

THE PRINCIPLES AND PRACTICE OF VETERINARY SURGERY.

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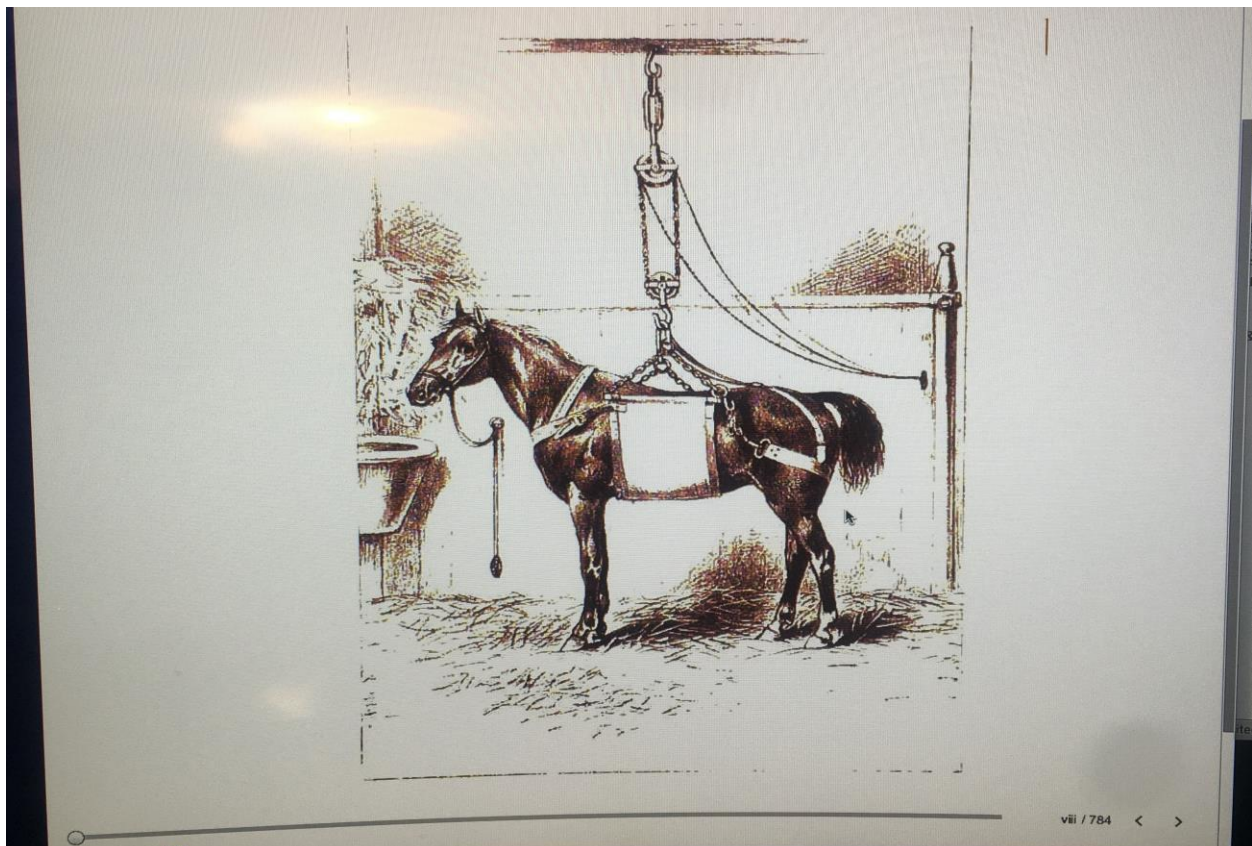
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DIAGNOSIS — DEFINITION — SIGNS — CAUSES — CONGENITAL MUSCULAR ATONY --EMBOLI  
METHODS OF EXAMINATION --SPRAINS-- STRAINS OF PSOAS MUSCLES—CHOREA-- STRINGHALT  
--SHIVERING.

Having entered into the pathology of the Diseases of Bones and Articulations, I shall now consider the question which may be looked upon as being the one to which the greatest importance may be attached, namely, that of Lameness.

*Diagnosis of Lameness.* — The readiness with which some men are able to detect lameness seems to be an instinctive gift. Of such was Professor Dick, who could, at a glance, even when a horse had been moved but a few yards, tell the seat and the cause from which he was lame. But whilst this is so easy a matter to some, to others it is a task of great difficulty, requiring long-continued practical study and observation. There are, however, cases where the most experienced are at a loss, and where even the most skillful differ in opinion. To the young man entering upon the duties of his profession, this matter is apt to cause many anxious thoughts and uneasy moments, as a mistake at this period may interfere very materially with his success in life. To such I would say, Never express a decided opinion until you are thoroughly satisfied as to its correctness.

