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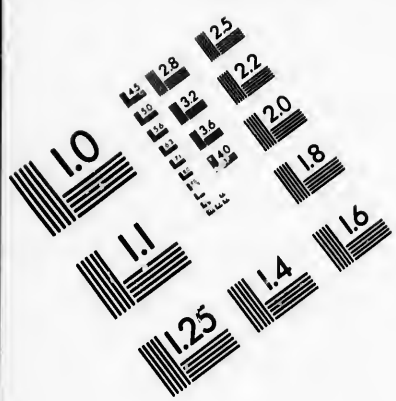

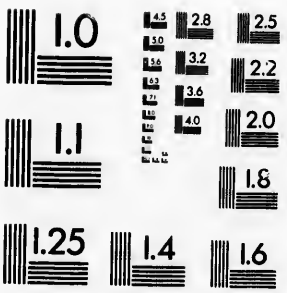

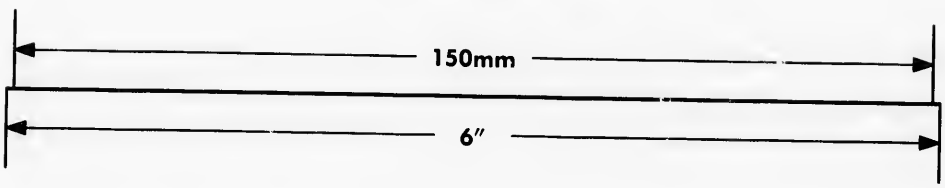

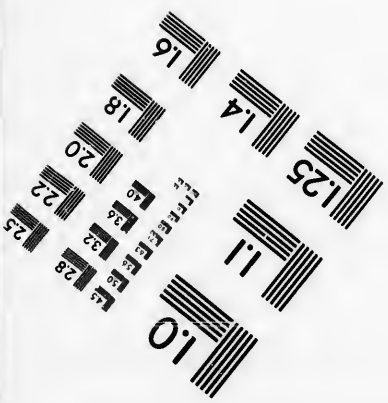

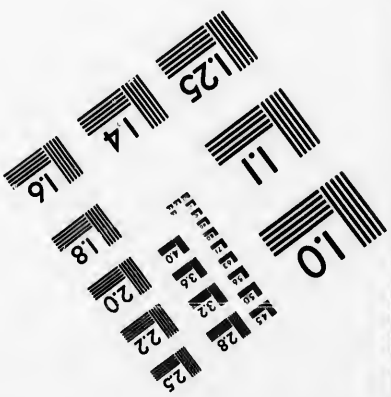

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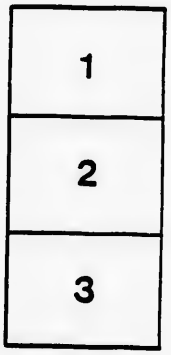

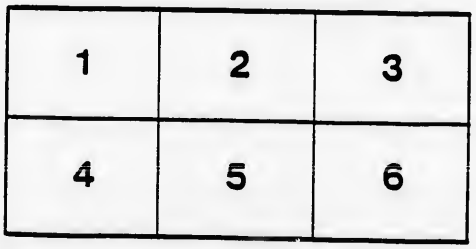

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TATTERSALL'S

MEDICAL AND SURGICAL TREATMENT

— OF —

DISEASED HORSES.

Written for Farmers and Horseowners Generally.

BY

STANLEY GEORGE TATTERSALL,

OF LONDON AND NEW YORK

(LATE R. N.)

VETERINARY SURGEON,

CANADIAN EDITION.

London, Ont.:

LONDON PRINTING AND LITHOGRAPHING CO.

1893.

TO

EDMUND. TATTERSALL, ESQ.,

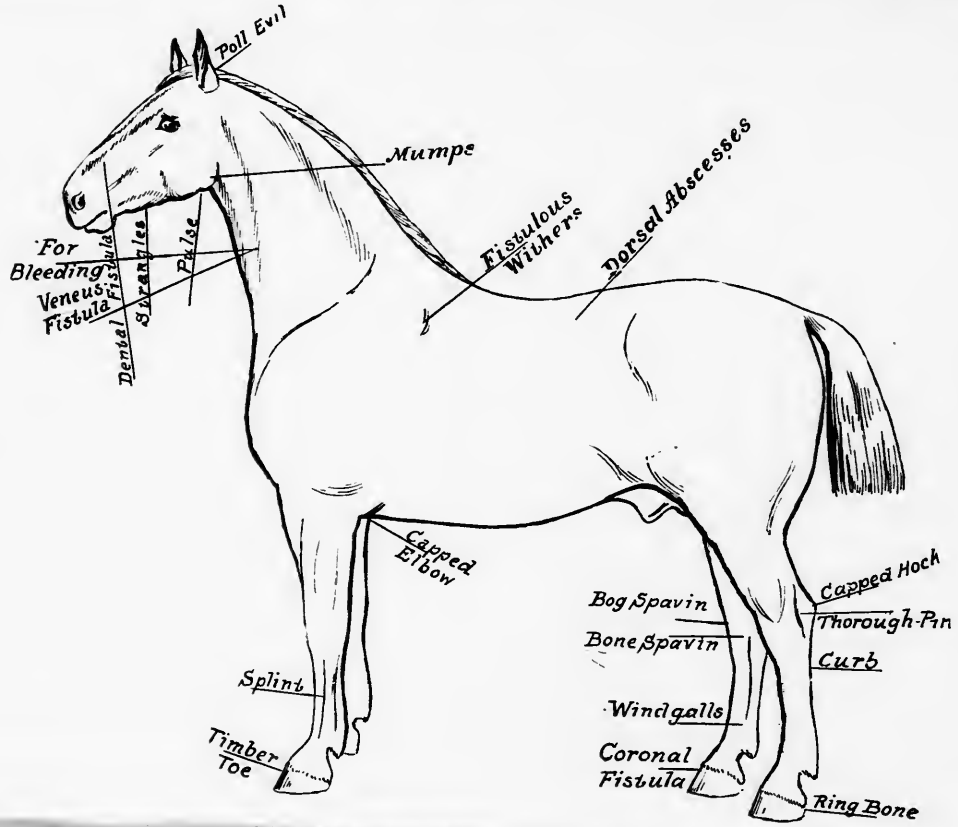
OF ALBERT GATE AND COLHERNE COURT, WEST KENSINGTON,

THIS WORK IS DEDICATED, IN LOVING REMEMBRANCE
OF ALL THE KIND AND AFFECTIONATE
ACTS DONE BY HIM TO

THE AUTHOR.

PREFACE.

It is the custom at present, especially in country districts, for many farmers and other owners of horses to attend to the lesser complaints and diseases of their own animals. This custom may be attributed to various causes: in many cases the distance to be traversed, in order to reach a veterinary surgeon, is one great reason, and this especially refers to such cases as Colic and other diseases which require to be treated immediately, in order to avert most serious consequences. This work is not, and does not pretend to be, scientific; therefore I hope it will be received by the more learned with the forbearance which is merited by such a plain and simple work. It is the result of over twenty-three years' practice, and all the remedies given have been personally tested over and over again by the author, with most satisfactory results, both to the patients and the owners. The author therefore hopes that it may be of service to those for whom it is written, and be equally beneficial to their animals, he being thoroughly convinced that it is honestly written for that purpose.


Poll Evil
Mumps
Fistulous Withers
Dorsal Abscesses
For Bleeding
Veneus Fistula
Dental Fistula
Strangles
Pulse
Capped Elbow
Capped Hock
Bog Spavin
Thorough-Pin
Bone Spavin
Curb
Splint
Windgalls
Timber Toe
Coronal Fistula
Ring Bone

CHAPTER I.

ABSCESSES.—POLL EVIL.—FISTULOUS WITHERS.—FISTULÆ.—ARTERIES.—APOPLEXY.—BRAIN.—BONES.—FRACTURES.

Abscesses are swellings accompanied by inflammation of the muscular or other tissues, and sometimes shew only as pustules on the skin; in fact, they have often been termed tumors, which definition, however, is not as accurate as it might be. Nevertheless, doubtless it is that both tumors as such and abscesses as such have their origin in the same predisposing cause. The impurity of the blood, combined either with local or general irritation, is the primary reason of these appearances. They are of two kinds—superficial, *i. e.*, on the surface of the tissues, as, for instance. Strangles or a badly treated wound, or deep-seated, as in Poll Evil or Fistulous Withers. A tumor may be described as a dead abscess, if the expression may be allowed; as in the abscess irritation continues and causes the discharge of pus (matter), so in the tumor, the irritation existing in the abscess having ceased, the parts become consolidated and the enlargement remains, although the connection with the general vitality of the system has disappeared.

Superficial Abscesses.—Of these may be named the abscess formed in Strangles, abscesses formed in the Alveolar process (teeth and gums), on the knee, along the back, in the sole of the foot, scrotum, etc. The pathology is the same, and the treatment of all should be conducted on the same principles.

Symptoms.—A soft and tender enlargement of the parts, accompanied by heat, and usually by general fever of the whole system, sometimes more intense than at other times, according as the patient is stronger or weaker when attacked.

Treatment.—Hot poultices, *frequently renewed*, or mild stimulating liniments. As soon as fluctuation (action of liquid) is detected, open the abscess with a sharp lancet or knife; then recommence poulticing, keeping the wound open until *all the matter is discharged.* Then heal up with a loose dressing, on a cloth, of carbolic acid (pure), two scruples; tinct. compound of aloes and myrrh, glycerine, one ounce each; water, one pint. Unless the matter is completely evacuated, although the wound will heal up, yet it will sooner or later break out again by the re-formation of pus.

Poll Evil consists in the first instance of a hot swelling situated on the top of the head, at the back of the ears, and more on one side than on the actual poll. It is caused by a blow of some description or other, and is troublesome to cure unless taken at the very outset, when sometimes, by the use of stimulating liniments, resolution can be produced and there is an end of the matter. The general case is that the matter is overlooked until the abscess bursts of itself, by which time the pus has, for want of an outlet, burrowed downwards, forming sinuses (pipes) in its journey.

Treatment.—Directly the abscess is soft and the fluctuating sensation is to be felt, open the enlargement on the lower side, pass a seton needle armed with tape through the top of the swelling, bringing it out through a depending opening made by the knife ; move the tapes backwards and forwards at least three times a day, and dress the tapes with lard three parts, turpentine and savin one part (melt together); then pass a probe into the wound above, and in all probability the probe will pass into two or three different passages,—if not, all right. If it does so, then take a small glass syringe and inject about a teaspoonful or two of the following into the wound :—Carbolic acid, pure, two parts ; glycerine, one part ; hydrochloric acid, one part; water, fifteen parts. Stop all grain, and feed bran mashes and hay. It is well also to give powders of carbonate of iron two parts, gentian one part, golden seal one part, sulphur two parts, and liquorice root six parts. Dose, half ounce three times a day. This is always a troublesome disease, and generally, on account of the time it takes to cure it, is a cause of dissatisfaction to both the surgeon and the owner.

Fistulous Withers.—*Cause.*—The general cause of this disorder is to be attributed to the continuous bumping pressure of a bad fitting saddle. Consequently the disease is generally confined to saddle horses. Like Poll Evil, also, the cases are mostly to be found amongst the coarser breeds of horses.

Symptoms.—Tender enlargement in the neighborhood of the withers. This complaint when taken at the outset may invariably be cured by the use of *repellents*, such as sal ammoniac four ounces, acetate of lead one ounce, vinegar one pint. Apply this continually to the enlargement by keeping on cloths wet with the lotion, and at the same time give a dose of physic, such as linseed oil one pint, powdered aloes six drams, oil of juniper one dram, tincture of capsicum one dram, and feed bran mashes. Once for all, I may here say that when a purge of oil and aloes is

prescribed in this book, the understanding is that the powdered aloes shall not be added to the oil until the horse's head has been raised for the purpose of giving the medicine. If the aloes is added to the oil any length of time before administration, it goes to the bottom, forms a gluey substance, and is of no use whatever. Repellents, however, are of no use unless used at once. The continual bumping of an ill-fitting saddle will necessarily cause continual irritation; pus is formed and forces its way downwards, forming sinuses (pipes) as it goes. The treatment must in this case be the same as advised in Poll Evil. All sinuses must be laid bare with the knife, and injected or dressed as in Poll Evil, and care must be taken to make the incisions longitudinally, otherwise serious injury may occur to the ligaments and muscles, resulting in some cases in the permanent disability of the animal.

Fistula in the Scrotum (testicle bag).—*Causes.*—Castration improperly performed or improperly attended to.

Symptoms.—Formation of pus and sinuses.

Treatment.—Same as in Fistulous Withers.

Coronary Fistula is a fistula forming on the coronet of the horse's foot and frequently extending to the sole, the usual cause being a badly treated corn or the pressure of gravel. This must be treated by injections as advised in other fistulæ.

Venous Fistula.—This is caused by clumsiness in the operator during the performance of the act of phlebotomy (bleeding). Fortunately for the animal, whenever the vein is injured to such a degree as to render it impotent to perform its proper functions, the circulation is carried on in much the same manner as before through the vein finding new passages by ramification.

Symptoms.—Much the same as in all fistulæ, a small lump appears over the seat of injury and the same unhealthy process is set up, first symptoms being a thin, humorous discharge from the opening in the centre of the tumor.

Treatment.—The same as described for other Fistulæ.

Fistula of the Hoof (Coronal Fistula, Quittor).—This is generally caused by a blow or bruise, accompanied by a more or less morbid condition of the blood, and unless attended to in the first instance is liable to produce a morbid alteration in the whole structure of the foot. Suppuration from a badly treated corn will produce it, as will also gravel or sand in the hoof.

Symptoms.—Small swelling on the front of the foot where the horn and hair meet.

Treatment.—Probe thoroughly and inject at the coronet; if it is found that the sinuses have formed downwards, make an opening in the sole to meet them, so that the discharge may be drained off.

Fistula of Anus is not frequent; is sometimes caused by the operator making the incision for docking too close to the anus.

The Treatment.—Same as other Fistulæ.

Fistula of the Jaw, Dental Fistula and **Salivary Fistula** all explain themselves by their names, and the treatment is the same as in other cases of Fistulæ.

Here we take occasion to warn our readers that the "blood is the life", and therefore to impress upon them the necessity of keeping the circulation free and the blood pure; unless this is attended to, a cure will never be effectually performed.

Arteries, *Injuries to.*—Superficial arteries are subject to injuries, such as lacerations and contusions. In cases of violent contusions, the result may be an aneurism, which is an enlargement of the arterial coats and a consequent interference with the circulation of the blood. In the cases of aneurism of the larger arteries, such, for instance, as the Aorta, the consequences are, sooner or later, fatal. In cases of laceration, rupture, or the cutting of an external artery, which are not at all uncommon, the remedy is to take up the artery by tying it with waxed silk or thread, when the blood by the action of endosmose will find other channels. Too much attention cannot be given to expedition in these cases, as it is very astonishing to some people to see such a large animal so soon affected by what appears to them to be such a little loss of blood. The artery spirts its blood at regular intervals, whereas the blood from the vein flows regularly. Arterial blood is a light scarlet; venous blood, however, is of a darker color, and generally of a thicker consistency. After death arteries may be identified by their retaining their circular or tubular forms, whereas the veins are collapsed in the dead subject.

Apoplexy.—This disease is usually found in young horses, who have short necks and who are too fat. It is evidently a rush and accumulation of blood in the head. A tight-bearing rein often conduces to this attack. This is on account of its so drawing the head back from its natural position that the freedom of the circulation is interfered with. It is also

caused by excessive feeding of heating food, combined with want of the exercise. Bloating of the bowels, excessive exertion in hot weather, exposure to a hot sun, and sudden changes from heat to cold, will also produce it.

Symptoms.—Faintness ; running round and round, like a dog when he is going to lie down ; unconsciousness, and hanging the head on the manger. These, combined with perspiration, irregularity of the pulse, red and protruding eyes, with short and labored breathing, are the symptoms ; sometimes also there is paralysis of the eyelids.

Treatment.—If in harness, loosen all parts thereof, and place the head high on a truss of straw, or anything that is handy. Take from four to six quarts of blood from the jugular vein, and apply ice or cold water to the head and neck ; give, also, tincture of aconite ten drops, sweet spirits of nitre one ounce, aromatic spirits of ammonia six drams, water half a pint. Repeat this dose every half hour until the symptoms have disappeared. Do not work the horse for a week after the attack ; give him two hours' exercise daily, and feed bran mashes with scalded oats.

Brain, *Inflammation of.*—This is caused, generally speaking, by blows or other violent concussions. When thoroughly set in there is very little hope of doing any good for the patient. If anything is to be done, the chief reliance must be placed upon bleeding and cold applications to the head. Generally, however, the horse in such cases is quite unapproachable, and the best remedy for the safety of all is to put an end to the animal's existence, as he is very dangerous. Sometimes, nevertheless, the patient, especially in the first approach of the disease, becomes comatose (unconscious), in which case excessive bleeding and cold applications to the head are the only remedies. Should this treatment succeed, the animal must be turned out for at least three months, and great precautions must be taken. Excessive work and all excitement must be forbidden, and his feed must be reduced, bran mashes being fed at least three times a week. It is not advisable, however, to keep a horse that has had such an attack, and he should be disposed of.

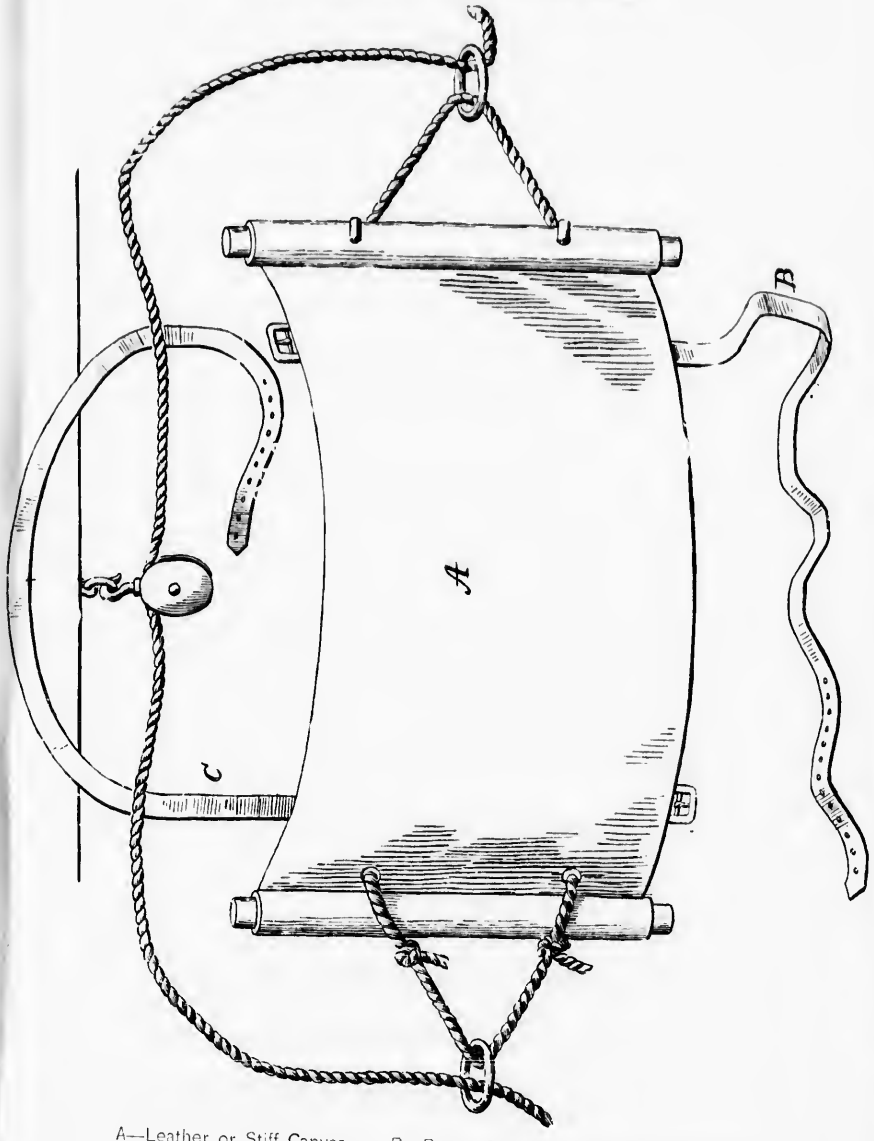
Bones, *Injuries to.*—Amongst the diseases the bones are subject to, the following may be mentioned :—Fractures, caries, necrosis, and softening of the substance. *Fractures* are of three kinds, namely, simple, compound, and compound comminuted. *The Simple Fracture* is that in

which the bone has been broken without breaking the skin, and where the bone has not been splintered. *The Compound Fracture* is when the bone has been broken and the skin also. *The Compound Comminuted* is that in which not only has the bone and skin been broken, but when the bone has also been splintered. In speaking of fractures, the treatment is the same in all, with the exception of fracture and sometimes depression of the skull, which will be mentioned separately.

Treatment.—Only a few years ago, whenever a horse, cow or dog broke his leg, the fashion was to kill him, no matter in what situation the fracture was. Now, unless in exceptional cases, there is no excuse for doing any such thing. In the case of a simple fracture, the first thing to do is to make a thorough examination and find out the exact manner in which the bone is broken. Having ascertained this, make a plaster of Paris paste. Take two squares of linen and make small pads of same stuff to fit over the fracture. Then sling the horse. Now plaster the paste on some linen bandages, and having put the pads over the fracture secure them with the dry linen. Then bandage with the plaster of Paris bandages, after having, of course, brought the two ends of the factured bone in exact opposition. It is best to sling the animal in a stable with an earthen floor, as then a hole can be made under the injured limb. The horse should be lowered every day or so, but the strain on the slings should not be taken off. The injured bone will unite in about six weeks, and the only further treatment is frequent applications of ice or cold water at the point of union.

Compound Fracture.—Here the skin is broken also; the first indication, then, is to cleanse the wound and ascertain that the bone is not splintered. In some respects these cases come out even better than a simple fracture. The operator is able, generally, to see the fracture, which he cannot do in a simple fracture. He can, therefore, bring the bone exactly into its proper place, whereas, in simple fracture he has to rely on his sense of feeling. The bone must be set as indicated in the case of simple fracture, and the wound, after being properly cleansed, should be dressed with a lotion composed of carbolic acid one scruple, glycerine one ounce, water eight ounces. A cloth wet with this should be left on underneath the plaster of Paris bandage, and it can generally be contrived that a portion of the healing lotion may be poured down so as to saturate the bandages; otherwise an open bandage must be contrived, in which case proper professional advice had better be obtained.

SLINGS FOR HORSE.



A—Leather or Stiff Canvas B—Breast Strap. C—Quarter Strap.

Compound Comminuted Fracture.—In this case, in addition to the laceration of the skin, the bone has not only been broken, but splintered, and what are termed "spiculæ", or sharp pieces of the bone, have become detached from, or loosened on, the bone itself. The flesh must be laid open until all the splintered part is exposed to view. The splinters must be removed or detached, and the bone brought to a smooth condition. The treatment then is the same as in a compound fracture. Of course, if the bone is much broken up, the only remedy would be amputation, which in a horse would be useless, unless, indeed, it might be in the case of a valuable racing brood mare. In cases of valuable cows, amputation has been performed, and a leg of wood adapted to the animal. The cow soon accustoms herself to the new conditions, and remains of use for breeding purposes and for milk. As this has been successfully done in the case of cattle, there seems to be no reason why it should not be done in the case of a mare whose progeny would command large sums of money, and more especially if the injury should have occurred to the forelegs. It may here be remarked that in setting the simple fracture in the hind legs of a horse, although unification of the bone will take place, yet the leg, through the abnormal contraction of the ligaments, will generally be slightly shorter than the sound ones. In case of a fracture of the bone or bones above the hock, the result of reducing the fracture is almost always unsatisfactory.

Fracture of the Skull.—This is brought on generally by horses running away and coming in contact with a wall or some other hard substance; although, cases have occurred where it has been produced by a blow. In most cases coma (unconsciousness) is immediately apparent, owing to the part struck being broken in and consequently pressing upon the brain. Here is a case in which it is necessary to call in a skillful practitioner, who will perform the operation of trephining. This is done by using a small instrument like an auger, with which a small circular piece of bone is cut out from the skull at a small distance from the injured part; then an instrument, known as an elevator, is introduced, and the part of the bony covering which is pressing on the brain is lifted to its proper level. If the bone is splintered, all the pieces must be removed and a plate inserted. In some cases, however, the skin will grow thickly over the *dura mater*, and the only thing needful is to keep it covered and properly dressed with cold water cloths until such growth has ensued.

CHAPTER II.

BROKEN KNEES.—BROKEN HEART.—BLADDER.—BROKEN WIND.—BASTARD STRANGLES.—BRONCHITIS.—BLOODY URINE.—BLOODLESSNESS.

Broken Knees.—A very common occurrence in England, though not so common in America or the Colonies,—the reason why, I know not.

Cause, Stumbling and Falling.—There are two kinds of wounds caused by broken knees; one is where the wound is simply flesh deep, and the other where, through falling on a stone or some other sharp substance, the joint has been pierced, and consequently the synovial membrane (containing what is called vulgarly the joint oil) is ruptured, and the synovia (joint oil), which is placed at the articulation of all bones for the purpose of lubrication, escapes; this is termed open joint. Horses in stumbling endeavor to save their head by the intervention of the forelegs, which suffer in consequence.

Treatment.—In the first case, where the joint is not injured, take a sponge and some warm water and cleanse the wound, and bathe and poultice until the inflammation has subsided; afterwards apply a compress saturated with the following:—Compound tinct. aloes and myrrh, one ounce; glycerine, one ounce; olive oil, four ounces. This last prescription is useful in the healing of any wound. If the joint is pierced, which may be detected by the flow of the joint oil, other treatment must follow. When the joint has been recently pierced, the discharge will be white, occasionally tinctured with blood; after a day or two, however, the discharge will be combined more or less with pus, as a result of the local inflammation, and will consequently be of a yellow color. If the wound is very large, the edges must, after due cleansing, be brought nearly in opposition; but before bringing them quite close together, insert a budding iron at a white heat, taking care not to penetrate too deeply, as that would set up a violent inflammatory action. This being done, saturate a stiff sponge with the following prescription, and bind it on by applying a linen cloth over it and then bandaging the leg from the fetlock to above the knee:—Carbolic acid, one dram; compound tincture of aloes and myrrh, one ounce; glycerine, one ounce; sweet oil, four ounces. It is necessary also, sometimes, either to sling the horse or to put on splints, in order to prevent him from bending the knee. If this injury is improperly treated, anchylosis of the joint takes place, and through the morbid union of the bones

the horse can hardly bend the knee afterwards. During this treatment, as, indeed, in the case of all serious wounds, symptomatic fever is always more or less set up, and, indeed, in some cases, proves fatal from irritation and consequent exhaustion of the whole system. Therefore the horse should have a purge, consisting of linseed oil (raw) one pint, nitre one ounce, ginger half an ounce, and Barbadoes aloes seven drams. Mix the powdered aloes with the powdered ginger and with nitre, and when the horse's head is held ready to drench put the powders into the oil and administer. The feed should be, for at least a week, bran mashes with half allowance of corn (oats). If the local fever becomes general, then use the medicine prescribed for symptomatic fevers (see under head of Vet. Materia Medica at the end of the book), that is, saline powders.

Broken Heart.—This fatal accident is only mentioned as a precaution to owners against over exertion of willing animals, more especially as some people doubt that such a thing ever occurred. It is a fact nevertheless, of which the following is one of several instances. It is really congestion and rupture of the heart; although, of course, the congestion may cause the fatal issue through apoplexy, by symptomatic action of the brain. Many years ago this termination took place at a town called Natchez, in the United States of America. The race was on the Pharsalia race-course, between a mare called Jenny Lind and a horse called Black Dick—best three in five heats. Dick was the favorite at odds. They ran very closely together, and just at the winning post the mare began to draw clear of him. His rider applied whip and spur, and he made such a mighty effort that he reeled, but he still struggled on and fell dead within ten feet of the winning post. A post-mortem was made, and the cause of death was as above stated. Much regret was expressed at the time, as was natural, for so plucky an animal.

Bladder, *Profuse Staling.*—This, of course, is the unnatural discharge of large quantities of urine, caused by the bladder having become irritated, and the consequent arrest of the mucous secretion. This in turn irritates the kidneys and causes them to perform double work, hence the inordinate flow of water. In the first instance the urine is pale-colored, after a little while it changes to a more muddy colour.

Treatment.—Change of diet; linseed tea for drink; urva ursi six drams, cascarilla one ounce, gentian one ounce, cinchona bark three ounces, all powdered and mixed; divide into six powders. Give one morning and evening, and repeat if necessary. If the horse will not eat

the powders in his feed, which is very likely, as they are very bitter, then put the powder into a sufficiency of water, or better, sweet oil, and, holding the tongue in the left hand, empty the powder and oil on to the root of the tongue, then let go the tongue and pour a cupful of clean water down him to wash the remains of the medicine down and to take away the bitter taste.

Inflammation of.—This disease is always associated with incontinence of urine, the irritation caused by the local inflammation preventing the retention of the urine.

Symptoms.—The bladder contracts on almost any drop of moisture, and consequently causes an irritable feeling. The dung is hard and scanty, and frequent colicky pains are exhibited. The urine, coming in drops, is of a brown or dirty color. Animal appears as if desirous of staling, when in all probability there is nothing left in the bladder, save the irritation only, although in some cases the bladder remains full, as the inflammation has extended to the neck of the bladder. **(See Strangury.)** The pulse, after the disease has permanently set in, sympathizes with the local inflammatory action, and rises accordingly, becoming also jerky in its action.

Causes.—This disease may be caused by sympathetic action with the kidneys, in case of their being affected with any disorder. It may also be caused by stones and gravel deposited in the bladder, or a cold. Even a change of water may bring it on in susceptible subjects. It is also seen after the termination of a case of diabetes. Occasionally the excessive amount of work imposed upon the organs by the disease of diabetes will produce inflammation of its coats in many cases.

Treatment.—Linseed tea for drink; tincture aconite twelve drops, glycerine two drams, tincture opium thirty drops, water one ounce. Give this dose three times a day, and if at the end of two days there seems to be no improvement, then send for the nearest or best practitioner that is to be had in the neighborhood.

Paralysis or Palsy of.—Anything which causes an impediment for any length of time to the natural evacuation of the urine, will cause this disease; for instance, driving a horse for a long distance without allowing him the opportunity of staling. Injuries also of the spine are a reason of this disease. In these cases local nervous sensibility is lost, conse-

quently the coats of the bladder lose their contractile qualities, or at all events the contractile power is more or less weakened, so that some of the urine is left in the bladder. What is worse still is, that under these circumstances the bladder evinces a disposition to fill rapidly, which morbid condition is present in all diseases of the bladder, whether sympathetic or otherwise, but, unfortunately, especially so in the case now under consideration. The consequence of this distention, if not relieved, would be rupture of the body of the bladder, as indeed has very often been the case. This distention may be easily detected by an examination per rectum. The hand should, after being properly oiled, be passed into the rectum, and the distended bladder will be felt underneath. Very frequently the bladder may be assisted in emptying itself by smoothing it gently with the finger anteriorly from its neck. Otherwise the horse must be gently cast, and the catheter introduced as often as needful The time of using the catheter may be determined by the fullness of the bladder, as evinced by the feeling under the hand in the rectum.

Treatment.—Drink, linseed tea; bran mash three times a week. Nux vomica twelve drams, gentian one ounce, golden seal one ounce, powdered liquorice root six ounces. Mix and divide into twelve powders; give one morning and evening.

Stone in the, and Lithotomy.—Stones of various sizes, and also gravel, are frequently a cause of distress to the horse. The probable origin of the stone is the deposition of gravel, one small grain being sufficient to form a nucleus for the growth of the stone. The water which is drunk by the animal is generally impregnated with the elements fit for forming stones (calculi). The water of muddy pools, puddles, etc., contains the most perfect materials for forming stones. Some of the calculi form themselves in the intestines, reproducing similar symptoms to those of spasmodic colic. After death they are found generally in the cœcum (blind gut), and are sometimes as large as a cannon ball. The author saw one at Cincinnati, U. S. A., which was as large as a thirty-two pound shot.

Symptoms.—Difficulty and pain during urination, the water being passed off by drops, the legs straddled, and in walking the straddling is kept up for a longer or shorter time. By making an examination as in the disease above treated, or paralysis of the bladder, the diagnosis may be verified. Pass a catheter and draw off the water, then the stone may be distinctly felt by the hand.

Treatment.—Acids and other remedies have been, and are now, prescribed for this disorder. The only real and efficacious remedy is the operation of lithotomy, which is performed as follows :—The horse is to be cast and turned upon his back, being retained in that position by trusses of straw placed on each side of him. The urine should be drawn off. A long oiled rod of smooth whalebone must then be passed up the urethra, and when coming to the curve the hand should be pressed on it, and it will ascend into the bladder in the region of the perineum. Cut down on the probe with a scalpel and through the opening made pass a sounding catheter, when the stone may be felt. If the stone is too large to be withdrawn through the incision, crushing forceps must be used, and it must be taken out piecemeal. Warm water must then be injected through the opening into the bladder, and the wound healed up by a dressing of carbolized oil, such as sweet oil half a pint, carbolic acid two scruples. In these cases the operator should be one who understands anatomy, such as a veterinary surgeon, although almost every case treated in this way with ordinary care results in a complete cure and the immediate relief of the patient. Sediment, and perhaps some blood, will be passed for a little time, but very soon the evacuations of the urine will take place in the same natural and healthy way as it did before the disorder occurred.

Inflammation of the Neck of—(Strangury).—This may be caused by sympathetic action in the cases of inflammation of the kidneys, or of the bladder itself. The most frequent cause, however, seems to be that of spasmodic colic. The result is stricture or contraction of the sphincter muscle surrounding the neck of the bladder, whereby the exit of the urine is cut off. The kidneys are, of course, constantly engaged in the act of eliminating the urea from the blood, which urea is, as fast as it is eliminated, passed down in successive drops through the ureters into the bladder. And here the usual course of proceeding resorted to by grooms, farmers and other unskilled persons, is strongly to be condemned. The animal evinces signs, by straddling and otherwise, of his desire to urinate. This gives the persons alluded to the impression that diuretic medicines (medicines stimulating the action of the kidneys) are required. Consequently, such medicines as nitre and others of their kind are immediately administered. The consequences resulting from such practice are disastrous in the extreme. The diuretic medicines acting immediately upon the kidneys cause these organs to perform double their natural functions, and the urine is poured into the bladder in double quantities ;

as, through the spasmodic contraction, there is no means of passage for the urine, the bladder is distended beyond its natural capacity, and although its elasticity may save it for a little time, yet, unless some exit is found immediately, rupture of that organ will take place, and with that death ensues. Again, if left too long, although relief may be administered in time to avert a fatal termination of the disorder, yet the ulterior sequelæ will be more or less injurious. In many cases the morbid distention of the coats of the bladder will cause the loss to a certain extent of its elastic properties, and, in consequence, ever after the contractile properties of the bladder will be seriously curtailed in their proper functions ; the horse will then only pass some portion of urine at each time of staling, leaving some in the organ, which will cause irritation and the troubles with which that is accompanied. Through sympathetic action, also irritation and consequent disease of the Prostate Gland, ureters above and urethra below, is always to be feared and provided for. All these disagreeables are to be looked for through the improper administration of diuretic medicines in the case of contraction of the neck of the bladder. It is a good thing, therefore, for the owners or superintendents of large stables to absolutely forbid anyone but themselves administering nitre and other diuretics, as the experience of all practitioners of any length of practice will inform them that this is a mode of proceeding very favorably received, and is a cause of much trouble and expense to the owner and anxiety to the practitioner who may be called into the case.

Treatment.—Local and internal administration of sedative anodyne medicine is the only sure means of relaxing the spasm, unless, indeed, it is caused, as it sometimes is in cases of spasmodic colic, by the pressure of accumulated (fæces) dung, when of course the remedy is obvious, which is the removal of the cause of pressure by the hand and medicine. Apply hot blankets wrung out of boiling water to the groin, and before applying them sprinkle each blanket with ether, one ounce ; chloroform, one dram ; tincture of opium, half ounce. Outside of the hot blanket place a dry blanket warmed, and secure it. Leave this on for two hours, if necessary, and apply again until relief is obtained. However, with the administration internally of the following medicine I have usually succeeded in giving relief in less than twenty minutes, and during twenty-two years' practice have never had a fatal case : For a full grown horse, chloral hydrate, five drams ; olive oil, three ounces. To be repeated in half an hour if necessary.

Broken Wind.—This subject I must abbreviate as much as possible, as a small book might be written on the causes, forms and results of this lamentable affection. The functions of the lungs are both vital and mysterious, and with regard to these functions, as well as to the internal digestive functions, we are bound, if we tell the real truth, to own ourselves comparatively ignorant. Theories in abundance exist and are put forward by those who think it derogatory to their scientific dignity to confess their ignorance as to the function of the lungs in reoxygenating the venous blood, so also as to the internal transformations that take place, invisible to us, in the internal digestive process, and also as to the mystery of conception. All these hypotheses remain, as they are likely to remain, simple theories and speculations. We are allowed to know enough, however, both as to the anatomy, physiology and pathology of these organs to enable us to palliate, and in some cases, taken in their first inception, also to cure this complaint. Two different kinds of morbid changes are products of broken wind. One is where the air cells are broken down or ruptured by over exertion, and remain in a soft condition. This morbid state, its irritation and consequent local inflammation, causes the walls of the air cells, which are numberless, to become disorganized in their extensions; consequently, the portion of the lung affected, which possibly contained thousands of cells, is broken down into one comparatively large cavity, through which the air, in the action of inspiration and respiration, rushes with force, instead of ramifying, as it would do in the case of a healthy lung--in, out and through each cell—and, consequently, expiration is slower than the inspiration. The second kind is caused by a cold settling on the perforations of the branches of bronchial tubes, thereby enlarging the means of exit. Consequently, in this case the expirations are faster than the inspirations. Broken wind, again, may be caused by diseases of the upper part of the larynx, which may cause a permanent thickening of the membrane and produce what is termed roaring. Thick Wind, again, is caused by the thickening of the walls of the cells through deposit of the secretion of the bronchial tubes.

The causes of Broken Wind are various, and it is demonstrably developed in a variety of ways. It is undoubtedly hereditary; it may also be caused by a chronic affection of the thoracic organ arising from improperly treated pneumonia. Adhesion of the lungs to the pleura through previous inflammatory action may also cause it, as may also induration of the lungs and the deposition of water in the chest.

There is no cure for this disease. If it may be palliated at all, it is through attention to diet and to proper attention to hygienic rules. The corn should be thoroughly cleansed from all dust and impurities, and feed should be given rather frequently and in smaller quantities than is often the custom—large feeds at long intervals. The water should also be given sparingly, and should be pure and not too cold. Moderate exercise, thorough grooming, and the exhibition of powders of lobelia and sulphate of iron, as also oil of tar, are palliatives, but they are incapable of establishing a cure. After the disease is once properly established, the horse will be found to develop it in greater intensity according to the amount of active work called for from him.

Bastard Strangles.—A swelling on the side of the face or under the ear. This is caused by secretion of pus. It may result through the premature closure of the incision made between the jaws in true strangles, on account of which the matter, finding no exit, is secreted higher up in the head or face. The treatment is the same as in ordinary cases of strangles, namely, opening with the bistoury and the use of poultices or digestive ointments, to cause the evacuation of the pus. In these cases there is generally more or less induration (thickening) of the skin, and in obstinate cases the insertion of a seton is necessary.

Bronchitis.—Inflammation of the bronchial tubes. These tubes are two in number, being a bifurcation of the Trachea (wind pipe). One tube extends to each lung, and then ramifies in innumerable branches through the tissues of these organs.

Causes.—Cold. Sympathy with the lungs when in an inflamed condition. Blows on the trachea. Chronic affections of the tubes in either of the parents.

Symptoms.—Difficulty in breathing, high pulse, and injection of the membrane of the nostril. Auscultation (examination by the ear), assisted by the stethoscope, will generally detect the wheezing sound to be confined to some particular part.

Treatment.—A blister should be applied to the lower part of the trachea, and powders composed of bicarb. of soda three drams, bitartrate of potash three drams, liquorice root (powdered) four drams, should be administered three times a day. If the pulse is very high I should recommend the exhibition of tincture of aconite half an ounce, sweet spirits of nitre two ounces, hydrate of chloral half an ounce, glycerine one ounce,

water one ounce; mix. Give a teaspoonful every three hours until the pulse shows signs of subsiding. Diet.—Hot bran mash, with a double handful of scalded oats, and linseed tea for drink.

Bloody Urine.—*Causes.*—Sometimes it is caused by disease of the kidneys, but unless there are other corroborating symptoms, indicating that the kidneys are the seat of disease, we must look elsewhere for the reason of this complaint. If a slight cold on the kidneys has obstructed their proper action in the elimination of the urine from the blood, and if, at the same time the animal has been severely strained by heavy work, as in drawing heavy loads, or in jumping, or even in galloping, then part of the blood which should pass into the regular circulation is diverted by the imperfect action of the kidneys, and instead of returning back towards the heart, it descends into the bladder with the urine. This disorder, when once permanently contracted, may be said to be more of an abnormal habit than a disease, as it will generally go away if the horse is thrown out of work, but on any exertion will again manifest itself more or less, although no other disease will result therefrom, and as far as can be seen no organic injury is assumed by the exhibition of it.

Treatment.—Rest, and powders of bicarb. of soda and bitartrate of potash, as recommended in bronchitis; if the animal should show signs of weakness, then the tonic powders of iron, as recommended in the veterinary dispensatory at the end of the book.

Bloodlessness (Anœmia).—The name bloodlessness is used, though it is very far from correct. It is really weakness caused by the constituents of the blood having lost their proper proportion. The red corpuscles are deficient; the indications are therefore to give such remedies as will supply the deficiency of these red or life-giving corpuscles. Anyone may soon ascertain the large proportion of iron in the blood by the taste of it; for instance, when the mouth has been cut the taste of the iron is very apparent indeed. The vitality of the system, both in man and beast, is sapped in proportion to the deficiency of iron in the blood. A sufficiency of iron in the blood is, on the contrary, the equivalent of strength, other things being equal.

Treatment.—Nourishing food and the exhibition of the iron powders (see dispensatory) three times a day, with linseed tea at intervals, and moderate exercise only, are the means which will perfect the cure, it being always understood that the complaint is only weakness *per se*, or, in other words, that the animal is run down by previous disease or poverty of feeding.

CHAPTER III.

BLEEDING.—BOTS.—COLIC.—SPASMODIC COLIC.

