn and out of it, and you will cure him of this unprofitable prank. By the same process you can lead the colt or wildest horse, and when broken to lead in this way, he will always lead promptly, without having to be pulled along by sheer force.

How to Manage the Jumping Horse.

The jumping horse may be effectually broken of the habit by placing about the body a strap, then place upon each foot, in front and behind, a small strap with ring attached, take a small rope, tie to the ring of front foot, pass back between the body and strap, and tie to the ring at hind foot on same side, leaving no slack in the rope when the horse stands naturally; then arrange the other side in the same way; he can now walk or trot with perfect freedom, from the fact that in both gaits he moves the hind and front foot on one side simultaneously, but he cannot run or jump, because he moves both front feet together, thus throwing the hind feet at an angle backward and increasing the distance from one to the other and instead of being able to throw the front feet forward, the ropes draw the front feet back and up to the strap around his body, and brings him to his knees, a few efforts will make him afraid to attempt it. If he is inclined to push the fence down, put the girth on in the same manner as before, place a halter on his head, bring the halter rein between the front legs and through the girth, carry it back to one hind foot and tie in strap previously placed upon it, drawing his head low enough to prevent putting it over the fence, he will not push it with his head and being unable to get the head over to push with the breast, he may attempt to jump, but as in the other case, if he attempts to rear up the hind foot to which the head is tied must assume the backward angle and pulls the head down, thus effectually preventing either pushing or jumping.

How to Teach a Horse to Drive Without Bridle or Lines.

First, carry him through the same course advised in the handling of the wild horse; learn him strict obedience, especially to the command to stop, and to do it instantly; then by the use of the lines, learn him to follow the motion of the whip or the hand, continue this until he learns it perfectly; then hitch him to a two-wheeled cart, having the belt and foot ropes on him; drive him about, guiding him by the motion of the whip in any direction you choose. Be very thorough in all your discipline; then remove bridle and lines, but still retain the belt and foot rope; should he show the least disposition to run, or disobey when commanded to stop, pull the rope and bring him to his knees. Be sure of absolute and certain obedience before you remove the belt and ropes. Remember to be thorough and do not be in too much of a hurry, for in this feat very much depends on how well you have learned him his lesson of obedience. Learn him to be ridden without bridle, in the same way.

How to Teach Him to Lie Down.

Put the belt and foot rope on him; take up the foot on the opposite side from you; hold it up by tightening the rope; tap him on the leg next to you with a whip or switch, until he moves the foot, then tighten the rope and pick up the foot and hold it. This brings him to his knees; hold him in that position until he drops the hind parts. Then caress and reward him; let him up and repeat the lesson. Continue this from day to day, and you soon teach him to lie down by tapping him on the leg and giving the command. By a little further perseverance, he

will readily obey the command without the use of the switch or whip.

How to Teach Him to Kneel for You to Mount.

Pursue the same course, except that you must not keep him on his knees long enough to make him lie entirely down.

How to Teach Him to Sit on His Haunches.

First, teach him to obey instantly the command to stop; then make him lie down; then make him get up on the front feet and command him to stop; should he not do so, place a strap with ring attached around each hind pastern joint; have a rope with loop in the middle, slip loop over his head, bring the ends back and run one end through the ring at one hind foot and the other end through the ring at the opposite foot and back through the loop at the neck. Now step behind him with the ends of the rope in your hand and command him to get up, when he gets the front feet out ready to raise the hind parts, command him to stop and at the same instant pull your rope sufficiently tight to keep him from raising the hind parts. Keep repeating until he learns to do your wishes at your command.

How to Teach Him to Answer Questions by Motions of the Head.

If you wish an affirmative answer to any question you may ask him, prick him on the breast with a pin or needle and he will nod the head in the direction of the annoyance; when he does this, caress him and show him that is what you wish him to do; continue these maneuvers

until he will nod the head by the movement of the hand in the direction of the breast. If you wish a negative answer, prick him about the point where the collar would strike the top of the neck, and he will shake the head to rid himself of the annoyance. Continue as long as necessary to learn him what is expected of him, and you may learn him to give an affirmative or a negative answer, just as you choose, by any sign or movement of the hand, provided you always give him the same sign for the same answer.