The first point to be determined is the limb in which the patient is lame. This may seem an easy matter, but in reality it is attended with no little difficulty. Thus, a mistake may be made by expressing an opinion that the lameness is in the hind leg, when in reality it is in the fore, and *vice versa*.

This error has been so often committed, that the peculiarity of gait which has led to it has been called "cross lameness". For example, a horse lame in the off fore leg is trotted from the observer; he seems as if he were lame in the near hind, for the quarter seems to ascend and descend. But when the animal is trotted toward the observer, it will be seen that the irregular motion of the hind quarters depends upon the elevation and dropping of the head and body; and that the lameness in reality is in the fore, and not the hind limb. An opinion must not be given before the horse has been trotted *from* and *towards* the observer. Of course there are many cases where lameness is so apparent that such an examination is quite uncalled for; at the same time, there are many other cases so slight in degree as to require the most rigid scrutiny.

The next difficulty is the detection of lameness when it is situated in both fore feet. When such is the case, an animal may seem to go as if sound. Advantage has been taken of this by low horse-dealers, who, when they have a horse lame in one fore foot, make him lame in the other also. This is by them technically termed "Beaning," and consists in placing a small piece of iron tightly under the shoe of the sound foot, which produces so much pain as to cause lameness. A more refined method has latterly come into vogue, that of paring the toe of the sound foot nearly to the quick, and so adapting the shoe as to press upon the weakened spot.

A horse lame in both feet, although he may not drop in his gait, will be short in action; will go, as it has been more forcibly than elegantly expressed, "like a cat on hot bricks." Each foot is carefully put to the ground, and quickly lifted up again, while at the same time there is a rolling motion of the body. In other cases he may exhibit the lameness in one foot as he goes *from*, and in the other as he *approaches* the observer. Such cases are very confusing, and require all the veterinary surgeon's discriminative powers. Care must be taken not to confound peculiarity of action with lameness. For example, a horse, especially a young one, may appear lame in the near fore foot, if led with a short rein, and his head pulled to one side, or when he is first bitted. This is called "bridle lameness;" it disappears when the animal is run in a slack rein. Again, horses which are habitually exercised in a ring, or

round a circle, invariably seem lame upon the fore limb nearest the centre of the ring. When the lameness is in both hind limbs, the difficulty of diagnosis is not so great, as the animal is both stiff and lame; but mere stiffness must be distinguished from lameness, although it is often confounded with it. No doubt a stiff horse is an unsound horse; but he may be very useful for slow work, and at a suitable price. Mere stiffness may indicate age or fatigue, and often passes away after a little exercise; but lameness is indicative of actual pain or disease, and although it may pass off with exercise, still it must not be confounded with stiffness.

There are some forms of lameness which are apparent in the stable only, the movements caused by bringing the patients out of the stable being sufficient to produce the total disappearance of the lameness. Such being the case, the examiner should see the horse in the stable as well as out of it.

The manifestation of lameness by the animal is shown in two ways: — *1st.* During repose; *2d.* During movement. In some cases, the appearance, or expression, is much more palpable while the animal is standing still, as in many foot lamenesses. For example, a horse will continually point, or even elevate, the foot which is suffering pain; if both feet, each foot alternately will be pointed or elevated. But if he is made to move, the extent of the lameness does not seem equivalent to the amount of pain so expressed. In other cases, the patient will stand perfectly firm, although in the great majority of cases the pastern of the lame limb is more upright than that of the sound one, as if he feared to put as much weight upon it; but when made to move, he will immediately exhibit the lameness. Again, many cases are seen in practice where the patients come out of the stable sound, but when they have performed some work or exercise, lameness becomes manifest. Others, again, leave the stable very lame, and become freer in their action when they have been warmed with exercise. Such cases are apt to deceive; therefore the veterinary surgeon should take every precaution against being taken unawares. Some horses exhibit their lameness when they "turn round." They may go well enough if led straight to or from the observer; but when sharply turned round, they at once manifest their unsoundness; and when an examiner as to soundness finds a man turn his

horse "carefully round," he should watch narrowly, and compel him to be turned quickly. Slight chorea or stringhalt is seldom detected except during the turn, and I have seen cases where it was manifested when the animal was turned one way only.

In other cases lameness may exist in two or more limbs, but not equally; and when so complicated, the animal may endeavour to save the lame limbs by throwing his weight from them in a manner so peculiar that it requires great care to distinguish the true nature of the case, and to form a correct opinion.

Again, there are some horses which walk down hill in so peculiar a manner, that they may be supposed to be lame. This kind of walk has been termed a "three-cornered walk." The animal sways from side to side most awkwardly; his hind quarters being turned to the one side or the other, going forwards *broadside-on*, similar to an animal going down hill with a heavy load behind him. Young horses, when being broken-in, should be corrected of this fault, as it is most unsightly; and to see a rider on a horse of this kind reminds one very forcibly of Don Quixote and Kosinante.