Bleeding.—(Venesection).—This operation consists of removing blood by opening a vein, with the object of relieving inflammation. For what is called "general bleeding," that is, for depletory action with reference to the whole system, the jugular vein is usually selected; for local inflammatory action the plate vein for the shoulder. The plantar vein or the ganglion in the neighbourhood of the sole is operated on for inflammation in the feet. In the times past and gone such great reliance was placed upon the benefit of venesection—like all things, good enough in its place and when used with moderation—that the operation came to be greatly abused, insomuch that no disease was considered conquerable without blood-letting; more than that, it used to be the custom to bleed both men and horses in the spring and autumn, with the idea that the blood was thereby renovated, and what the old practitioners called "the humours" of the blood were removed; the consequence was, in many cases, that both men and horses became so habituated in their system to the periodical depletion, that the cessation of the habit produced such effects that it had to be re-resorted to for the sake of the animal's health. It became, in fact, a morbid habit to the system. We see analogical cases in men and women who accustom themselves to the habit of taking opium in some of its various forms. These unfortunate people become slaves to the habit, and in ninety-nine cases out of a hundred it can *never be broken off.* The same results occur from giving horses arsenic unnecessarily—a very frequent habit with some owners of heavy horses. Little by little the system of the animal accustoms itself to the use of the poisonous drug, until the quantity required and consumed daily is something astonishing. Should the arsenic be stopped, the animal immediately begins to fall away, and recourse must be had to the old mode of dosing; the same result occurs from indiscriminate bleeding. On the other hand, at the time these opinions against indiscriminate bleeding were first advanced, the reaction was so great amongst certain people that bleeding was allowed in no case. The author speaks from personal experience. Now, there are a great many cases where bleeding is undoubtedly of service—for instance, if a horse has a congestive chill, it would be most advisable to open the jugular vein and take (from a full grown animal) at least five or six quarts of blood. To do this effectually, it must be done within *half an hour* from the time the chill took place; if done at this

time, and proper attention is paid to the animal by warmly clothing him, placing him in a stable, not too hot, chilling his water and giving him little, if any, hard food, then there is an end of the matter. If this is not done in the time specified, *on no account* must the horse be bled, but precaution must be taken to guard against the inflammatory action, which will soon evince its presence in the lungs. Again, in cases of brain fever, as in violent local inflammatory action, great benefit may be had from the use of the fleam or lancet. More especially is this so with regard to sprains of the back sinews, laminitis, etc. In these cases I am sure that the remedy of bleeding from the toe is certainly never resorted to half as often as it should be. This work is intended for farmers and others who do not pretend to know much about medical treatment; therefore, in this place, and once for all, I must ask the forbearance of those who are well up in these matters, while I point out such simple things as directions for bleeding; and also in other parts of this work where I explain things which seem and are simple enough to those acquainted with them, but are still mysteries to those who do *not* know what to do in such cases. In bleeding from the jugular vein, the first thing to do is to find the vein. The horse has one jugular vein on each side of the neck. Select the side. By sponging the neck for two or three inches, and then applying a thickish cord round the neck with a little pressure, the vein will stand out plainly developed. The proper place to open is about 8 to 10 inches from the jaw; however, some operators will prefer it higher and some lower. The blood should be received in a pail, the capacity of which is known, and the edge of the vessel should be held closely against the lower edge of the incision. As to the incision, it can be made either with a lancet or fleam. I consider that there is no instrument so suitable as the spring-fleam. Not only is this instrument suitable for the operation of bleeding alone, but also for the opening of all superficial abscesses when they assume the necessary suppurative stage. When a suitable amount of blood is taken (the quantity should be apportioned according to the disease, as also to the intensity thereof), then the incised skin should be brought into apposition, a clean steel pin passed through and kept in position by winding round it a couple of long hairs from the tail. Great care must be exercised in pinning up the orifice that the vein is not injured, and that too much skin is not drawn over the incision, so that the blood may not flow underneath the skin and cause a swelling and possibly a fistulous ulcer; the more inflammation there is, the less amount of serum (watery matter) is to be

detected on the summit of the coagulated blood, and the blood is thicker in appearance than the blood of health. I may mention, in passing, that the mass of blood, approximately speaking, in a grown horse is about fifty-four gallons. The stronger the consistency of the blood, and the more buff or darkish yellow appearance on the top, the greater the amount of inflammation present. In diseases of the eye, much good in many given cases frequently results from opening the angular veins of the eye. Some, also, take blood in these ocular cases from the temporal artery, and, in my opinion, if ever amaurosis, palsy of the optic nerve, (Gutta Serena) is to be even ameliorated, it will be only from periodical venesection through the temporal artery.

Bleeding from the Toe.—The horn should be excavated by the drawing knife about half an inch from the spot where the hind edge of the fore part of the front shoe rests, the shoe, of course, having been removed. When the drawing knife has drawn blood, then pass in a curved bistoury and make incision. If the blood does not flow freely, then place the foot in hot water; but if the incision is properly and carefully made there is a plentiful effusion and no danger. When sufficient blood is drawn, take some tow or lint, and saturating it with oil of tar one part, carbolic acid ten parts, insert it into the wound and tack on the shoe lightly.

Bleeding from the Mouth.—This is performed by cutting through the bars of the Palate, and is a most favourite remedy with most farmers for various so-called disorders. At a pinch it may relieve, though not permanently, excepting in the case of Lampas, when this method of procedure is decidedly correct. Care must be taken to cut the bars on each side only, between the centre and second incisor teeth, as by this means the danger of cutting the palatine artery is avoided. Sometimes I have found it a very hard thing to get blood; at others, again, I have been forced to wait for an hour for fear I should have to reduce the hemorrhage artificially, although the artery was not touched.

Bleeding from the Plate Vein.—This vein is under the arm, and blood is taken from it, in some cases, to relieve inflammation of the shoulder, caused by sprain or other injury; except, however, in very extreme cases this is unnecessary, as the inflammation will usually yield to counter-irritants, if applied with knowledge as to the seat of injury and discretion in the use of the remedy.

Bots.—In treating of these parasites most older writers are, in my opinion, wrong. Some classify them under the head of worms, which is

certainly a mistake. It used to be, and indeed in rural districts of England and America is still, thought by many that the presence of bots attached to the coat of the stomach, and in many cases found in the abdominal cavity after death, was the cause of the fatal termintion of whatever the real disease was which the horse was suffering from. This opinion is a great fallacy. Many people, also, who should have known better, have insisted and argued that the creatures have eaten through the stomach and so caused death—an utter absurdity, for many reasons. The Bot is the grub or chrysalis, so to speak, of the *Œstrus Equinus* or Horse Gad-fly. In the autumn of the year this fly is very numerous and of great annoyance to the horse, as is its relative, the *Œstrus Bovinus*, to cattle; the insect deposits its eggs generally on the forepart of the horse, about the chest and fore-legs preferably, and probably in the act of depositing them inflicts a slight sting to the animal (the eggs adhere to the hair through some sticky matter formed by the insect); the horse then, either immediately or soon after, licks the place, to allay the irritation caused by the sting, and in so doing swallows the eggs. It may be that the glutinous matter has some irritative qualities with regard to the skin; at all events he licks them off and swallows them. They are, as a rule, passed into the stomach with the saliva without becoming attached anywhere on their way down the *œsophagus* (swallowing pipe), and the heat of the stomach hatches them, forming the Bot in question. This insect, then, is of chrysalis form, and is furnished with two hooks at its tail end, by which it attaches itself to the *muscular* coat of the stomach, having the head part hanging down, and being nourished by the juices of the horse's food through the process of imbibition, it having *no mouth*, consequently no powers of *eating through* anything. The creature is attached to the muscular coat of the stomach; hence there is no consciousness of pain to his host, the horse. In due time, when arrived at maturity, generally about or before spring, the creature lets go his hold and is passed, together with the excrements, through the whole length of the alimentary canal, and thence to the open air by the rectum. In a short time the bot is transformed again into the Œstrus Equinus or Gad Fly, and prepares itself a new progeny ready to take advantage of these rent-free quarters in the same or another horse. When a horse becomes ill, the healthy functions of the stomach become deranged. The bot does not like that, nor does he duly appreciate the phenomenal amount and great variety of drugs which are usually administered to his unfortunate entertainer; consequently, he lets go and

passes off as before explained. This is the reason that when performing *post mortem* examinations on animals which have been a long time ailing, so few bots are found. On the other hand, if a healthy horse is killed suddenly, by accident or otherwise, then the stomach is usually found full of bots. This fact goes to prove that, ordinarily speaking, the fact of the bots being present in large numbers is not the cause of sickness, although there have been exceptions to this rule; but that is only when the bots have attached themselves to a part rarely frequented by them, such, for instance, as the mucous coat of the stomach or above the opening of the gullet into the stomach. In the former case the symptoms would be intense pain, and eventually gastritis (inflammation of the stomach); in the latter case, by pressure on the neighboring trachea suffocation might be produced, that is, if the bots were in sufficient numbers. I have heard of isolated cases of this description, but if true these are undoubtedly exceptions to the general rule. That they are found in the abdominal cavity after death is a fact not to be disputed. So in the human subject, worms have been found in the same cavity which did not inhabit that region during the life of the man in whose body they were found. And the reason is the same both in the case of the horse and the man. The gastric juice is a mysterious solvent of the food, thrown out by the action of the stomach. The dissolving power of this juice is very powerful, and very wonderful. For example, in the case of dogs, it dissolves solid bones swallowed by them. Strong though it is in the case of food or other inert material, it has no power to disintegrate any substance having vitality. This is why worms are found prospering greatly in the stomachs of many of the Mammalia. When the horse dies, of course, it goes without saying that the stomach's vitality has departed. The gastric juice then acts upon the stomach as it would upon any other dead body—flesh, oats or whatever it might be (as for a short time after death the exudation of the juice continues), and the resistance of the vitality being subdued by the death of the patient, the juice corrodes and eats through the coats of the stomach. Things having become very unpleasant, the bot unhooks and lets go, and instead of passing away through the intestinal canal, as he would do if the horse were alive, he falls, unintentionally, through the holes eaten through the stomach *by the gastric juice* into the abdominal cavity—much, probably, to his own astonishment—where he is found, and given credit for the possession of more anatomical power than he knew he had himself. The vitality of these creatures is something most astonishing. People with a true spirit of kindness and

inquiry have placed them in spirits of turpentine and even in far stronger preparations, such as strong acids, and at the end of two or three hours found them alive. This is another evidence of the futility of attempting to remove them, as was and is now frequently done, by medicine. It is evident that, even if the horse is believed to have "got the bots", the very complete manner in which the bot ignores the effects of strong medicines, such as turpentine, acids, etc., would show that the remedies might very probably kill the horse, yet it would take no effect on the bot. The symptoms usually imputed to bots are those of colic, strangury, and, in some cases, even inflammation of the bowels, and people would hardly believe that there is so much ignorance on this subject in some country places, unless they were personally interested in the subject. If bots are there, let them alone; they will come away in time. Should such symptoms arise as those just mentioned, look for the cause of such symptoms elsewhere than to bots, and be by no means persuaded *by any one* to try experiments on the health of the horse for the purpose of removing an imaginary evil.

Colic is of two kinds, spasmodic or acute, and flatulent or windy.

Spasmodic Colic is various in its causes. There may be an hereditary predisposition on account of the weakness of the stomach and small intestines; cold may also cause its appearance, but its most prolific source is indigestion. Both weakness of the stomach and indigestion itself may react upon each other. The direct cause of the painful spasmodic paroxysms is irritation of the par vagam or large nerves running to the stomach. *No pain can be felt unless a nerve is irritated;* therefore, all pain in man or beast must be directly traced to nervous influence. A horse is more liable to take colic when too highly fed, than one that is only fed sufficiently, but in moderation also. The reason of this is that a greater amount of excitement and irritation is caused in the digestive organs of the overfed animal, than in the one who is only allowed a proper sufficiency of food. Drinking cold water when in a state of perspiration is another cause of gripes; this is more especially so if the water should be of a harder or softer constituency than the animal is accustomed to. This is the reason that the trainers of valuable race horses carry their horse's drinking water with them when the animal has to run at a distance from home. Bad and musty hay, again, is still another cause. This kind of hay frequently lies in an undigested state in the stomach and causes the irritation necessary to produce the complaint. Working a horse too soon

after a meal will cause this disease, much for the same reason as in the case of musty hay. Suppression of the urine through the morbid action of the bladder or otherwise will cause colicky pains. Again, on the other hand, the distention of the intestine, either in colic or inflammation of the bowels, will cause suppression of the urine. Colic is hardly, if ever, fatal of itself, ignorant opinion which is abroad, to the contrary notwithstanding. The danger lies in the fact that colic, unless speedily checked, will invariably run into inflammation of the bowels. Great care, therefore, should be taken to relieve the disorder at once, in order to prevent its transformation into the other, which is a far more serious and fatal disease. Colic, however, like many other disorders causing great irritation to the nervous system, very often resolves itself into an habitual complaint; and, in consequence of these cases, it would be good policy for anyone owning a horse who has had the attack three times to get rid of him before they lose by him.

Symptoms.—The symptoms of spasmodic colic are often confounded with those of strangury, or suppression of urine from some other cause. Sometimes they are mistaken for inflammation of the bowels, but only by those whose pathological knowledge is very surperficial. With a little care and attention, the difference of the symptoms presented in these diseases are very obvious indeed. In spasmodic colic the animal is *seized suddenly with pain; he throws himself down* and rolls, frequently balancing *himself on his back with his legs in the air;* he looks frequently at his flanks; *his ears and legs are of the natural temperature, or,* if not, the alternations of cold and warmth are so frequent as not to be generally noticed; he sometimes breaks out into a *most profuse* perspiration; however, this last symptom is not always present. The paroxysms are intermittent, that is, the spasms come and go, and there is an interval of quiet. For comparison of the symptoms with the other diseases mentioned, the reader is referred to the paragraphs on inflammation of the bowels, strangury, and calculi in the intestines. A good way for unprofessional men to remember the difference in these symptoms is to mark them down in parallel columns. It is very advisable for farmers and horse owners to do this, as the symptoms are rather nice in their distinctions, and the remedies which are a cure for the one are useless or injurious and sometimes fatal in the other.

Treatment.—The old treatment is sometimes used now, but I have always found it ineffectual, if not injurious; I have not used the old remedies of laudanum, turpentine, etc., for ten years, and I believe sincerely that when I did use them the cure was largely effected by natural results,

independent of the medicine. I have known the tincture of opium (laudanum) to be administered, in numberless cases, until twelve and more ounces have been given in less than twelve hours, without any beneficial effect, but rather the contrary. Every man, however ignorant in other matters, and even in common education, seems to think that the knowledge of doctoring a horse is born in him, and is quite insulted if you quietly question his abilities on that subject; and the more ignorant of all other things he is, the more he pretends to know of the horse. The same man if upbraided for his ignorance in not knowing Greek, or in not knowing how to repair the broken works of a watch, would complacently reply that he was not a watchmaker or a Greek scholar, and not reproach himself for his want of knowledge in these matters. But the same individual considers that he knows all about the horse, and that it is a reproach to his manliness if he confesses that he has not that knowledge; whereas the animal is constructed in such a marvellous manner, that all the watches and chronometers ever made or to be made are as proper to be compared with the digestive functions and other parts of the animal economy, as a child's toy cart with the most elaborately constructed railway engine. I have seen almost every kind of thing put down the throat of the unfortunate and long-suffering animal, from raw salt pork and herring!! to petroleum lamp oil, and the country practitioner has frequently as much trouble to get rid of the effects of the nauseous subjects administered before his arrival as to cure the complaint. The treatment for a grown horse is, hydrate of chloral four drams, sweet spirits of nitre one ounce, to be given in six ounces of olive (sweet) oil, and to be repeated in half an hour, if necessary. The necessity, however, for the repetition of the dose occurs very rarely indeed. For horses subject to this disorder the hydrate of chloral can be made into a pill, or ball, with six drams of nitre and a sufficiency of linseed meal and honey to form a consistent mass; these can be carried in the pocket, and may be the means of saving the animal from a fatal attack of inflammation of the bowels, by curing the attack of colic.

CHAPTER IV.

FLATULENT COLIC.—COUGH.—CASTRATION.—CANKER.

Flatulent Colic.—This is termed windy colic by more euphemistic writers, and unless checked, results in what is termed Tympanitis, which signifies that the bowels are so full of gas that on beating gently on the external parts they are found tense, like a drum.

The cause of Flatulent Colic is indigestion; in cattle it is called the "bloat," and is produced in cows frequently by their breaking into a vegetable garden or a field of green maize (Indian corn). The food sometimes remains undigested through weakness of the organs concerned in the function of digestion. Working an animal too soon after a meal may result in this disorder. The heat of the stomach causes fermentation and the consequent formation of gas. As the gas is formed it gradually fills the stomach and the intestines, and, if not soon relieved, the animal becomes distended in size, through the internal formation, and the result is the rupture of some part of the intestinal canal, or, which is equally fatal, suffocation may ensue.

During the formation of the gas, and while it is not yet observable externally, the animal becomes very uneasy, and shows symptoms which are likely to mislead any one not well informed, by inducing the supposition that the horse has Spasmodic Colic. He will throw himself down and roll, looking occasionally at his flanks; he will also balance himself on his back, as in Spasmodic Colic; grumblings will be heard in the intestines as also in colic of a spasmodic kind, and in this, as in all cases of colic, straw should be spread thickly in the yard, or the animal should be confined on some soft place, otherwise in his rollings and tumblings he may cause an internal rupture.

Treatment.—The administration of one ounce and a-half of the carbonate of ammonia in a pint of warm water will act as an immediate relief, to be repeated, if no better, in fifteen minutes. Should the gas not pass off by the mouth or rectum in the course of an hour or two, the trocar must be used. In case the owner has no carbonate of ammonia, a weak solution of chloride of lime (one teaspoonful of chloride of lime to one pint of water) has been known to be effectual. Should these be ineffectual, and there be no one who has a trochar, then the best thing to do is to take a medium bladed pocket knife and make an incision in the skin about half an inch long—this to be done first; then plunge the blade through the integuments, and it will pierce the intestine, allowing the gas to escape with a

rush ; keep the hole open, if possible, by inserting a hollow tube—such as a hollow cane or piece of elder—until the gas has all escaped, and the wounds will close themselves by their natural elasticity. The trocar should be inserted, or the cut with the knife made, on the left side about three and a-half inches *below and anteriorly* from the hip bone ; however, when the distention has assumed the form of Tympanitis, it is very hard for the most skillful practitioner to be particular to an inch, on account of the enlargement of the parts. No fatal resu ts in such cases have ever been recorded to my knowledge and by any reliable authority, which is more strange, because the peritoneum must be pierced to reach the intestine, and injuries to the covering in other places frequently superinduce Peritonitis, a most difficult disease to treat successfully.

Cough, Chronic.—This is generally the result of a cold improperly treated, although it may possibly, in some cases, be the sequel of a bad attack of bronchitis or other disease of the pulmonary organs, by which an abnormal action has been induced in the trachea, causing either a thickening of the coats or a subacute inflammatory action, and, consequently, a tickling sensation, to be relieved only by coughing. It may, of course, be the consequence of broken wind. The seat of the disorder is in the trachea (windpipe), or in its branches — the bronchial tubes. The symptoms of chronic cough are self-evident, and sometimes it may seem to the owner, after his long, careful and judicious treatment, that it has been cured. Much to his dismay, however, after a longer or a shorter period has elapsed, the symptoms may return in another form, that is, in the form of that disorder termed "roaring." This result may especially be induced by putting the animal to very hard work. Many owners do not detect and realize that a cough has become chronic until it is too late for any one to do much in alleviation of the disorder, as after a cold accompanied by cough, the cold being cured, the owner daily imagines that the cough will go away, when it really has, unfortunately, come to stay.

Treatment.—The treatment of chronic cough is, as a rule, most unsatisfactory. When once the cough has thoroughly taken hold, it may truly be said that the case is almost, if not quite, hopeless. Its severity may, however, be reduced by topical external remedies ; but the chief reliance is to be placed upon the care proper to be exercised in dieting, and attention to all hygienic rules. The treatment, such as it is, varies little, whether the attack is periodical or permanently constitutional.

Should, however, the attack be periodical, a mild blister over the trachea, with the administration of tartar emetic one scruple, opium ten grains, made up into a pill, with powdered liquorice root and balsam of tolu, is sometimes effectual enough. The ball should be given for four days, and at an interval of a week for another two days. The horse should be carefully watched, so that he does not take cold, and his drinking water should be chilled; the water, also, should be given him only at regular intervals, and in small quantities at a time. The oats and hay should be thoroughly clean and freed from dust, and it is well to dampen the oats before giving them. But, like all other chronic disorders, the hope of curing a thoroughly established case is almost infinitesimal.

Castration.—This operation consists in removing the testicles of the male horse, and consequently destroying his reproductive powers—and by so doing, reducing to a certain extent his fiery or even vicious nature, and rendering him more docile and, consequently, of more use to man for riding, driving, and for draught purposes. The usual age proper to castrate a stallion is twelve months; there are, however, a great number of exceptions to this rule. If a horse is weak with regard to the conformation of his shoulders, or even lightly formed in that region, he should not be castrated at twelve months, but he should be allowed to remain entire until the shoulders are reasonably well developed. On the other hand, many colts are too heavy in their forehands, and with such the operation should not be delayed. My idea is, however, that all horses, especially for carriage horses and hunters, should be allowed to remain entire until at least their fourth year, and this practice has been pursued by many breeders of good Hacks and Roadsters, and always has resulted in the formation of a stouter animal at maturity (five years), than in those who were castrated earlier in their youth. Undoubtedly, if the horse has a vicious or an obstinately bad temper, the operation of castration will greatly modify that for the better; but there is always a more solid and more graceful growth in an animal left entire, than in a gelding of longer standing; not only that, but the strength in the former is generally (other things being equal) superior to that of the latter. In some cases of yearling colts it is found impossible to castrate them, as the testicles have not yet descended into the scrotum (bag), in which case it is necessary to wait for another few months. There are three different modes of castration—by the clam and irons, as practiced at home; by the wooden clams and knife, as practiced in America; and by torsion, as practiced in

both countries, either by ordinary ligature or by the use of the ecrasseur, which is a French method, but which has become generally adopted by all who are or who wish to be thought skilled practitioners. In using the clam and irons, the first thing to do is to make a soft bed of straw, or of some other yielding material; buckle a broad strap with an iron ring let into it, round each leg at the pastern; make the standing part of the rope fast to the strap on the near fore-leg, then pass the rope from the near fore-leg through the ring of the strap on the near hind-leg, from there take the rope across and through the ring on the off hind-leg, and bring it forward to the ring on the off fore-leg, pass it again through that ring and across and through the ring on the near fore-leg and bring the end of the rope backwards ready for pulling—the horse now standing on the straw or dung heap; let one man stand at his head and the rest all pull. The pull will bring all the legs together, and the man at the same time bearing his weight towards the left, the horse will fall softly on his *left side*. Then open the scrotum (testicle bag) with the knife; the opening is to be made at the lowest end, cutting downwards until not only the testicle itself is exposed but also the epididymis, or false testicle above; then, if operating with the clam and irons, the covering of the testicle and epididymis is to be pushed downwards and the clam fastened above the false testicle. The searing iron, having been brought to a dull white heat, is now to be passed across the clam with a sawing motion, thereby searing off the organ of reproduction. Then after the lapse of a few seconds let up on the screw of the clam, so as to observe whether there is any hemorrhage or not; if there is, it must be applied again; if not, proceed in the same way with the other testicle. There will be quite a little swelling the next day, but the only precaution to be taken is to keep the horse indoors, so that he will not catch cold, and to foment the swollen parts with water, slightly warmed, in which a half ounce of alumen and a half ounce of borax has been dissolved. Nevertheless, his diet should be attended to, the corn being reduced to a quarter of his usual allowance and previously scalded, one bran mash a day being given, and the chill should be taken off the water. In operating with the wooden clams the only difference is, that, on the clams being applied as above directed, the knife is then used instead of the red-hot iron, and the clams, whose grooves have been previously filled with a mixture of one part of corrosive sublimate and three parts of the red oxide of mercury, are to be allowed to remain on until twenty-four hours after the operation, when the waxed twine, which

secures them at one end, is to be cut and the clams removed. The method of castrating by means of the ecrasseur is simply that of torsion on the same principle as that of ligating the scrotum with a tarred cord, as frequently practiced in the case of boars and young bulls by non-professional men. As this work is written for farmers, I should recommend them to use the American plan of the clams made of wood. They can always get the elder wood. To make them, take a straight piece of strong elder, or any wood having a reasonable depth of pith (it should be about eight or nine inches in length), split it evenly down the centre and take out the pith. Secure one end solidly by the means of cobbler's waxed thin cord and leave the other end open, but with waxed cord attached ready to secure when put over the spermatic cord of the horse to be operated on. When the testicle and false testicle are exposed in the operation, place the open jaws (so to speak) of the clam over the cord and bring the open ends as near together as possible by means of pinchers, securing them in that position by the loose waxed cord at the open end. I consider this last method by far the best. It is simple and, in my opinion, a horse so castrated is not so liable to after evil effects, such as lockjaw, as he is by the other methods—especially so in the case of operation by the ecrasseur. The reasons for this opinion are more fitted for professional argument than for a book of this description. Great care is to be taken in the operation of castration, no matter what method is used, that the spermatic cord should not be pulled or strained. This is occasionally done with the idea of placing the clams as high up as possible, and accounts in many cases for the appearance of lockjaw (Tetanus). The cause of the appearance of this unusually fatal disease is generally attributed to catching cold or unskillfulness of the operator in the use of the knife, etc. Catching cold in the wounded parts will, without doubt, bring on tetanus, as will the shock on a horse of an excessive nervous irritability. Some horses, for instance, fall into momentary convulsions at the time the spermatic nerve is divided. But I attribute the acquisition of lockjaw in numberless cases to this foolish notion of pulling down on the cord and the consequent stretching of the spermatic nerve beyond the capacity of its natural elasticity. It is well for farmers to understand and undertake this operation for themselves. There are so many carvers and gelders going about the country every spring that, excepting in the case of valuable animals, veterinary practitioners are seldom asked to perform this operation. These gelders, of course, do the job for three or four shillings, and having no responsibility

and no professional character to lose, it is a matter of indifference to them as to the after results of their operation. Should tetanus, fistula, general surgical inflammation, or even hemorrhage set in, they are not there (to use a vulgar expression). Then the veterinary surgeon is called in to repair, not only the animal, but the probable bungling of the gelder, and should the animal be attacked by tetanus and succumb, as is most generally the case, the unfortunate practitioner, whose bread and butter depends upon his professional character, gets all the blame of losing the horse, and probably it is also believed that he performed the operation himself and did not do it properly. I have been lately informed by reliable persons that out west in the United States, on the ranches, the operation of castration among the ordinary horses is performed without clams; in fact, much the same as in the case of some boars, whose testicles are simply cut off, and they are allowed to run off. It seems a wonder, arguing by analogy, that there should be no more danger in the case of boar pigs than in the case of horses, as their anatomical construction is much the same. The artery, of course, retracts, thereby forming a clot and stopping the hemorrhage in the pig. Why should it not be the same in the horse, always supposing, of course, that he is not put to any exertion in the form of work or otherwise? The operation is quite a bugbear to young practitioners, not that they do not know how to perform it, but that they are so dreadfully afraid of the after consequences. My opinion is that the danger is altogether overestimated, and that with ordinary precautions there is no more danger in the case of stallions than, proportionately, in the case of a dog, cat or pig.

Canker.—This is a disease situated in the sole of the foot. It is of a cancerous nature, and, by the French veterinarians, is considered to be a cancer, and is treated under that heading in their works on the veterinary art. As we are indebted to the French veterinary writers for much valuable information, both inductive and practical, it would be well for us to treat such a definition with great respect. Cancer, both in the human being and the animal, is still a subject of debate, both as to its primary origin, its incubatory stage, and also the means of treatment. Some advocate the knife, which is only temporarily palliative; some, again, hold the germ-in-the-blood theory, and endeavor to eradicate it by acting on that fluid. My opinion, speaking from a veterinary standpoint, is that cancer is undoubtedly due to poisonous germs, in the forms of bacilli or microbes, in the blood, which are attracted by chemical or other affinity

to some given local part of the body, and that therefore it requires both the knife and medicines alterative to the constituency of the blood for its eradication. Moreover, I consider that canker in the foot *is* cancer, or, at all events, a disease of a cancerous nature. Canker in the foot of a horse when thoroughly established has all the appearances, with the same symptoms, that it has in the human subject, and ends, if not checked, in the same way, that is, in a degeneration and disintegration of the parts acting in a Phagedenic (spreading) form, and resulting fatally by Pyœmia (blood-poisoning). Canker is the result of Thrush of a virulent nature, and which has either been badly treated or which has, by its destructive power, refused to yield to the medical remedies prescribed for its alleviation and cure. The first thing on seeing the case is to excise with the knife all presentations of fungus (proud flesh), and then to apply to the parts a mixture of hydrochloric acid one ounce, carbolic acid two drams; or, better still, a powder composed of sulphate of copper one ounce, arsenic two drams, powdered prepared chalk one ounce. Sprinkle this over the parts, and if the disease has eaten in towards the coffin-bone the powder must be pressed in to all the parts affected. Generally it breaks out on different parts of the sole and at the frog, and so penetrates into the foot, even to the coffin bone, before being checked; the powder or liquid must touch all diseased parts, being forced inwards on cotton, wool or even oakum, by a spatula, and all proud flesh must be pared until it *shews blood*. This application must be made at least twice a day, and the foot must be dressed so that the remedy is kept in contact with the diseased surface. Internally, one dram of sulphate of iron, one dram and a-half of powdered gentian, three grains of arsenic, and four drams of powdered liquorice root, must be administered morning and evening, until the disease shews signs of amendment, when the arsenic can be dropped and one dram of Canadian Golden Seal (Hydrastis Canadensis) is to substituted in lieu thereof. Bran mash every other day, corn one-fourth part only of usual quantity, *plenty of fresh air* and a clean stable. This treatment, with due attention to clean dressings, will effect a cure. A good plan is to put on a shoe, lightly tacked, made in such a way that a piece or wood, or, better still, a piece of zinc can be slipped in and out. By this means the dressings can be kept in apposition to the diseased surface, especially if a thick, *clean* cloth is pushed in gently, so as to wedge the dressing, gently upwards and inwards.

CHAPTER V.

CORNS.—COFFIN JOINT.—CONTRACTION.—COLD OR CATARRH.—COUGH.—CURB.

Corns.—These deposits in the horse are entirely different to those in the human subject. In man they are callosities; in the horse they originally are deposits in the form of coagulated blood. Although their form differs in the horse from that of the man, still they undoubtedly result from the same cause, that is, pressure; and the pain is quite as great, and, probably through incessant action, greater than in the case of the man.

Causes.—The cause of a corn is, as before stated, to be attributed to improper pressure on the internal organization of the hoof. Contraction of the heels is a producer of corns. An imperfectly formed hoof is another cause. Bad shoeing is also a fertile cause of corns, the heels being so nipped together that the sensitive sole is improperly pressed upon, just in the region of the back part of the navicular bone, causing, of course, irritation and consequent inflammation, together with a partial stoppage of the local circulation. This causes a deposit of blood, which, after a little time, changes into pus (matter) of a very offensive character, and this is practically what a corn really is. Particles of gravel or sand, again, assisted by more or less pressure, may cause a corn to form, by penetrating into the inner or sensitive sole and creating the irritation and inflammation just described.

Symptoms.—The first appearance, externally, of a corn is perceived by the exhibition of a small tumor of a brickdust or rusty color, its position being between the bar of the foot and the crust of the horn. Before this is seen, however, generally speaking, such lameness will be shewn by the animal as to convince the owner that something is very wrong. In great numbers of cases the corn is never looked for until the animal has had all his leg, shoulder, etc., well blistered, and otherwise doctored, under the impression that the cause of the lameness exists in some other part. Some years ago, when practising in the State of Iowa, U. S. A., a horse was brought to me lame in both forelegs; the animal had been thoroughly experimented upon, from the shoulders downward, and was delightfully blister-marked. The lameness was so bad in *both feet* that he went stumpy; in fact, his gait might very easily have induced anyone to imagine that he was foundered, judging, that is, by his action. I had him taken to a blacksmith immediately, as I

suspected corns, and on examination, by cutting down with the drawing knife, we found a fine specimen of corn in each fore foot, which was duly treated, and in a short time the horse was discharged perfectly sound. I must, however, say, in justice to my predecessors in the case, that, as is generally the case, neither of the corns was evident until cut down upon. This fact, however, hardly justifies them, as it was their duty to have suspected the presence of corns, and therefore to have searched for them. Sometimes the corn is situated in the hollow of the sole, close to the bar of the frog. Lameness is always present in a greater or less degree, and the manner in which the horse flinches when on rough and uneven roads, especially if he should happen to tread on a stone, should place the seat of disease beyond doubt to the mind of anyone of a reasonably observant nature.

Treatment.—Some people have used the actual cautery (red hot iron), but this method of cure is to be deprecated. The cure is to cut down until blood is apparent and then to apply by means of tow, or a portion of lint, the following preparation :—Oil of tar, two ounces ; hydrochloric acid, one ounce. This will finish the case, always supposing that the pus has not extended itself, as it frequently does, along the sole. If this should be the case, it must be let out with the knife and properly poulticed with linseed meal, to which a few drops of carbolic acid have been added, and then healed by applications of oil of tar one ounce, carbolic acid half a scruple. The fact of the extended secretion of the pus under the sole can soon be detected by the tenderness evinced by the animal under any slight pressure. It is of no use, however, to cure the horse unless, in re-shoeing him, some regard is not had to the causes which produced the disease. If the shoe is put on in the former manner without paring out the heels, in a short time, the horse will be as bad as he was before. The hoof should be soaked in warm water three times a day, and after doing this it must be sponged in, out, and all over with a portion of the following preparation :—Oil of tar, three ounces ; common turpentine, one ounce ; sperm (whale) oil, twelve ounces. This will soften the hoof and help it to throw its pores open. The heel of the shoe should be thinned off on the affected side and the heels rasped so that they do not touch the shoe. Should the horse's heels have become thickened and hard, then an endeavor must be made to soften them by putting on the poultice boot and renewing the poultices frequently. A bar shoe, with leather sole, is absolutely necessary when the corns are on both sides of the foot ; and, in my opinion, the bar shoe and leather sole

should be used even when there is only one corn. The heels are, or should be, expanded by this method of shoeing, and the pressure (the original cause) is thus removed from the parts affected. Sometimes a discharge forces itself upwards and forwards to the coronet. This is almost always imputed to the fact of gravel having penetrated the internal parts of the hoof, and in the majority of cases, no doubt, this is true enough. In some cases, however, it is the evidence of the abnormal secretion of pus from a bad corn which has forced itself under the sensible sole. In these cases the horny sole, as I have above stated, must be partially removed and an incision made for the exit of the foul matter. The after treatment is as above :—Carbolic acid, one dram ; oil of tar, one ounce ; glycerine, half an ounce ; to be applied after all the matter has been extracted, by poulticing and hot foot baths. Corns are, generally speaking, confined to the fore feet, being very rarely seen behind.

Coffin Joint, Strain of.—Great misconception frequently arises as to the locality and exact pathology of this disorder. In fact, the name is a misnomer. It should rather be defined as concussional injury, or, perhaps, concussional strain of the back sinew or tendon, as the injury is mostly confined to the part of the back sinew at its insertion into the coffin bone, and within the hoof, although, undoubtedly, the joints immediately in contiguity with the injured tendon will be affected sympathetically more or less. This strain may be caused by overtreading, stepping on a rolling stone, stumbling, or, as I have sometimes seen myself, by rising, after a night's rest, in a stable the floor of which is boarded and rendered wet and slippery by urine, or other moisture, and that when the bedding, if any, has been kicked or pushed back by the animal itself. Stables of this description are too frequently to be seen in rural districts. It is better, on many accounts, I may here say, that the floor of a stable should be of hard earth than of boards, especially when people are not sufficiently generous with the bedding.

Symptoms.—Heat at the heel and extending to the coronet, painful and increasing lameness. To detect the seat of the disease, cause the horse to be trotted slowly from the place in which you are standing, and direct the man to turn him sharp round on the side in which the lameness is apparent. In this case he will knuckle over in such a manner that the seat of the strain is, beyond peradventure, apparent to anyone who is accustomed to detect the seat of lameness by this method, or, indeed, to

anyone who has seen even only one case before. It is like a great many other things,—when a person has once seen the manner in which the horse acts he *cannot* mistake it again; but I really cannot explain the exact action on paper, any more than I can describe the color violet, except by saying that it is violet.

Treatment.—Poultice the whole hoof continuously after removing the shoe. Before doing so, however, bleed freely from the toe, as described before, under Bleeding. Give one of these powders morning and evening should the pulse run high and the schneiderian membrane (membrane of the nose) appear of a scarlet color instead of its natural pink:—Bicarbonate of soda, nitre, bitartrate of potash, each three drams; half allowance of oats and bran mash. This treatment, carefully and patiently followed out, in combination with rest and quiet, will effect a certain cure. If this is not effectual, use the Biniodide Blister round the coronet, but do not allow the Blister to touch the heels. It may here further be said that all horses having a thin sole and hoof are more liable to this injury than those others the component parts of whose hoofs are of greater tenacity.

Contraction.—Some few horses have an hereditary tendency to contraction of the heels These are those kind of animals either one of whose parents were afflicted with narrow or deformed feet, or whose hoofs were of a morbidly dry and brittle consistency. In some cases the much-to-be-reprehended custom of paring the frog (thereby destroying the elasticity of the foot and producing abnormal concussion) is the cause of contracted heels. And here I may say, once for all, that no owner of a horse should allow the blacksmith to touch the frog, unless it may be to take off any ragged edges or abnormal growths. The practice, also, of blacksmiths applying the red-hot shoe to the foot, in order to save their work in paring, is another very fruitful cause of this disorder. This custom likewise should not be permitted by the owner. The blacksmith, in these cases, burns into the hoof with the red-hot shoe, leaving its impress, and cuts and pares round the mark left until the hoof is brought to the shape of the shoe, the direct opposite of what he should do. The shoe should be made, and, if necessary, altered, and re-altered, until it fits the foot; but this, in many cases, causes more work than is agreeable to the smith: consequently, instead of fitting the shoe to suit the foot, he fits the foot to suit the shoe. Again, the application of the red-hot shoe tends to contract the horn, thereby closing the pores of the hoof. The consequence is a dry and brittle hoof, and hard heels, with all the unfortunate

results which must naturally spring from such an unnatural state of the foot. Another certain cause, which again is to be attributed to the ignorance or carelessness of the blacksmith, is the using of the drawing knife too freely on the sole. They pare away at the sole, thumbing it to see if it will yield, and do not discontinue their foolish work until the sole bends under pressure of the thumb. This is wrong; the sole should be only moderately pared, otherwise contraction of the heels will be the result.

Treatment.—Soak daily in hot water, and apply the dressing for the hoof as recommended for corns; cut away a semicircle of horn in the front part of the hoof, next the shoe, and under the coronet  as thus, and put on a bar shoe after spreading the heels slightly. It is necessary to attend also to the general health of the animal, as if the system is feverish the hoof will sympathize, becoming hard and brittle, and reducing or preventing a speedy cure.

Cold or Catarrh.—A cold is considered of little account in man or beast by some, but only by thoughtless people. A cold is very debilitating to the system, and if not properly attended to, its not very remote possibilities are thoroughly disastrous. It may seem paradoxical to some people, but a cold in its present and future is simply a fever.

Causes.— Repression of perspiration, by closing the perspiratory pores, in whatever manner, is the cause of cold. This, of course, may be managed in many different ways; sometimes through accident, but more frequently through carelessness. A horse after being driven, and being in a state of perspiration, is taken to some place or other and left standing, while his master goes in to attend to his business or pleasure—frequently not so much as a rug is thrown over him. The consequence is that the cold air causes the pores of the skin to contract and close, and the perspiratory matter is thrown inward, and, irritating the mucous lining of some organ, is evinced in the lining membrane of the mouth and nose primarily, through the sympathetic nature of the lining mucous membrane. The lungs of a horse being very sensitive, and in close contiguity with the stomach, are easily affected by any abnormal action caused in that organ. An animal thoroughly heated by a long gallop or trot is pulled up and given a large drink of cold water; the lungs having been performing double work are in a state of intense heat, and the cold water in the stomach by its reflex action causes an intense contractile shock to these organs,—a shock almost as great as would be received if it was possible to pour the cold water on the substance of the lungs themselves. The

result is sometimes simply a cold, generally, however, a congestive chill, followed by Pneumonia (Inflammation of the Lungs). A cold in its primary stages is very easy to cure, but the stages from a cold to a fatal disease are so very undefined, and so rapid in their mode of action, that it is better to pay serious attention to a slight cold, than to risk the consequence of letting it run, on the chance of its curing itself, as some say. A cold is more usually experienced by horses in the spring and autumn, on account of the weak and relaxed state of their system, through the biennial shedding of their coats, and generally, also, from the owner making no allowance for this law of the animal economy, and working them just as hardly as he would at any other time of the year. The general vitality of the system is greatly lowered during the time this process is going on, and the pores of the skin consequently lose much of their contractile qualities. They, therefore, sweat more easily than when in their normal condition of health, sweating excessively being always a sign of weakness of the system. When the animals are in this state they will take cold by standing in a draught or otherwise, by which another horse would not be affected. Again, they are more liable to the serious results of colds in the spring than they are in the autumn. In the spring they are full of feed, and consequently in a gross condition; whereas in the autumn they are hard from their daily summer's work. Badly ventilated stables and carelessness with regard to clothing,—for instance, putting two or three rugs on on one night, and only one on the next,—this is another cause of a cold. The drying up by the heat of the blood of the mucous secretion on the membrane of the Trachea is the cause of a cold in the same manner as the secretion on the Pleura is dried, thereby causing adhesion of the Pleura to the Ribs, Lungs or Diaphragm. The horse whose Tracheal membrane is affected in this manner will take a cold; the horse whose Pleura is adhesive to any of the large organs mentioned will take Pneumonia (Inflammation of the Lungs).

Symptoms.—The symptoms of a cold are self-evident. Running from the nose and eyes, cough, and frequently a staring coat; the eyes also are dull, languid, and sometimes red; the patient is more or less off his feed; pulse slightly feverish.

Treatment.—Good nursing is the best kind of treatment. A warm stable, warm clothing, and pure air are the best medicines known in these as in many other cases. The horse should be steamed, by boiling hay until steam rises and then placing the steaming hay in a nose-bag with a little

tar, and allowing the steam to penetrate up the nostrils of the horse by keeping the nose-bag a half foot or so from, and under, the nostrils, and throwing a rug over all. Give linseed tea and bran mashes hot, with a couple of handfuls of scalded oats on top of the mash, and in the mash one of these powders, morning and evening: Sulphate of iron, one dram; powdered gentian, ginger and sulphur, one dram; liquorice root, half an ounce. Keep the animal free from draughts, and, these directions and remedies being followed, a cure will be effected without any further trouble. It is not the cold that is to be dreaded so much as the after effects of the cold which may accrue through inattention to the original disorder.

Cough is caused by inflammation of some part of the pulmonary organs, either by catching cold and the consequent drying up of the mucous secretion, or, it may be caused by the presence of foreign bodies in the trachea, bronchial tubes, or even in the lungs themselves. In some cases, as in the great Epizoötic which occurred in the United States about sixteen years ago, the Cough, as well as the other symptoms exhibited, was undoubtedly caused by atmospheric influence, as the infected atmospheric wave, so to speak, was clearly traced, and followed a given line. A coughing horse draws in the air with difficulty, and expels it noisily. Sometimes the cough is symptomatic—depending upon another disease for its presence; in such a case it goes without saying that the removal of the disease causing the cough implies the removal of the cough itself. Again, when it is caused by the lodgment of some foreign substance, such as dust, or the particle of an oat, the cough continues until the foreign substance is dislodged, whereby the irritation subsides and the cough disappears. It, therefore, behoves the owner to ascertain with certainty whether the cough exists as a disorder of itself, or whether it is dependent on some other abnormal disturbance in the system. A cough is the usual concomitant of a cold, in which case it is usually soft; but when the cause is to be traced to the lungs, the cough is generally harder and drier in sound. The cough is very often aggravated after the horse has swallowed his water, in which case, the lungs are to be suspected, on account, as before explained, of the contiguity of the stomach and the consequent shock to the lungs, which are always, on account of their work, in a greater condition of heat and are of more delicate construction than the other large organs.

Treatment.—An ordinary and simple cough will generally yield to the application of a liniment composed of aqua ammonia fort. (strong

spirits of ammonia) three ounces, oil of turpentine one ounce, soap liniment five ounces, tinct. of camphor two ounces, and olive oil seven ounces. This is a very good liniment for ordinary purposes, and should be always kept in the stable, as it is also a good remedy for strains, weak tendons, etc. At the same time the following powders are to be administered morning and evening: Bicarbonate of soda, nitre, bitartrate of potash, all powdered, of each six ounces; powdered liquorice root, twelve ounces, and powdered opium, two drams; mix and divide into twelve powders, give one morning and evening as above directed, and when the cough shows signs of yielding, one a day only. Careful attention is to be given to the clothing of the animal, and he must be kept out of all draughts. His diet should consist of thick oatmeal gruel and bran mash, equal parts, with linseed tea for his drink.

Curb.—Consists of inflammation of the lining membrane of the sheath, through which the back sinew or tendon runs. It shews itself four or five inches below the point of the hock, generally not far from the point of the sheath's muscular attachment. It is caused by blows or more generally by strains, as in jumping with hounds, or otherwise, or by pulling and straining at a heavy load. This disease, moreover, is, without doubt, hereditary, and is one of the very few cases in which I believe that the treatment by actual cautery (firing) may be justified. Some horses shew their predisposition to this disease before they actually develop it. These animals are usually more or less cowhocked, lumpy, and coarse-looking in the region of the lower part of the hock and back-sinew. Curb may arise also from a slip, as in rising from the floor of a wet and slippery stable. Sometimes it appears quite suddenly. The lameness occasioned by this disease or injury is necessarily very painful.