If the principles herein laid down are always employed, the horse may be taught any trick that he is physically able to perform.

INDEX TO CONTENTS.

ABDOMINAL DROPSY...	35-112
Peritonitis...	112
Age of the Horse...	129
Big Head or Osteo Porosis...	125
BLADDER—Diseases of...	75
Inflammation of...	76
BOWELS—Diseases of...	19
Calculi of Intestines...	24
Colic, Flatulent...	21
Colic, Spasmodic...	19
Colon, Impaction of...	22
Constipation...	23
Diarrhoea...	29
Dysentery—Bloody Flux...	31
Enteritis...	26
Intussusception...	25
Piles—Haemorrhoids...	32
Volvulus...	26
Worms...	32
BRAIN, Diseases of...	59
Blind Staggers...	63
Coma, Sleepy Staggers...	66
Congestion of Megrims...	61
Meningitis...	63
Paralysis...	67-115
Sunstroke...	62
CHEST, Diseases of...	45
Asthma...	54
Cough...	56
Dropsy...	53
Heaves...	54
Thumps—Spasm of the Diaphragm...	46

Pleurisy...	51
Pneumonia...	47
DIAGNOSTIC SIGNS—Breathing...	6
Pulse...	3
Temperature...	5
DISTEMPER...	124
EYE, Diseases of the...	77
Amaurosis...	82
Conjunctivitis...	78
Lachrymal Duct...	77
Ophthalmia, External...	78
Ophthalmia, Internal...	79
Ophthalmia, Periodic...	80
FEVER, Catarrhal or Typhoid—Influenza...	117
Fever, Lung or Pneumonia...	47
Fistula, or Quittor of the Foot...	90
Fistula of the Withers...	108
Glanders, Acute...	121
HEART, Diseases of the...	56
Endocarditis...	58
Pericarditis...	56
Influenza, Typhoid or Catarrhal Fever...	117
Lameness...	82
Blood Spavin...	98
Bog Spavin...	97
Bone Spavin...	88
Canker of Feet...	85
Capped Elbow...	101
Capped Hock...	101
Capped Knee...	102
Cocked Ankles...	103
Contracted Feet...	93
Curb...	99
Elbow Joint...	106
Founder...	93
Gravel in Foot...	84
Grease Heel...	108

Hip Joint..	106
Knee Spring..	103
Nail Wounds..	93
Navicular..	96
Pumiced Feet..	96
Quarter Crack	91
Quittor or Fistula of the Foot...	90
Ringbone..	86
Rheumatism	116
Scratches..	107
Seedy Toe..	92
Sidebone..	97
Shoulder Joint	104
Splints..	87
Sprained Tendon.	99
Stifle Joint..	104
Stifle Joint, Dislocation of	105
Thoroughpin..	98
Thrush..	96
LARYNX and Trachea, Diseases of the..	36
Bronchitis..	31
Bronchitis, Chronic..	44
Choking..	41
Roaring..	38
Lockjaw or Tetanus	115
Lymphangitis..	67-68
Melanotic Tumors..	110
Miscellaneous Formulas..	129
MOUTH, Diseases of the...	6
Paralysis of the Pharynx...	7
Pharyngitis	7
Ptyalism	6
Salivation..	6
Nasal Gleet, Catarrh	113
OESOPHAGUS, Diseases of the...	8
Osteo Porosis or Big Head...	125
Poll Evil	109

Rabies, Hydrophobia	123
Rheumatic Fever.....	116
Sitfast.....	110
Spavin Blood	98
Spavin, Bog.....	97
Spavin, Bone.....	88
Strangles	124
STOMACH, Diseases of the.....	13
Bots.....	19
Calculi.....	24
Rupture of	17
Surfeit.....	111
System of Training	136-154
URINARY ORGANS, Diseases of the.....	70
Congestion of the Kidneys.	70
Inflammation of the Kidneys.....	72
Chronic Inflammation of the Kidneys..	73
Warts.....	110

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