A touch of the whip or spur will cause the horse to improve his paces, and at once show that it is not lameness, but laziness, from which he is suffering.

The signs of lameness manifested during repose are very important, and sometimes diagnostic. A horse suffering acute pain in one of his legs will, if it be a fore limb, point the foot; by pointing is meant the extension of one limb in advance of its fellow. This is done for the purpose of relieving pain, and is performed by throwing the flexors into a state of relaxation, and removing any tension or pressure from the painful part. This *pointing* does not apply to every lameness in a fore limb, nor particularly to any cause of it, for in some rare instances a horse may be lame in both fore feet from chronic navicular disease, yet never point.

The pointing of elbow lameness is characteristic, the forearm being extended, the knee in a state of flexion, and the foot perhaps upon a level with or posterior to its fellow. In severe shoulder-lameness, the pointing, if it can be called such, is backwards, the limb relaxed, the knee bent and the foot pos-

terior to its fellow; sometimes the toe only touching the ground; the whole of the limb semi-pendulous, consequent upon the inability of the muscles to elevate and bring it forward without pain; as a man fails to lift his arm when his shoulder is injured or diseased.

If the lameness be in a hind limb, the patient may stand with it either flexed, "knuckling over" at the fetlock, or with the foot off the ground altogether. When he stands with his lame (hind) leg in advance of the sound one, the position generally indicates disease in or below the hock.

A horse with acute pain in the fore feet will stand with his hind ones advanced beneath the body, resting first one fore foot and then the other, and every time he moves will rear up his head, and stretch out his neck in expression of the pain he suffers; but should the pain be in both hind feet, he will stand with his fore feet beneath his chest and towards the central line of gravity; his body pushed forwards, and head hung down, in order to remove the weight as far as possible from the seat of pain. He will first ease one hind foot, and then the other, breathing heavily, and showing other signs of acute pain. Pain in both hind feet often interferes with the act of urination, by preventing that stretching of the body which is so characteristic of that act in the horse. In such cases the poor patient will endeavour to stretch himself, will elevate the tail, but with a groan quickly assume his former posture, and suddenly "pick up" the feet alternately. From this fact it is often supposed that a horse suffering acute pain in the hind feet has some disease of the urinary organs.

The practitioner having satisfied himself which leg an animal is lame in, he must now endeavour to find out the seat of its cause. The late Professor Dick taught us to cause the shoe to be removed, and the foot examined in every case of lameness. This is a good rule to be followed, especially by young practitioners. He used to relate a case (showing the importance of this rule) where the os suffraginis was fractured. His great skill in lameness led him to think, upon examination, that the fracture was not the only cause of the lameness; he had the shoe removed, and discovered a wound from a nail in the foot, containing purulent matter. The fact of the horse being injured in the foot explained the cause of the fracture, — the animal, on

account of the pain, having trod unevenly, prevented the equal distribution of his weight, and caused the fracture. The Professor had the foot attended to, as well as the fracture, and the patient made a good recovery. Now, had he been satisfied, as the majority of men would have been, that the fracture was the only cause, the purulent matter confined in the foot would have forced its way out at the coronet, a high degree of fever would have been excited, the case much complicated, and the Professor accused of mal-treatment.

After duly examining the foot, and being satisfied that the lameness is not there, the practitioner must endeavour to find out where it is; but before considering the various lamenesses in detail, we must refer to the definition of the word and the variety of its causes.

The word *lame*, according to Percivall, is from the Anglo- Saxon *lam*, weak; the terms *lame* and *weak* are synonymous in some parts of England; thus it is a common expression to hear, " that is a lame story," for a weak story; or a " lame sermon," for a poor, weak sermon; and more commonly, a " lame excuse."

The same writer defines it to be — "The manifestation in the act of progression, by one or more of the limbs, of pain, weakness, inability, or impediment."

This definition is very near the mark, but I think it would read better as follows: — A manifestation by one or more of the limbs, of pain, weakness, inability, or impediment; the act of progression not being necessary to the manifestation of such. Percivall, however, must always be looked upon as a great authority, as he seems to have been a practical man in most matters, as well as an elegant writer.

Lameness is not of itself a disease, but a sign of it. It is the expression of pain or inability, the result of disease, accident, or malformation in the limb or limbs by which it is manifested. It may, however, arise from disease apart from the limbs, as from injury to or diseases of the spinal cord or nerves, from cerebral disease, and occasionally disease of the liver. It may exist for a short time independent of disease — a mere expression of pain without disease, as from a stone in the foot, or a badly-fitting shoe; but if these causes of pain exist for any length of time, inflammation is sure to follow. Disease much oftener exists

in a limb without lameness than lameness without disease. Thus, a horse may have a wound, ulcer, bony deposit, or a tumour, without evincing lameness. From these particulars we may argue that lameness is never present without pain, although Percivall asserts that inability, in the absence of pain, will be found as a cause of lameness, and he says — " Dislocation of the patella occasions no pain, and yet the horse is too lame even to move. The partial or complete ankylosis of a joint may cease to be attended with pain, and yet there may be permanent and irremovable lameness." I think we may safely take exception to these conclusions, as they are not borne out by every-day experience.