Treatment.—Many cases of Curb will yield to the application of a Blister repeated three times with an interval of a week between. First of all, however, the local inflammation must be reduced by hot fomentations frequently applied. Then shave or cut off the hair over the Curb and rub the blister well into the skin, leaving a coating of blister over the Curb about the thickness of half-a crown, and prevent the blister from running down the leg, which it often does (being melted by the heat of the skin), by securing lightly below the blistered part a light linen bandage previously oiled, the lower part being tied with tape. Twenty-four hours afterwards dress the blistered surface with sweet oil or common lard free

from salt. With the following blister I have invariably succeeded in effecting a cure. Take biniodide of mercury, two drams; iodine (in crystals dissolved by alcohol), one dram; cantharides powdered, half an ounce; simple cerate, or lard, free from salt, four ounces; mix, and use as directed. Should the Curb not yield to this, then throw the horse as directed under the article Castration, and fire the Curb; this is a sure and undoubted remedy. I have never failed with the blister just advised; but had I done so, I should have fired in such a case. A short time ago, all horses not only curbed, but those of a curby appearance, were fired. In the cases of those where the Curb was visibly developed, the operation was quite successful. In the cases of those where the Curb was suspected on account of the curby appearance, the operation was a failure, as in many cases, curbs were thrown out some time after the operation. Many gentlemen used to seem to delight in the irons, and valuable hunters were fired as a preventive to curb, but in no recorded case did the operation result effectually as a preventive. When, however, the Curb was visibly developed, in all cases a permanent cure was effected.

CHAPTER VI.

CONSTIPATION IN SUCKLINGS.—DROPSY.

Constipation in Sucklings.—Young colts and fillies are frequently troubled with constipation, which occurs during the first few days after their birth. The matter, of course, would be simple enough in the case of older animals. In the case of these young creatures, however, fatal results, very frequently ensue, from the effects of inflammation which is set up by the non-expulsion of the hardened fœces (dung) which is impacted in the rectum (straight gut). With older animals a mild dose of an oily purgative medicine would, together with injections, speedily make all things right. In these young things it would be very dangerous to resort to purgation by any medicines whatever given through the stomach, as that organ would conjointly with the bowels, immediately be attacked with inflammation. In treating young stock of this age and up to the time of weaning, I have always treated them through the mother's milk, that is, supposing such a suckling had a cough, or was feverish, I should then administer febrifuge (anti-fever) medicine to the mother, and the effect of that medicine would be observed in the suckling in a modified form through the milk imbibed from the mother. In these cases the administration of the amount of medicine, as well as the nature of it, which would be necessary to effect an evacuation of the bowels, would be simply equivalent to a sentence of death to the suckling. The treatment is to inject a small portion of sweet oil into the rectum, and after waiting ten minutes or so, then to oil the hand and fingers, whereby it is then possible to introduce the hand, or the fingers at all events, and so remove the hardened balls of dung. That is everything that is wanted in the case.

Dropsy takes place in several different organs of the horse. There is *Dropsy of the Head* (Hydrocephalus), or as it is called in the human subject, "water on the brain"; *Dropsy of the Chest* (Hydro-thorax); *Dropsy of the Pericardium* (bag covering the heart); *Dropsy of the Abdomen* (Ascites); *Dropsy of the Ovaries*; *Dropsy of the Testicle* (Hydrocele); *Dropsy of the Skin* (Anasarca). Dropsy is the deposition and infiltration of serum, or water, into one of these organs, or the skin. In the latter case, however, the deposit and infiltration, though referred to the skin, is not in the skin itself, but rather in the cellular tissue lying under the skin.

Dropsy is a consequence, and not a cause. It is the result of some disease of an inflammatory nature, which is acquired at a time when the constituents of the blood are in a disorganized and debilitated condition, and when once thoroughly established may be temporarily alleviated but not cured, as a general rule. In treating dropsical cases, it is the fashion, seemingly, to look upon the disease as an original one, and in consequence of this misapprehension the effect is treated instead of the *cause* of the effect; for instance, tapping is resorted to, which is well enough and necessary enough at its proper time, but if the cause of the disease had been ascertained and properly attended to, in all probability the watery substance could have been absorbed, and there would have been no necessity for the operation of tapping. A morbid action, and consequent torpidity of the absorbents, is the chief reason that the water accumulates in the rapid manner that it does; and this morbid action is undoubtedly caused by an impoverished and unhealthy condition of the blood. The original cause of this depraved condition of the vital fluid may be traced, generally, to the suppression of some of the secretory functions. Suppression of urine, of the lacteal fluid, or of the fœces, will produce this condition of the blood. Again, long continued evacuations, laxity of the exhalants, suppression and consequent striking inwards of eruptive discharges, obstructions of the lungs by one means or another will, to a certainty, effect a more or less disorganized condition of the vital components of the blood; and so, therefore, will have a very strong tendency to produce such diseases as culminate in Dropsy.

Dropsy of the Head (Hydrocephalus).—*Causes.*—Blows on the head, general debilitation of the system, sympathetic action with some other organ already affected, improper and ineffectual treatment of some disease in which the absorbents have lost their tone, such as epizoötic influenza, erysipelas, etc. Slight local inflammation, from whatever cause, may produce a depression of serum; it may also be produced by the pressure of small tumors or excrescences within the sensorium.

Symptoms.—The animal's appetite has left him. Looking dull, he hangs his head over the manger, and seems to appear as if he was half asleep; he leans forward, and his weight rests, consequently, more on his fore than hind feet.

Treatment.—Bleeding from the temporal artery has been recommended for this disease. The best thing for the farmer to do is to send

for a competent veterinary surgeon, as the disease is quite similar in its symptoms to the primary action in congestion of the brain. If this assistance cannot be obtained, cut or shave off the hair on the poll, and beneath and a little behind the ear in a circle about the size of a crown piece, and apply the following blister, well rubbed in :—Take biniodide of mercury, one dram ; cantharides, half an ounce ; iodine (dissolve the crystal in alcohol), three drams ; simple cerate, or sweet lard, two ounces and a-half. Then administer (for a full grown horse) raw linseed oil, one pint ; tincture of ginger, one ounce ; iodide of potassium, two drams ; spirits of nitre, two ounces ; mix them together, and at the moment the head is held up for administration, add to the mixture powdered Barbadoes aloes, seven drams ; do not put the aloes in until you are ready to give the medicine, as it should not be allowed time to sink down through the oil to the bottom of the horn or bottle. Very little hay should be given, but bran mashes and a handful of scalded oats may be allowed. The chill should be taken off the drinking water, or he may be allowed hay tea.

Dropsy of the Heart.—Here, again, is a misnomer, as the heart itself is not the subject of Dropsy, according to my experience, but the sac or bag which envelops that organ is the seat of this disorder.

Symptoms.—Heavy breathing, straddling with forelegs ; the animal will not lie down, evidently feeling the pressure of the enlarged pericardium on the heart itself, and fearing suffocation. There is also an expression of alarm to be observed in the eye, which is aggravated every time the feeling of oppression is increased.

Treatment.—All treatment is ineffectual in this case.

Dropsy of the Abdomen.—(Ascites).—This disease, unlike the former disease just mentioned, is infrequent, happily, in its occurrence. When it does occur, in almost all cases it is practically the ruin of the horse ; at the very best, the horse becomes greatly deteriorated, both as to his pecuniary value, and also as to his general health. It consists of a large accumulation of fluid in the abdomen, or belly. This usually takes place after inflammation of some of the abdominal viscera, and the peritoneum (the covering of the viscera) is distended, and thus forms a sac or cavity. The water escapes into the cavity by infiltration, and causes a great amount of pressure, tension, and, consequently, more or less irritation ; moreover, by the space taken up by the fluid, a difficulty of breathing is experienced, and this is caused by pressure on the lungs.

Symptoms.—Tension of the abdomen, a craving for water to drink, wasting away of the flesh, and a partial suppression of urine, the water being passed only in small quantities at a time. If the hand is placed on the abdomen and struck, the fluctuation of the water can be plainly heard. Fatty films are found in the fluid after death, showing the effect of the disease in causing absorption of the adipose (fatty) tissue.

Treatment.—The best treatment in this case is to administer tonic medicines, in combination with medicines of a diuretic nature, and the application of a lengthy blister about two inches wide, and a foot long, about a foot below the spine on each side. The cure greatly depends upon the constitutional vitality of the animal affected, and if the animal's system has not been too much depleted by the frequent exhibition of diuretics, unprotected by tonics, as is too often the case, then a reasonable hope may be entertained of a cure, more especially if the blister rises well, as that is evidence that there is vitality left, and consequently we may hope that through this stimulation the absorbents may receive such an amount of tone as to enable them to reassert their powerful and most useful functions. Take sulphate of iron one ounce and a half, gentian, golden seal and ginger two ounces, iodide of potassium six drams, juniper berries and nitre two ounces. Mix and divide into twelve balls by mixing with linseed meal and honey; give one morning and evening. Half an ounce of ammonia to each pail of drinking water is to be given, and the chill taken off the water. The oats should be scalded, and should be thoroughly cleaned, and a bran mash given every other day. The hay, also, should be the very best, and free from dust.

Dropsy of the Chest (Hydro-thorax).—This affection, again, is always of a secondary, never of a primary nature; it supervenes, as stated of all dropsical attacks in the general remarks on dropsy, after an attack of inflammation, and in almost every case after that of Inflammation of the Lungs. In this case the watery fluid has accumulated within the cavity of one, but generally, and at all events eventually, should it not be checked, in both of the Pleuræ (the membrane lining the walls of the chest and covering the lungs). In some cases pus is combined with the fluid; in others, fatty and other substances in a state of coagulation are present. In some cases the rapidity with which the fluid is collected is very remarkable. The cause is, as before stated. In the case of one my own horses, the hounds being in full cry on the far side of a deep brook, the mare, being unable to pass through the gate on account of the presence

of a lady rider and her horse, who were trying to get through, jumped clean off the bridge into the brook, much to my disgust, as it was very cold; the run was continued and she seemed all right when she was loaded in the evening in the horse-box for town; a day or so after, hydro-thorax set in after a *very slight* attack of pneumonia, and ended fatally. I was not then in practice, and the surgeon called in could do nothing effectually for her, although he had her under his treatment for some days.

Symptoms.—Difficulty in breathing, the Pleuræ being involved; the affected animal breathes in a kind of a jerking manner, similarly, and on the same principle as the cough is repressed with a jerk in pleurisy. As in all cases where the suffocating feeling is experienced by the animal through any kind of pressure on the pulmonary organs, the animal stands with his forelegs well apart, and for the same reason he is afraid to lie down. A gurgling noise may also be detected in the chest, consequent upon the dilation of the lungs, through the inhalation of air in the act of breathing. If this disease should be caused, as it is in many cases, from poverty of food, cold and damp stables, and general inattention to the care of the animal, and all this accumulation of evils should act upon a debilitated or wasting constitution, then hydro-thorax may take place without much inflammatory action occurring, or, at all events, without it being taken much notice of; and, consequently, the horse will continue to be worked, and in these cases it is generally slow work to cure the disease, the complaint quietly and insidiously undermining the health and constitution, until death mercifully puts an end to his sufferings. In these latter cases, after death the lungs are found to be smaller than their natural size; this results from these organs having contracted through pressure. There is, in the case of well-nourished animals, a strong hope to be entertained by the owner that the natural forces, with a little assistance, may be brought to reassert themselves, and a cure may be effected by the renewal of the power and tone of the absorbents. In all cases of animals badly nourished and worse cared for, even this hope is hardly allowable.

Treatment.—The operation termed Tapping should be performed at once. The reason that many cases prove fatal after this operation has been performed is that, as a rule, it is put off until too late to be of any service. The operation is performed with the trocar and canula, the puncture being made through the cartilages of the ribs (generally between the seventh and tenth rib), and the trocar being withdrawn the fluid

escapes through the canula, which should, however, be cleansed occasionally by the introduction of a thin piece of whalebone, as otherwise the coagulable matters will probably choke it up and prevent the exit of the fluid. After tapping one side, then operate on the other, taking care that the incision in the skin should be made so that the skin will, after the withdrawal of the canula, cover the wound, for which purpose the skin should be drawn either forward or backward from the site of the puncture. I only speak cursorily on this operation, as in the event of it having to be performed it is most advisable for the owner to obtain the services of a reliable practitioner, as it is quite possible for an unskilled person to wound the apex of the heart, or to allow the air to have access to the pleural cavity, in either of which cases it is almost unnecessary to say that a fatal result would ensue. The medicinal treatment is to give sulphate of iron, two ounces; nitrate, two ounces; goldenseal and gentian, one ounce; iodide of potassium, six drams; linseed meal, five ounces; pulverized black antimony, one ounce and a-half; mix and divide into twelve powders. Give one morning and evening. It is best in these cases to put each powder into just enough water to make it liquid, and to pour it down his throat, as by this means we are certain that he gets his medicine, whereas by putting it damped into the feed more or less is left, which fact, although of no importance in some slight cases, such as cold, etc., still in a dangerous case like this is of great importance, as every medicinal assistance is required, and, therefore, every grain prescribed should be administered. Some horses are also very cunning and will shake as much as possible of the powder from off their feed before consuming it. Apply a blister composed of biniodide af mercury, three drams; cantharides, powdered, six drams; iodine in crystals (dissolved), four drams; and lard (sweet) or simple cerate, six ounces. This blister is to be rubbed in on each side on a space four inches square, just behind and above the elbow. Give linseed tea for drink, and the most nourishing food he will eat. If his appetite is bad, tempt him with carrots, apples, or even boiled potatoes. Have the legs well hand-rubbed (and afterwards bandaged) at least twice a day, and make the man doing the rubbing use plenty of elbow grease. Should there be any trouble in administering the powders in water, then roll each one into a pill with honey and give in that manner.

Dropsy of the Skin (Anasarca).—This is a very common complaint and consists of infiltration of a watery fluid into the cellular tissue lying underneath the skin. It usually first makes its appearance

under the belly, and if not checked runs backwards towards the sheath and forwards between the forelegs. It gradually extends over the whole body, the face and head being sometimes very much enlarged. Its cause is debilitation and want of tone in the absorbents, and the general causes mentioned in this work as to Dropsy of the other parts apply equally to this case. The skin if pressed inwards with the finger will leave an indentation, or, in common parlance, "wind-pit". The remedies are tonics as given for other cases of Dropsy. In these cases, however, there is much less danger of a fatal issue. Gentle exercise should be given with the tonics, and it is advisable in bad cases to scarify the skin—make light incisions with a scalpel. This will relieve the tension of the parts and greatly assist the action of the tonic medicines. Give good, sound food, and do not grudge it; take the chill off the drinking water, and above all things, *give no purging medicines.*

Dropsy of the Testicle (Hydrocele).—In this case the liquid deposition is found in the scrotum (testicle bag) of the stallion, and as in other cases of Dropsy just treated of, is caused by inflammation in some contiguous parts—by a blow, for instance, on the testicles themselves, as in falling at a jump in the hunting field. Inflammation, however, in any part of the genito-urinary mechanism will produce this local disorder.

Symptons.—Enlargement of the Scrotum, and an evident appearance of fluid therein.

Treatment.—The tonic treatment mentioned before in cases of Dropsy is to be pursued, and the Scrotum tapped with a small trocar. The fluid having been withdrawn, a watery solution of Iodine is to be thrown into the Scrotum after due cleaning by the injection of warm water. It is well, also, to support the injured Scrotum by means of a sling, secured over the loins. Diet the same as in other cases of Dropsy.

CHAPTER VII.

DIARRHŒA.—DYSENTERY.—DIABETES.—DISEASE OF THE EYE.—PALSY OF THE OPTIC NERVE.—OPHTHALMIA.—FILM.

Diarrhœa.—Sometimes called "scours" by farmers. A looseness of the bowels, caused most frequently by the presence of some foreign or undigested substance, which irritates the mucous lining of the intestines; or it may be caused by a weakness of the absorbent system, in which latter case the absorbents having lost their functional powers, they become unable to take up the watery fluid of the intestines; in both of these cases extra peristaltic action is set up, and the dung becomes of a more or less liquid consistency. The animal system always obeys a strong law, which causes it to endeavor to throw off any foreign substance wherever it is situated. This is shown in the case of a sliver of wood in the skin, as also in the case of indigestible substances either in the stomach or in the alimentary canal; hence, in a great number of cases an attack of Diarrhœa is to be considered as a curative effort of nature, and should on no account be suddenly stopped by means of astringents, as such treatment will result in an attack of inflammation of the bowels, and in all probability will cause the loss of the horse. As an example:—Some few years ago, in one of the large cities of America, a certain person had been appointed as a marshal of one of the numerous processions so dear to the American citizen. This individual owned a *white* horse, and to his great loss in the sequel, the animal was taken ill with Diarrhœa the day before that appointed for the show, and being of a white color, the effects of the disorder were unpleasantly conspicuous in the region of his tail. The citizen, to whom in common with the generality of Americans a procession is a matter of solemn importance, especially when he is dressed in costume, immediately sent for a veterinary surgeon, and told him that he wanted the disorder stopped, as it was imperative that he should ride the horse on the morrow in the procession. The surgeon duly warned him of the risk he ran in suddenly checking the discharge, but the owner was deaf to all remonstrances. The discharge was duly stopped, the valiant citizen rode in the procession, soon after inflammation of the bowels set in, the horse died, and the next procession the citizen rides in will not, it is to be hoped, be of such an expensive nature to him. He, like many other owners of horses, bought his experience very dearly, but the probability is that he, also like many others, will not choose to profit by the lesson. Some horses purge much

more easily than others, and should be dieted accordingly. Horses will occasionally scour through nervous excitement, for instance, when at a meet with hounds, but in these cases it is only a temporary matter, generally speaking, although such circumstances might give rise to the bowels taking on a morbid habit, as it is well known that physical habits once contracted in the horse are as hard to eradicate as bad moral habits amongst ourselves. The inordinate use of cathartic medicine may cause Diarrhœa, as may also colds, the suddenly closure of the perspiratory tubes, and acidity of the stomach. Ulceration of the intestines is another cause of this disease, as is also any disease of the liver, whereby the bile becomes perverted in its nature, and is either redundant, or on the other hand deficient in the constituents necessary to act effectually on the chyme, and thereby aid its transformation into chyle. Wet or frozen herbage having strong diuretic qualities is another very common cause of the complaint. Debility of the system is also a certain and very frequent cause of the complaint.

Symptoms.—The chief symptom is self-evident, the dung being passed as a watery discharge, and sometimes even squirted out instead of its having the usual consistency and shape natural to it in health. In ordinary Diarrhœa there is little or no smell in the discharged fluid; sometimes, however, it is fetid, in which case extra care must be taken or it will run into dysentery. The horse is dull and heavy, with a disinclination to move, but yet is evidently in a state of uneasiness and disquietude. There is generally little or no pain, so that doubtless the uneasiness of the animal is to be attributed to the natural feeling of oppressiveness and distention which are characteristic of this disorder.

Treatment.—The only way we can cure a disease of any kind is to use such curative knowledge as we have, and endeavor to assist the natural forces. The disturbance of the equilibrium of the natural forces is the sole cause of any disease. Therefore, when the system is evidently trying to relieve itself of something or other which is causing irritation to it, the most common-sense way is to assist the system in its endeavor, and not to run counter to that which it is trying to do, by administering astringents, and thereby checking its means of helping itself. Accordingly, I recommend a dose of mild opening medicine immediately, as follows: Raw linseed oil (warmed), one pint and a-half; tincture of ginger, one ounce; tincture of the muriate of iron, two drams; sweet spirits of nitre, one ounce; and watery solution of Barbadoes aloes, four

drams; mix and give warm. I also advise that injections of hot soap-suds, at least a pailful and a-half, be thrown up. The patient is to be warmly clothed, the legs to be well hand-rubbed and bandaged, and plenty of sweet air to be let into the stable. The chill to be taken off his drinking water, and to each half-pail two teacupfuls of rice water is to be added. To make the rice water: Boil the rice and press it through a piece of linen, and the liquid is the rice water required. If the horse is getting weaker, give hot bran mash and scalded oats and drench him two or three times a day (according to the exigencies of the case) with warm ale one pint, flour gruel, not too thick, one pint. The injection also should consist of thin hot flour gruel in each pail, of which an ounce of laudanum and two drams of tincture of catechu should be mixed. This treatment I have always found effectual in ordinary cases. When the discharge begins to be thicker, its natural consistency may be encouraged by tonics. Give sulphate of copper one ounce, golden seal one ounce, powdered cinchona bark three ounces, ginger one and a-half ounces, linseed meal five ounces and a-half; mix and divide into twelve powders, or if preferable, roll up into pills with honey or treacle; give one morning, noon and evening, until further improvement, and then decrease to morning and evening only. The drink may be changed to thickish linseed tea, and the injections may be stopped. Give also two hours a day walking exercise, one hour in the morning and one in the afternoon, in fine weather, but on no account allow the animal outside in wet or cold weather. Good nursing in this, as indeed in all other diseases, ever improves the case, and is of so much importance to the medical treatment, that without it medicines, however good and adapted to the case, will have little or no effect.

Dysentery.—May be said to be diarrhœa in an aggravated form, and having a typhoid tendency. If diarrhœa attacks an animal which is simply debilitated, it will probably pass away from the patient in that form after proper treatment; but if the blood constituents have a tendency to purulency, then in that case the simple diarrhœa will run into Dysentery, the irritation being increased and the absorbents still inactive.

Symptoms.—The pulse indicates signs of fever. Sometimes, however, the fever is higher than it is at other times—colicky pains are requently felt. The fœcal discharge is not quite so watery as in Diarrhœa, but generally consists of small quantities of dung mixed with blood and mucous matter which is accompanied by a strong and fetid odor. Some-

times, also, in the efforts of the animal to assist the imaginary discharge, the rectum is protruded and even inverted. The animal is very sore in that locality. Give injections as before, very carefully and gently, and in each pail put thickish flour gruel one pint, watery solution of opium one and a-half ounces. Take tincture muriate of iron three ounces, carbolic acid two scruples, glycerine four ounces, tincture of ginger two ounces, hydrate of chloral one ounce, spirits of nitre three ounces, water eight ounces; give two teaspoonfuls every four hours or oftener if it seems necessary. Diet, bran mash, scalded oats, and thick flour gruel in equal quantities, but only a little at the time. If he won't eat then drench him with one pint of good, sound, hot ale, and one pint of thick flour gruel, three times a day. For drink he must only be allowed thick linseed tea. Great attention must be paid to cleanliness, both as to sponging the animal clean and then properly drying him, and also as to the removal from the stable of all fetid discharges, cloths, etc. Good ventilation and attention will generally effect a cure. When he begins to mend, then take him out for exercise as directed in the case of animals convalescent from Diarrhœa.

Diabetes.—This disease among the old writers was described under the head of Profuse Staling (for which see under that heading), which, indeed, in combination with its saccharine (sugary) constituents forms its most obvious symptoms. It is a disease the origin of which is usually imputed to the kidneys, and it is an undoubted fact that in the *post-mortem* examinations of animals who have succumbed to this disease, the kidneys are always found to be more or less in a state of disintegration. In some cases the kidneys are pale and flabby, and may be called half rotten; in other cases these organs have an appearance of inflammation, being highly vascular, although otherwise little difference is to be seen from the same organs in a state of health. That these organs have *suffered from the effects* of the disease is of course obvious to any observer; but that they are the *cause* of the disease, as a great many people seem to think, is, in my opinion, a great error. I believe that the primary and real cause of this complaint is to be looked for in some peculiarity or other of the digestive machinery, and especially to some morbid antagonism in the lacteals to matters of a saccharine nature. Starch, which is a constituent of all grain, is by some mysterious process converted, at all events partially, into sugar by the action of the digestive organs. The process by which this is effected is quite a mystery to us, in common with

the appropriation and deposition of the particles of the aliment which go to replenish the worn-out bone, artery, ligament, or nerve. Each appropriate particle is miraculously selected from the digested food, and each goes to its proper place—lime to bone, gluten to cartilage, etc. All these wonderful transpositions are, and probably ever will be, beyond the very limited knowledge of man, and remain, like many other important subjects, a mere matter of conjecture. The saccharine matter is passed on in its usual course to the kidneys, and being in excess of its usual and proper quantity, acts as a foreign substance and a consequent irritant to these organs. This excessive irritation acts as a morbid stimulant to the kidneys and causes them to perform double work in their acts of secretion. Hence they become diseased and worn out, and hence, also, the immense amount of urine which is passed by the patient. It is also to be remarked that the amount of water passed is more than double that which is consumed by the animal for drinking purposes, or than could be eliminated from the watery parts of the food, and this accounts for the excessive emaciation which soon develops itself in the case. Saccharine matter is *always present* in considerable quantities in the urine of a Diabetic patient. This disease is an insidious one, and the complaint has generally been progressing gradually for a long time before the owner's attention is directed to it. Some horses, too, may have profuse staling as a symptomatic disorder, and in these cases it is only necessary to treat the disease successfully from which this symptom originates, and the staling will then become natural again. In these cases, however, the saccharine matter, which is the test point, is absent. The inordinate use of diuretic medicines undoubtedy conduces to this disease; bad hay, half fermented oats, and, in fact, anything which tends to the impoverishment of the healthy constituents of the blood, will also encourage such morbid action in the digestive functions, as will tend to engender this disease.

Symptoms.—A profuse and frequent discharge of urine. The coat is dry and rough—great thirst, and a vigorous appetite, and a gradual marasmus (wasting away) of the whole body. The pulse is weak and indistinct, and, as is natural in most cases of debility, the legs soon become swollen.

Treatment.—The first thing to be done, should the disease be detected before much weakness is indicated, is to purge the horse, and thereby clean out the alimentary canal. However, should great weakness have made its appearance, the purge must be omitted. Use the oily

aloetic purge, for which see the Medicinal Appendix. Give good, sound food and linseed tea, and one of these powders or pills, morning, noon and evening :—Take carbonate of iron, two ounces and a half; gentian, two ounces ; ginger, one ounce and a-half ; sulphate of quinine, one ounce and a-half; iodide of potassium, one ounce and two drams ; and linseed meal, eight ounces. Mix, and divide into twelve powders or balls. Besides this, the last thing at night, give four grains of arsenic, and allow the horse two pints of lime-water a day

Eye, Disease of—There are a great number of diseases, unfortunately, to which the eye of the horse is subject. In a practical work of this sort, however, it is my intention to write only of those most commonly seen, and more or less understood by those desirous of treating their own animals in ordinary cases, and in the cases of many of whom the distance of their places of residence from that of a veterinary practitioner necessitates their doing something or other without delay. The eye of the horse is very similar in its construction and appendages to that of a man. The difference chiefly is in the shape, and also consists in the fact of the horse having one more muscle than the human being. This muscle is called the retractor muscle, and has the power of drawing the eye backward and inwards. The membrana nictitans (haw) is another appendage which is given to the horse, and which being unnecessary to the human being (on account of his possession of two hands, wherewith to wipe or cleanse the eye), is not found in man. This membrane is thrown over the eye, and retracted instantaneously. Through this momentary action, at the animal's own volition, the ball of the eye is cleansed from dust or other impurities.

Palsy of the Optic Nerve.—(Amaurosis or gutta serena). This disease, although considered incurable, is worth a few words, if only to warn farmers against buying horses suffering from this infirmity ; and the more so, that the detection of the disease is not evident to any but a very careful observer. The primary cause seems to be obscure ; the actual cause is inflammation in the neurilemma (nerve covering) of the optic nerve or nerves. It results, in my opinion, either from sympathy with some other affected part of the nervous system situated in the brain, or from slight affections of the brain itself. Almost every kind of experiment has been tried to cure this disease, but quite ineffectually ; the only case approaching this disease ever recorded as cured, was cured by accident. In this case the jugular vein was destroyed through the

inexperience of a young practitioner. The vein became obliterated after considerable tumefaction of the neck; the disease left the eyes, and the inflammation never returned. This case, however, was a violent attack of inflammation of the eyes, and would have probably resulted in paralysis of the optic nerves, had it not been checked in this very extraordinary manner. As the removal of the inflammatory action was, of course, due to this extraordinary counter-irritation, it seems almost allowable to imagine that by systematic and properly placed counter-irritation, a cure might be accomplished, especially as the applications most in favor in this disease have been setons between the jaws, towels in the same place, and blistering *behind the ears.*

Symptoms.—The eyes are quite bright, and on a casual examination are not to be distinguished from any sound eye. If, however, the eye is tested by placing the flame of a candle close up in front of it, then it is observed that the pupil of the eye does not contract as it would do if it were sound. The horse, moreover, gives evidence of his blindness by his manner of holding his head. He further lifts his feet highly, and with the certain amount of hesitation which is observable in all blind animals.

Treatment.—As every one has failed, it seems almost presumptuous to prescribe anything in such a case. However, it would be advisable to try small setons in the upper part of the cheek, and blisters about the size of half-a-crown three inches behind and under each eye. I would also secure small cloths loosely over each eye saturated with chloroform and belladonna, each one part to eight parts of water; over these light cloths thick and dry linen should be spread to prevent evaporation. During the treatment I should advise only a quarter feed of oats and plenty of bran mash. I believe that there is a chance of a cure under such treatment, and as these cases are not very common, it seems to be certainly worth a trial.

Ophthalmia.—This is really inflammation of the conjunctiva. The conjunctiva is the membrane which lines the eye-lids, and is also reflected back over the cornea (membrane covering the eye-ball). This membrane is highly vascular (full of blood-vessels) under the eye-lids, but more slightly so than the covering of the eye-ball. Ophthalmia is manifested in two different ways; that is, it is called Acute Ophthalmia when the attack is, though severe, still temporary only; and it is called Periodical Ophthalmia when it is intermittent in its action. Ophthalmia, either Acute or Periodic, is the most common of the diseases of the eye in the horse.

When one eye is affected the other eye is, also, always more or less affected. This is occasioned by the decussation of the optic nerves which partially amalgamate between the brain and their expansion into the retina. In the case of an injury to the nerve of the left eye, it is partially the right optic nerve which is affected, and vice versa. Where one eye is affected by inflammation, which eventually destroys the sight, then sooner or later the other eye will be similarly affected, and the result will be, as in the case of the first eye affected, blindness. As many old fallacies are still perpetuated, it may be as well to say here, that the old supposition which held that when one eye went blind it was a sure sign of safety to the other eye, is most erroneous, and simply shows a lack of anatomical and physiological knowledge in those who now retain the idea. Unfortunately, any practitioner, in the rural districts especially, will meet with more foolish notions of diseases than even this, and although the parties holding all these antiquated notions will listen to the reasonable explanations of such things and try to *appear* convinced, yet they remain convinced against their will, and are of the same opinion still !

Acute Ophthalmia.—In many cases this attack seems to be idiopathic (occult), and its first appearance is observed on entering the stable in the morning. The close confined ammoniacal atmosphere of some stables is quite sufficient cause to account for it, as the poisonous atmosphere irritates and inflames the delicate sensibility of the eye, and often gives rise to the disease. Other causes are dust, overheating, overdriving, and overheated and unwholesome feed. This disease, as in Periodic Ophthalmia, is entirely a local one ; but, of course, through the juxtaposition of the different parts of the eye, all the other component parts of the organ suffer more or less sympathetically. For instance, there is partial Iritis (Inflammation of the Iris), and so forth. This disease is undoubtedly hereditary.

Symptoms.—Engorgement of the small blood vessels, especially of those under the eyelid. The external eyelids swell and gradually close the eye, exuding a viscid matter which sometimes causes the lids to stick together. Tears run from the organ down the cheek. The eye-ball is slightly protruded in many cases, and there is evidently great pain ; sometimes there is a pellicle or film ; at other times there is no such deposition.

Treatment.—If the disease is caused by dust or other foreign substances, these irritants must be removed. If it is caused by heated

and unhealthy stables, combined with a heated condition of the blood, then the remedy is obvious, namely, the proper ventilation of the stables, and the reduction of the quantity of strong feed. However, the eye, of course, must be practically attended to. Bathe the eye first with *tepid* water thoroughly. Cut two pieces of thick linen into the shape of such a shade as is used for a man's eyes, only make each large enough to cover one of the horse's eyes. Take a soft sponge and break it into small pieces, and laying it on the shade sew another corresponding piece of linen as a back to it, enclosing the small pieces of sponge. Pass tape through each and secure them in such a position that one will hang loosely over each eye. This will exclude the light and the irritation produced thereby, and at the same time will hold and retain the lotion. And here it is to be remarked that the light, at all events, must be excluded from both eyes, even if one only seems to be affected; although if the affection is confined to one eye there is no necessity that the lotion should be applied to the sound eye, but the *light must be excluded from both for some little time.* Then cut the hair close on the cheek two or three inches below and back of the eye, about the size of a half crown, and apply the counter-irritant to be here mentioned. For the lotion: Take sulphate of zinc, fifteen grains; acetate of lead, ten grains; tannic acid, two scruples; put these into a quart of rain water which has been strained through muslin, and keep the shades over the eye continually moist with the lotion. For the counter-irritant: Take tartar emetic, three drams; simple cerate or sweet lard, three ounces; rub this in on the spots where the hair has been cut off, until little pimples begin to be felt. Give nitre, four ounces; bicarbonate of soda, six ounces; bitrartrate of potash, two ounces; mix and divide into twelve powers or pills and give one morning and evening. Diet, bran mash with scalded oats, and the chill is to be taken off the drinking water.

Periodic Ophthalmia.—This disease differs only from Acute Ophthalmia from the fact of its continual recurrence. Not only that, but the disease flies from one eye to the other. This complaint when once thoroughly established can be alleviated, but as a rule, from the continued recurrence of the inflammatory action, the eyes contract a morbid habit which ends sometimes in blindness, from the destruction of the nerve. In other cases it also ends in blindness from disintegration of the physical structure of the eye.

Treatment is the same as in Acute Ophthalmia, but it is very unadvisable to purchase or to own an animal who is liable to this disease.

Film.—This is a very common occurrence indeed. The eye is covered with a film sometimes transparent and sometimes quite opaque. There is always more or less inflammation, as this disease is caused, without doubt, by inflammation of the conjunctiva which secretes the substance forming the film. Sometimes, indeed, the inflammation is intense, at which time the film appears of an orange or bloody color. When this appearance is present great danger is imminent, both as regards the nerve, and also from the fact that rupture of the anterior chamber of the eye-ball itself is very liable to occur. During the course of twenty-three years' practice, I have never observed this disease to attack a suckling, but in one case only. In this case it was taken by a six weeks' old suckling, I believe, from the mother through the milk. The mare had only a slight cold and defluxion of the eyes, but the suckling was afflicted in both eyes with a thick film of the dreaded orange color, and being also constipated, of course the virulency of the inflammation was enhanced by this last fact. However, by the means of local applications and cooling medicines, through the mother, the case happily terminated successfully. Very young horses are rarely attacked. A hay seed or other foreign body—dust, for instance—will assist to produce this complaint. This is another disease which is connected with antiquated remedies *still practiced.* It is quite common for some people, at this day, to blow powdered loaf sugar, pounded glass, and other substances of an equally efficacious nature, into eye of the unfortunate animal. The intention is no doubt good, but the result of the performance is worse than unsatisfactory.

Treatment.—Make shades to suit the eye as directed in two cases of acute and periodic ophthalmia, and use this lotion:—Take sulphate of zinc, fifteen grains; acetate of lead, fifteen grains; watery solution of opium, two teaspoonfuls; rain water strained, as before directed, one quart; then boil one ounce and a-half of strong genuine green tea, strain and add. Apply the lotion as directed in ophthalmia, and use the same counter-irritant ointment. Diet and nursing as in ophthalmia also.

CHAPTER VIII.

CATARACT.—ERUPTIONS OF KNEE AND HOCK.—EPILEPSY.—ELBOW, CAPPED.—EARACHE.—ERYSIPELAS.

Cataract.—This is disease of the crystalline lens of the eye, and has been a great cause of litigation. One man sells another an animal who has cataract in a state of incubation, as it may be called,—that is, an action antagonistic to the healthy being of the eye, and which has probably been going on for some time; still there are no visible signs, and the horse changes hands. Possibly in a few weeks the specks of cataract are detected, and the buyer imagines that they were there when he purchased the horse, whilst the seller declares (truly enough) that nothing of the kind was visible at time of sale. The case goes into court, and as I have personally heard, the most extraordinary things are sworn to as to the disease; and the law, as most often is the case, decides for the wrong party. Cataract is frequently the sequel of ophthalmia; the malignancy of the inflammation in ophthalmia increases to such an extent that the crystalline lens becomes affected. The first appearance of the disease consists of a milk-white speck, or specks. These specks usually commence in the centre of the lens, gradually increasing until opacity of the entire lens ensues. There seems to be little or no pain during its incubatory stage, as the local nerves are not numerous. This disorganization continues until the capsule of the lens is destroyed and a false capsule is formed by means of the lymph which is exuded. There are other structural changes which take place, sympathetically, in the aqueous humor, iris, etc., which are not necessary to be mentioned in a practical book such as this is. In the case of the man, the operation of depressing the lens is performed, whereby the sight is restored imperfectly, the focus having been lost, together with the lens. By the means of spectacles or eye-glasses an artificial focus is obtained, and, consequently, perfect vision. Obviously, in the case of the horse this would be impossible, as although glasses might be easily secured on the animal, yet the initial drawback would exist in the fact of our being unable to know when a proper focus was acquired by the animal. Therefore we may say that cataract is practically incurable. Great attention should be paid to the appearance of a horse's eyes on the part of an intending purchaser, and due inquiries should be made as to the physical defects of both sire and dam, as this disease, with many others, is clearly capable of being transmitted by the parents to their offspring; in other

words, it is hereditary. In conjunction with a retired American physician, I performed this operation sixteen years ago when practising in the State of Iowa, U. S. A. Chloroform was administered, and the operation was very successfully performed by depression of the lens during the period of the animal's unconsciousness. The horse, who was quite blind in that eye before the operation, was perfectly able to see although the vision was doubtless indistinct. Therefore, as the operation results in the restoration of *imperfect* vision only, it is of very little use, and may in some cases be worse than useless, as the animal is more likely to shy inveterately, all objects appearing to him under such strange shapes.

Eruptions of Knee and Hock.—(Mallenders and Sallenders).—This disease consists of scurfy eruptions, attended with itching, on the bend of the knee in the fore-leg, and in the front bend of the hock in the hind leg. They are called Mallenders when in the bend of the knee, and Sallenders when in the bend of the hock. They are generally caused by dirt accumulating in these places and the want of cleanliness in the attendant in his not properly washing and cleansing the parts. The perspiratory and oil pores get clogged, and the perspiratory and oily matter is thrown inwardly on the cellular tissue, causing a partial interruption to the local circulation, and consequent irritation. This complaint, in common with some other skin diseases, is more generally found in horses of a gross habit and who are coarsely bred. If attended to in its primary stage, cleanliness and a simple solution of sulphate of zinc—say a dram of sulphate of zinc to a pint of water—will effect a cure. If, however, as is generally the case, the disease is not brought to the owner's notice until cracks have made their appearance, accompanied by the usual ichorous discharge, then not only must topical application be used, but it will be found that it is necessary to act on the general system of the animal. The horse suffering under this complaint, at the time of the appearance of the cracks, is generally very lame indeed. There is usually a great deal of heat in the affected parts and occasionally more or less sympathetic tumefaction in the parts contiguous to the seat of the disease. The treatment now to be given is to be applied impartially to both the fore and hind legs. First of all, bathe, and then wash the parts with warm water and castile soap-suds, and afterwards dry thoroughly, but carefully and gently, as the parts are very painful. Then apply tinct. camphor two ounces, pyroligneous acid one ounce, carbolic acid one dram, and olive oil twelve ounces; mix and apply. Keep the parts also continually

covered with a linen cloth saturated in the above embrocation. Internally, give cinchona bark (powdered) four ounces, carbonate of iron two ounces, gentian one ounce, nitre four ounces, linseed meal six ounces; mix and divide into twelve powders. One powder or pill morning and evening. Allow only quarter feed of oats in bran mash, and put half an ounce of nitre in each pailful of drinking water.

Epilepsy.—Manifests itself in the form of a convulsive fit, and is rarely, if ever, detected in its true nature, except by skilled observers, being usually mistaken for what is termed "staggers." The animal is taken very suddenly, and falls immediately. These symptoms, I presume, are the cause of the disease being confused with apoplexy, or what is known commonly as staggers. Apoplexy is distinctly a disease caused by disorder of the blood, and usually depending for its primary cause on some disordered digestive organ. Epilepsy is distinctly a disease of the nerves. Again, apoplexy in the horse is dangerous both to the animal and his rider or driver. In the case of the horse it may result fatally through the rupture of a blood vessel in the brain; in the case of the rider or driver it may result fatally by his being thrown either off or out with such a sudden shock. Epileptic fits, however, are dangerous only to the person driving or riding. In this case the horse comes down all of a heap; and, if going at speed, there is no telling exactly where the driver may be found, owing to the sudden fall and stoppage; and the same remark applies to the rider—possibly even more so.

Symptoms.—Sometimes the horse drops suddenly without warning. Sometimes premonitory symptoms occur ten or fifteen minutes before the fit takes possession of the patient. Doubtless these premonitory symptoms, which consist of shaking the head and nervous twitchings of the limbs and body, are present before each attack, but being in harness and in motion, which is the time when the attack usually takes place, they are not observed. Mares are far more subject to this disease than horses are. If the animal is in the stable when these premonitory symptoms show themselves, it is better to take it out into a yard where there is plenty of straw or soft manure heaps. The attack comes on very suddenly, and the horse falls as if shot, every part of the animal being in a state of nervous tension, seems as rigid as if made out of wood. The eyes are protruded and stare, froth appears at the mouth, and sometimes the tongue is severely lacerated through being caught by the teeth; every now and then the afflicted animal seems to

partially revive and lashes out impartially in every direction, the lower lip drops and perspiration begins to show itself (a good symptom). The horse during this fit is not only a painful object to look at, but even a terrible one, and to an uninstructed person there would appear to be certainly but one termination to the terrible struggle—grinding of the teeth, and so forth, that seem to be literally rending the animal's frame. The disease, however, is worse in its appearance than its reality, as there is little if any danger to the vital functions. Some animals show strange symptoms. In the last case that came under my care, the animal did a thing which was almost an impossibility to be done, and, certainly, never could be accomplished by man or beast in their conscious moments. The patient was a trotting horse, with a record 2.23. I was called in to treat an old injury on one of her legs, by which she was slightly lame; after attending for a few minutes to the case, the owner told me that the day before she had had a fit of staggers while in harness, in which she fell and broke a shaft, spilling her passengers over the road. After a few inquiries I told him my belief was that it was Epilepsy, and not Apoplexy, and that as the treatment was very different in the two cases, I should be very glad if I was present if she was seized again. I had not spoken these words ten minutes when I noticed the throwing of the head and the limbs and body commencing. I immediately had her taken into a field, and the fit, a very horrible one to look at, came on; after ten minutes of struggling, muscular tension, grinding of the teeth, she jumped up and stood solidly like a wooden horse, while a person might count ten seconds or more very slowly, and during that time the length of her body and head was leaning at an angle of forty-six or forty-seven degrees, taking the line from her fore to her hind legs as the base. It certainly was a most extraordinary sight and a very unnatural and weird one.

Treatment.—The treatment must, of course, be preventive in its action if possible. When the fit is coming on, however, if possible put a thick piece of wood as a gag into the mouth, to prevent the tongue being bitten. Exercise, sound feed in moderate quantities, and freedom from excitement, are to be recommended in this case. When the fit is once on, the paroxysms may be relieved by the administration of chloroform by inhalation (providing always that the heart of the animal is not diseased). Put an ounce and a-half of chloroform on a sponge and hold it to the nostrils; *do not cover the sponge*, but hold it in such a manner that, as the horse inhales the chloroform, the passage of atmospheric air may not be interfered with; have the horse thoroughly and regularly groomed, as by

this means the pores of the skin are kept open, and thereby relieve the nervous system of many irritating impurities. Take hydrate of choral, two ounces; tincture of asafœtida, four ounces; fluid extract of valerian, six drams; tincture of muriate of iron, three ounces; water, eight ounces; mix, and give a wineglassful every morning an hour before feeding.