Complete ankylosis may exist without pain, and yet the patient is lame; but it will be found that such ankylosis exists in some joint of extensive motion, and prevents flexion and extension in the whole limb.

Pain, then, may be generally said to be the common cause of lameness. The patient feels the pain either when it moves the limb, or when it bears weight or presses upon it. During motion the patient endeavours to avoid throwing pressure upon the lame limb, by treading lightly or stepping short, and by removing weight as far from the seat of pain as it possibly can, not only by using the lame limb in a manner best calculated for this purpose — as by treading on the heels when the pain is in the anterior part of a limb or foot, and upon the toes when in the posterior part — but also by throwing the weight *from* the lame limb as much as it possibly can.

Weakness of the limbs may cause lameness and inability to perform the function of progression properly. A characteristic example of this has been described by Mr. George Armatage, under the title of " Congenital Muscular Atony," or a want of development of muscular fibre in the extensor muscles of the forearm of foals. In this form of lameness the animal stands almost upon the front part of the fetlock-joints ; the flexor muscles healthy, fully developed, and having no antagonistic power opposed to them, in consequence of the arrested development of the extensors, draw up the limbs posteriorly; the heel of the foot and the fetlock pad being in close contact, the little animal being at the same time almost unable to move. I have found this kind of lameness occurring at any time during the



first year of the animal's life, and it may not always be viewed as "congenital." Grazing on very bare pastures is apt to cause it, more especially if the foal be short in the neck, or when so formed that he has to bend over on his fore limbs considerably before he is able to obtain his bite of grass. Continuance in this position for a long time each day causes a weakening and arrestment of development of the extensor muscles, whilst at the same time the flexors called into action are excited to increased development. We have thus, concomitantly, atrophy of the extensors and hypertrophy of the flexors.

Mr. Armatage recommends the continued application of mild blisters to the anterior region of the arm, to excite the exudation of plastic material and the development of the exudate into muscular fibre, and, by bringing more blood to the part, to increase its tone and power, and elevate its functional activity.

A horse may be lame from excess of tonicity in the muscles of a limb, accompanied by much pain, as in cramp, which renders him for the time being dead lame.

In other cases lameness may be due to disease in the blood vessels of the limb or their parent trunks. For example, most extreme lameness is manifested in limbs when their "arteries of supply" become plugged by emboli (fibrinous plugs). A case of this kind occurred in my own practice, where a horse became dreadfully lame, and exhibited symptoms of great agony whenever put to work, while in the stable no signs of pain were present; but when he had worked in the carriage for about 500 yards, he would show signs of weakness in one hind limb, commence to sweat, and finally become immovable with pain. After a short period of repose, these symptoms would disappear, but appear again if any attempt was made to work him.

In addition to pain and lameness, the limb was deathly cold to the touch, and upon a *post mortem* examination being made, the external iliac artery of that side was found nearly obliterated by a deposition of fibrine.

In the detection of the lame limb, the following rules may be laid down for the guidance of the young practitioner: — When the lame limb comes to the ground during progression the animal suddenly *elevates* that side of his body and *drops* the

other side. If the lameness be in a fore limb the head as well as the fore part of the trunk is *raised from* the lame and *dropped upon* the sound limb. This is called "nodding." If the lameness be in a hind limb, the quarter of the same side will be elevated and that of the sound side thrown forwards and downwards by a jerking motion; the head being moderately steady if the pain be not great, and jerked if there be acute agony. It is only by carefully noting these facts that we are able to detect the limb in which an animal may be lame.

The signs indicative of the seat of lameness are of two kinds: — (1.) Those manifested by action; and (2.) Those discoverable by examination, while the animal is in a state of rest. In some instances the latter are alone sufficient to indicate the seat and nature of the disease, but the lameness must be of a severe character, manifested by "pointing," standing with the lame limb flexed, or even completely elevated from the ground; or, as in laminitis, with the unaffected feet and limbs placed as much under the body as possible.

In the majority of cases, however, it is necessary to cause the patient to perform some movement; and it is agreed by all practical men that the slow trot is the best pace. A horse may walk lame, but if such be the case, he must be very lame. There are cases, however, as in "slight splint lameness," where it is necessary to urge the animal to a sharp trot before any deviation from the normal gait can be distinguished.