Elbow, Capped.—This is sometimes called a shoe-boil, as in the act of resting at night when lying down in the stable, the calk of the hind shoe both bruises and irritates the olecranon (point of the elbow); the consequence is, as explained in the first part of this work under the head of "abscesses," that irritation and local inflammation is set up and a small tumor appears on the point of the elbow. Through the nightly irritation caused through the position the horse lies in, the tumor increases in size, until I have seen it as large as a ten-pound cannon ball. If this tumor is treated during its first formation, an iodine blister will cause absorption, but it is generally when the abscess has lost its vitality and become a tumor of considerable dimensions that the farmer takes steps to cause its removal. In such a case it should be excised with the scalpel. Make a central incision over the lump, and dissect the skin back (the horse, of course, having been previously thrown), then dissect out the tumor, and after shaping the skin with a pair of scissors, bring it back and suture it. There is no danger of hemorrhage or otherwise, and the dressing need be simply carbolized oil, for which see Medicinal Appendix at the end of the book.

Earache *(Otalgia).*—Many people seem to think it quite a strange thing when told that their horse has the earache or toothache, although it is hard to say on what reason they ground their opinion. Horses are subject to earache, toothache, and, doubtless, headache; and if the poor brutes in the last case had the means of conveying the fact to us, we should probably have a very strong asseveration on that point. In the case of earache and toothache, the symptoms are quite convincing, and the cures of the complaints by proper remedies emphasize the truth of the exact situation of the pain caused thereby. Earache in the horse is caused by catching cold through draughts in the stable, or otherwise, and also, not unfrequently, by the brutality of the attendant, which is exhibited by striking the animal over the head with a whipstock or some other implement of torture. It may also be caused by the inflammatory action attendant upon rheumatism, by the entrance and retention of foreign bodies, such as insects, hayseeds, etc. Further, it may have its origination in the formation of ulcers in the ear.

Symptoms.—Restlessness, continual sidelong shaking of the head, rubbing the ear affected and scratching it with the hind foot, more or less heat and great tenderness, and consequent aversion to the handling of that organ. Occasionally there is an appearance and oozing of pus or matter from the internal parts.

Treatment.—Foreign bodies must be removed. One way to remove them is to inject warm water one part, glycerine one part, and at the same time insert a small wooden spatula very gently round the internal space, scraping it very softly. If, however, the internal parts are clean, but hot and inflamed, then bathe the ear externally and internally with hot water in which hops have been boiled. Sweet oil one part and laudanum one-half part is a good remedy. Give in bad cases, tincture of aconite half an ounce, sweet spirits of nitre four ounces, hydrate of choral half an ounce, water twelve ounces. Dose, two teaspoonfuls three times a day until the patient is easier, then twice a day for two days, then once a day. But the dose must be left greatly to the discretion of the owner, for it is no use to keep on dosing after the effect to be desired is produced.

Erysipelas.—(Cellulitis.)—A disease of the cellular tissue, in which the cells are filled with pus instead of their natural secretion. It is not very common in horses, but still is occasionally seen both in them and in neat cattle also. As Anasarca is a disease consisting of a deposit of watery fluid in the cellular tissue, and thus constituting dropsy of the skin, so Erysipelas is a deposit of pus in the same tissues. In the case of dropsy of the skin the cure is performed by absorption, but in the case of Erysipelas the effect of absorption would be to cause pyœmia (blood-poisoning), and in such a case this would, in all probability, result in causing death. Erysipelas in the horse, when it really does take place, usually affects the hind limbs, although it is occasionally found in the face. The disease known as Big-Head, so frequently seen in the western part of the United States, I consider to be Erysipelas, or at all events a disease of an erysipelatous nature. The reason for this opinion is that, in the cases which I have treated of this disease, a favorable result has always been obtained by the exhibition of the remedies used in the cases of Erysipelas. It is caused by a foul condition of the blood, and, consequently, of the whole system. A blow will produce it, under the above conditions, in a given part by setting up local inflammation and a consequent infiltration of pus into the cellular tissue. Suppression of the cutaneous perspiration

and cold will also produce it. In the greater number of cases it is idiopathic (cause undemonstrable).

Symptoms.—Tender swelling in the parts affected, loss of appetite, and loss of the desire to drink, depression of spirits, and more or less pain.

Treatment.—Here the indication is to get rid of the pus before absorption has taken place generally in the system. The best treatment is iron, both externally and internally. Lay the part open, and the pus will run out to some extent, although it will not do so altogether, as the pus is always found in the contiguous cellular tissue. The limb or part affected must be pressed occasionally, in order to force the matter down to the opening made, and then must be poulticed *frequently* with hot linseed meal, that is, as soon as one poultice begins to get cold another must be put on. A cold poultice is worse than none, as when the heat has left, the poultice only acts as a repellant. Continued poulticing must be kept up until the matter has been drained out. Give a pint of ale three times a day, warmed, and take exsiccated sulphate of iron two ounces and a-half, gentian two ounces, quassia one ounce, iodide of potassium one ounce, ginger two ounces, linseed meal seven ounces ; mix and divide into twelve powders, or balls and give one morning and evening one hour before feeding. Take great care the patient does not take cold. Scald his oats and give him bran mash every other day with his scalded oats in the mash. For drink give chilled water with one ounce of nitre to each three-quarters of a pailful.

CHAPTER IX.

FARCY.—FEVER AND AGUE.—FOUL SHEATH.—FIRING.

Farcy.—In its primary stage this is called a disease of the skin, but I think it might be more properly called a disease of the sympathetic absorbents and cellular tissue combined, even in that stage. Farcy has been much written about. Everyone connected with horses has naturally a horror of Farcy, as it is considered the precursor, if not the twin brother, of that appalling and incurable disease the Glanders. That it is often the precursor there can be no manner of doubt; but when it is so, it is because either that it is malignant, and so actually the first stage of Glanders, or else that although curable at the time of its first appearance, the case has been so neglected or inefficiently treated that it has got hold of the whole system and so develops into Glanders. I believe myself that Farcy is really Glanders in its first and curable stage. If the Farcy matter is taken from a diseased horse and injected subcutaneously, it will produce Farcy in the healthy horse. If, however, the Farcy matter is injected deeply into the body, it will not produce Farcy, but it will produce Glanders. This fact goes to show the intimacy of the nature of the two diseases. Again, the matter both of Farcy and Glanders has been administered internally as a pill, and as in the case of matter of yellow fever subjects in the human race, has had no effect whatever either one way or the other. Many hold that abrasion of the skin is necessary in order that the farcerous and glanderous matter may have sufficient power to impregnate the animal system with its poisonous qualities. I believe, however, that the matter coming in contact with a delicate membrane, such as the mucous membrane lining the nostrils, has in itself such a penetrating and corroding power that it forces itself into the minute texture of the membrane, and is consequently taken up by the absorbents and capillary blood vessels, and so conveyed gradually into the large blood vessels and tissues. Farcy seems to be certainly a poisonous disease, differing only from glanders in the ratio of its malignancy and in its position,—Farcy affecting the skin, cellular tissue and lymphatics; whereas glanders affects the whole organism. The cause of Farcy is either to be imputed to contagion or atmospheric infection, or else is quite a matter of conjecture. As this is the case, it may well be asked whether the presence of microbes and bacilli does not solve the problem of its cause. My own opinion, published ten years ago in a N. Y. paper, is that the poisonous germs of many diseases are lying latent in many, if not all, animal systems, and that it

only requires a given state of external atmospheric influence, together with a given and predisposing state of the animal's system, to develop and fructify these germs, producing thereby the disease. Then comes the question, whence the germs? There can be little doubt that their original engenderment is assisted, if not actually produced, by atmospheric inhalation, or by contagion on the delicate mucous surfaces, such as the membrane of the nose, eye, etc. These invisible irritants tend, doubtless, to the incubation of a diseased condition of the blood through their presence, and are a source of many diseases for the cause or causes of the appearance of which we, with our limited but still boasted knowledge, are unable to account.

Symptoms.—The first symptoms observed are external; there is a discharge from both nostrils, slight in the beginning, but increasing in volume and purulency as the disease gradually encroaches on the general system. In the inside of the hind legs, following the course of the veins, swellings may be observed, accompanied by small knots, as it were. These are the enlarged and irritated lymphatic absorbents; the old practitioners gave them the name of farcy buds, and this name they have still retained. In mild cases which have been properly treated, the symptoms are limited to these just mentioned, and in such a case a cure may be hoped for. In these mild cases, as in cases of a more serious nature, the knots or swellings in the inside of the hind-legs will shortly burst and discharge a fetid and ichorous matter. These swellings are the enlarged lymphatics which follow the course of the veins, and it is probably from their contiguity to the veins, that the older practitioners used in many cases to attribute the disease to the veins themselves. We all now know what a great mistake that was; but many mistakes, even greater than that, have now been rectified through the greater attention which has of late been paid by assiduous and painstaking men devoted to the veterinary art.

Treatment.—Open the enlargements or Farcy buds with a lancet or scalpel, and apply to each, by means of a small piece of sponge tied to the end of a probe or piece of whalebone, the following mixture: Take hydrochloric acid, half an ounce; strongest carbolic acid, six drams; glycerine, one ounce. Apply this daily until the sores lose their unhealthy appearance. At the same time give the oily aloetie purge (see Appendix), and when the medicine has operated thoroughly then give: Sulphate of copper, one ounce; arsenic, one dram; iodide of potassium, one ounce; sulphur, one ounce; linseed meal, eight ounces; nitre, one and a-half ounces;

mix, and divide into twelve powders or balls and give one twice a day, morning and evening, an hour before feeding. Take the chill off the water, and take care the animal does not take cold. The discharge from the nose should not be checked, but rather encouraged by steaming as before directed in other cases. The pails or other vessels, however, which are used for this purpose should be destroyed after the case is completed, to avoid all danger of transmitting the disease to some other healthy horse, as precaution is better than cure. In the next stage of Farcy the disease is more dangerous, and consequently more difficult to handle. In some cases, indeed, the lungs are very much affected in this stage of the complaint. This may be detected by the change in the discharge from the nostrils, as also by the animal acquiring a cough. The discharge changes from a white color to a darker or dirtier-looking one, and is streaked with blood; the smell also begins to be of a more or less fetid nature. In the cases where the lungs are affected I should, after having already ascertained that fact, very much despair of attaining a cure, and would advise that the animal should be put out of its misery, as the ultimate result would certainly be a case of Glanders, the disease showing by its making its appearance in the lungs that it has acquired a certain hold on the general system, the internal viscera having doubtless in common with the lungs developed a tendency to the farcy tumors, which when thoroughly developed will be neither more or less than Glanders. In the second stage the treatment must be more energetic. This stage proclaims its presence by the farcy buds making their appearance along the back, on the sides of the neck following the course of the jugular vein, and occasionally on the face; the discharge from the nostrils also becomes more purulent, and the buds on the inside of the hind legs seem to refuse to yield to treatment, the sores having a livid appearance. The same treatment of the buds in the face, neck and back, must be used as described before in the case of Simple Farcy, and also to the fore-legs when the buds make their appearance, as they usually do in this locality also. When the case increases in malignancy, give internally: Sulphate of iron, exsiccated, two ounces and a-half; arsenic, one dram, one scruple; sulphur, two ounces and a-half; sarsaparilla, three ounces; gentian, one ounce and a-half; iodide of potassium one ounce; linseed meal, six ounces; mix and divide into twelve powders or balls, and give one three times a day. This treatment is to follow the strong aloetic purge, to which is to be added golden seal six drams and sulphur half an ounce; put these two medicines into the oil at the same time as the powdered aloes is put in (see Medicinal

Appendix). The horse thus afflicted should be thoroughly isolated, and all things that have been used around him during his sickness should be destroyed, no matter whether he recovers or whether he dies or is destroyed. The stables, also the rack, and mangers especially, should be thoroughly scraped and whitewashed. In each pail of whitewash put one ounce of carbolic acid ; but it is better, if possible, to destroy the rack and manger. Some only take these after-precautions in cases where the disease has been pronounced to be Glanders, but it is equally necessary in the cases of horses suffering from the first and second stages of Farcy, which so closely approach Glanders itself that there is little difference beside the name.

Fever and Ague (Intermittent Fever).—This disease is as a general rule only found in swampy, low-lying districts, and although not infrequent in America, especially in the Western States, is comparatively rare at home, and if not actually absent, it is certainly very little noticed. It is due to the miasma or malarious germs which rise from water in a state of stagnation, and which, consequently, are more or less putrid in their nature. In these cases the liver is always more or less affected, becoming torpid in its action, and showing its torpidity by the appearance of a yellow shade in the membrane of the eye, this being the result of the improper assimilation of the bile. It is quite possible, however, for a horse to contract this disease through damp and close stables in conjunction with frequent exposure to rain and cold.

Symptoms.—The symptoms are very plain in this case. It commences with languor and weakness, the Schneiderian membrane (membrane of the nostril) shewing the pale appearance usual in debility ; the coat stares, and a chill occurs with trembling which lasts for some time, varying in different animals according to their strength of constitution and consequent ability to resist the encroachment of the miasmatic poison. These chills and trembling intermit (hence the name of the disease), and return, unless checked by proper remedies at regular intervals, in one, two or more days

Treatment.—If the cause is damp stables and exposure, the remedy consists in giving the poor beast better quarters after the proper medicines have been used. In this case it is perfectly useless to use any medicinal remedies, unless the cause provoking the disease is first removed. Indeed, in cases where the animal contracts it from living in a low, marshy neighborhood, the most advisable action to be taken on the patient's recovery would be either to sell him or exchange him for an animal whose

system can resist the disease, or else to remove him to some farm standing on higher ground. The constitution of horses differs in each individual quite as much as in the case of the human subject, and when one animal's constitution is capable of resisting the disease, that of another is perfectly capable of being saturated with malaria. It is good policy for all farmers (to say nothing of their duty in that respect) to keep all their work horses in as high a condition as is consistent with their health, because all horses who are worked too hard are in a state which, more or less, invites the presence of all diseases; and when they are once attacked, the want of strength and tone of the system generally causes an inability in the animal to throw off the acquired disease. This is especially so in this as in other complaints of a like nature.

Treatment.—Warmth and good nursing must be given. Tonics are excellent also in combination with alteratives. The actual cure of the disease is to be accomplished always by the administration of arsenic, which is a specific for this disease. Give seven grains of arsenic with two drams of gentian and one dram of ginger; give it as pill or ball twice a day until the chills cease to recur. If the animal remains weak, give the tonic iron powders twice a day (see Medicinal Appendix). Give moderate exercise between the chill, but be very careful the patient does not catch a cold. Bran mash and usual allowance of oats scalded and linseed tea for drink.

Foul Sheath.—Frequently through the accumulation of dirty matters in the sheath of the horse, consisting of dust and other extraneous matters, combined and glued together by the mucous secretion of that part, a predisposition to disease of the urinary organs is set up. These conglomerations of dirt and mucus are sometimes termed "Beans," from their supposed resemblance in size and form to that vegetable. In some cases they, by accumulation, grow to a considerable size, and occasionally plug the urethra to such an extent that the exit of the urine is, if not entirely stopped, reduced to a trickling stream. Consequently, the bladder is unable to empty itself as it should, and this may cause a total suppression of that necessary evacuation. Not only this, but the urine which is retained in the bladder becomes more or less fetid, and acts as a poisonous irritant to that organ. Some cases where the horse has died from rupture of the bladder in former times could, undoubtedly, be traced to this affection. In these days, however, more attention is paid to cleanliness in every form, speaking generally. Still, almost every

practitioner can bear witness to a great number of cases which have come under his observation in diseases of the urinary organs, where he has found the sheath to be in a disgusting condition. Although this may not have been the primary cause of the disease for which he was treating the animal, still, through sympathetic action, this state of unnatural filthiness has in most cases caused the disease to present itself in a more serious form than it otherwise would have done. The sheath of a horse, and especially of farm horses, should be cleansed with warm soap suds, and then with warm water, at least once a week. After cleansing, it is well to oil the parts by passing upwards a small sponge previously smeared with sweet oil. In the case of finding a bean, it must be removed by the hand, that member together with the arm having been previously oiled. Sometimes the bean adheres more or less, in which case patient manipulation, combined with oil, will detach the foreign substance after a little while. The villanous smell given off from the obstruction, and from the parts themselves, will show that in a little more time the parts would become almost putrified. All such foreign substances in any part of the body, but more especially in a part so tender as this, will eventually, more or less, disturb the healthy equilibrium of the animal's system.

Firing.—Until of late years, and, unfortunately, even now to a great extent, the use of the Actual Cautery (red-hot iron) was, and is, considered to be the cure, and not only the cure, but the preventive, of a great number of complaints and diseases. It is the fashion (and a very cruel fashion it is) to burn the palate in cases of Lampas. By this operation the surrounding integuments become calloused, and the sense of taste is, to a great extent, lost. Again, owners of racing stock to this day order their horses to be fired *for weakness of the back sinews*, when other treatment is known which is not only more effectual, but which has the additional advantage of leaving the animal unblemished. In the case of a suspected curb, again, firing is frequently used as a preventive, when it is not of the slightest use as such. Firing in this indiscriminate manner, as in the case of ringbones, windgalls, etc., the diseases just mentioned and others which could be also mentioned, is simply a confession of ignorance with regard to the proper remedies which ought to be used, and, moreover, with regard to the pernicious effects often left by the iron. It is a relic of barbarism which, with many other such relics, ought to be deeply buried and never resurrected. In cases of Farcy-buds, arresting Hemorrhage, and possibly in the case of inveterate articular Spavin and

of well developed Curb, it is of service ; but in cases of weakness of the back sinews, lampass, increasing growth of horn, etc., it is of very little account, and in most cases does more harm than good. Blisters prepared with proper constituents, such as iodine, etc., act far more effectually, as in other cases do cold water and the astringent preparations. Many young practitioners desire to show their attainments just acquired in firing "cross bandage" fashion, or feather-firing as in curbs. It is, however, simply a mechanical operation, performed, with a little practice, equally well by a blacksmith or groom. It is, of course, well for a practitioner to know how to fire a horse neatly, if it is actually necessary to be done ; but it is a great deal better, both for the practitioner and for the owner, that it should be known *when it is not to be done*, and how to prescribe and apply such remedies as will be efficacious in the treatment of the case, and also leave the owner with a horse whose market value is always increased through the absence of blemishes on his legs or elsewhere.

CHAPTER X.

GLANDERS.—GREASE AND CRACKED HEELS.—HIDEBOUND.—HYDROPHOBIA.

Glanders.—Here we have a disease which when once thoroughly established in the system of the horse has completely baffled all our veterinary knowledge. Not only is its actual and positive origin still a matter of doubt, but we are perfectly ignorant at present of any remedies which will effect a cure. This is a fact much to be deplored by all those who take any interest at all in the horse, but especially by those who have the misfortune of this disease attacking their own animals. It is, without doubt, very often a sequel of an attack of Malignant Farcy, and equally without doubt also, that the disease consists of a poisonous property in the blood, the malignancy of which is directed chiefly to the glandular system. The tumors or buds, which in Farcy are generally seen only on the inside of the hind legs, in glanders seem to have struck inwardly and to have developed into chancrous tumors on the great internal viscera and especially on the lungs and liver. These tumors are also in evidence externally on the Schneiderian membrane (membrane of the nose), their appearance being that of orange-colored ulcers, having a slight depression in the centre. Glanders is virulently contagious, and is also infectious. No horse having used a manger, rack or stable bucket once devoted to the service of a glandered horse, is safe from the disease. It is true that one horse will take glanders where another by some great wonder escapes, both having experience of the same circumstances. This is certainly owing to the superior healthfulness of the one animal's system to that of the other; the constitution of the more healthy one having more vitality, has thereby more power of resistance to this or any other insidious disease of a like nature. Many stories are extant of horses passing many years of their life in a glandered state, and they are said to have looked sleek and to have enjoyed their ordinary health, and still to have been the means of scattering this fatal disease among other animals. This may be so, although I have never seen such a case, nor have I ever met a Veterinarian who had himself seen such a case. I think that the horses in question could hardly have had glanders and appeared so well for such a length of time (in one case I read of it was five years), and I am inclined to believe that the other horses said to have been infected must have taken the disease, or probably something similar to it, from some other cause of contagion or infection. It is most necessary at this

point to caution, with great emphasis, all persons who have a horse even suspected of glanders, to be very careful of *themselves personally*. No person should handle a suspected animal, unless he has gloves on, as should there be even a slight recent scratch on his hand or elsewhere, and should the glanderous matter by any means come in contact with it, the man will be surely attacked with the most malignant form of glanders, and death will take place, in a most horrible form, in generally less than three days. As soon as a horse is clearly perceived to have contracted this disease, it is positively necessary to destroy him, both for the sake of the other stock as well as for the sake of his attendants and of himself. The horse should be buried deeply in quicklime. The effluvia rising from a horse deeply affected with glanders is so dreadful, that it only needs to be experienced once, to be able to detect it again, though even in a fainter form. Stables once occupied by glandered horses are always to be suspected, as after they have been thoroughly and conscientiously cleaned and antiseptically treated, and then not used for years, still at the expiration of two or three years horses having been placed in them have contraced the disease; and certainly one would think that after that time, and with such precautions taken, the owners would hope that the danger of all contagion and infection had passed away.

Symptoms.—A glairy, thin discharge from the *left* nostril, at first only to be detected as a slight moisture, adhesion of the maxillary glands to the jaw bone on the *left* side, that is, instead of the glands being in the middle of the channel (so to speak) of the jaws, they lie against the left side, and, having lost their natural feeling, appear to be quite hard to the human touch. After a little while the discharge increases in quantity and assumes a thicker consistency, with more or less of a purulent odor. At this time also ulcers appear on the inside lining of the nose. They are of an orange color and are situated well up the nostril, so much so that in some cases it is difficult for inexperienced persons to detect them at all, even when they are pointed out and seen plainly by the medical man. These symptoms go on increasing in malignancy corresponding with the incubation and deposit of tumors on the lungs, liver, and sometimes on the intestines, stomach, and even the heart, until the animal becomes practically rotten. As these stages advance, the smell from the animal is intolerable, and he had better be destroyed before even worse things come to pass, either to other animals or to his attendants. There is sometimes a doubt about the discharge, although there never ought to be, some people insisting that the discharge from Nasal Gleet, for example, is

Glanders. This supposition is generally put forward by the most ignorant, and consequently the most officious, person in the community, and very often puts the owner of the horse suffering from Nasal Gleet into great alarm, and very naturally so. In that case, the way to decide the point is to test it. All discharge from Nasal Gleet, Influenza and other similar diseases, will float in a pail of water. In Glanders, however, the discharge issuing from the nostrils will *always sink.*

Grease and Cracked Heels.—This is a local disease in its effects, but whenever it is freely developed, the blood is necessarily in an unhealthy state. Some writers describe it as simply a local disease; others, again, class it under the head of constitutional disorders. It consists of inflammation and subsequent suppuration of the skin and cellular tissue of the heels, and is most frequently confined to the hind legs. The cause is to be attributed to a cold caught in the heels by their having been insufficiently dried after washing them; by allowing horses, especially those with much hair about the fetlocks, to stand all night without having their legs dried, after having been out in the rain and mud; it may further be caused by a draught of cold air from cracks in the stable, or otherwise, playing upon the heels when evaporation of the water brought in in the hair of the heels is taking place. These are the causes, or some of the causes, but it must be more or less constitutional, as under the same conditions of two horses standing side by side in the same stable, one horse will take the disease, while the other animal remains unaffected, which goes to show that the blood of the affected animal is predisposed to take on disease, and is, therefore, more or less disordered, while the blood of the unaffected animal has by its healthy condition sufficient vitality to resist the encroachments of the disease. Large draught horses of slow action, and horses of a coarse breed are more subject to it than are half-bred or three-quarter-bred animals. In the thoroughbred race-horse it is rarely, if ever, present. This fact, no doubt, is to be attributed in a great measure to the careful grooming which the heels receive daily in this class of horse, as well as to the regular exercise always given. The reason that the impure blood causes such inflammation and suppuration to take place in the heels, and especially in the hind heels, is as follows: In all the four feet of the horse the circulation of the blood is always carried on with less force than in the other extremities of the body, on account of their being (the hind legs especially) situated at such a distance from the organ of propulsion, which is, of course, the heart. Moreover, through the law of gravitation all fluids, such as serum, have

a tendency downwards, and consequently cause a greater demand on the vital powers for resistance to that tendency. The probable reason of the blood being out of order in this case is to be looked for in the closure of the sensible or insensible perspiratory pores of the skin, or otherwise; certainly in the suspension of some of the secretory functions, that is, there is a check somewhere in the excretions, it may be, of the kidneys, or of the bowels; therefore it is, in my opinion, useless to treat the exudation of grease and its subsequent cracks and grapy tumors, unless the system is also put into order by medicinal treatment through the blood.

Symptoms.—The heels (as I have just said generally of the hind legs) begin to swell and become very tender, and soon there is an exudation of slimy matter resembling grease; this exudation is different in its first appearance in horses whose blood is very slightly out of order, it appearing in the greasy form; but in horses whose blood is considerably tainted, the exudation is foul-smelling, more watery, and tinged with mucus, the swelling gradually extends up the leg almost to the hock, and the skin cracks and ulcerates, and if the right remedies are not applied successfully, small enlargements of a fungoid nature make their appearance and hang from the heels in bunches like currants or grapes, which latter appellation is still retained; the appearance of the disease in this form is certain evidence that the disease has become inveterate, or has been most inefficiently treated, for the disease should never be allowed to proceed to such a stage as "grapes."

Treatment (Preventive.)—Dry the heels thoroughly after washing. Never allow the animal to stand in the stable with wet or muddy heels, especially if the hair is long; give good bedding and allow no draughts in the stable; see that the animal has proper exercise, and that his secretory and excretory functions are in proper order.

Treatment.—Wash the heels carefully and gently, and then apply poultices for twenty-four hours, hot and hot, after which dry thoroughly, and, if no cracks have appeared, apply the following lotion frequently, and after applying bind a piece of flannel, saturated with the lotion, around the heel, but do not tie it too tightly:—Take carbolic acid, two scruples; glycerine, one ounce and a-half; fluid extract of catechu, half an ounce; mix. At the same time give internally the oily aloetic purge (see Appendix); and twenty-four hours after give tincture of muriate of iron, two ounces; compound syrup of sarsaparilla, six ounces; iodide of potassium, half an ounce;

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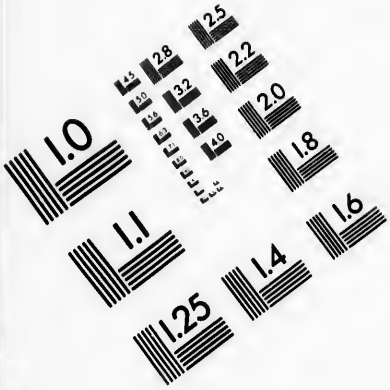

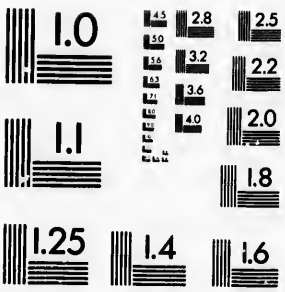

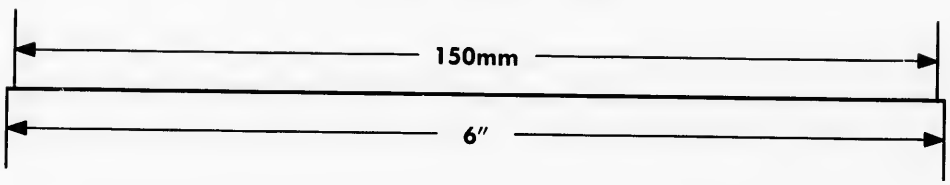

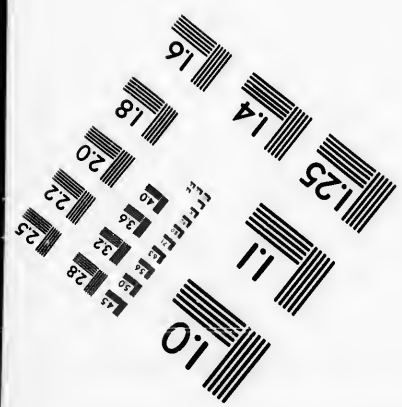

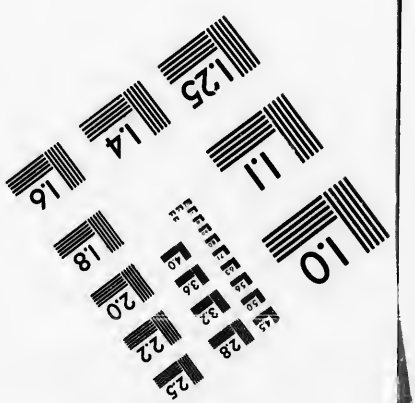

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compound tincture of gentian, two ounces ; cinnamon water, one pint ; mix. Give a wineglassful three times a day. If the cracks have appeared, then apply a lotion of carbolic acid one dram, sulphate of zinc one ounce, water one pint, and use as before directed. Purge the horse again with the oily aloetic purge, in which two scruples of the oil of juniper and half an ounce of sweet spirits of nitre is to be mixed before giving; and twenty-four hours after the purge has been administered, give the following powders three times a day for two days, and then twice a day until amendment commences, after which once a day will be sufficient :— Sulphate of iron (exsiccated), two ounces ; golden seal, one ounce and a-half; nitre, two ounces ; gentian, two ounces ; sulphur, two ounces ; and linseed-meal, six ounces ; mix and divide into twelve powders or balls. When grapes are formed, the last treatment is to be persisted in, the purge being given each week for two weeks, and the tonic powders as before directed ; and should the excrescences assume a bloody appearance with an increasing fetid odor, then it is best to make a slight incision and to apply with a sponge on the end of a probe or piece of whalebone a mixture of hydrochloric acid half an ounce, pyroligneous acid one ounce, to each of the so-called grapes. The horse should be supplied with good, sound food, and in plenty, should have linseed tea for drink, and should also receive good care and nursing, which is half the battle gained in cases of this description, and, indeed, I may say, in cases of all descriptions.

Hidebound.—This uncomfortable disorder is not a primary affection, but is symptomatic of some other complaint. Its chief cause may be considered to be functional disorder in the organs of digestion, caused, generally speaking, by want of proper feed, or by the condition of the food given, such as bad oats or bad hay, which, while they momentarily satisfy the craving of the animal's hunger, do not supply the organs of digestion with the proper nutritive substance to form healthy chyme and chyle, consequently the lacteal function is also either checked or entirely stopped, as the lacteals will refuse to receive any great amount of matter which is improper for the building up of the animal's system, and what is received goes only to cause a morbid action in these most necessary and even vital vessels. Some poor creatures who have been continually in a state of semi-starvation and uncleanliness develop Mange, whilst others whose vitality of system is stronger will under the same circumstances become Hidebound. On account of the loss of digestive power, defective pers-

piration ensues, and so much are the above mentioned lacteal absorbents affected in some cases that tumors have been found, after death, on some of the larger lacteal vessels. When this state of the skin is observed, instead of going to work to remove the cause, the owner frequently resorts to the use of diaphoretic (sweating) medicines, whereby the case is made worse, and in all probability it is from this cause that these *post mortem* tumors have been found. To secure success in any case it is the cause of a disease which must be treated efficiently, and the effect will disappear, although in many places, and in many cases daily seen, the contrary opinion seems to be held and carried out.

Symptoms.—The symptoms are self evident—general weakness of the whole system. The membrane of the nose is pale, the pulse is weak and fluctuating and the skin seems glued to the ribs; the urine is pale and small in quantity, the dung is passed in small balls and smells badly; these are generally the symptoms. The appetite also is uncertain, sometimes being voracious, at other times the contrary. Many persons have given the cause of Hidebound as worms, bots, etc. These will cause a staring coat, but not positive Hidebound.

Treatment.—Good feed, good housing and tonic medicines. The indication is to excite the digestive organs to resume their proper functions. If we succeed in this, the lacteals and lymphatics in turn assume *their* proper functions as a matter of course. In consequence of this action, then, the perspiratory tubes recover their tone, and sensible and insensible perspiration is exuded in its proper proportions, and the equilibrium of the whole system is restored. Give bran mashes daily with full allowance of oats (scalded). Let the patient have a good, deep, warm bed of straw. Card him or hand rub him thoroughly at least twice a day; this will excite the vessels of the skin and will remove any dust or dirt which may clog the perspiratory pores. Give him strong linseed tea for drink, and a handful or two of linseed meal with his oats. Exercise quietly for an hour in the morning and an hour in the afternoon. Bandage the legs at night and clothe him warmly. Do not, however, stint the fresh air, but keep the stable moderately warm. Give the tonic powders as follows:—Carbonate of iron, two ounces; gentian, one ounce and a-half; cinchona bark, powdered, two ounces; ginger, one ounce and a-half; and linseed meal, five ounces; one ball or powder morning, noon and evening, one hour before feeding.

Hydrophobia.—This very awful disease is occasionally, but not frequently, seen in the horse; when contracted, however, it is perfectly incurable. The disease is contracted through the bite of a dog in a state of madness, as a general rule, although the bite of a cat or fox who may be suffering from the disease is equally as capable of producing Hydrophobia as is the bite of the dog. There being no treatment of any use should a horse be bitten by any of these animals, inducing a paroxysm of madness, it will be useless to say very much on this subject, excepting that it simply drives the animal into a state of furious madness, and that no one is safe from the attacks of the animal. He will grind his teeth, tear at everything, and strike at everything, and if an end is not put to his proceedings through the administration of a bullet, he will destroy everything within his reach. Though nothing can be done to effect even a palliation of the disease, still much may be done in the way of taking precautions against his being attacked by a rabid animal. As almost every one keeps a dog, it may be well that I should explain the symptoms of Hydrophobia in that animal, as, in the case of any one owning a dog which shows symptoms of *real Hydrophobia*, it will enable him to, at all events, save his horses from the danger of being bitten by the animal. Moreover, the symptoms of Hydrophobia in the dog are in many cases mistaken for the symptoms of other complaints, such, for instance, as Epilepsy, and, through this mistake many faithful, affectionate and valuable dogs have been destroyed for precaution's sake, and in most cases very much to the regret of the owners of the animals. I believe that there are many false notions both as to the diagnosis and pretended cure of this disease, and that these false notions are in many case insinuated into the public mind for a certain purpose. Hydrophobia is very rare in man, horse, or dog. When once acquired it is *utterly incurable* by any methods that at present we have any knowledge of. Inoculation, by reduction and infiltration through the system of the inferior animals, has been loudly put forward as a cure for the human subject, and people have been treated in this manner and discharged as cured. This may actually be so, but as in most of the cases we read an account of it is said that "the dog was proved to be mad because he frothed at the mouth," it is fair to assume that the human cases were more hysterical Hydrophobia than the actual and dread disease itself, and my reason for this is a very good one—it is this, that a mad dog does *not froth or foam* at the mouth. The frothing at the mouth is a plain and undeniable symptom of an approaching epileptic fit, and is contrary to the *true* symptoms of *true*

Hydrophobia. Again, it is said that another proof of canine madness lies in the fact that the dog careers along at full speed, with his tongue hanging out and his tail tucked well between his legs. The running at full speed, again, is quite the contrary to the actions of a dog suffering from any stage of Hydrophobia. These alarms occur as a periodical scare during the hot weather. It is a favorite amusement of the amiable youth of most countries, whose parents show their intense love of liberty by allowing their children the full freedom of the gutter and its accompaniments, to chase and pelt every unfortunate dog within their reach, and of whom they are not afraid When an unfortunate cur (for to this class the so-called mad dogs in the street usually belong) is chased by a crowd of these ragamuffins at full speed and with the thermometer standing at 90° in the shade, it seems to me quite natural that the poor frightened beast should tuck his tail between his legs and run. As a dog perspires largely through his tongue, it is, again, quite natural that the heat should cause him to put it out in order to relieve the lungs, and possibly the pleasant amusement of these arabs, combined with the heat, fright and excitement, will very soon produce the frothing at the mouth and the subsequent fit of Epilepsy, more especially if the dog should be young. This Epilepsy is very common among dogs, especially to those of a nervous temperament, but there is no danger in it either to the dog or the master. The symptoms of Hydrophobia in the dog are as follows:—The animal seems desirous of being by itself, it will hide itself in the hay-loft, or, if a house dog, will get under the sofa or chairs, evidently trying to keep out of the way. Then the eyeballs become slightly injected, and there is occasionally a slight cough. He is usually quiet enough unless interfered with, when he will sometimes snap; and it is very noticeable that those whom he is most attached to in his sane and healthy moments are the people whom he generally snaps at first. He will soon begin to drool saliva from the corners of his mouth, he becomes more or less dejected, and soon experiences a difficulty of swallowing, and a hollow groan or cough is present. Before this stage comes on, however, he will go round picking up and swallowing all kinds of queer things—pieces of wood, brick and even glass; although this may not be noticed at the time, yet by examining the body after death these kinds of foreign substances will invariably be found in the stomach of the animal which has suffered from this disease. Some people think that human beings, horses and dogs alike, have a horror of water--not only of drinking it, but even of the sound made in the process of pouring it from one vessel into another. I think this is contrary to the facts generally seen. In all cases

(though certainly few in number) which I have seen in the case of the dog under *true* Hydrophobia, the animals had no great horror of water, and the reason that they refused to drink was not on that account, but simply on account of excessive local congestion in the neighborhood of the fauces, thoroid cartilage and upper part of the trachea and œsophagus. Both facts were proved. The dogs made no objection to the water, but simply *could not* swallow it. After death I found the vessels in the locality were full of thick, black, stagnant blood, and the neck was, as it always is towards the last, correspondingly enlarged. My readers are, therefore, warned of the danger of allowing a dog with any suspicion of this disease to wander round the stables, as if the horses *are* bitten, there will be little appearance until the premonitory symptoms set in, and in that case that horse, and possibly his neighbor, is doomed. A dog in the primary stages of Hydrophobia is very sly and will give a snap as he passes, and though it may cause little or no pain to the horse, still if the skin has been broken through by ever such a little snap, the virus will be absorbed into the system of the bitten animal, and the result will be a very horrible death.

Should a horse be bitten by a dog suspected to be mad, or by any dog who shows symptoms of any kind of disease, the wound must be laid open (the horse having been first cast, if necessary,) and the application of either hydrochloric acid or a red-hot iron must not be delayed for *one moment*. If time has gone by sufficient for absorption to take place, the case is hopeless, if the dog was suffering from even incipient Hydrophobia ; but the precaution must be exercised, as it *might* arrest the absorption of the poison. Most cases treated in this way turn out well, and great credit is given to the application ; but when this occurs we may be thoroughly sure, either that the application of the iron or acid was applied so quickly after the bite as to prevent the absorbents taking up the poison, or else that the dog which bit the horse was in no way afflicted with Hydrophobia.

CHAPTER XI.

INFLAMMATION OF BOWELS, LIVER, KIDNEYS, LUNGS.—JAUNDICE.

Inflammation of the Bowels (Enteritis).—This disease is, unfortunately, far from uncommon amongst horses, and is a disease which is in most cases far from easy to cure. It is common in country districts to hear that a horse died from inflammation. This information is, to say the least of it, rather vague. As there is occasionally some confusion between the term of Fever and Inflammation, it may be as well to say that the terms Inflammation is usually confined to local affections, as of the bowels, lungs, etc., whereas Fever is general inflammation of the whole system. Inflammation consists of a heated condition, and consequent accelerated action, of the blood. Anything which causes a sudden check to any organ or part of an organ whereby its vital function is prevented, will cause Inflammation; for instance, cold, by closing the perspiratory tubes of the skin, checks the perspiration, which is thrown inwardly upon the circulation of the blood and produces inflammatory action. Again, when one organ is irritated in this manner, the blood rushes to that part and adds excitement to the already heated blood. When this action occurs generally to the whole system at once, it is called Fever. Inflammation of the Bowels evinces itself in two different forms. In the one, which is caused by inflammation of the mucous coat of the intestines, its chief symptoms are looseness and fluidity of the fœcal discharges. When the vascular coat is affected constipation takes place, and there is what is vulgarly known as "no passage", the heat of the blood and body having absorbed all the moisture of the intestinal canal.

Causes are numerous, among which may be mentioned overdriving, catching cold, irritation from indigestible food, and most frequently of all from attacks of spasmodic colic which have been neglected or else improperly treated. Sometimes the attack is confined to the large intestines, that is, in its primary stage; at other times the small intestines are the first to experience inflammatory action. In the former case the pain exhibited is much less than in the latter case. The excessive use of stimulants such as cordial balls, alcohol, etc., will produce inflammation of the bowels. Poisons of irritant nature will also have this effect, but as they are exceptional, both in their action as well as in their occurrence, they cannot be treated of under this heading.

Symptoms.—Pulse high, sometimes when the disease has well set in, being double that of natural health, Schneiderian membrane (membrane of nose) highly injected, ears and legs alternately hot and cold, lying down quickly and frequently, and as quickly jumping up again, pawing with the fore-feet, and looking at the flanks every now and then, the belly being very tender to pressure. The animal is rather constipated and makes continual efforts to pass his dung, or else the dung comes forth in an almost liquid form.

Treatment.—In both varieties the treatment varies very slightly, the only essential difference being that in the constipated form injections must be more frequently used after the hardened and accumulated dung has been removed by a well oiled hand and arm. It is necessary in all cases where great pain is evinced to give some kind of preparation at once which will relieve that pain and quiet the irritation of the nervous system, therefore it is best to give hydrate of chloral together with the purgative medicine. Therefore give: Linseed oil, raw, one quart; tinct. capsicum, two drams; hydrate of choral, three drams; powdered barbadoes aloes, six drams; spirit of nitre, one ounce; mix and give. Place some rugs in boiling water, and having wrung them out apply them to the horse's abdomen, placing a dry rug over all to keep the heat from evaporating. Two hours after this medicine has been given, take fluid extract of aconite two drams, hydrate of chloral one ounce, sweet spirits of nitre four ounces, water one pint; give half a wineglassful every hour until the pulse begins to come down, and then every three hours. Place the horse in a loose box with plenty of straw and *free* ventilation; keep him comfortably clothed; do not be afraid of the fresh air. If he will eat at all (which is not very likely), let his feed be bran mashes (properly scalded), and his drink must be thick linseed tea. In *extreme* cases, when the pulse runs *very high*, it might be expedient to open the jugular vein and take blood; as a general rule, however, it is not advisable, as, if the case continues, the horse requires all the blood he has to support him against the weakness, which soon shows itself in this disease. If this treatment produces a diminution of the pulsations and the animal seems to be in less pain and the evacuations become more natural, then give the aconite medicine only once in three hours, and then, as the symptoms improve, gradually lessen the administration of the medicine. When he becomes convalescent it is necessary that great care should be taken of the animal, otherwise he will have a relapse—a relapse in this disease is very much worse than the original complaint, and generally terminates fatally. If in summertime the horse should be turned out for a month or two, at all

events, in the daytime; he should receive for the first two weeks one of these powders a day:—Take cinchona bark, powdered, six ounces; carbonate of iron, two ounces; gentian, powdered, one ounce and a-half; ginger, one ounce and a-half; linseed meal, six ounces; mix, and divide into fourteen powders or balls; give one a day, *and see that he gets them.* When a horse has had a severe attack of inflammation of the bowels, he ought not to be worked for at *least a month;* if he is put to hard work under that time, it is ten to one but that he will take it again, and, if he does, it will be, in all probability, in a far more severe form than he had in the first instance. Wherever one of the large and important internal organs has been once attacked with violent inflammation, by that fact the organ once affected will always be more predisposed to take on inflammation again, and causes which would not affect it before being previously attacked, will be quite sufficient to cause a recurrence of inflammatory action more or less severe. In all such cases as these, the benefit of the experience and skill of a good veterinary practitioner will be of great service to the owner.

Inflammation of the Liver.—(Hepatitis).—This disease, although not seen every day, still is much more common than is generally supposed; the symptoms, moreover, being more or less obscure are liable to be, and are, very frequently mistaken for some other disorder. Indeed, considering the amount of work which this organ is called on to perform in the cleansing of the blood from all bitter and hurtful constituents, it ought to be a matter of great thankfulness to owners of horses that the complaint is not more frequentlly developed than it usually is. Inflammation of the Liver really consists of two stages. That which is the first is ordinary inflammation of the substance of one of the lobes; the second is where the inflammation has extended itself, or perhaps has confined itself in the first place to that portion from which the biliary ducts open. The primary stage, as a rule, yields without much difficulty to proper treatment; the second stage is much more difficult to cure, and is known by the appellation of Jaundice (Icterus), for which see under that heading. The symptoms in both stages are the same, and each arises from the same cause, namely, inflammation. It is very rare for Inflammation of the Liver to develop itself as a primary disease; it more usually results from sympathetic action with some of the adjacent viscera, such as the kidneys or intestines. The inflammation gradually extends, unless checked, until the whole organ is under its influence and the secretion of the bile

becomes irregular, being sometimes in excess and sometimes nearly suppressed, this last result resulting from the torpidity of the organ.

Symptoms.—An enlargement of the liver is frequently apparent, and upon pressure the animal will evince pain, especially if the seat of inflammation is in the upper and posterior lobe, which is more easily felt than it would be if the inflammatory action was seated in the other parts of the organ. The horse is dumpish and the pulse high; the urine is frequently darker in color than it should be, and the dung is either lighter or darker in color, according as the bile is either secreted too lavishly or is suppressed. If the dung is pale in color, the bile is suppressed; if darker than natural, it is secreted inordinately.

Treatment.—Give podophyllin twelve grains, Barbadoes aloes six drams, ginger one ounce, raw linseed oil one pint and a-half; mix. Six hours afterwards, take every hour, tincture of aconite six drams, hydrate of chloral one ounce, oil of juniper half-ounce, water one pint; give half a wineglassful every two hours. Should scouring ensue, then take carbonate of iron two drams, prepared chalk two scruples, opium two scruples, gentian two scruples, and linseed meal one ounce; give at once, and repeat if necessary; at the same time injections of warm flour gruel must be administered occasionally. It is not good to check the discharge altogether, but only gradually, if at all; but when the scouring continues for any length of time, this last powder will act upon the digestive organs as a tonic, and support the animal's system against the weakness which the continued scouring will inevitably produce.

Jaundice.—(Icterus).—This is really a sequel or continuation of Inflammation of the Liver, only that the inflammation has increased its action. This inflammatory action of the liver has obstructed the normal action of the organ and opposes the exit of the bile through the biliary duct into the duodenum (one of the small intestines), which is the cause of the yellow appearance of the eyes, skin and membrane of the nose, from which the disease takes its name, and for which the old-fashioned name, "The Yellows," was still more expressive. The bile is taken up into the circulation, and this produces the yellow appearance. The elephant, horse, deer, rhinoceros, camel and goat have no gall-bladder; these, with three kinds only of birds, are the only instances of that deficiency in the mammalia. In consequence of this the bile is thrown back on the biliary ducts and on to the vessels of the liver itself, and being re-absorbed is carried into the circulation. Although the inflamma-

tory action is evidently more powerful than in ordinary Hepatitis, still it yields to proper treatment with as equal facility as the ordinary inflammation of the liver. Frequently, however, the yellow tinge remains in patients who have entirely recovered, sometimes for a little while only, occasionally even for life.

Symptoms.—Yellowness of the eyes, tongue, membrane of the nose and of the skin where visible; dung pale and slimy and hard, yet sometimes the horse will scour—but this is when the bowels have become implicated symathetically—which occurs soonest when the patient is in an impoverished condition. The pulse is quick and weak, the appetite is practically lost, and, as a rule, the general symptoms of inflammatory action are present; but not always, as occasional cases are seen when the yellow tinge comes with little of any signs of inflammation. The urine is dark, owing to the fact of the darker parts of the bile, which naturally would be passed off by, and would add to the color of, the dung, having passed to the kidneys. These organs have eliminated the darker particles of the bile, which are more or less earthy in their nature and passed thus off in the urine, and this is the cause of its dark color. The urine when passed leaves a dark or bloody appearance on the stable floor or ground.

Treatment.—Give the podophyllin purge, and twelve hours after take iodide of potassium one ounce, sulphate of iron one ounce and a-half, goldenseal one ounce, buchu two ounces, linseed meal six ounces; mix, and divide into twelve powders or balls; give one morning and evening. In case of scouring, treat as directed under Inflammation of the Liver. In both cases give bran mash and scalded oats for feed, unless scouring has taken place, linseed tea for drink, and in each half pail of tea put half an ounce of nitre.

I have treated on Jaundice somewhat out of its alphabetical order, on account of its inseparable connection with the previous disease treated of.

Inflammation of the Kidneys (Nephritis).—This is occasionally mistaken, through appearance of blood in the urine, for affection of the bladder. This mistake should not occur, as blood in the urine is distinctively a symptom of Inflammation of the Kidneys. The reason that it is thus mistaken is that the other symptoms which are always present are sometimes not looked for, the appearance of the blood in the urine being sufficiently explanatory to superficial observers of the disease under which they suppose the horse to be suffering. The cause of this disease

is, in numerous cases, the much-to-be-deprecated practice among stable keepers and others of administering diuretic medicines in too great quantities, and at times when they are not only not required, but are actually a source of great danger to the patient. In this case, which is now being considered, the fact of the appearance of the blood is sufficient evidence of the irritated and overworked condition of these organs. The administration, then, of diuretic medicines under such a condition of things, is most pernicious to the animal's safety. The effect of diuretic medicines is to increase the action of the kidneys, which are already in a condition predisposing them to disorganization, through the excessive and unnatural labor which has been the primary cause of the inflammation. One kidney, especially if it be the left one, may be affected for a short time without much evidence of the other having been attacked; but not for long, both kidneys being soon involved in the same disease. The right kidney being loose from the ribs, but slightly attached to the lobe of the liver, will naturally suffer sympathetically with the liver under any inflammatory action which may take place in that organ. Cold rain falling on the loins is a cause of this disease. Blows, also, across the loins will occasionally produce inflammation of these glands. Sometimes, again, stones or gravel are conveyed to the kidneys, and, through their interference with the functions of these bodies, produce inflammation. Violent riding or driving, or an incomplete cure of Inflammation of the Bowels, will produce the disease.

Symptoms.—These are: Blood being passed in the urine, feverish pulse, disinclination to eat, stiffness in the hind parts, and, beyond these, a symptom which is clearly and obviously to be attributed to the kidneys alone, that is, excessive tenderness in the region of the loins. If the lumbar region is pressed upon—that is, that part external to the seat of the kidneys—the horse will shrink from the pressure; but it is to be remembered in thus testing the kidneys, that the right kidney occupies a position further forward than that of the left, and also that the left kidney is close to the ribs, while the right organ is comparatively loose.

Treatment.—All diuretic medicines are to be abjured. Give warm injections and half of the aloetic oily purge as before given in other diseases, or see Appendix. Apply over the kidneys the following liniment: — Take aqua ammonia (strong), three ounces; tincture of camphor, two ounces; oil of origanum, one ounce; tincture of iodine, one ounce; olive oil, eight ounces; mix, and rub gently in over the

kidneys, afterwards covering them with a cloth and putting the clothing on over all; give linseed tea rather thick for drink and feed bran mash; keep the horse out of draughts of cold air, and give the following medicine punctually:—Take fluid extract of aconite, six drams; fluid extract of buchu, two ounces; tincture of opium, one ounce and a-half; glycerine, two ounces; water, twelve ounces; give half a wineglassful every two hours until amendment. Do not continue the medicine longer than to give two doses after the pulse begins to subside and the pain in the loins is eased. The horse should not be worked for a month after this disease has been cured; more especially is this to be borne in mind with regard to Hacks, Hunters, and other saddle horses. The system of horses once thoroughly affected by this disease is always very obnoxious to the action of diuretic medicines. When the horse begins to improve, give him daily one hour in the morning and one in the afternoon for walking exercise, and put him on a course of tonic powders of iron (see Medicinal Appendix); give one powder every morning and evening for fourteen days.

Inflammation of the Lungs.—(Pneumonia).—This is a disease frequently occurring to the horse, and, like all diseases of the respiratory organs, is a complaint greatly to be feared by all owners of horses. Unless speedily arrested, the inflammatory action which takes place in the lungs results either fatally, or else leaves some part of the respiratory apparatus in an unnatural condition, producing broken wind, roaring, or some other such affection. Like all other inflammatory disorders, it is caused by the checkage of the natural functions by the arrest of the perspiratory action. There are and have been many cases which have been considered as cured, when only part, actually speaking, of the lungs are left in a state capable of performing their proper duties to the system; this is when the cure has been by resolution, by which the part of the lungs most severely implicated have become solidified, and the air cells have been consequently obliterated; this constitutes one kind of broken wind, although the part affected may be so small that little evidence is given by the horse to show the damage done. Inflammation of the Lungs is often the sequel of bronchitis, influenza, and other diseases of a catarrhal nature. It may also be very easily produced by or through the medium of the stomach; for instance, by giving a horse a drink of cold water when the lungs are in a great state of heat and consequent relaxation; the lungs, through the immediate contiguity of the stomach, receive a great shock, and the functions of the organs are so violently disturbed that acute inflammation of the lungs frequently ensues. The

miserable hovels, dignified by the name of stables, and which are occasionally still seen in some rural districts, are very fruitful causes of this disease. Over-driving or riding is also occasionally a reason of its appearance.

Symptoms.—The horse invariably is attacked with a chill; this is a sign of congestive action in the lungs. Unfortunately, it is a most rare thing indeed when this is seen and appreciated at the full value of its warning. It is probable that in many cases it is observed, but not considered of enough importance to be reported to the owner or some other person who might know enough to understand its significance. If, however, it is seen and understood, then, using proper remedies—that is, by simply taking blood from the jugular vein—the disease can be arrested in its very premonitory stage; but the same remedy which will at this time save all further danger and trouble, if used even one hour after the chill has taken place, will greatly add to the present danger of the animal, and render almost certain a fatal termination of the case. The ears and legs are cold, the breathing oppressed, and the animal stands resting his head and foreparts against the manger, or, if in the field, a gate, or some other support. He cannot persuade himself to lie down, although tired, being evidently oppressed with a suffocating feeling, and, consequently, as in Dropsy, he stands up, as in that position there is less pressure on the affected parts than there is in a state of recumbency. Soon the Schneiderian membrane (membrane of the nose) assumes a bright scarlet color, becoming gradually livid, the breathing is labored and violent and soon becomes stertorous, the heart seeming to work like a force-pump. Sweats break out, the ears and legs become deathly cold, and the end speedily ensues. If the animal's system responds to the treatment, the ears and legs gradually become warm, the membrane of the nose resumes its ordinary rose color, and a certain and excellent symptom shows itself—*the horse lies down.* When this is seen, then a favorable termination of the case is, humanly speaking, certain.

Treatment.—The old fashion of treating this disease was to wrap him up as warmly as possible and exclude all air as much as possible, and also to bleed him. This treatment is, happily, relegated to the shades of limbo, together with other equally bad so-called means of treatment. The horse should be warmly clothed and have as much fresh air as possible, consistently with keeping him out of draughts. The horse is benefitted by the oxygen in the air, and shows it himself by his actions. He will always point his muzzle towards an open window, or any place from which the

fresh air is coming. On no account allow the administration of oil or other medicines of a purgative nature. It is, perhaps, permissible in the human subject under certain conditions, but it is certain death to the horse under any conditions. Remember this well, as if the reader lives in the country and has an animal affected with this disease, he is certain to be advised to give oil or something like it, and if the permission is given, and the oil administered, the case may as well be given up and let alone, as there is only one ending to a case so thrown away. Take cantharides (powdered) two ounces, biniodide of mercury four drams, iodine (in crystals dissolved) six drams, lard (or simple cerate) six ounces; mix, and rub in on both sides over the lungs. If the blister does not rise, the case is almost beyond hope, as this shows that the vitality of the system is so much lowered that it refuses to respond to even the intense irritation caused by the blister, and, consequently, it is to be supposed that a corresponding loss of vitality exists in the organs affected, so that there is little hope of their being able to rally against the overpowering action of the inflammation already existing. Let the feet and legs, from the coronet to the knee, be thoroughly rubbed with this lotion:—Capsicum (powdered), two ounces; alcohol, half a pint; water, two quarts; bathe and rub hard three times a day, and then bandage loosely. Give internally: Liquor ammonia acetatis (procurable at any chemist's), four ounces; spirits of nitre (sweet), two ounces; tincture of aconite, one ounce; tinct. of belladona, two drams; water, sixteen ounces; give three parts of a wineglass every three-quarters of an hour until some favorable effect seems to have taken place. (To ascertain this refer to the symptoms.) Drinks of cold linseed tea may be given. When the horse begins to mend give him the iron tonic powders three times a day for two days, and after that twice a day for two weeks, then once a day for two weeks. If it is summer-time turn him out in the day, being careful that he is not left out in a shower. Give him also one hour in the morning and one in the afternoon for walking exercise. Clothe him warmly, but give him plenty of fresh air. For the first week after convalescence give him warm bran mash three times a week, and scald his oats. Give him also carrots cut up small. The linseed tea should also be continued for a week or so, and then *gradually* come back to ordinary feed. The horse should *certainly* not be used for a month after a severe attack of Inflammation of the Lungs, and it would be better in this, as in other cases where severe inflammatory action has been set up and cured, to turn out the convalescent patient for at least two or three months if the weather is warm and fine.

CHAPTER XII.

INFLAMMATION OF THE STOMACH, GUMS AND PALATE, FEET, WOMB.—INTESTINAL OBSTRUCTIONS.—INTERNAL INTUSSUSCEPTION.

Inflammation of the Stomach (Gastritis).—In cases of inflammation of the intestines, and especially when the inflammatory action is chiefly confined to the small intestines, there is, from their close connection with each other, both as to position and as to functional action, more or less sympathetic fever in the stomach. The pain, however, in Inflammation of the Stomach, whether primary or sympathetic, is never so acute as that felt when the inflammation has its chief seat in the small intestines. As a primary disease, Inflammation of the Stomach itself is rarely seen. When it exists as a primary disease, the cause may be attributed to the action of irritant medicines, or substances of a corroding nature, such as mineral poisons and essential oils or acids.

Symptoms.—Are rather obscure and seldom attributed to this disease, being very similar to those of Inflammation of the Intestines and Colic; so much so, that for these latter diseases the horse is nearly always treated, and, as before remarked, on account of their close connection with each other and their contiguous position, the remedies frequently prove effective. Pain is present, and dullness, want of appetite and slobbering from the mouth. Suppression of the natural discharges of dung and urine is frequently a symptom. At other times the dung is slimy and fetid, and the urine highly colored.

Treatment.—Give the oily aloetic purge, and before giving place in it tincture of aconite eight drops, and hyrate of chloral three drams; inject one quart of warm linseed tea every four hours into the stomach by means of a tube; then take bicarbonate of soda, nitre, and bitartrate of potash, of each two ounces; mix, and divide into six powders, and give one morning and evening; before giving the powders drop on each powder five drops of the tincture of aconite. The horse should be fed (if he will eat anything) on hot bran mashes, and should have linseed tea for drink.

Inflammation of the Gums and Palate.—(Lampas).—This is generally seen in young horses only, although occasionally it does not pass over animals of a more mature age.

Symptoms.—The palate becomes tumefied; it is soft and tender, and that to such an extent that it seems level with the teeth. The horse either refuses his food or else he eats with evident reluctance and passes great quantities of his oats in a whole or undigested condition. This is on account of the tenderness of the bars of the mouth, which become susceptible to the prick of the oats or large pieces of hay.

Treatment.—It was considered for some time that the proper means of cure for this disease was the burning of the bars of the mouth with the red-hot iron, and to this day some people have not got over this infatuated notion. Such a treatment is cruel and utterly unnecessary; it is worse than useless, as it is injurious, destroying, to a certain extent, the horse's sense of taste. The proper treatment is to scarify the bars of the mouth with a lancet or other instrument; cut the bars on each side from backward to forward, making the incision to correspond with the division between the second and third incisor teeth on each side. Care must be taken to cut in the right place, so as not to wound the palatine artery or vein. Sometimes great bleeding takes place; at others it is hard to get blood; in the latter case the mouth seems to be almost horny. It is well to watch until the bleeding stops, and should the artery be cut by mistake, then insert a pad saturated with thick alum water and flour, and keep it in that position by bandage and tape over the nose. If, however, bleeding from the artery cannot be stopped in a reasonable time, then take a balling iron, or failing the possession of that article—which in passing, I may say, no stable should be without—then keep his mouth open for a moment, with the assistance of another man and a pitchfork, and apply the red-hot iron to the wound; this will cause an immediate stop to the bleeding. As there is always more or less of fever in these cases, the following powders should be given:—Take nitre, bicarbonate of soda, bitartrate of potash, two ounces of each; mix, and divide into twelve powders; give one morning and evening; feed bran mash hot and take the chill off his drinking water. This treatment will be all that is necessary in this case, and will complete a cure.

Inflammation of the Feet (Laminitis).—This is inflammation of the laminæ (leaf-like process) in the interior of the hoof; and the cause is frequently metastasis,—that is, a shifting suddenly of inflammatory action from one organ to another. Affections of the stomach will influence the feet, and it is well for owners of horses to mark the intimate relation which seems to exist between the feet and stomach in the horse. The

cause of this very violent inflammation and consequent pain in the foot of the horse is no doubt that of metastatic (transitory) action,—that is, the feet are predisposed to take on inflammatory action at the time of seizure; and, inflammatory action existing in some part of the system, it flies to the structure of the foot, being excited to do so by the carelessness of the driver or rider in allowing the animal to pass through brooks or water of some description when the animal is in a state of perspiration. The same result also occurs when the animal is caught in a storm of cold rain under the same systemic conditions. The cause, however, in many cases is somewhat obscure. I have seen some cases where the causes stated have certainly not existed, and where the attack seemed to come on all in a minute. In these cases of Idiopathic Laminitis, however, it is probable that the origin of the disease was not sufficiently noted, as there must have been some very strong predisposing causes originally to produce such a great amount of inflammation.

Symptoms.—Great heat and excessive tenderness in the feet. Pastern arteries throb violently, the breathing becomes short and apparently difficult, resembling the panting of a dog. The pain increases to such an extent that the horse jumps with all four legs at once in his efforts at progression; but this only occurs for a very short time, during which his action resembles that of an Australian buckjumper. Very soon the pain becomes so intense that he cannot stand, and in almost every severe case the horse has to be treated either in a recumbent position, or else has to be put in slings. If a speedy check is not put to this state of things, the lungs soon begin to show sympathetic action, and gradually the whole system is involved. Soon also a separation takes place at the coronet, and the horse loses his hoof or hoofs. This occurs on account of the inflammatory action at that point, which disorganizes the nutritive vessels which supply the hoof, and consequently keep it in a state of vitality; when, however, this occurs, the vitality of the horny structure is lost, and the horny case is cast as a foreign substance, in compliance with the inevitable rule of the natural forces in all cases of a similar nature. It is true that even then, if the patient can be rallied, a new hoof will form, but it will generally be smaller and out of proportion to the original one, and will always be more or less soft in its consistency, and consequently of little use in comparison with the original one.

Treatment.—Either sling the animal or put him into a loose box with two or three feet of straw for a bed. I have generally treated them in

this way without slinging, and never had the misfortune to lose a hoof. The treatment I have used with success has been this: Take the shoes off as gently as possible, then apply hot poultices of bran or linseed meal, and as fast as one begins to lose its heat and moisture apply another. Do this *persistently* for twenty-four hours. Bleed from the toe at the commencement of the treatment. After twenty-four hours apply poultices of pounded ice, and give the following internally:—Take fluid extract of aconite, one dram; hydrate of chloral, one ounce; sweet spirits of nitre, two ounces; water, one pint; give half a wineglass every three hours until there is evident alleviation of the pain and inflammation. Feed bran mash and scalded oats, and give linseed tea, thick, for drink. His first shoeing after such an attack must be with a bar-shoe and a felt or leather sole. When the animal is able to stand up, let the feet be bathed three or four times a day for ten minutes or more at a time with the coldest water procurable, and add to each pail of water for bathing purposes one teacupful of salt. The horse should be turned out, if the weather is favorable, for at least six weeks; but under no circumstances should he be regularly worked under that time, although he should have regular gentle exercise daily.

Inflammation of the Womb.—(Metritis).—This occurs occasionally only, either after parturition or after a mare has miscarried. According to my experience such cases are more frequent in cows than in mares, and more especially in cows of a thoroughbred strain.

Symptoms.—Pulse high, Schneiderian membrane injected, pain in the lumbar region, and the exudation of blood or mucus from the vulva.

Treatment.—Warm fomentations and poultices to the groin, the latter to be applied by means of bandages secured over the loins. The simple biniodide of mercury blister (see Medicinal Appendix) should be rubbed in on each side over the loins, but the blister on each side should not be more than one inch square. The womb should be occasionally sponged gently out by means of a soft cloth dipped in lukewarm water, in each quart of which put five drops of carbolic acid and two scruples of watery solution of opium. Give internally the following medicine:—Take tincture of aconite, one ounce; hydrate of chloral, one ounce; tincture of muriate of iron, one ounce; glycerine, two ounces; water, one pint; give half a wineglassful every two hours until some amendment is visible. Feed bran mash, take the chill off the drinking water, and in each pail of water put one ounce of nitre. It is best in a case of this description to obtain, if possible, the services of a well-informed practitioner.

Intestinal Obstructions. — (Calculus). — Accumulations in the form of stones, or earthy matters of considerable size, are occasionally sources of pain and dangerous inflammation in the horse. It is most remarkable that these large accretions are frequently formed from a nucleus of two or three hairs or a little gravel. They generally lodge and are found after death in the cœcum (or blind gut). The process of digestion takes place chiefly in the intestines of the horse, very little of that process being carried on in the stomach. The function of digestion is generally considered to be completed in the cœcum, which may account, perhaps, for the deposit of the original foreign element which forms the nucleus of the calculus. When in Cincinnati, U. S., many years ago, a brother practitioner showed me a calculus which was taken a short time before from one of his patients and eventually proved fatal to him, as it produced inflammation which killed him, and which was due to the obstruction of the bowels caused by the calculus; it was certainly the size of the thirty-two pound shot used in the navy; it was of a greenish tinge, and after being duly polished was exposed to view in the window of a druggist. Another probable reason of these things being found in the cœcum lies in the fact that the cœcum has only one orifice (hence the vulgar expression, blind gut); consequently, the earthy substances being sent into the cœcum by the peristaltic action of the intestines, are unable to return, for the want of such stimulative action to force them back; and as the process of digestion goes on, the useless substances, such as dirt, etc., are eliminated and deposited in the cœcum. Spasmodic colic, truly, forms itself into a recurrent habit of the system; but, in a very great number of cases, the so-called colic is nothing more or less than obstructive calculi. This fact, unfortunately, can never be properly proved until after death.

Symptoms.—The symptoms are those of violent colic, and remedies are ineffectual. The pain can be stopped by medicines of a narcotic and anæsthetic nature, but only partially, if, indeed, at all. My belief is that it is the change of movement in the horse which alone stops the pain; the calculus presses on some part of the intestines, producing an obstruction; hence the pain. In the act of moving him to give him medicine, the bowels slightly shift their position, and the obstruction no longer presses on the parts; the pain naturally stops, and we all look with complacency on the excellent cure which we think we have made of a bad case of Spasmodic Colic.

Treatment.—There is no treatment of any use. However, if we have

suspicions, on account of the frequently recurring paroxysms of pain in the animal, that these obstructive agencies are at work, the only thing I know of is to administer morphine or chloral, on the chance of it slightly palliating the pain (which is always doubtful), and at the same time to move the animal about, in order to relieve the pressure by the change in the position of the calculus.

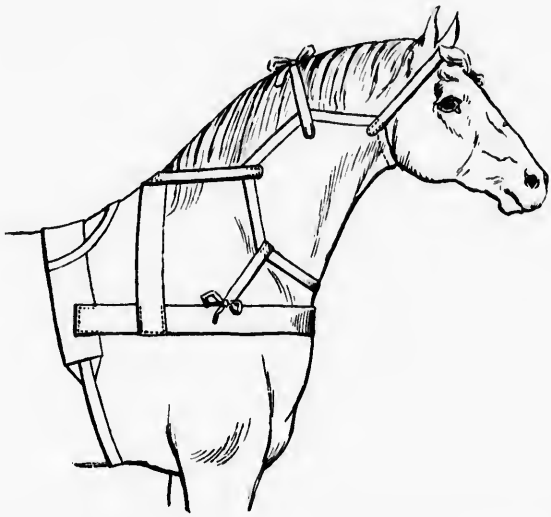
Internal Intussusception.—This consists of one part of a bowel having by some abnormal action doubled back, as it were, and forced itself into itself. Sometimes the bowels, from the result of inflammatory contortion or otherwise, will tie themselves into a complete knot. It is almost superfluous to say that in both of these cases the result is fatal, and that in a very short time. Moving about might do good, but it is more probable that it would only hasten the animal's death, by increasing the already existing inflammation. The symptoms in these cases are those of excruciating pain, and are a compound of those seen in Inflammation of the Bowels and Spasmodic Colic.

CHAPTER XIII.

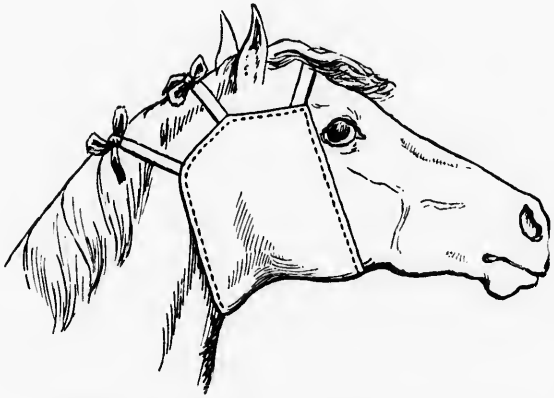
INFLUENZA.—INFLAMMATION, METASTATIC.—JAW, DISLOCATION OF.—KIDNEYS.

Influenza (Vulg. Distemper).—This disease may be divided into two kinds—Simple, and Epidemic or Epizoötic; and there is no doubt but that although the symptoms are very nearly the same, yet the cause is somewhat different. The cause of both is atmospheric; but in the case of Epizoötic Influenza the germ of disease is evidently of a more malignant form, and acts with a more fatal result altogether more frequently than in the case of the ordinary Influenza which exhibits itself in the spring and autumn of the year. In the case of the great Epizoötic which made its appearance in the United States many years ago, the evidence of its conveyance by the atmosphere was so plain as to be indisputable. When I at that time treated some cases of this disease in Chicago, State of Illinois, there was not a single horse to be seen in the streets of that large city—private conveyances, omnibuses and tram cars were all invisible, and the want of vehicular traffic made the city appear almost as if it was deserted. Some individuals of an inventive genius had put horses' harness, collar and all, on a few cows, and attached them to carts; this latter fact greatly added to the peculiar appearance of the deserted streets. Being called to Lexington, Kentucky, which is south of Chicago, I had to pass through Cincinnati, lying between the two points. At Cincinnati a few cases only had yet made their appearance, but in a few days afterwards the disease struck that city. At Lexington, the very night after my arrival, symptoms of Influenza showed themselves in a gentleman's private stable, and in two days it was all over the place. This showed plainly that the disease had travelled very rapidly in a direction from the north to the south, or nearly so. By some this Epizoötic was termed the Pink Eye, owing to the eye appearing pinkish, through the injection of the blood vessels of that organ.

Symptoms.—A cough is usually the first symptom to be descried, then follows running from nose and eyes, sore throat, and consequent difficulty in swallowing; the Schneiderian membrane is pale and the pulse weak; the appetite is nearly, if not entirely, gone; this last symptom is a very bad one, as the system is dreadfully weakened through the discharge from the nostrils, and the disease itself thereby accumulates greater strength, as the discharge is usually profuse and the patient having



BANDAGE TO RETAIN POULTICE IN THROAT AFFECTIONS.



METHOD OF POULTICING FOR STRANGLES.

no appetite; the waste of the system goes on without any supply of nourishment being received to supply the extreme debility of the system. Weakness generally, and want of appetite, are the chief things to be combated in this disease. I have had patients several times who have eaten nothing for nine or ten days, excepting the gruel, which was periodically given to them in the same way that a drench is given; had this not been done, the animals would have actually died of starvation. If the strength can be kept up, and especially if the animal can be coaxed to eat by giving him cut carrots or other succulent roots, then the disease will run itself out. I have found apples, or bread and sugar, an excellent thing to tempt back their appetite.

Treatment.—The treatment of this disease consists in giving the animal everything that will strengthen him, and supply the waste caused by the nasal discharge. Scald the oats, give a little hot mash occasionally, try him with salt, with apples, sugar—anything to coax him to eat; giving the following tonic, which will act on the digestive organs and give them tone:—Take carbonate of iron, two ounces; ginger, one ounce and a-half; linseed, one ounce; gentian and goldenseal, one ounce each; powdered liquorice root, eight ounces; mix, and divide into twelve powders or balls, and give one three times a day until the appetite begins to return; then one twice a day for at least a week; after that, one, once a day for two weeks more; at the same time every effort possible should be made to encourage the discharge, for which purpose he must be properly steamed. Boil some hay, and when the steam is well produced, then place some of the hay in a nose-bag, or a common stable bucket, and sprinkle it with oil of tar; place the bag or pail under the horse's nostrils about half a foot off from them, and cover pail, head and all with a rug, leaving him, however, a space to see from, as otherwise he will be frightened, and it will be almost impossible to perform the steaming so as to be beneficial to the patient. In many cases, however, this does not succeed in producing an increase in the discharge. In that case, get an old brazier or iron bucket, fill it with lighted embers or red-hot coals, then cut up some old boots into pieces and place them, together with two or three ounces of tar, upon the hot coals or embers; contrive that this shall be placed under the animal's nostrils, and cover all up as before directed in steaming with hay. This, though rather an old-fashioned remedy, is none the worse for being old-fashioned; and I have many times succeeded in effecting my purpose in this manner when I have entirely failed with the hay. All diseases require careful nursing, and this one

especially so. To alleviate the cough, which is always present in more or less intensity, apply a liniment to the throat, as follows :—Take strong aqua ammonia, three ounces ; iodine, in crystals (dissolved in alcohol), two drams ; spirits of turpentine, one ounce ; tincture of camphor, two ounces ; olive oil, ten ounces ; mix, and rub well in under the throat, and for about fifteen inches down the neck over the windpipe. He must be well clothed and kept out of draughts of cold air, but at the same time plenty of pure, fresh air should be allowed him. Thick linseed tea should be given him to drink ; and as for food, if he will eat, give him his full allowance, and perhaps a little more, scalding the oats. Great care must be taken to avoid his having a relapse, as in such a case the relapsed case generally appears, not as Influenza, but as Inflammation of the Lungs, and the greater number of fatal cases that took place during the Epizootic in the United States were those of animals which, when convalescent from the Influenza, took a relapse with Pneumonia ; and in almost every instance this was the fault of carelessness, or worse, on the part of those who should have exercised more care and judgment towards them.

Inflammation Metastatic (Founder, Acute.)—This disease has been very curiously confounded with Inflammation of the Feet (Laminitis), and is indifferently termed Founder and Lameness in the Feet by some old writers. They are entirely different, Founders being the consequence of a systemic predisposition to inflammatory action, which action is attracted by metastasis (shifting) to the forelegs, shoulders, the muscles of the chest, and especially the joints of these parts, in which it very much resembles Arthritic Rheumatism. In fever in the feet, it is the feet which are the seat of the acute pain, and the feet only. In Founder, the feet, *per se*, are only so far affected as to be sympathetically sensible of the acute pain and fever which exists in the parts above them. Founder is, strangely enough, principally confined to the fore-parts of the body, the reason for which has not yet been satisfactorily explained. To look at a horse in an acute stage of Founder, one might be easily excused if he imagined the hind-parts to be equally affected with the fore-parts ; this appearance, however, is delusive. The horse tries to relieve the pain which is existing in his fore-parts by pushing his hind-legs under him, and the pain forward, together with this action, causes a state of rigidity which makes it difficult to move him at all in his stall ; in fact, the body, if it is moved at all, is moved altogether, as if he were made of wood. That there is some pain even independent of sympathy in the hind-parts is, doubtless,

true enough, but the true seat of the inflammation lies in the fore extremities. This is proved by the treatment proving successful, the local applications of which are applied to the fore-parts only, and relieving the pain and inflammatory action in those parts, is equivalent to a cure of all parts, as the hind stiffness immediately disappears. There are many causes of Founder, the chief of which are driving through cold rain or through water, either too soon after feeding or whilst the animal is in a state of perspiration; and another very certain cause is, the standing a horse in a draught of cold air under the same conditions. I had experience of a case where the horse was brought in in a lather (a famous trotting horse), and the coachman inadvertently left a door open for not more than a very few minutes. In less than an hour and a-half he was as stiff as a board. These are the chief causes, although there are others also, but I give the causes only which are easily to be averted by the owner and as a means of prevention. This disease, in my opinion, certainly affects the joints very largely, and probably this is the reason that it has been termed Rheumatic Fever by some.

Symptoms.—The horse becomes slightly stiff at first in the forward parts, so much so that a person might, and often does, imagine that he has picked up a stone. Gradually he becomes more stiff until he can, with the utmost difficulty, put one foot before another, and as to turning him round in the stall, such is an absolute impossibility; he breaks out into sweats, especially round the shoulders; he breathes short, and his pulse shows signs of fever; the Schneiderian membrane, as is always the case, corroborating the pulse by becoming scarlet in color. He is in evident pain, and it is dangerous to attempt to lift a fore-leg, even if it is possible to do so, as should the effort be successful he will come over on the person attempting it. Some practitioners try a horse by standing him in a draught of cold air as a test for his lungs; the dangers of such a trial are two-fold. In one case Pneumonia may set in, in the other perhaps Founder, but nearly always one or the other. When I heard this first, I could hardly believe it, but it is a fact unfortunately too well verified.

Treatment.—Take cayenne pepper, two ounces; alcohol, one pint; water, one gallon. Cause the legs from the knees downwards to be *thoroughly rubbed* with this lotion; on account of its pungency the operator will, if possible, make a short job of it; but do not allow this, make the rubber keep on at his work for at least fifteen minutes at a time, and repeat every hour and a-half; after each application apply bandages

loosely, saturated with the lotion. Take off the shoes and poultice the feet. Give internally at once:—Tartarized antimony, one dram; ginger, one dram; gentian, one dram; and two hours afterwards one of the following balls or powders:—Take nitre, bi-carbonate of soda, bi-tartrate of potash, each two ounces and a-quarter; mix, and divide into twelve powders or balls, and give one three times a day until improvement sets in. At the moment the powders are about to be administered, drop on each five drops of the tincture of aconite. Keep the horse very warmly clothed in a warm but well-ventilated stable, but out of all draughts of air. Feed bran mash and scalded oats, and give linseed tea for drink. Many people have many ways of treating this disease—some, doubtless, very good, some equally bad, and a great number very comical. I can only say that during my practice of twenty-three years, I believe that, possibly with the exception of spasmodic colic, I have had more cases of this disease than of any other, and in every case I have succeeded in limbering them up and curing them completely in always less than three days, using the treatment which I direct to be used in this book. If the case is not properly treated, a chronic stiffness with rheumatic tendency remains, and is, unfortunately, frequently exhibited in the streets to-day.

Jaw, Dislocation of.—By horses running away, by their falling from a height, or even by a heavy fall over a gate when with hounds, the jaw is occasionally dislocated. It can be dislocated in two different ways, that is, it can be thrown forward causing the lower jaw to protrude in front of the upper jaw, giving the animal a very peculiar and repulsive appearance; or it is possible, but very rarely indeed it happens, that it can be thrown downward and backward—I say it is possible, but that is about all. However, the lower jaw may be dislocated so that it protrudes forward of its natural position easily enough. To reduce the dislocation, take a round stick of wood and cover it with cloth, place it crossways in the mouth against the lower grinders, then press downward and slightly backward and the jaw will slip into its place with a click, the teeth meeting on the cloth-covered stick, and thus obviating any danger to the teeth or otherwise at the moment of its re-articulation.

Kidneys (Hypertrophy of).—Hypertrophy or excessive nutrition of the Kidneys is met with more often than suspected, but even when the primary cause of the fatal result to a sick animal is this disease, it is very rarely detected until the animal is opened after death, and this is more to

be wondered at on account of its generally being mistaken for some disorder of the Bladder; and in a case that came under my observation, a veterinarian of reputation, suspecting the Bladder, made an examination by hand, and in that case by inverting his hand might have certainly felt the immensely enlarged kidney; the organ being inordinately enlarged is incompetent to perform its proper functions, whereby the impurities of the blood are improperly eliminated by the kidney affected, and instead of being passed off in the urine, these impurities are reabsorbed by the blood, and passing round the circulatory organs reach the lungs in their turn; the consequence is that the impure blood is only partially oxygenized, and the foul part, which has come from the diseased kidney, irritates the lung and causes ulcers to form on that organ, resulting, in nearly every case, in death by suffocation. The ulcers not being suspected until the evidence of their presence is shown by the discharge from the nostrils, and sometimes not even then, they gradually enlarge themselves until the surface of the lung is almost entirely one mass of them; at last they burst in such quantities that the pus clogs the air-cells and *even* the bronchial tubes, and suffocation ensues. That there is any cure for this enlargement of the kidney after the excessive growth has once began, I do not believe; and this paragraph is only written as a caution to would-be buyers and traders of horses, in order that they may be wary in taking a horse with a purulent nasal discharge. It would seem almost needless to mention such a subject in the way of caution, if it were not for the many tricks and frauds that are practiced on unsuspecting buyers.

CHAPTER XIV.

LOCKED-JAW. – MEGRIMS. – LARYNGITIS. – MUMPS. – MALLENDERS AND SALLENDERS. – MANGE.

Locked-Jaw (Tetanus).—This is essentially a disease implicating the entire nervous system, and is very difficult to cure, the more especially as its seldom shows itself specifically until from fourteen to twenty-one days after its primary cause has been established. Its cause essentially is injury to a nerve or nerves, and although the whole nervous system is most distressingly thrown into a state of the most extreme tension, yet the original cause may be the injury through a wound to the smallest nerve, or even when certain parts are in a state of inflammation, and consequently most susceptible to adverse action, may result from cold, and it may well be assumed that in all cases of Idiopathic Tetanus, the cause is the extreme irritation caused by a cold draught of air playing upon the extremity of a nerve or nerves, internally or externally, which nerves, or some portion of their intercommunicable parts, are in some way diseased and consequently open to disorder. Locked-Jaw frequently sets in after the operation of castration or docking the tail. Many operators have been, and still are, blamed for this occurrence, where there may have been no ground for this censure, as, speaking generally, it is not usually the act of operating which causes this disease, but some neglect or improper treatment afterwards. There are, of course, some cases in which, by dragging at the spermatic cord or other ill-management in the operation, the cause of Locked-Jaw may be very properly attributed to the operator, but in general it is not so, and the same remarks may as justly be received with regard to the operation of Docking. The causes most frequently present are those of either the horse picking up a rusty nail or other foreign body of a lacerating nature, or else the farrier pricks the horse, and, as a general rule, to make matters worse, he neglects to own that he has done so, hoping, no doubt, that the wound will heal up and that will be the end of it Generally speaking, the horse will be a little lame and the wound apparently heals up and he become sound. A chief factor in the case, however, is forgotten. The wound truly has healed, but the nerve has been injured and irritated in all probability by dirt, sand or gravel, which should have been removed *immediately*. This irritation is removed after a little, and as the wound heals and the horse goes sound, no more is

thought of the matter. The mischief is done, however, and in a short time, generally about three weeks from the time of the injury, the premonitory symptoms of Locked-Jaw become evident. The most severe cases seen, and the least hopeful in their progress, are those where the injury is in the foot. A horse may take the disease from injuries in the neck, as I have personally seen, and also from an ulcerated tooth, but in these cases which have come under my care they have been much easier to cure than those in which the original injury has been in the foot, being, in fact, cases of Trismus (where the tension is partial), rather than Tetanus in its more dreadful form.

Symptoms.—What may be called the stage of incubation has been going on for probably three weeks, and the horse is deemed all right, when all at once he begins to show a disinclination to eat; this is usually put down to a want of appetite, and in all probability the cordial ball, which with nitre and the urine ball, seems to be the remedy for all diseases the horse is heir to, is got in readines to be administered. The first thing to do is, of course, to open his mouth to receive the cure-all. When this is attempted it is found that the jaws are very nearly closed. I say very nearly, because until the jaws *are* very nearly closed he can eat his oats and even his hay, and the fact of his being able to eat his oats and hay has caused the attendants to overlook the gradual closing of the jaws. At the same time, if the eyes had been noticed carefully, a peculiarly staring appearance would have been observed; the ears also are unnaturally erect. These are the first symptoms, and if the appearance of the eyes and ears had been noted some days before, the jaws would have been found to be stiff in their action, but not closed to the extent of interfering very much with the masticatory action. Much valuable time, therefore, is generally thrown away by this want of observation, and, as in all other complaints, the disease has had time to acquire a resistant force entirely superior to that which it had some days before, and the difficulty of arriving at a satisfactory termination of the case is greatly increased. A certain indication of the presence of Locked-Jaw is the action of the Haw when the head is lifted upwards by the hand. When this is done the Haw covers half the eye, and the animal has the appearance of looking, as it were, backward towards the observer; such an appearance has always reminded me of the look sometimes given by a fox-terrier. Soon the tail shows that the caudal nerves are under the influence of the disease; the tail stands out straight, and, as the disease progresses, it shakes or shivers, and that frequently before the shaking and

shivering of the whole frame has commenced; the animal stands next with its neck stretched out, appearing rigid all over, and the hind legs are straddled, resembling a horse desiring to stale. The bowels now become constipated. Sometimes a small amount of dung is passed, but, if so, it is in round, dry or shiny balls, the urine also is scanty in quantity and unnatural in its color. Constipation is always present, and some evidently think that this is a cause and seem to endeavor to move the bowels only. Constipation is the effect of the disease, and not by any means the cause. The old saying was, that if you could move the bowels the case was as good as cured, and every effort in the shape of monstrous amounts of aloes and other purgative medicines, with clysters, were administered, little, if any attention being paid to the fact that actual disease itself lay in the abnormal condition of the nervous system. The jaws gradually close tightly together, and so strong is the nervous tension, that men have actually tried to pry them open with an iron bar and failed. A fact which not only shows the immense power of this nervous disease, but also shows the ignorance and want of feeling in the men who tried such an experiment. Horses have been buried all but the head in snow, pushed off heights into a river, and numerous other barbaric endeavors have been made under all kinds of forms to cure this disease. Such shocks may relax the tension temporarily, but only temporarily, and the disease resumes its power with greater malignancy than before. The pulse rises to 70, and after a day or so goes down to from 36 to 40, and yet lower sometimes. Soon the animal breaks out in cold sweats, and quivers all over by paroxysms, and sometimes the sweat pours off the animal, as if he had just come out of a brook. Death occurs generally from the ninth to fifteenth day, never over that. In the few cases I have been successful in, improvement has occurred visibly and definitely from the seventh to the ninth day. After death, the abdominal viscera generally show signs of inflammation, the meninges of the brain also give evidence of inflammatory action, but the chief evidence of inflammatory action is to be seen in the meninges and body of the spinal cord itself.