The following rules may be useful for the guidance of young practitioners: — The horse should be led out of the stable in a snaffle bridle, with the rein over the head. Let the man who leads him be ordered to hold the rein at about eighteen inches from the mouth, and let there be no holding up of the animal's head by a tight curb or rein, to prevent "nodding;" but, at the same time, the rein must not be too long, for if this be the case, a spirited animal may turn round so far as to kick the man with his hind foot. The horse should be trotted immediately after he is taken out; and for this reason, that any very slight lameness may disappear if he be walked any distance. Many low dealers will knock a horse about in the stall to remove such lameness. This should be looked to in every suspicious case. If the horse be frisky, he must be cooled down and very carefully led, in order that the examiner may

have a fair chance. It has been already stated that it is necessary to make the horse run both *from* and *to* the observer, and it may be necessary to do this repeatedly; but if an examiner cannot determine the existence in two or three minutes, it is better to put the horse up again, as the exercise has a tendency to decrease, or even to remove the lameness. In some very slight cases, it may be necessary to place a rider on the horse, as the weight upon the back will cause the manifestation of the lameness. As a rule, however, it is better not to do this, especially if the animal be a spirited one.

There are some lamenesses which are only manifested after sharp work, and in such cases it is necessary to give the horse half-an-hour's trot or gallop, tying him afterwards in a stall until he becomes cool. When taken out of the stable and trotted after such a test, lameness, if in existence, will most assuredly be detectable. Some veterinary surgeons do this with every horse they examine; but it is quite needless in ordinary cases, and it is only when some suspicion exists that such a test is necessary, such as badly-formed hocks, splints near the knee, or some alteration of structure in any part of the limb, or in cases where there is "pointing" while at rest, or where the disease is very slight.

The gait only is sometimes sufficient to determine the seat of lameness, and in some cases it is the only guide; but it is a good rule, and one that should never be neglected, to examine the lame limb while the animal is in a state of rest.

By the latter method we discover lameness by positive and negative signs. For example, if there be heat, pain, or swelling in any part of the limb, discoverable by manipulation, the evidence is positive that the cause is in such a part; but if, on the other hand, there be neither pain, heat, nor swelling in the limb, nothing in the superficial parts of the foot to account for it, we must conclude that it is deep-seated in the foot, or in a part thickly clothed by healthy tissues, and we must arrive at a conclusion by negative evidence, assisted by peculiarities of gait.

*Lameness* may be caused by a strain of a ligament, muscular tissue, tendon, by fractures, diseased bones, cartilage, or fibro- cartilage, morbid conditions of the skin; neuromatous and other tumours; plugging of arteries; accidents, as "pricks" in shoeing,

"treads," wounds, ulcers, rheumatism, and reflex nervous action, as in diseased liver.

#### A SPRAIN, OR STRAIN,

Is violence inflicted upon any soft structure, with extension, and often rupture of its fibres. Professor Dick was of opinion that there was always rupture of the fibres in a sprained tendon or ligament. But I think that the condition which we term strain may arise from repeated extension or slight stretching, without the fibres being at first ruptured at all; and that an altered nutrition is so produced, which leads on to inflammation of the part, and finally to the softening of some portion of the fibres, by which they lose their toughness, and become broken across. A very slight strain may be a mere bruise, with ecchymosis; whereas violent and great extension may rupture the whole structure of a part.

Extension is not always the cause of a strain, as a muscle may be injured by the opposite condition, namely, violent contractions; its fibres and their thecae broken across their long axes; or its tendinous fibres torn from their attachments at either or both of its extremities.

Strains may be confined to the thecae or sheaths only, but these are of but little importance compared with injury to the ligaments or tendons themselves. It has been already stated that synovitis may arise from strain of a ligament, by the inflammation extending to the small synovial surface which is found on most "binding ligaments."

Muscular strains are found in various parts of the trunk and limbs. Thus, a horse may be strained in the neck, as a result of a fall upon the head. If the fall be very severe, the strain may be complicated with severe injury to the spinal cord, or with fracture of the vertebrae, causing perhaps the sudden death of the animal.

The muscles of the dorsal region may be sprained by the hind feet slipping backwards. When a muscle is strained the injury is succeeded by pain, swelling, heat, and loss of function. An inflamed muscle can no longer contract; hence, in some strains, the symptoms resemble those of paralysis.

This swelling of an inflamed muscle is very often succeeded

by loss of substance (atrophy), and sometimes by fatty degeneration of its fibres, whereby they lose their red fleshy appearance, and assume that of whitish threads of fat. When microscopically examined, the sarcous elements — the real contractile tissue within the sarcolemma — is replaced by glistening oil particles, so that the functional power is completely destroyed. If the whole muscle be involved, its contractile power no longer exists; and this loss of power will vary according to the extent of the muscular structure involved in the primary lesion.