Treatment.—As a general rule the treatment in this case proves inefficacious. As before mentioned, all kinds of experiments have been resorted to in the endeavor to cure this most serious and usually fatal disease. The older treatment was that of purgatives and anti-spasmodics, such as opium, camphor, etc.; and those indications are still to be followed strenuously, and to be applied *as early as possible.* I believe, however, that hydrate of chloral, in combination with the occasional

inhalation of chloroform, is almost a specific in this disease, especially when assisted by the proper action of purgative medicines. In the case of the disease being caused by a nail, prick, or other wound in the foot, I believe that much assistance would be derived by the performance of the operation of neurotomy (nerving), as it is quite possible that the shock caused to the whole nervous system by the excision of part of the nerve, would cause a relaxation of the extreme tension, which is the most prominent feature in the disease. Providing the patient has no serious organic disease of the heart, the administration of chloroform by inhalation is always beneficial,and in some cases will effect a cure independently of any other remedies; taken, however, in combination with the exhibition of anti-spasmodics, of which the hydrate of chloral forms the principal basis, it is almost a certain cure if applied within any reasonable time after the symptoms of closure of the jaws has made its appearance. Still, the exhibition of purgatives should not be omitted, nor should the injections either; but instead of loading the stomach with large doses of aloes, especially when in the form of a ball, the purgatives should be exhibited in a saline form with aconite. Supposing, therefore, that the origin of the disease can be traced back to a wound in the foot, the wound should be enlarged and properly cleansed with a weak solution of carbolic acid, such as, water half a pint, carbolic acid one scruple, glycerine one ounce; mix. I have hardly, if ever, found any evidence of dirt there, even in the feet of those animals which have died from the effects of the disease. Some say that the irritation to the nerve which causes the disease is caused by the deposit of sand or something from the nail, and doubtless, the quantity of any foreign substance sufficient to irritate a small nerve might be almost infinitesimal; but my opinion is that the nervous shock is incubated and developed—not so much by any foreign substance, as by the actual injury to the nerve itself or its neurilemma (covering). After the wound has been properly cleansed, leave a pledget of cotton-wool saturated with the lotion just mentioned in the wound, renewing the dressing every twelve hours until healing takes place. Take oil of wormwood, one ounce; tincture of opium, four ounces; oil of turpentine, two ounces; tincture of camphor, four ounces; olive oil, ten ounces; mix, and rub thoroughly into and all around the jaws. For purgative, take bi-carbonate of soda, bi-tartrate of potash, each one pound; nitre, half a pound; epsom salts, a pound; mix, and give four ounces twice a day until the dung appears more natural, and on each four ounces drop eight drops of the tincture of aconite. If the jaws are

so tightly closed that the administration of medicine seems an impossibility, take a flat piece of wood about an inch thick, place it on the forehead of the animal and strike it sharply (but not too hard) with a hammer or mallet; this will generally cause a slight relaxation of the jaws. Then place between the jaws a round cloth-covered piece of wood, to keep them from closing again. If this is not successful, two teeth must be extracted, and the medicine being made liquid must be through a tube. Take hydrate of chloral, three ounces; tincture of camphor, four ounces, fluid extract of valerian, one ounce; sweet spirits of nitre, four ounces; water, one pint; mix; give a wineglassful every two hours. Twice a day take one ounce of chloroform and let him inhale it by means of a sponge applied to the nostrils, taking care, however, that atmospheric air is inhaled at the same time. Place him in a loose box with plenty of straw for bedding, and allow no one to visit him on any pretence whatever, with the exception, of course, of those attendants whose presence is *actually necessary*. When he becomes convalescent great care must be taken that he is not excited for the first few weeks, and he must be put on a course of tonics in the shape of iron for at least a month, however well he may appear. The powders mentioned in the Medicinal Appendix as Tonic Iron Powders will meet the case satisfactorily; give two a day, one in the morning and one in the evening. Be very careful of his taking cold, and give him gentle exercise daily.

Megrims—Is a slight attack of apoplexy, and is only to be feared when proper remedial measures are not taken in order to prevent it developing into a more serious form or becoming chronic. (See Apoplexy.)

Laryngitis (Inflammation of the Throat.)—Strictly speaking, this is inflammation of the larynx—at the head of the Trachea (wind pipe), but on account of the contiguity of the parts, only a very short time elapses before the whole of the back part of the throat is implicated, in some cases also even the tongue becomes sympathetically enlarged. It is caused by a cold, sudden change in the atmospheric surroundings, hot and ill-ventilated stables, the blood, of course being in a more or less depraved condition. This disease is also occasionally found in an epidemic (Epizoötic) form, and when so is in many cases very obstinate in its resistance to medicinal remedies. The danger in these cases is that of suffocation. Pus of a very thick consistency is thrown out, forming, as it were, a cast, and thereby closing the epiglottis (valve over the wind-pipe), and preventing the breathing of the patient. In some of these

cases this takes place so quickly that the operation of tracheotomy, which should be resorted to in such a case, is frequently performed too late, and this fatal delay occurs in the human subject also, as the author can witness in the case of one of his own brothers.

Symptoms.—The back part of the throat is visibly much inflamed; the pulse is high; the Schneiderian membrane of a scarlet color; the breathing is short and rattling, sometimes almost stertorous, and the function is evidently performed with difficulty; the neck is swollen and very tender; the head is stretched out nearly straight (in order to aid him in breathing), and, of course, he has great difficulty in swallowing anything. When taken to water, the liquid returns partially through the nose, and this should be noted when taking place, as it is always an evidence that something is wrong in the throat.

Treatment.—If at the commencement of the complaint, clothe him well, and apply a blister to the upper part of the wind-pipe, outside (see Iodine Blister, Med. Appendix); give him hot bran mash and fever powders of bicarbonate of soda, etc., (see Med. Appendix) twice a day, with thick linseed tea for drink. If, however, the first mild stage has been overlooked, as is generally the case, and matter has been more or less thrown out, the head being thrown out and the breathing difficult, then send for the nearest skilled practitioner to perform the operation of tracheotomy, otherwise, in all probability, the horse will die from suffocation. Should there be none in the vicinity, then the best way is to try to do it yourself, as if it is not done at once, and the cast has formed in a more or less hardened form, a fatal termination is almost certain. Feel down the wind-pipe for from twelve to fifteen inches from the jaw, and select one particular ring in the wind-pipe through which the incision is to be made. The proper way is to make an incision over the ring and cut out a circular piece, but being in a hurry to let him breathe, cut through the ring and keep the incision open, while another person passes in some kind of a tube, cover this with gauze to prevent the inhalation of dust, and secure it by strings round his neck. I have heard of a case in which the practitioner having no tube with him, made the incision (and that in the dark), and held it open until the farm people broke off the curved spout of a kettle, which he inserted until he could be better provided with a proper tube, thereby saving the animal's life. In all cases the throat should be blistered, and sulphur burnt in small quantities close to the animal's head. Take a stick and tie a small sponge on to the top,

then take honey four ounces, carbolic acid, strong, half an ounce; mix, and apply by dabbing the inside of the throat with the sponged stick; ten minutes after take sulphate of zinc half an ounce, borate of soda one-quarter of an ounce, water one pint and a-half; mix, take a large sponge, saturate it with the solution, then wring it out and apply all over the inside and back part of the mouth; give the fever powders, with five drops of tincture of aconite on each powder, and take one ounce of chlorate of potash, two ounces of sugar, with half a pint of water; give once a day. The cast can sometimes be pricked carefully away with the hand by keeping the mouth open with the balling iron; but, generally speaking, the whole adjacent parts are in such a tender state that this is impossible; moreover, if the case is Epizoötic (Epidemic), there is danger of contagion to any one who may happen to have a sore on his hand.

Mumps (Parotiditis).—This is inflammation of the Parotid Gland, which is situated beneath the ear. The cause is generally a cold, or it may result from the suppression of the discharge in cases of Strangles. In some cases where an incision has to be made for the purpose of allowing an exit to the pus, the skin becomes so much indurated that a depth of from one to two inches has to be reached by the scalpel before the pus can be liberated, and unless the pus is either liberated or scattered the formation of a fistula may be looked for with assurance.

Symptoms.—At first a tender enlargement under the ear near the upper protuberance of the jaw, but this, although remaining tender under pressure, soon becomes hardened or calloused. The animal has great difficulty in masticating food, as the action of the jaws in chewing causes great pain by pressing on the enlarged gland, so much so, that it has been mistaken for incipient Locked-Jaw. The food is quidded, and the pulse shows signs of inflammation. The head is stretched out, and there is also difficulty in swallowing as well as in the act of mastication.

Treatment.—Apply hot linseed poultices to the number of four, one after the other,—that is, as soon as one *begins to lose its heat*, apply another; then dry gently but thoroughly, and rub in frequently some of the following liniment:—Take soap liniment, eight ounces; tincture of iodine, two ounces; aqua ammonia and tincture of camphor, two ounces; mix, and rub in every three hours with a warm flannel. Linseed tea for drink and hot bran mash for food.

Mallenders and Sallenders. (See Scurfy Eruption.)

Mange.—This is not very common in the horse, being seen more frequently in his companion, the dog. However, the cause is mostly the same in both species of animals, being impoverished or tainted blood in conjunction with want of cleanliness and care in the owners of the animals. It may, of course, be contracted from another animal, being in itself highly contagious. It resembles the itch in the human subject, but in the case of the horse and dog it causes the unfortunate recipient of the disease to assume a far more disgusting appearance than even the man. Pustules sometimes form and present a very loathsome appearance, but this is where the disease is not attacked by remedies at once. Although there is but one disease known as Mange, yet it assumes two forms, one of which is dry and scurfy, while the other is soft, humid and and pustulous. It is said to be the sequel of Surfeit, although I have never seen such a result follow that disease. If it does follow Surfeit, then it must be from other concomitant circumstances aiding in the matter.

Symptoms.—These are very obvious. The animal becomes very restless and is continually rubbing and scratching himself. This causes the parts which are rubbed and scratched to become denuded of the hair and sometimes the scarf-skin also. Then, if the animal has acquired the dry form of Mange, the cuticle appears whitish or dusty, but if it is the humid variety, little pimples and vesicles appear charged with matter, which soon empty themselves either of their own accord or through the continual rubbing which the animal persists in, in order to relieve the terribly itchy feeling under which he is suffering. After these discharge, crusts form underneath which the ulcerative process is going on. As the process of denudation goes on, the animal begins to become weak and thin, and if the cause is not soon checked, the animal sinks into such a debilitated state, that his vital forces refuse to rally and the case terminates fatally under Dropsy or some other disease, indicating the complete demoralization of the system.

Treatment.—Take sulphur, half a pound; carbolic acid, half an ounce; unsalted lard, one pound; mix, and make into an ointment and apply frequently and liberally to all the affected spots. Then take, iodide of potassium, one ounce; arsenic, two scrupies; sulphate of copper, one ounce; gentian, one ounce; nitre, three ounces; linseed meal, six ounces; mix, and divide into twelve powders or balls. Give one morning and evening until amendment. It is better to divide the arsenic separately from the other ingredients, so that an equal amount is

given in each powder. The animal must be isolated, as almost everything that it has touched will give the disease to another horse; and certainly, if the harness and clothing is ever to be used again, it should be repeatedly washed in carbolized water and submitted to a long quarantine. Give him as much wholesome and nourishing food as he will eat, in reason; take the chill off his water, and occasionally give him some thick linseed tea, and be very careful he does not catch cold. Those in attendance on the animal should be very cautious with regard to washing their hands every time after handling him, otherwise they will contract this disease in some form or other.

CHAPTER XV.

MOUTH AND TONGUE.—NERVING.—NAVICULARTHRITIS.—NASAL GLEET. PROTRUSION OF THE GUT.—PROLAPSUS OF THE WOMB.—POISONS.

Mouth and Tongue (Eruption of.) Occasionally small ulcers are seen in the mouths and on the tongues of horses, and sometimes in those of sucking colts and fillies. In the former case the causes may be found in some cases from sympathetic inflammatory action, such as is caused by inequalities in the teeth, or by constitutional irritation, or even by a bit which is ill-fitting or too severe. In the latter cases the cause is tainted milk from the mother, and consequent impurity of blood in the suckling.

Treatment.—If it is a suckling, purify the mother's milk by putting her on a course of Tonic Iron Powders (see Medicinal Appendix). If it is a grown-up horse, remedy the ill-fitting bit or file the teeth, as the case may be, and give him the Iron Powders. In both cases take, carbolic acid one dram, honey (thick) three ounces; mix, and apply to the ulcers be means of a small stick, the top of which is covered by a small sponge, the sponge again being covered with soft linen If the ulcers are caused by the bit or uneven teeth, do not use the animal until the sores are properly healed. Give bran mashed and scalded oats for food, and thick linseed tea for drink.

Nerving (Neurotomy).—As this operation is so frequently recommended to owners of horses, and seems to be considered as a specific cure for lamenesses inside the hoof, which are necessarily, from their position inside the horny case, hard to be reached effectually, it will be well to say a few words here, as a caution to owners against their allowing this, in many cases, pernicious operation to be so indiscriminately performed. The operation consists of excising from half an inch to one inch and a-half of the plantar nerve, which supplies the inner organization of the hoof with sensation. Sometimes the operator only snips the nerve, and the sensation inside the hoof is temporarily destroyed. In the case of the snip being made, sensation is very soon restored by the reuniting of the nerve by its growing together again. In the case of the excision of a part of the nerve, according to the length of the piece excised, so is the length of time which is occupied by the process of reunition, and, consequently, in the restoration of

sensation to inner organization of the hoof. In a very great number of cases where the lameness is evidently in the interior of the hoof, and there is difficulty in diagnosing the exact seat of the injury, it is put down to disease (as it is wrongly called) of the Navicular Joint (Naviculartbritis), and great numbers of horses have undergone this operation when quite free from any such disease—many of them to the great loss of their owners. This operation is generally called for in the cases of racing and other blooded stock. The results are generally most unsatisfactory. The sensation is temporarily destroyed, and the lameness consequently disappears for a little, and the operation is loudly praised. In a short time, however, when the nerve is reunited, sensation returns, and, of course, the horse is as lame as ever. In other cases, through the interference by the operation with the nutritive vessels of the hoof, a crack appears at the coronet and the hoof is shed. It is true, as mentioned in reference to another disease, that a new hoof may, and generally will, grow again, but it is smaller and never as strong as the original one. The operation consists in casting the animal and excising (snipping is no good in any case) about an inch or an inch and a-half of the plantar nerve, which runs down the leg in company with its artery and vein and passes into the hoof, thereby supplying sensation and ramifying there. The excision should be made about two to three inches above the fetlock ; this is called the high operation, the low operation being where the incision through the skin is made a little above the junction of the hair with the hoof. The nerve lies between the vein and artery, and is detected by its white colour. Its position can be ascertained when it is covered by cellular tissue, by the pulsation of the artery lying beside it. The higher the incision is made, the more cellular tissue is likely to be found covering it. The high operation is the best, as the sensation is more perfectly destroyed than in the low operation. The nerve after being dissected from its cellular tissue (if any) is raised by means of a curved, blunt needle, and separated by means of a pair of scissors, the upper part being cut through by the scissors ; then the lower division is made of whatsoever length is judged best by the operator. At the first incision the horse will generally struggle violently, and occasionally fall into convulsions. On the lower cut being made by the scissors he will take no notice, as he feels nothing. If the operation *must* be performed, it is much better, providing the animal's heart is sound, to administer chloroform, as thereby the shock will be averted from the nervous system, and there will be no struggling. The wound may be brought together, either with a stitch or with rubber plaister, and

dressed with carbolized cold water. The remedy seems, however, very much like stunning a man to relieve him of a stomach-ache. If the so-called incurable lameness exists even really in the Navicular Joint, it necessarily follows that there has been inflammation, and that in all probability ulceration has made its appearance; the abnormal action in the hoof produced by the inflammatory and ulcerative stages causes the irritation of the nerves inside the hoof, and hence the pain. Directly the nerve is excised above, it being the vehicle of sensation, of course the pain ceases; but the real disease, which consists of the ulcerative process, still exists and prospers in its gradual process of disorganizing the whole internal structure of the hoof; therefore, in these cases, it is by no means a remedy, but at the best a tide-over. In some few cases it may be of service where the proper remedies have time and means to reach the real disease, as in that case the absence of pain will undoubtedly help the cure. But for people to take a horse who has any kind of inflammation (not to say ulceration) in the hoof, and after nerving him to set him to his usual work, as is often done, is not only the quintessence of absurdity, but a very impolitic proceeding, if only looked at from the standard of pecuniary profit, to say nothing of the future interests of the animal.

Navicularthritis (Disease of the Navicular Bone).—This is the disease referred to under the head of "Nerving." It is inflammation and subsequent ulceration of the articulation of the coffin bone with the Navicular bone. The Navicular bone is a small bone, generally about an inch and a-half to two inches long, varying, of course, according to the size of the animals which own it. The joint may be said really to consist of three bones, as the Navicular bone (or Shuttle) is in articulation with both the coffin bone and the lower pastern. The lameness is usually put down to a violent strain during motion; but it is very questionable whether Navicular disease cannot more often be attributed to a strain of the lower part of the back tendon at its insertion, than to a strain of the actual Navicular joint itself. The symptoms are those indicative of any pain and lameness in the back part of the interior of the hoof. The horse goes more upon the toe of the affected foot than upon the heel, and points accordingly. Some say that the lameness is intermittent, but it has not appeared so to me in the very few genuine cases of this disease with which I have been brought in contact. Should this intermittent lameness be present, the horse being in daily work, I believe it should direct attention to another point than the Navicular joint. The disease being deep-

seated, the fever in the hoof is less apparent than in other foot diseases — Laminitis, for instance.

Treatment.—As before remarked, Nerving is almost always put forward in this case as an effectual cure. The only treatment likely to avail in this case is bleeding from the toe, and this may be repeated at intervals of a week for three times. Poultice the foot *aveilhanie* for three days, after which apply the following blister round the coronet, and repeat every nine days for at least three times. Take iodine (in crystals, dissolved), half an ounce; biniodide of mercury, two drams; cantharides, powdered, one ounce; sweet lard, or simple cerate, four ounces; mix, and apply all around the junction of hair and horn, excepting the heels, where the skin is thin; cut off the hair and rub in thoroughly about the height of an inch and a half above the junction of hair and horn; twenty four hours after rub in gently some sweet oil or fresh lard, and repeat in nine days; give also the powders of bicarbonate of soda, etc., one every night (see Medicinal Appendix).

Nasal Gleet. This consists of a discharge of mucus of a white or yellow color from both nostrils, and seems to be caused primarily from a cold and consequent suppression of the cutaneous perspiration, or, at all events, from the abnormal condition of both the secretory and excretory functions, possibly the kidneys or bowels. If the discharge is from one nostril only, it is to be looked upon with suspicion; and isolation, if not already ordered, should at once be insisted on. It is generally divided into two kinds—Simple Gleet, and Malignant Gleet. One is only the accentuated stage of the other. In other words, the stage of simple Gleet having run nine days without amelioration, is then termed, on account of the increased virulence of the symptoms, and the evident excessive influence which it has obtained over the general constitution, Malignant Gleet. In spite of these definitions, I have seen Nasal Gleet run for three weeks with no malignant symptoms at all. This disease is sometimes mistaken by ignorant persons, for Glanders, and under that delusion the animal is occasionally destroyed. Such a case occurred under my observation in the State of New York, where a certain city society, of great worth it its proper place, insisted upon the destruction of the animal, the wise agent of this society (who was an auctioneer) knowing as much about the two diseases as he did about English grammar. It is needless to say that a stop was soon put to this uncalled for interference.

Symptoms.—A copious discharge from the nostrils of a yellowish-

white color. This discharge is thick and viscid, and comes *from both nostrils*. There is a running from the eyes, which seem inflamed; the horse is dull and off his feed; dung unnatural; the coat stares and he has occasional chills, in some cases, but not always. He breathes heavily and quickly, and the submaxillary glands (under the jaw) are soft, enlarged and painful. There is usually more or less of a cough, showing sympathetic action of the lungs or throat, and the pulse is feverish, the Schneiderian membrane appearing redder than in usual health. The ears and legs are alternately warm and cold. If not properly attended to, the disease becomes gradually constitutional in its nature. The glandular system becomes involved, and the parotid glands become enlarged, soft and tender, and the legs and abdomen become swollen. Should this state of things continue, the disease will run either into Dropsy, Farcy or even Glanders, without any intermediate stages being observable. If the malignant stage is allowed to appear, it may be detected by the increased fever of the general system, as indicated by the pulse and the Schneiderian membrane, the continued enlargement of the parotid and submaxillary glands, difficulty in swallowing, the heat of the mouth, and the involuntary discharge of saliva, which gradually assumes a stringy consistency. The nostrils dilate in the act of breathing, and the flanks show a double action; the urine is passed off, brown in color, and the dung in hard, small balls, occasionally covered with slime, but not always. At this stage, if the discharge gradually diminishes in quantity and thickness, and then appears only from one nostril, be on your guard against glanders, especially if the discharge comes from the *left* nostril.

Treatment.—This disease being evidently an effort of the natural forces in their endeavor to throw off the impurities of the system, the discharge from the nostrils must by no means be checked, but, on the contrary, it should be encouraged by steaming, either by means of boiled hay and tar or by burnt leather and tar, as before directed in cases of Influenza (for which see under that heading). Some recommend the making of an opening into the frontal sinuses by means of the trephine or otherwise, and thereby cleansing the supposed impacture by means of warm injections. Such treatment is good when the necessity for the removing of any solid matter from that spot is alone indicated, but when advocated, as it has been, as a cure, is quite unreasonable, as it only removes the effect and not the cause. The first and chief indication is to restore the tone of the vessels whose function it is to produce healthy perspiration; this must be done by tonic and diapho-

retic medicines, partially aided by external hand rubbing. For this purpose the horse should be well wisped over every two hours, at least, and this duty must be performed energetically. Then take : Sulphur, three ounces ; tartar emetic, one ounce and a-half ; exsiccated sulphate of iron, two ounces ; iodide of potassium, one ounce ; arsenic, one dram ; linseed meal, eight ounces ; mix (and see that the arsenic is equally divided), divide into twelve powders or balls, and give one morning and evening. It is always safest, in case of after-consequences, to isolate the patient and to keep the stable properly disinfected, removing all dung and urine immediately on its being passed ; but this latter remark applies to all cases of sick horses. Good nursing is a great desideratum in this case especially, and much patience must be exhibited. The food must be sound and good, and not stinted. When the horse becomes convalescent give him *gentle* daily exercise, one hour morning and afternoon, and give him tonic iron powders, one morning and evening, for at least three weeks. Do not put the animal to work until at least a month after recovery ; but turn him out in the daytime if the weather is suitable, remembering always that it takes the animal a long time to recover his natural strength after such a weakening disease.

Protrusion of the Gut.—The rectum, which is the last of the large intestines, occasionally protrudes from the anus in a very disgusting manner, and sometimes is not at all easy to replace, or at all events when returned is difficult to keep in its place. When protruded it is inverted (turned inside out, as it were,) and appears generally, but not always, in an inflamed condition, its colour being red, and when this is so the horse seems urged to force it out more. The cause of this unnatural condition of things is sometimes constipation of an obstinate character, sometimes painful diarrhœa, violent bloating of the intestines, and sometimes it occurs without any apparent cause. When any of the above conditions are present and are combined with muscular relaxation, then Prolapsus of the Rectum takes place.

Treatment.—Stand the animal in such a position that his hindquarters are higher than his forequarters, wash the exposed parts with lukewarm alum water, and having oiled the hand and arm, place it in its original position. If it has occurred from the irritation caused by constipation or diarrhœa, of course, when these causes are removed the rectum will gradually be retracted ; but if the cause is not perceivable it will generally be necessary to occasionally inject a weak solution of catechu and alum, returning it as often as it protrudes, and persevering with the injections.

Prolapsus of the Womb (Uterus).—This occurs after an unusually hard and protracted parturition, and occasionally, but not often, after a miscarriage. Sometimes the womb is only partially exerted, at other times the whole uterus protrudes.

Treatment.—The womb must be replaced *immediately*. If this is not done, inflammation of the organ is at once set up, and great danger is imminent. Oil well the hand and arm, or else immerse it in warm cream, and after having gently sponged the protruding parts with lukewarm water, in each pint of which two drops of carbolic acid should be dropped, replace it by degrees. After having restored it to its proper position, inject a lukewarm solution of tincture of arnica one ounce, solution of alum half an ounce, water one pint. Take some thick and soft flannel and roll it up to the thickness of a man's arm, with a length of about two feet, saturate this with the solution and insert it into the vagina; there allow it to remain, and place a fresh one (if necessary) every twelve hours, until it is seen that there is no danger of its being forced out through the secreting action of the womb. Place a pad over the tail end of the inserted flannel, and bind it loosely there. Feed the mare during this time with bran mashes, and in each mash put two drams of the tincture of muriate of iron, two drams of tincture of ginger, two drams of the tincture of gentian. Should sympathetic fever appear to any extent, then stop the tonics above mentioned and give tincture of aconite eight drops, and sweet spirits of nitre one ounce, every six hours until the fever abates its force.

Poisons.—There are numbers of cases where poisons of different descriptions are given either intentionally or inadvertently to horses. The stomach-pump should be used, of course, immediately either,—if possible, to extract the contents of the stomach, or dilution of the contents of the stomach should be managed by means of a long, hollow and flexible tube. A skilful veterinarian should be at once summoned in these cases; but as this book is written for farmers and others, to enable them to assist themselves, especially when living at a distance from a professional man, I will give the best means of treating the cases of poisoning generally seen; the more especially as if the case is not at once attended to, the absorption of the poison becomes complete, and neutralization being then impossible, the case certainly will end fatally. The most common cases of poisoning in horses and cattle are those caused by arsenic, corrosive sublimate, strychnine or opium, and occasionally by the excessive medicinal use of aconite by incompetent persons. One great drawback which we experi-

ence in the case of horses which are poisoned, is the fact of our inability to excite vomiting by means of emetics. Owing to the peculiar construction of the horse's stomach, in combination with other reasons not necessary to be explained in a simple and plain work such as this is hoped to be, the horse is unable to empty the contents of his stomach through the act of vomiting, as the dog, for instance, is; this makes the case doubly dangerous, as we have only to rely on neutralizing the poison by its antidotes, and in nine cases out of ten it is not known what poison the horse has swallowed. The symptoms, too, of almost all poisons which are not of a narcotic, nature are mostly the same, strychnine excepted, where the poison acts especially on the nervous system.

Symptoms.—In poisons of a corrosive nature, such as arsenic, corrosive sublimate, etc., are violent thirst, the animal shudders and has an appealing, plaintive expression, violent pain in the stomach and bowels, frothing or dribbling from the mouth, grating the teeth, gaping with belching, cold sweat with trembling of the limbs, occasionally painful diarrhœa, with difficulty in excretion, and frequently convulsions alternated with coma (unconsciousness).

In Poisoning by Strychnine many of the above symptoms are sometimes present; at other times not at all. Strychnine as poison may be detected during life more easily than almost any poison, as the effect it produces on the patient is unique. These are tetanic convulsions—the poison seems to act directly on the nervous organization, and the whole frame is in a state of alternate nervous tension and relaxation, something similar to an animal affected by Locked-Jaw, but still more similar to an animal in an epileptic fit. Judging by the appearance exhibited by an animal when poisoned by strychnine, and an animal suffering under Lock-Jaw or Epilepsy, the symptoms being so exactly alike, especially in Epilepsy, the administration of strychnine in the cases of these diseases should, according to the doctrine of the homœopathists, certainly produce a cure. It is, however, almost needless to say that, although frequently tried, it has no effect as a cure on such cases under any circumstances. The unfortunate animal falls, jerks himself up, jerks his legs out and holds them stiff, and every now and then throws them out and again contracts them spasmodically. The animal when down throws his head backwards, and for a time it seems as if it was immovable from that position. He draws his feet up to his belly, or holds them out straight, as if made of wood, and presents all the symptoms of Epilepsy with, occasionally, stertorous breathing. This continues until the end, which, fortunately for

the suffering animal, is not long in coming. From the appearance of the eyes, and from other symptoms, it may well be doubted, however, if the animal experiences that physical pain which we should be liable to infer from his seemingly painful contortions, as in all probability the effects of the poison act almost immediately on the brain, producing more or less of insensibility, and the convulsions observed are involuntary and physical in their nature only.

In Poisoning by Narcotics.—These are generally opium and its compounds. The symptoms begin by dullness, lack-lustre eyes, resting the head against the manger or wall, stertorous breathing; all these symptoms gradually increase until somnolency occurs. Sometimes there is contortion of the eyes, the animal staggers and has violent and involuntary motions of the limbs; but this not often, and when these motions are present it is only for a short time, and usually before the narcotic action has obtained complete hold of the system. Soon after somnolency sets in, complete unconsciousness is observed, with cold sweats and unnatural breathing, and the animal dies of what may be aptly termed Apoplexy by poisoning. When the poison is unknown and cannot, for want of an expert, be correctly diagnosed, it is very good practice to give the white of half-a-dozen eggs, or sweet oil, a quart, or even melted lard, as these emollients may, by acting as a pabulum for the poison, be the means of saving a great amount of corrosive action on the coats of the stomach until something more effectual can be accomplished.

For arsenic, give at once prepared chalk one ounce, castor oil one quart; then get immediately from the chemist's the hydrated peroxide (sesquioxide) of iron, with directions from him.

For corrosive sublimate, give the whites of eight eggs with a pint of milk, and repeat.

For carbolic acid, olive or castor oil one quart, repeated as required.

For strychnine, give olive oil one quart, tincture of opium four ounces, and then tannic acid one dram, chlorine one dram, olive oil half a pint, and repeat as required.

For narcotics, try to make the animal move about if not too far gone. douse the head and neck with cold water, and apply ammonia to the nostrils, giving one ounce of carbonate of ammonia in a pint of water every two hours. Black coffee is supposed to be good, but these remedies usually are ineffectual, owing to the time lost in passing over the symptoms as natural dulness, and so forth. The poison received by animals is, as a rule, only discovered by opening them after death, and very frequently not then.

CHAPTER XVI.

PULSE.—PLEURISY.—PLEURO-PNEUMONIA.—PARALYSIS.

Pulse.—As the Pulse is the chief means we have of finding out the exact state of the circulation, and, consequently, the presence of fever on the one hand, and that of debility on the other, it is very necessary for all farmers and horse owners who take any interest in the well-being of their animals, to acquire some little knowledge of this sure indicator of the state of animal's system. In all works treating on veterinary subjects the state of the Pulse is described by the terms soft, full, wiry, hard, etc., and these terms very frequently confuse the aspirant after veterinary medical knowledge, for what one man will term full, for instance, another man will give a term which does not apply to that particular state of the Pulse. The proper signification of the heart-beats, as shown by the Pulse, can only be a matter clearly acquired by means of a long practical experience. Therefore, all owners of horses should frequently practice themselves in taking the Pulse, and when they have become practiced in doing so, they will be able to appreciate their own personal definitions of the terms "wiry", "hard", "full", etc. The Pulse of an ordinary farm or driving horse usually beats from thirty-six to forty times in a minute. Horses which are termed blood horses, such as race-horses and other thoroughbreds, have a higher Pulse than horses of an ordinary grade, the beats varying from five to fifteen more, according to the breed and according also to the degree of the animal's nervous temperament. Draught horses, such as Clydesdales and others have a lower pulsation generally than even ordinary horses. New born sucklings have a very high pulse when first born, generally from eighty to a hundred, but the beats subside as the animal acquires age. In cases of fever the Pulse doubles its beats very frequently, and it need hardly be said, that the higher the Pulse goes, the more danger there is to the animal. The place of taking the Pulse differs in different animals. Of course, wherever an artery is, there is also the Pulse, but the most convenient place for observing the pulsations in the horse is at the lower angle of the jaw. At this point the submaxillary artery may be plainly felt, and the more especially, as there being little thickness of muscular or other tissue over it at this spot, the artery may be gently pressed against the jaw-bone, the pulsations from the effect of this action being more easily felt and numbered. The temporal artery, too, will be also easily felt. The most convenient place for observing the pulsations o

this artery is a little below and back of the eye. The plantar artery can also be felt under the fetlock joint, and in the case of cows and other horned cattle this place is frequently chosen by persons desirous of ascertaining the Pulse in these animals. In the dog the large artery inside the thigh is usually the place applied to for this purpose. The Schneiderian membrane (the membrane lining of the nostrils) alters greatly in color according as the Pulse either rises in fever, or is lowered in the number of its pulsations in the cases of debility. The natural color of this membrane is rosy pink; as the Pulse rises in fever, the membrane becoming injected assumes a deeper color, and when the Pulse is very high is of a bright scarlet. When weakness sets in, the Pulse, of course, subsides, and the membrane loses its rosy pink color and becomes pallid or white. This membrane also is indicative of other stages in diseases, as in Inflammation of the Lungs, when at a certain stage it assumes a livid color; as also in cases of Glanders, and when mortification through Gangrene has set in. This is a membrane to the appearance of which much more attention should be paid than is usually done. Whenever the natural color of this membrane changes, it is time to find out the cause of it, if possible, and the evidence of the Pulse is always corroborative of the abnormal action in the system which causes the change of color in the membrane.

Pleurisy (Inflammation of the Pleura).—The Pleura is a serous membrane, forming as it does the wall of the chest and the lungs; it covers the lungs, and being a serous membrane has little sensation while the animal is in good health. When attacked with disease, however, its sensibilities seem more acute than even those of the mucous membranes. That many more cases of Pleurisy occur than are usually taken notice of, may be assumed with certainty, on account of the number of horses which, dying from some other disease, are found to have pleuritic adhesions and other evidences of inflammation of that membrane, which has evidently been cured by the simple efforts of the natural forces, for on questioning those who have owned them all their life they have said that they were never aware of the animal having had any such disease. In these cases, probably not having been very severe in their symptoms, it has been passed over as a cold or a cough, although it is hard to believe that the peculiar cough which is indicative of this complaint should be mistaken for an ordinary cough. In Inflammation of the Pleura there is, on account of the relative positions of this membrane and the lungs, always more or less sympathetic inflammatory action in the lungs, and for this reason it very seldom exists as a purely separate disease.

Symptoms —The symptoms are those of an incipient attack of Inflammation of the Lungs (which see under that heading). There is one symptom, however, which is specifically indicative of Inflammation of the Pleura. This is the peculiarity in the cough. The action of coughing seems to be cut short in the middle and ends in a kind of hiccoughing grunt. Another plain symptom of Pleurisy is that the animal will *lie on his affected side*, which is the reverse of what may be expected, as in all other affections of an organ, the animal will lie (if he lies at all) on the sound side. Still another action takes place here which is not common in Inflammation of the Lungs,—the horse will lie down and rest. In Pneumonia, even in its incipient stage, the patient seems to have a fear of lying down, even though he evidently is in need of rest.

Treatment.—The treatment is the same as in Inflammation of the Lungs, only that the blister need be applied only to the side affected. If both sides are affected, then, of course, the blister must be applied impartially to right and left side. The side affected, if only one, is to be detected, both by pressure (when the animal will shrink) and by the fact that if only one side is affected, on that side he will lie. Great attention, however, should be paid to a case of Pleurisy, however mild it may seem in its symptoms, as, if neglected, it will not be long before the lungs become thoroughly affected and there is a case of pleuro-pneumonia, whose resistant power to curative remedies will be considerably stronger than it would be if limited to simple Pleurisy.

Pleuro-Pneumonia.—This disease may be divided into two kinds —simple and typhoid. In the first kind of this disease there is no danger, or, at all events, very little danger of contagion or infection; in the second kind contagion and infection is sure, and the disease becomes a perfect scourge, especially where there are many animals crowded together in an ill-ventilated stable, and under conditions where the sanitary arrangements are imperfect. The second kind, Typhoid Pleuro-Pneumonia, is occasionally a result of the neglect of proper treatment in the first stage, but more often it is epizootic (epidemic) and is caused by the inhalation of poisonous germs, either from the presence of other infected animals or from atmospheric influence. In Simple Pleuro-Pneumonia the symptoms are the same as in Inflammation of the Lungs, with the addition of the cough, which is that peculiar to Pleurisy, the animal, as it were, strangles the cough, and, in fact, is actually afraid to give effect to the cough, on

account of the pain. The treatment in Simple Pleuro-Pneumonia is practically the same as that in Inflammation of the Lungs and Pleurisy.

Typhoid Pleuro-Pneumonia.—This disease has frequently been mistaken, both in its symptoms and treatment, for Tuberculosis; the symptoms certainly have a resemblance in both diseases to a superficial observer, but there is really considerable difference both in the symptoms of the disease during life, and the *post-mortem* appearances also are very different. (See Tuberculosis.) Both Typhoid Pleuro-Pneumonia and Tuberculosis are, however, much more prevalent amongst horned cattle than among horses, and for the last few years, and indeed at present, Typhoid or Contagious Pleuro-Pneumonia in beef cattle is the cause of much inconvenience to those countries dealing in cattle for butcher's purposes, and of numerous and irritating quarantine regulations as preventives of the spread of this very fatal disorder among those countries which have not had the misfortune to see it propagated among their own healthy stock. Whenever the plague of this disease is more virulent than usual it is generally found that there is more or less of Epizoötic Influenza about, and in some cases it is doubtless the termination of that disease, especially if that disease has been treated on the principal of depleting the system by continual purging or by bleeding, as the proper treatment is diametrically opposite. The disease comes on very insidiously and very quickly. It seems to undermine the whole system before the fact of its actual presence is properly appreciated. In nine cases out of ten the primary cause is atmospheric germs, and sometimes horses are affected at the same moment though situated miles apart, as I have seen myself. This fact alone would show that the atmosphere acts as a vehicle for the poisonous germs, in the same manner as it does in cases of Epizoötic Influenza. (See under that heading.) Those animals which have a predisposition to the disease,—that is, whose vital forces are depressed from some cause or another, will take it sooner than others whose constitution and health is not affected, and the probable result will be more likely to be fatal. The disease has a rapid tendency to Gangrene, and, in fact, in *post-mortem* examinations of animals which have died from this disease all the vital organs appear in a state of disintegration and rottenness, the lungs and pleura are partially disorganized, and pieces are found floating in the watery fluid which is secreted, on account of hydro-thorax having supervened. The heart has lost its natural consistency, and the very blood is putrid and of an unnatural color. These facts are simply mentioned to show the malignant and gangrenous nature of the disease, and

the consequent necessity of precaution as well as energetic treatment in such cases. Complications take place as the case advances, and he will sometimes paw the ground and look round at his side, thereby showing that the abdominal viscera are implicated in the disorder; sometimes he will be afflicted with purging, and when this is so the discharge is dreadfully fetid, and sometimes consists of black matter and decomposed blood.

Symptoms.—The first symptom generally observed is the peculiar cough, which is soft, languid, and, as in the case of pleuritic affections, it is cut short in its action. There is a wistful and dejected appearance in the animal. He holds his head low, and his eyes lose their brightness. The temperature of the ears and limbs alternates between cold and heat, and sometimes when the limbs or the ears are felt they will appear warm on the contact, but on holding the hand still, cold will seem to come up, as it were, from the deeper-seated tissues. The Schneiderian membrane is either of a leaden color or appears livid, tinged with red, the coat stares and the appetite is gone, the breath is bad and the pulse is feeble and between seventy and eighty in its pulsations. The dung is dry and unnatural in appearance, and the urine is offensive and high in color; the animal also shows signs of tenderness, as in Pleurisy, when pressed between the ribs, and sometimes there is a discharge of foul mucus from the nostrils.

Treatment.—Immediate and preventive treatment is called for here. First isolate the diseased animal, and after disinfecting the stable allow him all the fresh air he can get, being careful, however, that he catches no cold from draughts of air. When the foul discharge from the nostrils appears in combination with foul breath and anal discharge of corrupted blood, there is no hope of a cure, but the animal should be at once destroyed and buried in quicklime, in order that the danger of contagion may be avoided and the lives of other healthy animals in the neighborhood may be saved. In a case of this description it is imperative that a competent veterinary surgeon should be called in, and that at the very first outset of the disease, as, on account of the complications with which the disease is involved, and the danger to healthy stock around, it is quite out of the province of any one but an expert to handle this disease. This account of the disease is given in order to enable owners to take precautions at once, so that this dreadful gangrenous stage may be averted. The treatment the practitioner will prescribe will no doubt

consist of medicines of an antipholgistic and disinfectant nature in combination or alternation with strong tonics. I have used carbolic acid internally with other medicines with very good effect. In case of the suspicion of Typhoid Pleuro-Pneumonia, it is undoubtedly the duty of the owner to give notice to the veterinary authority of the county, in order that the best means known, both curative and preventive, may be exercised.

Paralysis (Paraplegia, Hemiplegia).—There are two kind of Paralysis in horses. One kind is that in which the posterior parts of the animal become paralyzed, and, consequently, useless to the animal. This is termed Paraplegia, and is the variety which is generally and almost always seen. The other kind is where one side only of the horse is paralyzed, and although very frequently to be observed in the human subject, seldom if ever attacks the horse; this variety is called Hemiplegia. The causes of these attacks are injuries to the brain, violent strains of the back, or even blows over the spine. Paralysis will also occur after a severe attack of Apoplexy, and in some cases that I have seen, the primary cause was never satisfactorily ascertained. I have seen it occur in connection with a violent and neglected attack of Inflammation of the Lungs, of which the animal died. I was able to completely restore the animal as far as the paralysis was concerned, but the lungs being attended to too late, the animal died a day or so after the paralysis was removed. I have also seen it occur from some temporary affection of the bladder which caused retention of the urine; but as on my drawing off the urine the animal soon recovered, and, especially as she was an *old* brood mare, I have reason to believe that the attack was only sympathetic, whatever it might have been if it had not been immediately attended to.

Symptoms (Paraplegia).—The animal is found lying down, and continuining to do so beyond a reasonable time, is generally urged to get up, when it is found that such an act is beyond the animal's powers. Being urged by the whip, the animal struggles to get up, but succeeds only with his fore-feet, and remains sitting on his hindquarters like a dog. On pricking the animal with a needle, or the point of a penknife in the hindquarters, it is quite evident that all sensation in that part is lost. The tail is also quite inactive, and when lifted up drops in a perfectly unnatural manner. The disease lies in the spinal cord, which after death is found occasionally marked with black spots or lines, and always in a more or less congested state, either with regard to its trunk or its envelopes (meninges). The disease is more frequent in mares than in horses or geldings.

Treatment.—Place the animal in a loose box with plenty of straw or bedding, and give immediately the oily aloetic purge, to which add the tincture of nux vomica two drams, and sweet spirits of nitre one ounce. Four hours after give: Compound tincture of gentian, four ounces; sulphate of quinine, two drams; tincture of muriate of iron, four ounces; tincture of ginger, four ounces; water, four ounces; mix and divide into twelve doses, and to each dose add one-half of a grain of strychnine; give a dose morning and evening. Apply a blister over the loins one inch below, and at the side of the spine. Feed bran mash and scalded oats. Linseed tea for drink. Keep the horse warm and quiet. When convalescent anoint the blistered part with olive oil or sweet lard, and rub in occasionally a little of the following liniment: Take aqua ammonia, strong, two ounces; oil of wormwood, two ounces; tincture of camphor, four ounces; olive oil, six ounces; mix. Give him also, on convalescence, a two weeks' course of the iron powders (see Medical Appendix), one morning and evening.

CHAPTER XVII.

PARTURITION.—PATELLA.—PARALYSIS OF THE OPTIC NERVE.—QUITTOR. RHEUMATISM.—RUPTURE.—RINGBONE.—ROARING.— STOMACH.—SURFEIT.

Parturition.—The mare should carry her foal eleven calendar months and one week from the time of covering. This time, however, is not always to be depended on, as some mares will go from a week to a month after their time and have a safe delivery, while others will foal from a week to a month in advance of their proper time, and that with safety to mare and foal. These cases are exceptions to the general rule; nevertheless, very few mares can be depended on as to their time within a week either way. The immediate time of foaling is to be detected by the secretion of milk in the udder, which occurs usually within twenty-four hours of delivery, and a glutinous substance forms on the teats; when this is observed, her time is nearly arrived, as this is a sure symptom, and parturition is never delayed (if natural) above twenty-four hours afterwards. The membranous sac, containing a fluid substance known vulgarly as "the waters", usually protrudes into the vagina and there breaks, discharging the fluid matter, thereby lubricating the parts and making the passage of the foal easier through the pelvic bones. These bones also assume a elasticity at this time to which they are a stranger under ordinary circumstances. As these phenomena are taking place, the womb contracts, in order to expel the foal, and these contractions are called "labor pains". When the bladder-like appearance is seen in the vagina, do not, as some, rupture it, but allow it to break of itself. It is really the membranous covering of the foal and will break of itself at the proper time with much more advantage than it will if the time is selected by the attendant. There are several ways called presentation, in which the foal is presented in the vagina, but there is only one way which is natural and unattended with trouble and danger. The natural presentation of the foal is where the fore-legs appear thrust straight out, with the head lying between them. In such a case very little, if any, help is required by the mare, in order to secure a good delivery. In all other presentations, however, more or less help is required. The foal appears attached by a membrane to the afterbirth (placenta), which is yet in the womb. Soon after, however, fresh pains or contractions of the womb take place and the placenta is expelled. Should there be twins, each foal should have a separate umbilical cord attached to a separate placenta; but this is not

always so, as sometimes one placenta is attached to the two cords of the twins. For this reason, as a matter of precaution in case of such an occurrence, when any foal is born, it is necessary, of course, to cut and tie the umbilical cord (navel string) about an inch and a-half or two inches from its belly, and not only this, but before cutting the membrane tie it again about two inches from where the cord is to be cut on the colt newly born, and then cut between the ligatures. Should there be only one foal, no harm is done; but should there be two, and these attached to the same plancenta, then the foal still in the womb is safe. Should this be the case, however, that there is yet another in the womb, and the navel string has been cut without tying in two places, as directed, then the air penetrating through the membrane to the foal still in utero will cause its death, as the lungs have not yet become inflated through exposure to the oxygen of the atmosphere, and the air will immediately stop the fœtal circulation. In some cases, however, the pains are too feeble; in some they cease altogether; in some, again, these are too strong and lapse into convulsions. In such cases remedies must be given to assist the natural forces, and thereby produce a safe delivery to both mother and foal. In cases of feeble pains, or the ceasing of the uterine contractions, give occasionally one scruple of the fluid extract of secale cornutum in two ounces of brandy and two ounces of water. If they are too severe and convulsive, give half an ounce of choral hydrate in an ounce of water, as may be required. The foal is sometimes presented with its hind-legs first, sometimes one fore-leg is presented and the other doubled under him, and sometimes in the case of those born, or rather delivered, dead, the head is found forced backwards along the spine. In all these cases competent help is required. Some cases may be pushed back and turned into a proper position. Others, such as when the hind-legs present first, may be drawn out in that position. In almost all cases of these false presentations the foal is either dead, or dies under the manipulations which necessarily, take place in order to deliver the foal and save the dam. In almost every case, with the exercise of patience, the proper placing of the mare, and the use of bands, the misplaced foal can be extracted. Some resort to the operation termed embryotomy, which is simply cutting the foal in pieces inside the womb. Nearly all such cases seem to be fatal to the mother, either immediately or in a very short time afterwards, as however skilful the operator may be, the danger of wounding the walls of the womb is almost impossible to be obviated. Nevertheless, if it can be done by no other means, the risk has to be taken, but there is much less danger in

using light cords and bands, with a steady pull and plenty of oil (though of course it may look more rough and be less scientific), than the operation of embryotomy. Occasionally the afterbirth does not come when it ought, and then it must be removed by hand. If it is allowed to remain for a week or two, as I have seen in the case of cows, then it decays, becomes frightfully fetid, and in many cases produces death by Pyœmia (blood poisoning). Puerperal fever is to be guarded against in these cases; it is produced by cold, improper feed, etc., and is frequently fatal. This is frequently combined with Peritonitis or Metritis (inflammation of the womb). In such cases the mare trembles, is off her feed, breathes hard, she is thirsty, constipated, and she occasionally staggers; she is up and down frequently, and at length when down cannot rise again, Parturient Paralysis having set in. The secretion of milk ceases, and she is evidently in great pain—grits her teeth. This disease runs its course with great rapidity, and unless immediately attended to ends in death. The remedies are the same as those prescribed for Inflammation of the Bowels, with this exception, that no purgative medicines should be given, and also injections of warm tincture of arnica and water should be thrown into the womb, instead of giving the soap injections in the rectum. The chief reliance for a cure must be dependent on the aconite preparation, as mentioned in treating of Inflammation of the Bowels.