Atrophy of the fibrillar and consequent fatty degeneration of their contents, is often due to pressure by an inflammatory exudate formed in the spaces of their connecting areolar tissue ; and it is important, practically, to remember this, for the reason that the sooner an exudate can be removed, the less chance there is of degenerative changes taking place in the true muscular elements.

The changes that occur in inflammation of muscular tissue, whether arising from strain or other causes, may be briefly described thus : — 1st. Swelling from congestion and exudation ; 2d. Atrophy, from the pressure of the exudate upon the muscular fibrillar, and from loss of function; 3d. Fatty degeneration of the sarcous elements, and permanent loss of contractility.

*Treatment.* — Repose; soothing applications, succeeded by slight, and afterwards stronger irritants. Purgatives and cooling diet at first, followed by good nursing.

#### STRAIN OF THE PSOAE MUSCLES.

Much confusion prevails among veterinary surgeons as to the proper diagnosis of this injury, some classifying all cases of inability, or paralysis of the hind limbs, unless broken back can be detected, as sprain of the psoase muscles; whilst others deny the existence of such an injury at all.

Sprain of the psoas muscles simulates paralysis, broken back, and that mysterious disease which has been erroneously termed hysteria by Mr. Haycock, — a disease which, in reality, is due to the presence of a large amount of effete materials, especially urea, in the circulation, and which may be termed Azoturia.

The psoase muscles — magnus and parvus — are, along with the iliacus, sartorius, &c, situated within the pelvic and sub-lumbar

regions, originating at the heads of the last ribs and last dorsal vertebra; extending in a backward direction under the bodies of the lumbar vertebrae to the ilio-pectineal eminence on the brim of the pelvis, and the internal trochanter of the femur. Their action is to bend the haunch upon the pelvis, to draw it forward in progression, or while the hind quarters are stationary and fixed points, their action produces that appearance called "reached back."

It is important to remember the action of these muscles, for when injured they cease to act, and the haunch will be thrown into the opposite condition of "roached back"; and from this circumstance the injury may be readily distinguished from azoturia.

Strain of these muscles is caused by injury, such as "being cast in the stall," or by any other accident capable of producing violent extension of them; hence arises the difficulty of determining between it and "broken back." It may, however, be distinguished from the paralysis of broken back by the power of flexing and extending the limbs being still retained by the animal whilst it is lying down; there may be inability to rise from the ground, as the psoae muscles assist very materially in that operation; but when raised by means of slings from the recumbent position, and when the hind feet are firmly placed upon the ground, the horse is able to stand moderately well, and command the movements of the limbs to some extent, although there is always a tendency to knuckling over at the fetlock-joints.

The muscles of one side may be injured; in such a case the loss of power is limited to one side only.

If the injury be not sufficiently severe to destroy the power of rising, it will be seen that, when the horse is made to walk, he drags his limbs or trails them to some extent. There is scarcely any elevation of the feet or flexion of the joints, and a great tendency is shown to knuckle over at every step.

Examination per rectum will reveal heat, tenderness, and swelling under the spine; and in the majority of cases that have come under my observation, external swelling around the rectum and perinaeum, or vagina, if the patient be a mare, will make its appearance in the course of a few hours after the accident.

The acute inflammation is generally succeeded by a condition of atrophy, and for some time afterwards the animal will show signs of weakness and inability; but these will pass away as the muscles regain their power and tone.

*Treatment.* — Rest in the slings; enemas, to act as internal fomentations; aperients, and febrifuges if fever be present. In cases where the appetite is not much impaired, and but little or no fever supervenes upon the injury, the administration of medicine should be withheld. Fomentations must be applied to the loins and perinatal region; and after the first few days, mild external stimulants, as weak ammonia liniment, with good food and careful tending. It may be laid down as a general principle that slings do harm when the animal is unable to stand in them, and if both fetlocks knuckle forwards, and the whole weight of the patient be thrown upon the abdomen, slings should not be used; but should he be able to stand when the feet are implanted on the ground, the slings are very useful. After some time has elapsed, and when the patient appears not to make the desired progress towards recovery, a good blister to the loins and quarters will be very beneficial, and will hasten the development of muscular tissue. If the season be favourable, a run at grass in some quiet place will complete the cure.

Muscles are liable to become deranged in their function either by an exaltation or depression of their contractile power, and these conditions are generally exhibited in the muscles of the lumbar, gluteal, and femoral regions.