Patella (Dislocation and Laxation).—On the fore-point of the stifle joint a bone (cap-shaped)is situated. This is called the Patella, and it corresponds to the patella or kneecap in the human subject; similarly the horse's hock corresponds, as to its bones, with the ankle of the man, as do the bones of the horse's knee in the fore-leg with the bones of the human wrist. This Patella in the horse is liable to dislocation by a blow or violent strains, and to laxation from its proper position through the weakness of the ligaments appointed to hold it in its place. Some horses seem to be chronically afflicted with this relaxation, and the Patella is continually getting out of place. In the case of dislocation, the joint naturally becomes useless until reduction takes place, and the whole leg is dragged behind in the act of locomotion. When this occurs, let one man stand behind and steady the limb, then take the leg in both hands (the operator standing midway between the fore and hind-legs, with his face to the tail), and lift the limb forward, outwards and upwards, when the Patella will slide back into its place with a snap. Bathe the part with warm water every four hours for a day, and when it is evident that there is no inflammation left, then apply the biniodide of mercury blister, one

part of the blister to one part of lard. Rub this in thoroughly round the joint, and grease twenty-four hours afterwards with unsalted lard or sweet oil. In case of Laxation of the Patella, the same mode of action is to be used in restoring it into its place, and the blister just recommended is to be applied, as in dislocation, but no lard is to be added to the vesicant.

Paralysis of the Optic Nerve.—(See Amaurosis, under Diseases of the Eye.)

Quittor.—(See under head of Fistula in the Hoof, and Corns.)

Rheumatism.—The causes of Rheumatism are the acquisition of a cold, or it may arise from a sudden change in the weather, great moisture in the atmosphere being an excitant to all animals having a predisposition to that complaint. This predisposition is caused by an excess of acid in the blood, the acid being supposed to be lactic acid. All parts of the animal frame are open to this attack, but it generally confines itself to the outward parts, and especially to the joints, and in the horse is more frequently seen in the fore than in the hind parts. This disease has a metastatic (shifting) nature,—that is, it flies sometimes very suddenly from one part to the other. Occasionally, indeed, it flies to the heart, causing death thereby. The lameness occasioned by this disease is frequently attributed to other causes, on account of the occult nature of the complaint.

Symptoms.—Attacks of lameness in the part affected appearing and disappearing, and depending a great deal on the atmosphere being either humid or dry. If the attack is an acute one, the parts affected are tender and hot, with tension; if chronic, there is little if any heat and tension, although the pain is, no doubt, equally hard to bear as in the acute stage. In this latter form the disease is more obstinate and hard to cure than in the former case.

Treatment.—Foment the affected parts with a hot solution made by boiling hops; keep on the fomentation for from a quarter to half an hour at the time, and then, having dried the parts thoroughly, apply this liniment: Take oil of wormwood, two ounces; iodine (in crystals dissolved by a little alcohol), four drams; tincture of camphor, one ounce; aqua ammonia, three ounces; olive oil, twelve ounces; mix and rub in thoroughly, and cover the affected parts with flannel previously warmed. Give internally: Take tincture of colchicum, four ounces; iodide of potassium, one ounce and a-half; hydrate of cloral, one ounce and a-half; compound tincture of gentian, one ounce and a-half; water, one pint; mix, and let stand for twenty-four hours, occasionally shaking it; then add

to it half a pint of the best brandy. During the twenty-four hours this is standing, give one powder every six hours of the following:—Bicarbonate of soda, two ounces; bitartrate of potash, two ounces; nitre, two ounces; mix, and divide into four powders. Then give two ounces of the former colchicum mixture every four hours until amendment; feed bran mash and give linseed tea for drink. Patience and perseverance are required in all cases of Rheumatism.

Rupture (Hernia).—There are two kinds of Rupture generally seen in horses. One is termed Umbilical or Ventral, and the other is termed Scrotal, and this last is seen in stallions only, as in geldings the operation of castration has, or ought to have, by absorption and contraction, prevented the descent of the intestine through the inguinal ring. Umbilical Rupture is not an infrequent occurrence. It is simply the breaking of the covering of the intestines, by which means the bowels escape through the rent made, and, consequently, are out of their normal position, being retained only by the external skin. If, on account of the smallness of the rent and the excess of bowels escaped, they cannot be returned without enlarging the opening, the rupture is termed strangulated. In many cases a stout bandage of leather or stiff canvas passed tightly around the ruptured parts may result, after duly pressing them back and applying a pad over the spot, in a cure. Some horses perform their daily work in a ruptured condition seemingly without much pain or annoyance. In other cases, however, and, indeed, in the generality of cases, the bowel has to be replaced by an operation. This is performed by first casting the horse, and then after opening the external skin and integuments, replacing the bowel and securing it by sutures. In a case of this kind, where an operation is to be performed, it is imperatively necessary that the assistance of a reliable surgeon should be called in; therefore, it is useless to enter into unnecessary details. Scrotal Hernia consists of the protrusion of the intestine through the inguinal ring into the scrotum, a not very difficult occurrence, and is, therefore, more frequently seen by the practitioner than Ventral or Umbilical Hernia. In this case, also, professional assistance is required, and the usual consequence of Scrotal Hernia is the necessity of castrating the horse, whereby, of course, the animal's worth is much depreciated in the market.

Ringbone.—The cause of Ringbone is either a strain or blow, or else it has been derived from the sire or dam, it being one of the hereditary diseases. The pathology of Ringbone is very similar to that of Articular Spavin.

Symptoms.—Lameness, generally in one particular foot, and nearly always in one of the front feet. Heat is present at the coronet, and presently an enlargement develops itself in the front and at one and sometimes both sides of the articulation of the fetlock joint. Whenever the enlargement is at one side or the other, and not in the front, it is known as Ossification of the Lateral Cartilages, but practically there is very little difference. I have seen, and, indeed, owned a young horse which had an immense Ringbone, so large that it made him quite conspicuous, but he was not at all lame; again, I have seen animals with hardly any visible exostosis, which could hardly step out for pain. It is a very common disease in horses, and depreciates their market value greatly. Ringbone used to be a subject of very peculiar ideas, and of very peculiar treatment.

Treatment.—Great numbers of people hold that firing is the only remedy for Ringbone. My experience is that all cases of Ringbone are amenable to the action of blistering whenever the basis of the blister consists of iodine. I never saw a case of Ringbone which was treated with the iodine blister, assiduously and patiently, but what terminated in a cure of the lameness. The removal of the enlargement of the bone entirely is, I believe, utterly out of the question; but in all cases treated by the iodine blister, with iodide of potassium internally, there is considerable reduction in the size of the ossification. First take blood from the toe. Cut off the hair over the ossification and rub in thoroughly the following blister, anointing the parts with sweet lard or olive oil twenty-four hours afterwards:—Take biniodide of mercury, three drams; cantharides, powdered, one ounce; iodine (in crystals dissolved in alcohol), six drams; sweet lard or simple cerate, five ounces; mix, and apply. This blister must be repeated, if necessary, every seven days for a month, and then the animal is to be turned out for two months if the weather is fine. In most cases I have seen two applications of the blister were all that was required, and it succeeds where firing is worse than useless. Take nitre, four ounces; iodide of potassium, two ounces; bicarbonate of soda, four ounces; mix and divide into twelve powders or balls, and give one morning and evening. Feed bran mash and oats, half allowance during treatment.

Roaring.—This is a membranous projection in, or otherwise a thickening of the coats of, the windpipe. It may be brought on by a cold and cough improperly treated or neglected. In such a case, taken at the start, the only hope of any remedy lies in the use of counter-irritants, for

which purpose setons may be inserted in the contagious muscular tissue, and the use of the biniodide of mercury blister in combination with iodine. (See Medicinal Appendix, under head of Iodine Blister.) In nine cases out of ten all remedial treatment is useless, even when the impediment in the trachea is caused as just mentioned. The disease is, also, hereditary, and when it is so all efforts to cure it terminate without success. This complaint constitutes unsoundness in the horse.

Stomach (Acidity of the).—The cause of acidity of the stomach in horses is an excessive secretion of gastric juice.

Symptoms.—The horse will gape and belch, and will endeavor to eat all kinds of unnatural substances, such as plaster from the walls, etc. The fact of this complaint being present indicates in many cases that the animal has not been fed at regular intervals, or that he has not had a sufficiency of provender to supply the natural pabulum for the gastric juice to expend its force on. It implies also an abnormal action of the salivary glands, in consequence of which the secretion of the saliva (spittle) is greatly lessened.

Treatment.—Feed at regular intervals,—that is, at morn, noon and evening. If the horse is away at the time of his noon feed, take a nose-bag with his proper allowance of feed in it, and feed him at the proper time. To neutralize the acidity, give him a tablespoonful of bicarbonate of soda as often as may be required, but discontinue the medicine as soon as he begins to give up the symptoms, when regular and equal feeds will complete the cure.

Surfeit.—This disease is indicative of the blood being overheated, and this is generally caused by overfeeding, combined with want of exercise.

Symptoms.—Small tumors or pimples appear under the skin, and generally make their first appearance about the neck and anterior part of the body; the skin becomes dry, and sometimes the horse is hide-bound, but not always. These tumors soon form scabby dry scurfs, and the horse rubs himself against everything which he can reach, in order to allay the itching sensation which is always a concomitant of this disorder.

Treatment.—All cases which have come under my notice have yielded readily and speedily to the following treatment:—First give the oily aloetic purge. (See Medicinal Appendix.) Twenty-four hours afterwards take nitre six ounces, bicarbonate of soda four ounces, sulphur

(refined) five ounces, tartar emetic one ounce and a-half; mix and divide into twelve powders or balls and give one morning and evening. Sponge the scurfy eruptions with carbolic acid one dram, water one quart, and dry properly. Give bran mash and half feed of oats, and take the chill off the drinking water. Great care must be taken that the patient does not take cold in this case. The sulphur throws open the pores of the skin, and horses under any treatment in which sulphur is an ingredient should be thoroughly insured against the liability to cold through draughts of air or otherwise.

CHAPTER XVIII.

SPRINGHALT.—SADDLE AND COLLAR SORES.—SUSPENSORY LIGAMENT. SPAVIN.—SPLINTS.—SLIVERS.

Stringhalt (Sciatica).—This disease may fairly be called Sciatica, as all *post-mortem* examinations of subjects which have been in their life-time afflicted with this troublesome, ungainly-looking complaint have developed more or less disease of the Sciatic nerve.

Symptoms.—The horse seems unable to make a start, suddenly he picks up one of his hind-legs, lifting it high in the air, and both lifting it and bringing it down with a spasmodic motion. In some cases this peculiar action abates or goes entirely away after being in motion. In other cases the abnormal action is perpetual. In the cases where the unnatural action is lessened by motion, it would seem that some palliation of the disease at least was within the range of possibility; endeavorers for that purpose have blundered by blistering and rowelling, but as the action is caused by extreme nervous tension one would be inclined to suppose that the treatment should consist of antispasmodic and anodyne remedies applied externally to the region of the sciatic nerve, and administered internally to act on the whole nervous system. For such a purpose I should recommend such remedies as those directed for Locked-Jaw, altering, of course, the place for the external applications. As the disease is incurable under any treatment so far applied, it might be worth while for anyone interested in a favorite horse, otherwise sound, to try the suggestions here laid down.

Saddle and Collar Sores.—The remedies for sores on the flesh through the galling of the saddle or collar, uncured cuts and injuries of that description, should consist of carbolic acid one dram, olive oil one pint; this is for ordinary cuts or breakages of the skin. For collar and saddle galls: Take sulphate of zinc, two drams; water, one pint and a-half; or sulphate of zinc, two drams; sweet lard, two ounces; mix, and make an ointment, or take compound tincture of aloes and myrrh, and olive oil, of each two ounces. When the skin is badly separated it should be brought together by sutures (stitches) first, and then the healing solution or ointment applied, supplemented by strips of rubber plaster crossed from side to side of the lips of the wound. In the case of saddle and collar galls, or galls from any other part of the harness, it is absolutely necessary that all pressure be removed from the injured parts. It would

seem almost ridiculous to insist upon such a very obvious course, were it not for the great number of cases which are daily seen where the owner applies the remedy and still continues to allow the animal to be harnessed in the same collar which has caused the injury. The consequence is that as fast as the abrasion or wound is healed, the rubbing pressure causes it to break out again. If the injury is caused by the collar, the horse should be worked in a breast collar, and the abrasion or wound, after being healed by one of the remedies now mentioned, should be washed in salt water every time he comes in from, and goes out to, work for at least three weeks. Whenever the sores smell badly, or assume an unhealthy appearance, always use carbolic acid (strong) two drams, olive oil eight ounces, instead of the milder carbolized oil before mentioned. Whenever a swelling, by its fluctuating feeling, indicates the presence of pus (matter), then immediately open it at its lowest dependency, that the matter may run away easily, after which hot bran or linseed meal poultices should be applied for a day or so, until the absolute certainty of the evacuation of all the matter is ascertained.

Suspensory Ligament (Rupture of, Breaking Down).—The expression "broken down" has necessarily, and unfortunately, to be used very frequently among horsemen on the turf. This term is used by experts to denote the rupture of the suspensory ligament of the horse's leg. Among the general public the expression seems to denote almost any injury which is the cause of severe and painful lameness, and which is located in the hinder-part of the leg. A genuine case of rupture of the suspensory ligament is hardly to be mistaken for any other injury. One great symptom is always there—the fetlock is brought down almost to the ground. This peculiarity, truly, occurs in a partial degree in the case of rupture of the back sinew, consequently the two injuries are occasionally mistaken the one for the other. Rupture of the back sinew is not a case of frequent occurrence in the race-horse—much more rarely, indeed, than rupture of the suspensory ligament. In the case of the sinew, too, although the membrane and the small vessels supplying it with blood occasionally become ruptured and is the cause of very painful lameness, yet the substance of the sinew itself is very rarely ruptured. If this injury should occur, the treatment for genuine breaking down, which is given below, is to be advised. Strain of the back sinew, also, has been mistaken for rupture of the suspensory ligament. Such attention as this injury, as a rule, deserves is not generally given by horsemen. If it is not actually "breaking down", it is so unpleasantly close to it as to be a matter of no

fun to the owner. Although race-horses have in some cases been capable of hard work after a severe strain of this kind, yet this is not frequently the case. Racers once severely strained in their back sinews, or the sheaths of these sinews, rarely ever become able to perform competently afterward. This severe strain, therefore, is mentioned here in comparison with the so-called real "break down", and is to all intents and purposes only another form of practically breaking down. The animal, generally speaking, is useless as a racer, especially for any distance. The excessive lameness in these cases is sometimes caused by laceration of the ligamentous fibers. The injury, however, is more generally confined to the distention of these parts, as also to the distention of the sheaths of the tendons beyond their natural and structural capacity. In some cases the tendons themselves are acted upon in this manner: If the lesion takes place in the sheath of the tendon, the effusion from the ruptured vessels can in some cases be absorbed by treatment. If, however, absorption cannot be effected, lymph will be thrown out and will assume a coagulated form, between the tendon and its sheath. Callosities will consequently be formed round the back sinews. This will interfere with the action of the limb, and when the animal first comes out of the stable the lameness will be very apparent indeed. After moving about for a time the lameness will largely subside from the motion of the limb. Here is to be seen the benefit which is acquired by hand rubbing in these kind of cases, and especially where it is combined with bandaging. The friction of the parts, caused by the motion, scatters the coagulated deposits; therefore, as hand rubbing causes a certain amount of friction, it is necessarily beneficial. Rupture of the suspensory ligament, the real breaking down, is most frequently seen in the case of young horses in training. The standing point of this ligament being inserted just below the knee, and passing down to the heads of the sesamoid bones, renders it liable to a continued succession of jerking stretches, and every bound of the animal tests very hardly the very slight elasticity of the ligament. A perfect cure in breaking down is very rarely obtained. The injury can, however, be palliated in some cases to a great extent. Some cases, too, have been treated with success, and enabled horses which have broken down to be raced again. Cases of this kind should not be given up in a hurry, but patience and perseverance should be exercised, and the result when these conditions obtain is frequently a source of an agreeable surprise to the owner. The leg should be immediately and continuously bathed with water as hot as can be borne. A high heeled

shoe should be put on, so as to throw the weight and the strain off the injured parts. This treatment, together with slight doses of fever medicine internally and a diminution of the animal's corn, should continue until the local fever has subsided. After this a liniment composed of oil of tar, laudanum, spirits of turpentine and olive oil should be applied and the leg thoroughly bandaged from the knee to below the fetlock. If after two or three weeks there is no great benefit visible, the indication is to use the assistance of a mild blister composed of biniodide of mercury, cantharides and iodine (in crystals), made up with simpla cerate or lard. The greatest factor in the cure will be the regular attention and proper nursing of the patient. It may be truthfully said that in most cases after due perseverance the owner may look forward hopefully always to a partial and probably to a total cure.

Spavin (Bone).—This is, unfortunately, a too common disease among horses, and is transmitted from parents to offspring, being among the hereditary class of diseases, and constituting unsoundness. The cause, when not hereditary, is a violent strain or blow, causing a rupture of one or more of the small synovial sacs which are placed at the articulations of all the bones for the purpose of lubrication. No joint will work smoothly unless this joint oil is present and in healthy action, any more than a cart-wheel will revolve smoothly without grease or oil. One great cause of this disease is furnished by working and straining the horse when too young, and at a time when the bones have not yet become firmly knit together in their constituency. By a violent strain the sac containing the joint-oil or synovia, as it is called, is ruptured, the oil flows out, and having no external means of exit it gradually coagulates and is transformed into cartilage and then into bone, forming what is known as an exostosis,—that is, bone growing upon bone. If the exostosis is where it usually is,—that is at the articulation of the tarsal or leg bone with the three lower bones of the hock, there is always good hope of curing the lameness permanently when it is taken in time; but, unfortunately, as a general rule, the animal is not attended to until some days or weeks after the time has elapsed when the case would easily yield to proper remedies. When the protuberance (which is the exostosis) is developed higher up in the bones of the hock, the case becomes so much the more difficult to handle, as the higher bones of the hock are larger and bear a greater strain in the act of locomotion than those in the lower articulation. All bones have a thin membranous covering which is termed the periosteum; this membrane, in health, has little or no sensation, but when stretched, as it must be, through abnormal

growth of the enlargement, then the nerves become very sensitive and produce the intense pain which causes the horse's lameness. The indications in the treatment, therefore, are to produce anchylosis (union of the joint) in the small bones affected, and by stimulation to cause the membrane covering the small bones to exert its powers of elasticity and so accommodate itself to the new and enlarged bony deposit. This being effected, the lameness ceases, although more or less of the protuberant exostosis remains visible. Some people say they can remove the enlargement. This is not correct; they may cure the lameness, but the exostosis cannot be removed but very partially, if, indeed, at all.

Symptoms.—The first symptom is lameness. and a description of lameness not seen in any other injury or complaint. The horse is lame when brought out of the stable, and for a short time after starting; but as the animal continues in motion, so does the lameness gradually disappear, being exactly the contrary of what happens in other cases of lameness. Stand the horse squarely on his feet, and then look between the fore-legs to the hock-joints; or the observation may be made from behind, the observer standing a few paces away from the animal. A protuberance will be observed, sometimes only as large as a nut, sometimes larger, and its position is, as a general rule, at the junction of the leg-bone with the three lower bones of the hock on the inside of the joint. The size of the protuberance varies in different cases, and I have seen horses with hardly any visible protuberance much lamer than those in which the enlargement was quite large.

Treatment.—Firing is considered a specific by a great number of wise people, and considering this is so, it seems wonderful that it proves so ineffectual in many cases. Bleed from the toe and apply the iodine blister recommended for Ringbone every six days for a month; then turn the horse out, if the weather is fair, for two months, and if not well then, repeat the same process. This treatment is effectual where there is any reasonable hope of cure,—that is to say, that any case which can be cured by firing can be cured by this treatment, and the animal, although experiencing necessary pain in the process, will not be put to the torture which in many cases is caused by the red-hot iron, and, more than that, he will be left with no blemishes.

Spavin (Bog).—Bog Spavin is a soft enlargement in the inner bend of the hock, the same place where Sallenders make their appearance. It is enlargement of the synovial sac, and is merely an eyesore, the horse

being free from lameness on its account. Lameness is occasionally attributed to this cause, but I believe the idea to be a fallacy. If the horse is lame on the same leg which gives evidence of Bog Spavin, a further examination will reveal some other reason for the unsoundness of the animal. It is considered by many writers to be of the same nature as Thoroughpin and as Windgall. However, if required, it may be greatly reduced in size, if not entirely removed, by using the following ointment :—Take iodine (in crystals, dissolved in a sufficiency of alcohol), six drams ; biniodide of mercury, two drams ; sweet lard or simple cerate, four ounces ; mix, and make an ointment. This will blister slightly. Apply by rubbing in thoroughly, and grease twenty-four hours afterwards with olive oil or sweet lard, and repeat in a week. The horse must, of course, be thrown out of work, and patience and perseverance will require to be exercised in the case. Between the application of the iodine preparation take webbed rubber and fit it to the Bog Spavin. At night apply this over a pad of linen soaked in tincture of catechu two ounces, alum water one gallon. The place of swelling is also to be bathed daily three times with this solution. Care must be taken that the rubber bandage and pad are not applied until the soreness of the blister has subsided.

Splints.—Here is another disease which is brought on, as a general rule, by overworking or overstraining horses when young. The disease is almost invariably confined to the fore-legs. The splint bones are held in position with the cannon or carpal bone by a cartilaginous union. and this substance is the original seat of the disease. The disease is caused by an excessive strain, and the bones in young horses having not yet acquired the same consistency which attains to them at full growth, are consequently less able to stand either strain or concussion than when the animal is older. Another cause which is favorable to the development of Splints is the thinning of the shoe on the inside, because the concussion in the action of stepping is chiefly on the inner side, and, consequently, the shoe should, if there be any difference to be made, be rather thicker on the inner than on the outer side. Through this strain inflammatory action is set up and cartilaginous substance is thrown out which develops into an exostosis (bone growing upon bone) on the shank or big bone of the fore-leg. The periosteum (close membranous covering of the bone) is put upon the stretch by the enlargement, and the nerves of the membrane being irritated by the tension, cause the pain and consequent lameness. Many horses suffer severe lameness from a Splint, while a few others it affects not at all ; but generally speaking there is more or less lameness in all

cases of Splint, especially during its incipient formation. In some cases, when the exostosis is developed high up in the leg, the action of the knee joint is interfered with and severe lameness takes place, accompanied by a great amount of trouble in restoring the horse to a sound condition.

Treatment.—Putting aside the mention of numberless harsh and ancient methods of curing Splints, still there are yet at least three ways by which it may be cured. One way is by performing the operation known as periosteotomy, which consists of separating the periosteum or covering of the bone and thereby relieving the tension and consequent pain. The tension and accompanying pain being removed, of course the lameness ceases. Another method is that of inserting a seton above the Splint and bringing it out well below the seat of injury. In this case the seton tape is moved daily, and the termination is, I believe, generally favorable. However, of this last remedy I can only speak from hearsay. The most simple remedy, —the best, and the most reliable, is to bleed from the toe and to apply the blister of iodine and biniodide of mercury, as prescribed for Bone Spavin. Apply it on the ossification after having cut off the hair over it and around it for a small space, and grease with sweet lard or olive oil twenty-four hours afterwards. Apply again, if necessary, in fourteen days. But it must be remembered that blistering causes great pain and great after-tenderness in the parts, so that it is good practice to allow some little time to elapse after a severe blister has been applied, in order to be sure that the lameness still existing is not to be attributed to the tenderness produced by the action of the blister only. In all cases of applying blisters it is, I presume, almost unnecessary to say that the patient's head should either be tied short until the excessive pain caused by the application has been partially relieved by the application of the sweet lard or olive oil, or else that a cradle should be put on for the same period.

Slivers.—Slivers of wood are sometimes driven into the body of the horse by accident. These accidents may occur through a horse running away and smashing up the shafts or some other wooden portion of the trap. Many cases occur where a horse is partially impaled through another animal running away and coming in contact with the injured beast. Again, it may occur where a hunter misses his take off at a gate, the bars of which are more or less rotten.

Treatment.—In slight cases there is nothing to do but to draw the splinter out, and after washing the wound internally by means of injections of warm water one quart, carbolic acid one dram, then simply to heal up

the wound by means of a healing embrocation or ointment, according to the choice of the owner (for which see Medicinal Appendix). When, however, the splinter is long and large, as it has been in many cases which have come under my observation, then it is necessary to exercise a little more caution before extracting the splinter. Sometimes an artery of importance may be injured, or in pulling out the sliver an artery may be torn, in which case dangerous hemorrhage might ensue if the operator is not prepared. Therefore, in case of such an accident it is well to have a redhot iron and a curved needle, threaded with thick white silk, trebled in thickness, so that the artery may be taken up by the needle and silk and tied, or else that the bleeding may be stopped by the application of the redhot iron. If the wound is very large it must be sponged out with the carbolized water just mentioned, and then brought together by means of sutures (stitches), and in such a case the presence of a professional man will be advisable. If, however, one is not procurable, great care must be taken that no part, however small, of the splinter is overlooked and allowed to remain in the wound. Should this occur, abscesses will form, and th econtingencies in the case are, to say the least, quite doubtful.

CHAPTER XIX.

SCARLET FEVER.—SPINAL MENINGITIS.—SAND CRACK.—STRAINS. SWELLED LEGS.—SUNSTROKE.—STALLIONS.—TRACHEOTOMY. THOROUGH PIN.—TYPHUS FEVER.—TYPHOID FEVER.

Scarlet Fever is not very frequent in the horse, although occasionally observed, and, no doubt, is many times passed over without being recognized. Those practitioners who have seen the greater number of cases, hold that it is not infectious or contagious, a fact which, if the case is really a genuine one of Scarlet Fever, I should be very much inclined to doubt. The late Mr. Percival, in his Hippo-Pathology, classes it among the diseases which are peculiar to the throat and air passages. It seems to be in many cases a sequel of Epizoötic Influenza, and when assuming a malignant form it becomes complicated with a typhoid state of Inflammation of the Lungs with a typhoid state of fever generally, and with Purpura Hemorraghica. In the simple stage the fever begins to abate about the fourth or fifth day of the acute stage, but in the maglignant form not before the seventh or eighth day. The symptoms of malignant scarlet fever are simply those of the simple or acute stage aggravated.

Symptoms.—The limbs are swollen and the hair and skin, especially about the foreparts, is elevated in blotchy swellings. The action of the pulse is increased, but more in some cases than in others. Scarlet spots may be observed on the Schneiderian membrane (membrane of the nose) —the throat is sore.

Treatment—Success in treating this disease is attained by good nursing as much as by the remedies, and if the hygenic conditions are not attended to, then the appearance of the maglignant form is inevitable. The stable should be dry, warm and comfortable, ventilation being attended to, and great care exercised that the animal is kept out of all draughts; the clothing should be warm, but light. A liniment of a mild description should be applied and well rubbed into the throat, such as tincture of iodine two ounces, aqua ammonia three ounces, tincture of camphor two ounces, olive oil one pint; mix carefully, and do not shake too much or allow it to be put too near the fire. Give bicarbonate of soda powders (see Appendix), each powder to be sprinkled with four drops of the tincture of aconite, and one powder given in the morning and one in the evening. Feed hot mash and cut carrots, and give linseed tea for drink.

Spinal Meningitis.—(See Paralysis.)

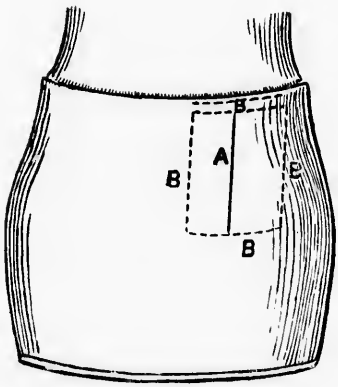
Sand Crack is the result of brittleness in the hoof, which renders it liable to crack. Sand or gravel then insinuating itself into the opening prevents the crack from rejoining through the irritation caused by its presence. The brittleness of the hoof is produced through various causes, among which may be mentioned Thrush, long continued inflammatory action in the foot or anything which interferes with the functions of those vessels entering the hoof whose part it is to supply matter for the formation of new horn. These entering at the coronet are quickly affected by firing or repeated and unnecessary blistering. Heated weather and hot, sandy roads will sometimes cause it, as will anything which will cause the hoof to dry up by closure of the pores thereof.

Symptoms.—A split in the hoof, which generally occurs in the inside quarter of the fore foot, but sometimes in the front and more rarely on the outside quarter. If the split is from the toe and partially upwards the treatment is much more sure and much easier than it is when the crack extends from the coronet downwards. Sometimes, even, the crack appears on the front part of the hind foot, but this is not a very frequent occurrence.

Treatment.—When the crack has not reached the coronet, take the horse to a blacksmith's and cause him to make a line *above* the crack, and from that line draw two lines down on each side of the crack, about three-quarters of an inch off, and then draw a line across at the bottom of the crack (if it has not extended to the shoe), then let him cut down on these lines until blood is just visible. If, however, the crack is clean down to the shoe, then let him cut a semicircle of one inch and a-half in the horn where it joins the shoe, the centre of which is under the crack. This operation will isolate the crack, and as the horn grows down, the isolated part will be gradually worked downwards, leaving the growth of new horn in its place. This is on the same principle as when a person discolors his finger nail by catching it in a door or striking it with a hammer; in this case the black mark is daily observed passing toward the tip of the nail, and the crack will go the same way on the same principle. If the split goes up to the coronet, then, of course, there is no room for the upper line and consequent cutting with the drawing knife. In this case do the same as to the other lines, cutting down as before directed; and rest will, with the hoof dressing now to be recommended, complete the cure. In this latter case, however, the whole coronet should be daily anointed with oil of tar and sweet lard equal parts, to aid the vessels sup-

METHOD OF CUTTING FOR CONTRACTED HEELS.

(See Page 39.)



A—Crack, B—The Incision.

METHOD OF OPERATING FOR SAND CRACK.

plying the horn in their functions. In both cases apply the following hoof dressing over the whole hoof three times a day, and see that it is *thoroughly* rubbed in:—Take oil of tar, six ounces; oil of turpentine, two ounces; whale (sperm) oil, one pint. This hoof dressing should be applied to all horses two or three times a week by those desiring their horses to acquire a strong and pliable hoof. It ought to be needless to remark that previous to doing anything in the way of cure, the crack should be thoroughly cleansed from all sand, gravel or other foreign and irritable substances.

Strains.—Horses are liable to all kinds of strains, as in the shoulder, fetlock, etc. The treatment of all is the same, varying only as to the position of the strain. The great difficulty in the cure of strain is not so much owing to the resistance of the injury to remedial measures as to the fact that the remedy is too frequently applied to the wrong place. When the strain is in the shoulder, the leg is generally operated on by blisters, or otherwise; as it is often when the strain is in the foot. Again, when the lameness is behind, it is generally "something wrong with the stifle." Pressure of the hand or fingers will usually determine the seat of lameness, as the horse himself will give the information by shrinking. If the coffin joint seems to be affected, the symptoms are sufficiently plain to any close observer (see Coffin Joint Strain). So, again, in the stifle. If the lameness is in the hock, a spavin may be looked for and expected (see Bone Spavin). If the shoulder is suspected as the seat of the injury, then stand in front of the horse, take the leg on the suspected side in both hands, just under the knee; then give a gradual but strong pull towards you and outwardly from the shoulder joint. If the horse is affected, he will shrink and rear backwards until he nearly sits down like a dog, and you had better let go. If that shoulder is not affected, he will let you pull for a year if you wish to, and no notice will he take. Then try the other shoulder, and if he does not shrink in the way explained, then look for the lameness elsewhere. For strain of the navicular joint also see under Navicularthritis, and for strain of the back under Paralysis.

Treatment.—Bathe thoroughly with hot water and continue the bathing for at least fifteen minutes at a time, and do this until the inflammation has subsided. Then, if a mild case, rub in the common liniment (see Medicinal Appendix) three or four times a day until the patient evinces symptoms of soreness; then once a day, and complete the cure by bathing the affected part about five days afterwards with ice-cold salt

water. If the strain is deep seated, or if it is of long-standing, then use the biniodide of mercury blister in conjunction with iodine (see Medicinal Appendix).

Swelled Legs exist more as a symptom of some other complaint, as a general rule, than as a primary affection. However, horses may "stock", as it is called, simply through want of exercise. Some horses of a weak, washy constitution seem to be chronically affected with "stocking", even when they do have a sufficiency of work. In such cases the animal's constitution is in a debilitated condition, and something is wrong. It is a certainty, however, that such animals require a vigorous tonic treatment, and for that purpose should be put on a fortnight's course of tonic iron powders (see Medicinal Appendix)—one morning and evening. The legs should be well rubbed down morning and evening, and at night they should be well and properly bandaged. If horses, however, "stock" in the stable, the fault, as a rule, lies with those who have the care of them, rather than the constitutions of the animals themselves.

Sunstroke.—This affection is very rarely seen in this country, but it is not uncommon in the U. S. of America, and especially in the southern parts during the summer season. It is not absolutely necessary, as some people think, that the sun should be visibly shining to cause a sunstroke. Sunstroke in horses sometimes occurs when the sun is not visible, although, of course, the heat and oppression in the atmosphere, which, acting on the brain causes the attack, is primarily due to the sun.

Symptoms.—The horse acts almost as a man does under the influence of too much alcoholic liquor; he staggers about, falls down, tries to rise and stumbles on his knees in the act of locomotion, the pulse is high and the eyes are more or less set, showing that partial unconsciousness has taken place. The symptoms may be confounded with those of Megrims or partial Apoplexy.

Treatment.—If the attack is very severe, take about five quarts of blood from the jugular vein, and bathe the head with cold water, or cold whisky and water, or cold water mixed with alcohol. When the animal has recovered consciousness, give tincture of aconite half an ounce, sweet spirits of nitre four ounces, fluid extract of valerian two drams, water half a pint; mix, and give a wineglassful every hour for three hours, then a wineglassful every four hours for twenty-four hours. A day or so afterwards sympathetic fever will set in, for which a lookout must be kept. It

is hard to say exactly what organ may be especially attacked, but if the animal has at any previous time been attacked with inflammation of the lungs, or inflammation of any of the great organs, then the inflammatory action will be especially diverted to that particular part, the treatment for which, when the symptoms appear, see under the particular heading. In close and muggy weather, which is particularly favorable to the development of this disease, it is very advisable, as a matter of precaution, to drive or ride slowly, and to fasten a large flat sponge between the animal's ears, keeping the same moist at every convenient opportunity.

Stallions (Public).—The subject of country stallions has been a matter of interest to all well-wishers of the horse and of the prosperity of the farming community for many years, and still continues to be so. Of so much interest to the general community has this subject seemed to be, that in some countries, France for instance, the matter has been taken up and legislated upon by the government. The Anglo-Saxon nature of the people of England and the United States of North America objects sometimes to their own disadvantage, to any interference with their private affairs, each man considering that he is the best judge of what is most to his own interest in his own business. It is, however, more than probable that if we were to institute some kind of official supervision over the public stallions which year by year, in numberless cases, propagate such a very unprofitable strain of horses, we should in a very short time be, as a nation, the possessors of a far more useful class of horses, both for agricultural purposes and for the road. Looking at it as a mere matter of money, it is far more profitable to the farmer in the end to pay £5, or even £10, for the services of a stallion of decent form and pedigree, and whose adaptability to the mare physically is complete, than to pay £1 for the services of an animal whose adaptability to the propagation of a class of horse which will command a good price in the market is out of all question, and who may be, and very frequently is, the inheritor of all kinds of malformations and hereditary diseases. In picking out a stallion, proper judgment should be used in considering his physical conformity in conjunction with the physical conformity of the mare. For instance, if the mare is deficient in her forequarters and in breadth of chest, then a stallion should be selected which has an excessive development in that respect. The more roomy the mare is behind the better the development of the future foal. Do not take a very large stallion for a very small mare. If this is done the result is, generally speaking, the production of a foal all bone and little else, and frequently such a selection results in the death

of the dam on account of the impossibility of the exit of the foal through the pelvic bones by reason of its size. A small, roomy mare which has been mated with an animal *proportionately* of her own size, or, perhaps comparatively a little larger, will generally throw a larger, and always a more symetrical foal, than if the stallion was, as in some cases, a giant in comparison to the intended dam. Should the mare be too coarse in any particular part—say, for instance, the head, then select a horse which is very fine in head and neck. A little attention paid to these remarks may be the cause of the owner of the mare being the possessor of a superior foal for his own use; or if he breeds for the market he will speedily find the difference, through the additional money which will be placed to his credit in the bank.

Tracheotomy.—(See Laryngitis.)

Thorough Pin.—This is a puffy enlargement situated immediately under the tendo achilles, and in front and a little below the point of the hock. It is of the same nature as windgalls, and is simply an eyesore, never occasioning lameness in the possessor. The swelling is soft and flexible and can be, as it were, pushed from one side to the other. It is an enlarged bursa or sac. If regarded as an eyesore, it may be reduced by the application weekly of an iodine blister, and in some cases the sac has been opened and the membranous attachments destroyed by the fingers, after which a solution of sulphate of zinc is thrown in and the wound brought together by suture. As, however, the animal is not lamed by this complaint, the best way is to use the iodine blister and patience, and even if the whole enlargement is not reduced, still the satisfaction remains that the animal is not blemished, as it often is when opened.

Typhus Fever.—This is sometimes termed, Putrid Fever on account of its tendency to gangrene. It may result from either contagion or infection. It may also be caused by the poisonous atmosphere of unclean and, consequently, unhealthy stables. Other fevers may also, by ill management, degenerate into Typhus.

Symptoms.—Weakness, with a continual desire to lie down; the eyes are dull and sometimes running with water; a quick and foul breath; dung soft and fœtid; the urine dark-colored and of a thickish consistency. Soon diarrhœa commences, having a very foul odor, and the head, limbs and body become more or less swollen, and the death is by gangrene and mortification.

Treatment.—Isolate the patient and have the stable kept thoroughly clean and sprinkled with disinfectants. The fœcal discharges (dung) and urine must be removed immediately on their discharge. Take pure nitric acid and a half pint of water, drop the acid into the water drop by drop until, by tasting, it acquires a distinctly acid taste. Give half a pint of this solution three times a day. Take tincture of aconite, one dram; carbolic acid, two scruples; tincture of iron, one ounce and a-half; compound tincture of gentian, two ounces; tincture of iodine, one scruple; water, one pint; mix, and divide into ten doses. Give one dose every four hours until improvement sets in. The attendance of a competent practitioner is required, as this dose should be increased or altered according to the circumstances of the case. The result of these cases, also, is always doubtful, and usually fatal. If the animal will eat (which is not generally the case), his feed should consist of bran mash and scalded or boiled oats or wheat, and his drink should be thick linseed tea. Should he not eat, and should the services of a veterinarian be unattainable, then give him a pint of warm ale, mixed with a pint of thick oatmeal gruel, twice a day at least.

Typhoid Fever.—Strictly speaking, although this term Typhoid Fever is very common, especially in human practice, there is no such thing as Typhoid Fever, although there is fever of a typhoid description. Any fever which assumes a weak and low form, with a tendency to typhus, is a typhoid fever. For instance, inflammation of the lungs may assume such condition as just mentioned, when it is termed Typhoid Pneumonia. When any fever assumes, or has a tendency to assume, the form of low or debilitated fever, the indications are to increase the stamina of the constitution as much as possible, by the use of tonics in combination with the usual remedies for whatever form of fever may bepresent.

Symptoms.—The symptoms of a typhoid fever are general debility and want of recuperative power in the vitality of the system, and are to be treated, as just mentioned, by means of tonics and careful nursing, combined with all proper hygienic conditions, and this can best be done under the superintendency of a veterinary practitioner, if one is to be obtained.

CHAPTER XX.

STAGGERS. – THRUSH. – TUBERCULOSIS. – TEETH. – TOOTHACHE. – ULCERS ON THE LUNGS. – TUMORS ON THE PENIS. – USE OF ORDINARY INSTRUMENTS. – VAGINAL INFLAMMATION. – VENERAL DISEASES. – WORMS.

Staggers (Stomach).—This is really torpidity in the action of the digestive organs. Either from over distention of the stomach or from the presence of indigestible substances in that organ, the vitality and functions of the digestive organs are either impaired or partially paralyzed, the consequence is irritation and a consequent irregularity in the function of the circulation, in which, through sympathetic action and also practically by engorgement, the blood vessels of the brain take part, and the symptoms are good evidence of that organ having become affected by the overloaded stomach.

Symptoms.—The animal seems perfectly stupid; the eyes are half shut; he pays no attention when spoken to; he stands leaning his head on the manger or against the wall. The pulse is high and oppressed and and the breathing slow and heavy.

Treatment.—Give at once oily aloetic purge in conjunction with eight drops of the tincture of aconite. The operation of the medicine must be assisted by frequent injections of hot soapsuds and water in which two to four ounces of epsom salts should be dissolved. If the breathing is very heavy and the stupidity seems to increase, it is better to take three or four quarts of blood from the jugular vein. Apply hot water to the stomach by means of rugs. Bathe the head occasionally with cold water, and keep the animal very quiet. One quart of hot water, in which an ounce of ginger is infused, will, when occasionally administered, assist the action of the purgative, and on this action the cure is to be depended on, for as soon as the stomach is unloaded the vessels of the brain will be relieved. If this does not take place soon, a rupture of some of the small vessels of the brain is liable to occur, or the animal dies from apoplexy produced by the engorged blood vessels.

Thrush.—This is a discharge from the cleft of the frog of the foot. The discharge is thickish and has a most villanous smell. The cause is the stepping on a stone, or a bruise of some kind or other, superadded upon a depraved state of the system. This latter fact teaches us that it

is quite useless to apply remedies to the seat of the discharge unless the condition of the blood is attended to at the same time. The reason that so many cases of Thrush prove so obstinate to handle, or degenerate (as they may) into Canker, is because the discharge only is attempted to be stopped, and the unhealthy condition of the general system is overlooked. The primary inflammation caused by the bruise usually commences at the point where the back sinew is inserted into the bottom of the coffin bone.

Symptoms.—Tenderness at the cleft of the frog, with feverish pulse, and the discharge of the foul matter just mentioned.

Treatment.—Physic the horse with the oily aloetic purge. Twenty-four hours afterwards give the sulphate of iron or carbonate of iron powders, one morning and evening. Take off the shoe, pare away the diseased parts of the frog and remove all the accumulation of foul matter by sponging and washing thoroughly; then apply half a dozen poultices of hot linseed meal, one after the other. If there is any fungus (proud flesh) round the cleft remove it by touching with hydrochloric acid; then take carbolic acid two drams, glycerine two ounces, and insert deeply into the cleft, by means of a pledget of oakum or thick cotton wool. This dressing should be changed twice a day, when the cleft should be thoroughly cleansed by means of hot carbolized water, that is, water one pint, and carbolic acid two scruples. The horse must, of course, be thrown out of work. It should be unnecessary to direct this, but, unfortunately, for the humanity of some people, horses with the Thrush are very frequently to be seen in cabs and other conveyances doing their usual work, in spite of the pain which the driver *must* know that the animals are suffering from the disease. It is a matter of necessity for the success of the cure that the animal should be relieved of his daily work, if not for the sake of the pain caused to the poor animal in the act of locomotion.

Tuberculosis is a disease of the lungs more frequently met with in horned cattle than in horses. Indeed, at this present moment (1890) it is a cause of great anxiety to owners of cattle and consumers of beef in all parts of the civilized world. It consists of tubercles which are formed in the lungs by the inhalation of the germs or microbes which have the power of propagating this very fatal disease. The symptoms are much the same as in horned cattle, and are very frequently confused with, and mistaken for, Pleuro-Pneumonia. In the comparatively few cases which are seen in horses, the power of infection and contagion seems to be

much less than in the cases of horned stock. Nevertheless, all proper means of precaution against contagion or infection, in the shape of isolation, disinfection, etc., should be most carefully exercised. As in all cases of contagious or suspectedly contagious diseases, the presence of a competent veterinary surgeon is *absolutely* necessary, it would be of little use to the readers of this book that any lengthy disquisition on the subject should be inflicted on farmers and others who desire only to treat their own horses, either from simple diseases, or in cases where they are deprived, by their situation or otherwise, of the professional skill of a competent veterinarian; therefore it may be simply stated that the symptoms are by no means definite to an unskilled person, and also that in many cases the disease has not been detected by professional men until the evidences of it were apparent in the *post-mortem* examination. Whenever, however, a horse is found to be attacked by slight intermittent attacks of fever in combination with a loud and moist cough, and sometimes with a discharge from the nostrils and a tendency to diarrahœa, then Tuberculosis may be suspected, and the suspicion is changed almost into certainty when the temperature rises to between 107 and 108, and emaciation seems to be setting in. Before this last-mentioned appearance is observed, any careful man will have taken proper professional advice on the case.

Teeth.—Whenever the horse passes his oats whole, or when he quids his hay, or even when he refuses to eat, the horse's mouth and teeth should be examined by means of the balling iron, which instrument should be in possession of all owners of horses. There are, of course, other troubles which will cause the animal to quid and refuse his feed, such as sickness, and the oats may be passed in an undigested condition through the presence of indigestion; but in many cases the unfortunate animal gets dosed for some imaginary disease, when the teeth are the only cause of the supposed symptoms. The edges of the grinders frequently become ragged and uneven, and sometimes, also, out of level on the crown of the tooth so that one tooth protruding upwards renders it most difficult, if not impossible, for the horse to masticate his food properly. Occasionally the side edges become like splinters and as sharp as a knife. When the horse tries to masticate under such conditions the tongue becomes most severely lacerated, and sometimes, as I have experienced myself, the hands of the examiner suffer in the same manner. Having the mouth kept open by the balling iron, then feel all the back teeth, upper and lower, and having detected the uneven part, take the tooth rasp and file it down level;

if there is no tooth rasp at hand, then borrow a file from the blacksmith. If one tooth interferes, and is in such a position as to be unapproachable by the rasp, then extract it. Sometimes the horse is suffering from a toothache caused by an abscess at the root of a tooth. To detect this pass the hand along the gums (which, indeed, should always be done), and on touching the spot a small, soft protuberance will be felt; the animal will evince signs of tenderness and pain on feeling the presence of the examiner's fingers; the fluctuating feeling caused by the accumulation of matter will also be evidence of the cause of the horse's disinclination to eat or masticate. Another symptom of toothache is given by the horse continually shaking his head from side to side, and tossing it up and down; the breath is also occasionally foul. If the tooth seems much decayed then extract it; if it does not seem so, then lance the abscess and wash it out with warm water one pint, carbolic acid two scruples, honey two ounces, and feed mashes for two or three days afterwards.

Toothache.—(See Teeth.)

Ulcers on the Lungs.—(See Hypertrophy of the Kidneys.)

Tumors on the Penis.—Tumors, sometimes small and sometimes assuming the form of a bunch of grapes, occasionally form on the Penis and a considerable distance up the sheath. The last case of this kind which came under my observation and treatment was one in which the bunch of grapy tumors were as large as a man's fist and choked up the sheath to such an extent as to interfere with the exit of the urine.

Treatment.—Throw the horse on his right side, draw out the penis and take them all off at one cut with the scalpel; then touch lightly with the hot iron. Give the animal the oily aloetic purge, and inject the sheath twice a day with warm alum water.

Use of Ordinary Instruments.—There are several instruments the use of which, being simple, should be in the possession of all owners of horses. Among these may be mentioned the following:—The Balling Iron, the Spring Fleam, the Rubber Catheter, the Injection Syringe, the Scalpel, the Tooth Rasp, and the Budding Iron. The Balling Iron can be constructed at a very small expense by any blacksmith. It simply consists of two straight pieces of iron connected together by a circle of the same metal, the lower edge being curved outwards; through this circle the hand is passed during the examination of the teeth, mouth or throat, and also in the act of giving the horse a ball or pill; without it

also the teeth cannot be properly filed. The Spring Fleam is very useful in case of opening abscesses. The Rubber Catheter, where the bladder is thoroughly distended and the exit of the urine stopped by inflammatory action in the neck of that organ, may be the means of saving the horse's life, as in some cases rupture of the bladder may take place before the services of a surgeon can be obtained. In the use of this instrument care is to be taken that it is well oiled. Withdraw the penis and insert the Catheter; when it arrives at the perinœum, immediately under the bladder, push it very gently backwards, and by pressing the point of the inserted Catheter it will enter the neck of the bladder; immediate relief will follow. It would be best, supposing the bladder to be not too much distended, to cast the horse on his right side, but should the distention be thorough, danger of rupture is present through the struggles of the horse in the act of casting. In mares, however, it is very easy to draw the urine, as the orifice of the bladder is so much more easy to be reached, and in almost all cases it may be done by the fingers alone, and without the use of the Catheter. An Injection Syringe is also an indispensable adjunct to the stable of all who takes an interest in their animals; the use of this instrument is obvious. The same remarks apply to the Scalpel and Tooth Rasp. The Budding Iron is chiefly used for the destruction of small portions of fungus or proud flesh in wounds; it is also applied to farcy buds, but for ordinary owners of horses its greatest use is in stopping sudden hemorrhage (bleeding) of arteries or other vessels.

Vaginal Inflammation.—A mare may take cold and then contract an inflammatory action in the vagina, and she is more liable to this affection during the period of horsing than under ordinary circumstances. Keep her stabled, and clothe her warmly. Take tincture of arnica two ounces, water one quart, and inject three or four times a day. Halve her feed, and let it consist of bran mash and hay, with linseed tea for drink. Give her two powders a day, one in the morning and one in the evening, of the bicarbonate of soda powders (see Medicinal Appendix).

Venereal Diseases.—Both horses and mares are occasionally affected by these diseases. Gonorrhœa, however, is more frequently seen than the more serious and constitutional disease of Syphilis. Nevertheless, the latter disease obtains in many cases, and is less often found in mares than in stallions. Mares, on account of the relative position of the parts affected, are more easily cured of both Gonorrhœa and Syphilis than stallions. The more simple of these diseases, which, of course, is

Gonorrhœa, is not very difficult to cure ; but it is otherwise with Syphilis, as this latter complaint obtains such a firm hold of the system, when once established, that it is very obstinate in its resistance to medicinal remedies. The cause of Gonorrhœa is either contagion or an accumulation of filth in external generative organs. The symptoms consist of a foul-smelling discharge from these organs. The treatment consists of washing out the parts frequently and injecting a solution of water one quart, carbolic acid two scruples, sulphate of zinc two scruples ; at the same time the tonic iron powders must be given morning and evening until improvement is visible. It is almost superfluous to say that during the treatment the animal, whether stallion or mare, should not be permitted to perform the act of copulation. Syphilis, which shows itself by means of chancres and buboes, is more troublesome to manage. This disease is an animal poison, and is either hereditary or is contracted by contagion in the act of copulation. The symptoms are a discharge from the sexual organs, followed by the formation of chancres and then buboes. If not relieved, the whole system being impregnated by the poison, the nasal cartilages and bones become affected and carious, discharging a fœtid matter. If taken in time, a cure may be expected without much difficulty, otherwise the animal becomes loathsome, and, if a stallion, practically useless. In a case of this description, if the horse is worth treating, the best thing to do is to send for a competent surgeon.

Worms.—There are three different kinds of Worms which are found in the horse. These parasites are a source of much annoyance, and in some cases cause serious disturbance to the animal's general system. One kind, which are called Ascarides, or otherwise, Needle Worms, affect the large intestines more than the smaller ones, and more especially they infect the rectum, which is the last, and, as it is called, the straight gut. Another kind consists of worms (Lumbrici) varying in length from one to twelve inches ; these somewhat resemble the enormous earth worm, being sharp at both ends, but of a whitish, or whitish-red color. The third kind consists of the Tœnia or Tape Worm, which grows in links, each link having the power of reproduction in itself—at least, so it is said ; but as a matter of fact, if the head is removed, the presence of the worm is discontinued, so that one would be inclined to think that in some way or other the source of vitality and reproduction must lie in the head. These last grow to an enormous length and are more frequently found in colts and fillies than in horses of an older growth. The cause of the presence of worms is due to indigestion. As it has been proved beyond all matter

of cavil that the possibility of spontaneous generation only exists in the fertile brains of a certain school of philosophers, the ova or germs of these parasites must exist in the hay or other food, and become developed by the fermentation which takes place through the heat of the stomach in all cases of undigested food. The presence of worms in the horse is frequently mistaken for other complaints ; as the staring coat, cough, etc., which denote the presence of these pests, form part of the symptoms of several other diseases.

Symptoms.—When the horse is affected by the small Needle Worm, he will rub his hindquarters, to relieve the sensation of itching of which the presence of this kinds of worm is productive ; this he will not do in the case of the Lumbrici or larger worm. The presence of the smaller worm, although it may be in much larger quantities than the other, will be a source of less pain and trouble to the animal than the presence of the other kind. In the case of both kind of worms, however, the coat will have a staring appearance and the skin will appear as in " Hidebound." The other symptoms apply to both kinds of worms, only that in the case of the " Needle Worm " they are generally less severe than in the case of the large worm. The smaller worms, moreover, will indicate their presence by the appearance of a yellowish, sticky substance clinging to the fundament. The other symptoms consist of a cough, and this cough differs from the cough which accompanies the affections of the respiratory organs, being of a deeper and more hollow sound, and leaving a vibrating action in the flanks. Emaciation and weakness and occasional attacks of pain in the bowels are also present as symptoms. The worms also are occasionally passed off with the dung. The appetite is very variable ; sometimes the animal will eat voraciously, and then soon afterwards his appetite seems entirely gone. Rumbling noises are heard in the intestines every now and then, and the breath is frequently unpleasant in its smell.

Treatment.—The treatment is the same for both descriptions of worms, and is quite effectual if the directions be faithfully followed out. The treatment of Tœnia must be the same until some better specific remedy is discovered. There are all kinds of so-called " specifics " for Tœnia or Tapeworm, both for the animal and for the human being. The outside bark of the pomegranate root is about as good, or possibly better, than any of the others. The treatment of Worms only a short time ago used to consist of calomel, turpentine, and frequently of so-called remedies which, although the possibility of their killing the horse was very

apparent indeed, seemed only to make the intended victims more lively, and as anthelmintics were frequently innocuous. Take, for grown horses and mares, powdered nux areca three ounces, gentian two ounces; mix, and divide into three balls or powders; give one ball or powder every morning, for three mornings, an hour before feeding. On the fourth day give the oily aloetic purge. Feed bran mash and take the *chill* off the drinking water. For foals and yearlings take, for a foal six months' old, santonine (powdered) one scruple and a-half, gentian two scruples; give once every alternate day for three days.

CHAPTER XXI.

WARTS.—WINDGALLS.—BURNS ON THE FLESH.—LICE AND VERMIN.—STINGS OF INSECTS.

Warts.—These excrescences make their appearance on various parts of the horse's body, the head and legs being, however, their most frequent seat. When growing very large they frequently assume the form as of a bunch of grapes, one wart growing on to another; they are of a grey color, about the size of a hazel nut, of a ragged appearance, and occasionally they exude blood, which blood has more or less propagating power for the renewal of fresh warts when touching a healthy excoriation or cut. Sometimes the wart grows in the form of a mushroom, having a pedicle or stem deeply imbeded in the tissues of the skin. They are of various sizes and qualities; some are hard, dry, painless and brittle; others, again, are exactly the contrary in their condition, being soft, humid, spongy, and very painful, especially when touched. There is also always more or less itchiness experienced by the animal in the region of the wart. Some grow to an immense size, especially those of the humid kind which bleed.

Treatment.—Pedunculated warts,—that is, those whose form is similar to a mushroom, should be ligated round the pedicle with three or four thicknesses of white silk which has been thorougly bees-waxed or else stiffened with the ordinary cobbler's wax. Under this treatment the wart will drop off in a few days, especially if it be bathed frequently with water one part, glacial acetic acid two parts. Other warts may be excised by the scalpel and the roots touched, either with the red-hot iron or with hydrochloric acid. Occasionally, however, the last species of treatment seems to be quite unsatisfactory, in which case the wart should be daily sponged, for a few minutes at the time, with pure glacial acetic acid, which has never failed in my experience in effecting a removal of the excrescence. As a rule it is better and more effectual in the end to use the glacial acetic acid treatment than any other known.

Windgalls are puffy enlargements situated a little above the fetlocks on each side of the back tendons. They more often make their appearance in the fore than in the hind-legs, and as they do not cause lameness they are simply an eyesore, and to a slight extent are a depreciative of the horse's market value. They are simply enlarged bursœ mucosœ, which are

sacs or bags attendant on all joints and containing mucous matter. The cause of the distention of these mucous capsules is a violent strain or blow, by which an excessive excitation of superfluous blood to the spot takes place, causing an equally excessive secretion of mucus, by which the bag or sac is distended. They are similar in their nature to Bog-spavins and Thorough-pins.

Treatment.—Many practitioners open the sac, and by putting in and moving about the finger break down the abnormal structure of the interior of the sac, then they inject a solution of sulphate of zinc (where I should prefer in such a case the tincture or solution of iodine), and bring the lips of the incision together with a single suture (stitch). This treatment is quite successful, but in my opinion should only be resorted to in case of the failure of all other remedies. The best treatment is to cut off the hair, bathe with hot water, and then rub thoroughly in some simple mercurial ointment; twenty-four hours afterwards rub in thoroughly some of the following ointment, greasing with sweet lard or olive oil twenty-four hours afterwards:—Take Iodine (in crystals dissolved), six drams; biniode of mercury, two drams; simple cerate or sweet lard, three ounces; repeat every eight days. At night the legs should be bandaged, a small pad being placed under the bandage and over the windgall.

Burns on the Flesh.—Exclude the air, apply linseed oil and lime water, with anti-fever and cooling internal medicines.

Lice and Vermin.—Wash with carbolised soap, dry well, and sponge with water one gallon, carbolic acid (strong), one ounce two drams.

Stings of Insects.—Apply aqua ammonia, glycerine and water, equal parts.

AGE OF THE HORSE.

The age of the horse is known by his teeth approximately, although there exist many wise men who declare their capability of discerning the age by other and peculiar means. The horse has forty teeth, the mare only thirty-six, the four tusks being absent in the female. The age of the horse even in so far as it is definitely ascertainable by the marks in the teeth has been, and is still, a matter of controversy. Some declare a horse to be a certain age, relying upon the obliteration or non-obliteration of the marks in the teeth. But if two horses of equal age and of equal temperament and constitution are taken for a test, and one is turned out and the other kept in, a great difference will be observed in the marks of the teeth. In the case of the horse confined in the stable continuously, the marks will be obliterated much more quickly than in the case of the animal which is turned out for the best part of the year. This is on account of the greater amount of friction exercised upon the teeth of the one which has been kept in the stable, through the mastication of oats and hard feed generally; therefore, though of the same age exactly, yet, to a person not knowing the fact, one would appear older than the other, according to the marks on the teeth. Generally speaking, however, the teeth will give a sure indication of the age within a year. All kinds of tricks have been practised on the horse's teeth by unprincipled dealers; three-year-olds have been made to appear five-year-olds, and five-year-olds to appear three-year-olds, according to the will of the dealer. In speaking of the marks denoting age on the horse's teeth, of course the incisor teeth are referred to, as little if any information is to be obtained from the molar teeth (grinders), partly on account of the difficulty experienced in examining them, and partly on account of the irregularity of their tables. As to the tusks, as before observed, they are wanting in mares, and are very irregular in the times of their protrusion in the male; moreover, the friction is not directly against each other, but rather sideways and crossways. The foal is occasionally born with four teeth, namely, the two middle upper and the two middle lower incisors or nippers, but as a general rule these teeth do not appear until the fourteenth or fifteenth day after birth. At one month after birth four more incisors show themselves,—two in the upper and two in the lower jaw. At four months the remaining four incisors appear,—two in the upper and two in the lower jaw. These complete the number of incisor or nipper teeth. These, the first complement of incisor teeth, are termed the milk teeth, presumably from their color, or it may be from their

appearing during the term of suckling. The set of teeth which take their places are of a slightly darker color, and are termed horse-teeth. The term of appearance of the molar teeth or grinders is not mentioned here, as on account of the reasons before explained they are not examined with regard to the age of the animal. When the colt is about two years and a-half old, or what is technically termed "rising three", the four milk teeth which first made their appearance are displaced by the four new permanent teeth in the centre. At three years and a-half the next four teeth, upper and lower, give place to four permanent or horse-teeth; at four years and a half the four outer milk incisors are replaced by four new and permanent teeth. At the latter age also the animal, if a male, begins to show the tushes. These permanent teeth have in the crowns of the enamel a black line or mark. By the gradual obliteration of this black mark the animal's age is determined, in the lower jaw, until he has become eight years old, when he becomes what is technically termed "past mark of mouth". The age has then to be determined by the marks in the incisor teeth of the upper jaw, and the reason of this is that more friction occurs, in the process of mastication, to the lower than to the upper teeth, and the marks are, consequently, sooner obliterated. At a little over nine years of age the mark disappears from the central pair of upper incisors; at a little over ten years the mark is gone from the next outer pair, and at a little over eleven the extreme outer pair of teeth are undistinguished by any mark. After this period the age of the horse is a mere matter of guessing. As the animal increases in age, however, the space above the orbits sinks, and grey or white hairs appear. The teeth also, on account of the shrinking of the gums, become more prominent and seem to protrude in a more slanting position than they naturally do when the horse is young, or even middle aged. The average age of the horse may be put at from twenty-five to twenty-eight years. I have frequently seen horses doing good, ordinary farm work at twenty-three and twenty-four, and have known a case where a mare had a foal when she was twenty years old. Cases also are on authentic record of horses living to forty or fifty years of age, but these cases, as well as the case of the mare are exceptions to the general rule.

UNNATURAL HABITS IN STALLIONS CURED BY ATTENTION TO PHYSICAL LAWS.

A great deal of annoyance, considerable trouble, and in most cases a large amount of pecuniary loss, has been lately experienced by the owners of some entire horses on the turf. The cause of this has been the abnormal habit of abuse, which, unfortunately both for owners and the horses themselves, has been acquired by a large number of stallions. This custom, moreover, seems to be getting on the increase, if the reports from the large racing stables are to be any criterion. This drawback to the capability of many horses, is naturally a source of great disgust and dismay to the proprietors, as it leads to deterioration of the value of the stallion and also his offspring. The question then arises: Can this habit be stopped by any medicinal and physical remedies, or is it necessary to resort to castration as a last remedy, and thereby lose the services of the horse at the stud and otherwise?

It is to be believed, as a sure thing, that this habit can be cured by proper attention to physical laws and hygiene, and that only a very small percentage indeed of the cases exhibited require castration. Of course, the longer the animal has been allowed to pursue this pernicious habit, the harder will it be to eradicate it from his nature. The great thing is to take the case in hand on the very first exhibition of the inclination to commence this frailty. Most proprietors begin by using all sorts of mechanical contrivances, and in doing so they simply endeavor to treat the effect instead of trying to remove the cause of that effect. If a man tries to stop a railway engine in motion by pushing against it, he is apt to get hurt; but if he stops the machinery, the motion ceases. So with the horse, the inclination must be removed first; and that certainly cannot be done, although it may be assisted, by mechanical appliances externally applied. What, then, are the causes which conduce to this habit?

First, undoubtedly comes climatic influence. This is proved by the fact that in England and other colder climates the disease (if it may be so called) is almost, if not quite, entirely absent. Secondly, a redundancy of blood will produce these inclinations, especially if attended with scarcity of exercise. Thirdly, too much heating food assists, by producing this superfluity of rich blood. Fourthly, in some, if not all cases, heredity is a factor in the matter. Fifthly, want of the society of other horses, whereby their attention and whatever capacity of mind the animal may have is occupied, may certainly be presumed to be an incentive to this habit.

The remedy lies entirely in hygienic treatment and the use of the medicines most adapted to the equine race in such cases, and known as anaphrodisiac. The use of the proper medicines perseveringly, and at the same time the administration of plenty of exercise, limitation of heat-giving food to such an extent, of course, as not to reduce his condition to any great extent; applications of cold water to the parts, especially when in the act, and placing the animal in a stable with other horses, preferably geldings, will undoubtedly, with use of assiduity, produce a cure of this habit. The greatest benefit, however, will be caused by the use of the internal medicines. There will be no necessity to stop his work. On the contrary, his work in training will be highly beneficial to him. The treatment of these cases is greatly a matter of time and attention. Without these nothing can be done to secure a favorable termination of the case.

The advantages of such treatment, instead of the "dernier resort", castration, are very sufficiently obvious. The gelding on the turf, as a rule,is far inferior to the stallion in pluck and endurance. The stallion also,if a good one, after landing much money for his owner in stakes, still remains a large source of revenue through his services at the stud. The gelding, however, although superior to the entire horse for saddle and road purposes, on account of his general docility and lack of amorous energy, has not the staying powers and the fire which appertains to the entire horse.

Many mistakes as to geldings, both on and off the turf, are made by proprietors with regard to the time of the animal's castration, as, although there is a generally received rule as to the proper time, still a great deal depends upon the conformation of the horse, especially as to whether his shoulders are too heavy or too light. To illustrate this we have only to look at the Yorkshire Coach horses. These animals were generally not castrated until over four years old, and were then prepared for the dealer. These remarks apply equally as well to the Thoroughbred as to the carriage horse. It would be well worth the while, therefore, of all race-horse owners to use the proper remedies in all cases of the development of this habit in their stables. When one thinks of the immense value that in some, if not all, cases is knocked off a Thoroughbred stallion addicted to this habit by the operation of castration, and how often it is resolved upon on the spur of the moment, having been determined on without any patience or seasonable preventives having been employed, it seems that, at all events, even for the sake of their own pockets, owners would at least try all means which would insure even a likelihood of success before resorting to castration as a last and only remedy.

EXCESSIVE HORSING IN MARES.

MARES AFFECTED BY NATURE NEED COMMON-SENSE HYGIENIC CARE.

All intelligent persons connected in any way with racing stables are too often made painfully aware of the uncertainty of the thoroughbred mares whose avocations appertain to the turf. The cause of this uncertainty is an excess of inclination. This, in its turn, is the effect of an effort made by nature to throw off from the animal's system the superfluity of blood which is attracted to the generative apparatus; properly, only at certain definite periods, but in this case at most uncertain times, and frequently at the time most inconvenient to the pecuniary interest of the owner of the animal. If this exhibition is confined to the natural periods, it is according to the proper laws of the animal economy so far as we understand—or think we understand—them with our very limited knowledge of the laws of generation and conception.

One of the greatest and wisest natural laws with regard to both man and beast is this—that anything which is superfluous in the system is immediately thrown off from it. In the stomach, for instance, if any substance such as poison is received, that organ, in the human being, evacuates it by vomiting. In the horse, when vomiting is impracticable, the same effort is made, but of course ineffectually, and a fatal result ensues, unless, indeed, there is time to use the stomach pump before absorption has taken place. It is the same with anything foreign to the system. It is to be seen even in the case of a splinter of wood. So it is, therefore, with the superfluous blood attracted to the uterus of the mare.

At the proper season this weakening drainage would, in the form of nutrifying blood, tend to the growth and formation of the fœtus. When occurring, however, frequently, it is palpable evidence of the uterus being surcharged with blood and, therefore, in a fit state for the pro-creative functions. Some individuals of the species may be said to be chronically affected in this manner. These frequent periods of generative irritation are greatly detrimental to the animal's constitution, and also to the owner's chances of success during the racing season. The results of these attacks are nervous prostration and corresponding weakness and irritability, with loss of both flesh and animal vigor.

In this condition, as a matter of course, the system is in such a demoralized condition that it invites disease. The vitality of the system is lowered to such a degree that all power to resist the encroachment of

any disease to which the animal may have a tendency is lost. In most cases, also, this disorder is a preventive of conception. It is, however, not so by any means in every case, although in such cases where offspring is obtained it may generally be premised that the foal will be a weakly one. Cases—one case, at all events—have been known where the mare had this affection off and on to within two months of her legitimate time, and the foal dropped was not at all exceptional in any way. This must, however, be regarded as an exce[illegible]o the general rule.

Those mares affected in this [illegible]ner, generally speaking, do not prove fruitful until, indeed, the disorder has been overcome. This complaint is quite abnormal, and has been overcome in numberless cases by proper medicinal treatment, combined with due attention to hygienic rules. Some very queer remedies, indeed, have been brought forward from time to time. The only remedies that have proved really efficacious are those above mentioned. Any one, however, who conscientiously perseveres in the use of the proper medicinal remedies, in conjunction with common sense hygienic treatment, will succeed eventually, after more or less trouble and care has been experienced, and they will find that, if the mare is worth anything at all, their trouble and care will be well repaid. Of course, there are exceptions to every rule, but in eight cases out of ten these simple remedies will succeed. This is clearly a disease of the nervous organization. This fact has been demonstrated times out of number.

The amalgamation of the best blood in the world has produced in our race horses a most delicate and sensitive nervous organization, and the better bred a mare is the more liable she is to this affection. This disorder is almost unknown among cart horse breeds, and indeed seems to appertain almost solely to animals of a fine strain of blood and a consequently delicate nervous system. After a mare is once cured of this disorder, which may very truly be called a disease, she is capable of doing her best work. In addition to medicinal treatment, or rather as part of that treatment, cold water applications may be made, and if she is not in foal lukewarm injections of an astringent nature may be made use of with great advantage.

If owners of mares thus afflicted would only be as assiduous in the use of these simple remedies as some of them are in the use of remedies which, to say the least of them, are very unnecessary, they would find that, as a result of their trouble and care, they had transformed their useless animal into a good race mare, and they would profit accordingly.

IMAGE EVALUATION
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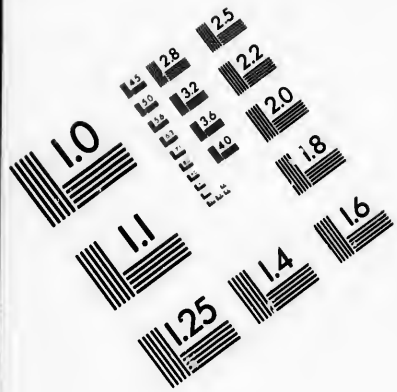

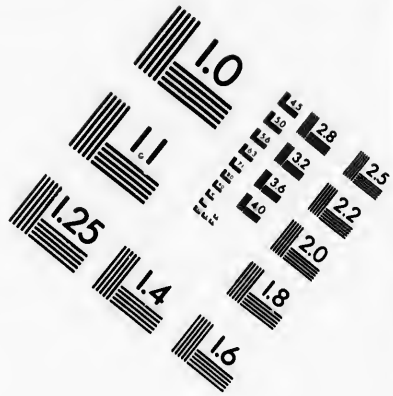

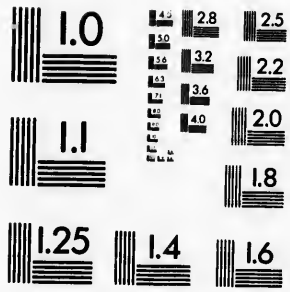

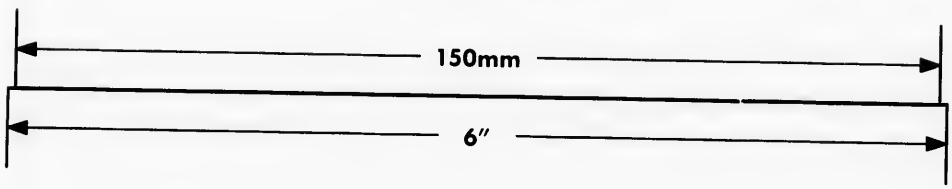

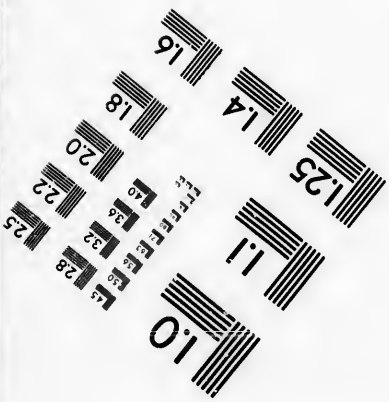

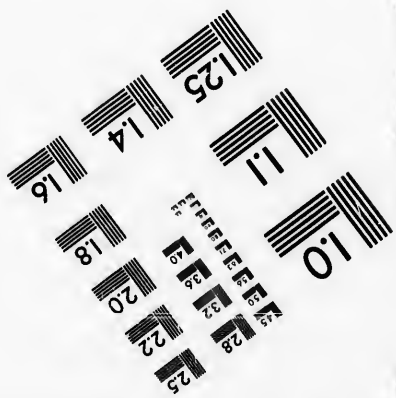

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HEREDITARY TRANSMISSION OF DEFECTS IN HORSES,

OR LAW OF HEREDITY IN HORSES.

It is a matter of the greatest importance to horse owners in general that they should be thoroughly acquainted with the phenomena attending the law of heredity in animals. More particularly does this apply to the owners and trainers of valuable stock, the breeding and speed of which stock adapts them either to the race-course or trotting-track. In using the expression "law of heredity," it is necessary to go back to the scientific definition of the word, which is simply to be understood as meaning "the demonstrable exhibition and method of an occult force". As a matter of fact, comparatively little or any attention is given to this important subject by those whose pecuniary interest would seem to be most affected by the results to be obtained through a due and careful attention to this most remarkable law of nature. No breeder or trainer of moderate intellectual acquirements will deny the truth of this proposition. There are a number of horsemen, however, though unfortunately a large minority, who will testify of their success in the development of blooded stock through their intelligent regard of nature's laws in this respect. There is no manner of doubt but that if horsemen in general and breeders in particular would carefully devote some portion of their time to the observation of the eventualities produced by this unerring law, both for good and for evil, the result would be of substantial benefit to themselves in a pecuniary form, and a great improvement in the breed and racing capabilities of thoroughbred stock in general. The point to which the interest of all owners of horses should be directed is this: Can hereditary peculiarities, both mental and physical, be so manipulated as to become a benefit to owners, and, consequently, also to the equine race? It is, unfortunately, perfectly demonstrable that the deformities, bodily weaknesses, and mental viciousness of the sire or dam are daily transmitted to their offspring. This being an indisputable fact, why should it not be possible, by a proper selection in mating to modify or eliminate the bad qualities in the foal by the opposite qualities of the parents? The answer is that there is no valid reason why this cannot be done. By perfect judgment and due care as to selection, as much improvement should be developed, in proportion as the evil consequences of improper selection are now to be witnessed. As a general rule most people seem to act as if the physical malformations were the only evil legacies transmitted by the

parents. There are, however, on the turf to-day too many examples of the transmission of the mental vices of the sire or dam. Horses of great repute are occasionally seen, who have to be brought to the post in blinkers or hoods. One of the best performers of last year, a thorough good horse, who is now at Westchester, is an example in point. Others again turn sulky and roguish at the fall of the flag on account of which their owners' interests come, most lamentably, to grief. The number of cases this year of abuse amongst two and three-year-old colts also has has become quite alarming to owners and trainers, and has been, through the mistaken supposition of the necessity of castration, the cause of the loss of many valuable animals' services at the stud. These instances among numberless others are all to be traced more or less to the law of heredity. It must be admitted, however, in passing, that all owners of valuable racing and trotting stock, as well as all experts, are agreed that there is at present a decided superfluity of useless stallions. The consequences of the use of an imperfect or vicious sire are very far-reaching indeed, and the patronage of such an animal is to be very much deprecated by all true lovers of the horse. This great error, combined with the mistake of improper selection in mating, with regard to the mental and physical qualifications of the two animals, is a potent factor in the deterioration of the thoroughbred horse. The same error is largely to be found, also, in the agricultural districts among farmers and breeders of carriage, riding and farm stock. This mistake, however, is probably to be imputed to their limited opportunities for observation and to the excessive cheapness at which the services of rural sires are valued. If the former, however, was able to see beforehand what his foal was likely to be, he would probably spring a few more dollars and obtain the services of a horse whose progeny would be of some value in the market. On many accounts, therefore, it is greatly to be desired that all public stallions should be, to a certain extent at all events, under the supervision of some competent authority. A moderate sized book might easily be written on this subject. Briefly, however, the breeder should endeavor to strengthen all weak points in the mare, by mating her with a stallion whose physical development preponderates in those points where she is defective. For example, should a mare show too much daylight under her, a horse should be selected which is well ribbed up, and which has a great depth of girth. A small mare should never be put to a stallion very much larger than herself. The production of such a union is invariably a large colt, all bone ; the danger in parturition is also to be taken into very serious consideration

in such a case. In the case of the small mare, the horse should not be much, if any, larger than the mare. In the case of a large and roomy mare experience has shown that a mate a little smaller, but selected with a view to supply any deficiencies visible in the mare, has produced the most satisfactory results. When handling a valuable mare a great deal of importance must be attached to the qualities of the stallion to which she is first put. Instances are numberless in which it is shown that the impression received by the nervous system of the mare in her first union are conveyed, not only to the foal produced by that act, but to the subsequent progeny which may be produced by other stallions. As all example there is the case of the thoroughbred mare which was put to a quagga; the foal was striped as the quagga; subsequently the mare was put to a thoroughbred called The Colonel; that colt was striped, and an subsequent colts were more or less marked by the peculiar impress of the original father, the quagga.

Another instance may be quoted for the information of such readers as have not peculiarly interested themselves on this point. A bay mare was in the act of being covered by a black stallion, when a chestnut gelding with a white blaze down his face broke loose and galloped into the yard. The nervous system of the mare was evidently greatly impressed by the appearance of the stranger. The effect was this, that at the usual time the mare dropped a colt the very image of the intruder, being a chestnut with a white blaze; whereas the sire was black and the dam bay. The argument of analogy to the human race holds good here. If it holds good in these cases it may also be surmised that it will hold equally good in most, if not all others. A late professor at Bellevue cites a case where a woman, in a delicate condition, greatly longed to see a watch. She was gratified, and her child was born with the figures of the dial marked in the white of the eyeballs. Van Ammon also relates a case where a carpenter, in a peasant's cottage, was attacked by a soldier; the woman rushed in and broke the soldier's sword and the neighbors arrested him; the mother turned to the infant in the cradle, who was crowing and laughing, and administered her milk to it, and in five minutes it died from poison. Her unnatural excitement had vitiated her blood and milk, and was fatal to the offspring. These facts, therefore, can be strictly and properly applied to mares and their foals. This should tend to warn breeders not only as to their selection in mating horses and mares, but also as to the danger of unduly exciting the matrons at any time, while in foal, as is too often done both by voice and whip. The analogy

with the human race holds good also as to the healthy or unhealthy condition of the blood. Warning is here also implied with regard to feeding mares in foal with respect to the influence on the progeny. Healthy blood consists mainly of fibrine, red and white corpuscles, solids of serum and water. In cases of erysipelas microscopic formations of a rod-like form have been discovered, and in scarlet fever granules have been detected in the vital fluid. Both these diseases are common to horses, and the question as to whether this poisonous condition of the blood, "which is the life," is caused by improper feeding, etc., atmospheric influence or nervous excitement may be said to be a moot one, probably all three conditions may have prevailed to a greater or less extent. One thing is certain, that heredity will add largely to the chances of the acquirement of this poisonous condition, and, in many cases, will be the sole cause.

The foal, therefore, may be stunted not only through the excessive richess or excessive poverty of the mother's food, but by the lack of vitality in its mother's blood, caused by hereditary impurities, and which blood is, of course, supplied to the foal *in utero*. These facts, then, are a warning to all lovers of horses to be very particular in their handling of broodmares. Select the right mates, both as to their mental as well as to their bodily constitution, having due care also as to their physical formation. Be particular as to the qualities of food and water destined for mares in foal, and especially avoid exciting the matrons in any way. Rather should they be kept in absolute quiet, especially in the last part of the period of gestation, of course being allowed or given moderate exercise and food in the last two months, especially easy of digestion, such as boiled wheat, oats, etc., which should be plentifully supplied to them. Such care will safely produce a well-developed and shapely colt, and not the poor, miserable, half-starved looking creature, which, unfortunately, is too often produced, much to the disgust and astonishment of the penurious owner.

MEDICINAL APPENDIX.

MEDICINES USED IN THIS BOOK.

OILY ALOETIC PURGE.

Raw Linseed Oil.....One Pint.
Tincture Ginger.....One Ounce.
Spirits of Nitre (Sweet).....One Ounce.
Aloes Barbadoes (in powder).....Seven Drams.

Mix the three first ingredients, and when the patient's head is in position and all ready, then add the powdered aloes.

CARBOLISED OIL.

(For Slight Cuts or Wounds.)

Olive Oil or Linseed Oil.....One Pint.
Carbolic Acid (strong).....One Dram.

Shake Well.

DIGESTIVE OINTMENT.

(For Dressing Seton Tapes.)

Oil of Turpentine.....Four Ounces.
Lard.....Two Ounces.

Melt Together.

SALINE DRAUGHT.

Glauber's Salts.....Four Ounces.
Linseed Meal.....Two Ounces.
Warm Water.....One Quart.

LIME WATER.

Lime.....Four Ounces.
Water.....One Quart.

Let stand for two days and strain off the water.

IODINE BLISTER.

Iodine (in crystals dissolved in a sufficiency of alcohol).....Six Drams.
Biniodide of Mercury.....Two Drams.
Cantharides (powdered).....Four Drams.
Lard or Simple Cerate.....Four and one-half Ounces.

Mix.

ANTIPHLOGISTIC (ANTI-FEVER) POWDERS.

Bicarbonate of Soda.....Six Ounces.
Bitartrate of Potash..... " "
Nitre..... " "

Mix and divide into twelve powders or balls. On administering, drop five drops of the tincture of aconite on each powder.

TONIC POWDERS (IRON).

Carbonate of Iron.....One Ounce, Six Drams.
Gentian (powdered).....Two Ounces.
Golden Seal (powdered).....One Ounce and a-half.
Linseed Meal.....Five Ounces.

Mix and divide into twelve powders or balls.

ALTERATIVE TONIC POWDERS.

(For Weakness in Connection with Diseases of the Respiratory Organs.)

Exsiccated Sulphate of Iron.....One Ounce and a-half.
Gentian (powdered)..... " " " "
Iodide of Potassium..... " " " "
Ginger..... " " " "
Powdered Liquorice Root.....Six Ounces.

Mix and divide into twelve powders or balls.

HEALING LOTION.

Tinct. of Aloes and Myrrh.....Two Ounces.
Glycerine..... " "
Carbolic Acid (strong).....Two Scruples.
Water.....One Pint.

HEALING OINTMENT.

Impure Carbonate of Zinc (Calamine).....One Ounce.
Carbolic Acid.....One Dram.
Simple Cerate or Lard.....Three Ounces.

Mix.

COMMON LINIMENT.

(For Strains, Etc., After the Inflammation is Subdued.)

Soap Liniment.....Eight Ounces.
Aqua Ammonia (strong).....Three Ounces.
Spirits of Camphor.....Two Ounces.
Turpentine.....Two Ounces.
Olive Oil.....Three Ounces.

Mix.

DIAPHORETIC BALL.

(For Opening Pores of Skin.)

Tartarized Antimony.....One Dram One Scruple.
Gentian (powdered)..... " "
Capsicum " ..... " "
Linseed Meal.....Two Drams.

Mix.

Make into a ball with honey.

CAUSTIC APPLICATION—HYDROCHLORIC ACID.

(For Fœtid Ulcers, Etc.)

BRAN MASH.—In making a mash of bran, pour *boiling water* on to the bran, and stir until of the consistency of very thick porridge. In making mashes of malt (useful in cases of great weakness), use warm water, not boiling; in the former case the power of fermentation is nearly wholly removed; in the latter case the boiling water would only cause the malt to clog.

MERCURIAL BALL.

(For Liver.)

Calomel.....One Dram.
Barbadoes Aloes.....Four Drams.

Mix.

Make into a ball with linseed meal and honey.

PURGING BALL.

(Ordinary.)

Barbadoes Aloes.....Seven Drams.
Ginger.....Half an Ounce.

Mix.

Make into a ball with linseed meal and honey.

URINE BALL.

Nitre.....Six Drams.
Buchu (powdered).....Two Drams.

Mix.

Make into a ball with linseed meal and honey.

ALTERATIVE POWDERS.

(For Skin.)

Sulphur.....Half an Ounce.
Arsenic.....Four Grains.
Nitre.....Half an Ounce.
Antimony (Black).....Two Drams.
Linseed Meal.....Six Drams.

HOOF DRESSING.

Oil of Tar.....Three Ounces.
Turpentine.....Two Ounces.
Whale Oil (Sperm).....Eleven Ounces.

Mix.

LIQUID BLISTER.

Turpentine.....Two Ounces.
Cantharides.....One Ounce.
Acetic Acid.....Half an Ounce.

Mix.

Let it stand for four days, then strain off the liquid.

HEALING LIQUID.

(For Abrasions.)

Sulphate of Zinc.....One Ounce.
Glycerine.....Two Ounces.
Water.....One Quart.

Mix.

FOR EYES.

Sulphate of Zinc.....One Scruple.
Acetate of Lead.....Half a Scruple.
Distilled Water.....One Pint.
Tannic Acid.....Ten Drops.

Mix.

ANTHELMINTIC BALLS OR POWDERS (WORMS).

Areca Nut (powdered).....Three Ounces.
Gentian.....Two Ounces.

Mix, and divide into three powders, one to be given each successive morning an hour before feeding. On the fourth day give the Oily Aloetic Purge.

FOR FOALS OF SIX MONTHS.

Santonine.....One Scruple and a-half.
Gentian.....One Scruple.

ANTI-FEVER DRENCH.

Liquor of Acetate of Ammonia.....Three Ounces.
Water.....Twelve Ounces.
Tincture of Aconite.....Two Drams.

Mix. Dose one ounce and a-half.

SIMPLE BLISTER.

Biniodide of Mercury.....Two Drams.
Cantharides (powdered).....Half an Ounce.
Sweet Lard or Simple Cerate.....Two Ounces and a-half.

Mix.

ALUM WATER.

Boil the alum and then let it get cold.

LINSEED TEA.

Boil the Linseed thoroughly and strain off.

ONIONS AND CARROTS.

chopped up are very good for poultices, and the latter seem to be peculiarly appropriate for all affections of the throat, while the former are excellent in their action as suppositories.

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MEDICINAL APPENDIX.

See last pages of work.