The causes of these aberrations of function are often very obscure, and seldom demonstrable. It has been already pointed out that diseases of the spinal bones are present during life without any very decided external manifestations; and from this it may be inferred that such diseases as "stringhalt," shivering, or that form of partial paralysis vulgarly termed "jinked-back," as well as that peculiarly obscure nervo-muscular disease called by French veterinary writers "immobility," and by English horsemen "German horses," are all probably due to some disease of the sensory track of the spinal cord, similar to the "loco-motor ataxia" of the human patient, which is thus described by Aitken in his *Science and Practice of Medicine*, 1866 : — "In the erect posture the muscles may sustain a heavy

weight, and general paralysis does not supervene for months or even years. There is then a gradual and progressive loss of the power of co-ordination in the acts of volition. An awkward unsteady gait is the earliest indication of such progressive paralysis. At first the feet are moved in a slatternly manner, the heels lounging on the ground, and then, as the disease advances, they are thrown involuntarily to the right or left without purpose, and without the power of restraining their irregular movements. The act of turning round is performed with great difficulty. ... If the patient is put on his legs with his eyes shut, and his feet close together, it is seen that, although he has the muscular power he has not the muscular sensibility to preserve his body from falling, or to guide him in taking even a few steps forward with his eyes closed. He will reel and tumble about like a drunken man." Functional irregularity of muscular action may arise from granular degeneration of the muscles, without any disease being found in the nerves or nervous centres.

#### CHOREA.

*Definition.* — An irregular convulsive clonic action of the voluntary muscles, confined generally in the horse to the posterior extremities, constituting "stringhalt," and in the dog as a sequel to distemper, to the anterior ones, neck, and face, by which they are withdrawn from the control of volition.

Many pathological views are entertained regarding this disease. By some it is regarded as entirely functional, and independent of organic change. By others it is held that it is due, at least in some cases, to some disease of the blood, the precise nature of which is as yet unknown, and that it may be associated with some diseases, as rheumatism and diseases of the heart.

Professor Dick was of opinion that it was due to the presence of tumours in the lateral ventricles of the brain, and supported his views by a post mortem proof. But tumours in the ventricles may be present without chorea; and chorea is very often present without such tumours. Other writers have traced its origin to a hypertrophied condition of the nerves given off from the lumbar plexus, to the pressure of some



exostoses on a nerve, and to paralysis of the muscles antagonistic to those affected with the spasm. In one case which fell under my notice, melanosis within the spinal canal was the cause of chorea; but the spasm (clonic, or rapidly alternating contractions and relaxations) of chorea is not a phenomenon of persistent spinal irritation, while tonic spasm is a mark of such a condition.

Chorea may be divided into partial, as in stringhalt in the horse, and general, as seen occasionally in dogs.

Stringhalt may be defined to be an involuntary convulsive motion of the muscles, generally those of one or both hind legs, but occasionally it is seen in the fore legs also.

The limb or limbs affected are convulsively elevated from the ground, and brought down again with more than natural force. It is not always to be noticed at every step the horse takes. He may go several paces, as many as twenty, without exhibiting any signs of stringhalt; then, all at once, the limb or limbs will be suddenly elevated from the ground with a peculiarly sharp sudden jerk. It is necessary sometimes to turn the animal round from right to left, and from left to right, in order to make him show any signs of stringhalt, the symptoms of the disease being exhibited as he turns one way only. It is generally developed slowly, but I have seen very aggravated cases come on in one night, and as age advances it always becomes worse. It should be viewed as an unsoundness, and as a cause of depreciation of the animal's value. In two horses which had suffered from very violent stringhalt, the *post mortem* examination revealed exostoses on the shaft of the ilium, involving the great sciatic nerves. I think its cause is sometimes peripheral, as when a bone-spavin presses upon the nerves of the hock. The stringhalt then is due to reflex nervous action.

In grey horses, stringhalt is occasionally due to a deposition of melanotic material in the sheath of the great crural nerves. I am inclined to the opinion that chronic stringhalt, or that form of it not dependent on rheumatism, arises from a congested condition of the nerves and their sheaths, and that there is always a tendency to the occurrence of neuritis from causes that would otherwise have no effect upon the nervous system. This view is supported by the fact that injuries to the feet, or any part of the limbs affected with stringhalt, are very prone to be succeeded by increase of the spasm, by much nervous excitement, and by tetanus.

Some horses affected with stringhalt, when injured in the feet, become almost unmanageable from the extent of the spasm; they are soon exhausted by the expenditure of nervous and muscular force, and the mortality from such injuries is much greater than in horses free from stringhalt.

There is no treatment in chronic stringhalt I have divided the tibial nerves when it has been associated with bone-spavin. In this case it was confined to one leg only, and to a fearful extent, the foot being caught up with extreme rapidity, and brought down with great violence, insomuch that the shoe was repeatedly broken by the violence of the concussion. There was a bone-spavin on the hock, with considerable heat and tenderness. After trying various remedies upon the hock without good result, I divided the tibial nerves; but the animal derived no benefit from the operation. In aggravated cases the limbs are adducted, the foot thrown outwards, as well as elevated, during the act of progression. But where the symptoms are aggravated from any cause — such as an injury, common cold, or other source of febrile disturbance — the severity of the spasmodic action may be much modified by removal of the cause of excitement, and by a cathartic, belladonna, or the bromide of potassium, in suitable doses. Hard work will very often increase stringhalt to such an extent as to call for medical treatment. In the rheumatic form the treatment for rheumatism is to be prescribed.

#### IMMOBILITE, SHIVERING, SPRAINED BACK, ETC.

Immobility is a term applied by French veterinarians to those cases of muscular irregularity manifested by the inability of the horse to turn round quickly without falling. He may be able to trot in a straight line well enough, but when turned round sharply, immediately falls. A modified form of this disease is very often encountered when the animal, although able to turn without falling, does so with great difficulty, throwing the hind legs about in an awkward, unsteady manner, and seemingly without power to regulate their movements; the hind quarters reeling from side to side, clearly showing that the muscular movements are imperfectly controlled by the power of volition.

This is commonly called broken, sprained, or jinked back by

horsemen. It is not due to any fracture, nor always to any external injury, but is a progressive disease, arising from some alteration of structure in the spinal cord from disease of the vertebra, or from granular degenerative disease of the muscles themselves.

" *Shivering* " is another peculiar nervo-muscular affection of the posterior extremities, resembling stringhalt, and manifested more particularly during the acts of " backing " or " turning round."

In a case of this kind the animal, when made to back, will perform that act with some difficulty; the muscles of the gluteal and femoral regions are thrown into a state of " clonic spasm," contracting and relaxing in a very irregular manner; hence the term " shivering," from the resemblance of the muscular action to trembling or shivering. In many cases the tail is spasmodically elevated and depressed in the manner of a pump-handle, and the limbs elevated from the ground by a peculiar rigid or stiff movement; the foot often suspended for a moment, as if the animal were unable to direct the action of the muscles.

When moved forwards, the necessary actions will be performed tolerably well, but the backward movement is done with more or less difficulty, and sometimes it cannot be performed at all.

Shivering, *immobilitate*, strained back, and their various modifications, must be considered as causes of unsoundness, since their tendency is to increase in severity as the animal becomes older. They often interfere with his condition, and generally give him an aged appearance before he has reached his prime; and they prevent him lying down, particularly if he is confined in a stall. Some horses, while so affected, lie down well enough; the majority, however, scarcely ever do so, but fall down in their sleep occasionally, and being unable to rise again without assistance, often injure themselves by struggling. Animals of this kind should always be slung at night.

*Hereditary tendency.* — I think there can be no doubt as to hereditary predisposition being one of the causes of the foregoing diseases; indeed, I have had sufficient proof, in my own experience, to convince me that such is the case. Very often one form or other will be found in young animals, two or three

years old, that have been subjected to no hardship, arising spontaneously, and increasing by slow degrees. I have one instance on record where four young horses, the progeny of a dam that was affected in the back, died from spinal paralysis before they had attained the age of three years. A fifth is now living, and shows signs of aggravated nervo-muscular disease.

#### MYOSITIS, OR INFLAMMATION OF MUSCULAR STRUCTURE.

The muscles may be inflamed, either from external or internal causes, those of the lumbar and gluteal regions being most generally so affected. The intrinsic cause of myositis is the presence of the rheumatic poison in the blood; and the extrinsic causes are sprains, the application of direct violence, or of cold and moisture. It is expressed by pain, swelling, heat, and loss of function. Inflammation of the muscles of the dorsal, lumbar, and gluteal regions has often been confounded with " laminitis;" but a careful practitioner need not make such a mistake.

In laminitis, as well as myositis, there is great stiffness. In laminitis there is a tendency, more particularly in the hind feet, to elevate the feet from the ground alternately. In myositis there is no such tendency, the feet being firmly planted on the ground, and there allowed to remain, if the animal be not forcibly moved. In laminitis, when the animal is down, the symptoms of fever and pain are considerably alleviated. In inflammation of the muscles there is no tendency to lie down; and if the animal were forcibly cast, as is sometimes done in laminitis, the symptoms will become aggravated. A horse with fever in his hind feet will generally, immediately on rising, begin to shift them, become very uneasy, much distressed, and at last will lie down with a sigh of relief; the pulse falling, in the course of a few minutes, perhaps thirty to forty beats per minute.

In some cases of laminitis there is a disinclination to lie down; but when such are forcibly laid on a comfortable bed, they generally feel inclined to remain recumbent, and, as a rule, it is only necessary to lay them down once or twice before they find out the benefit, and take advantage of it without assistance.

When the muscles of the loins and quarter are inflamed the symptoms will simulate those of stringhalt.

I have merely pointed out these essential marks of difference at present; a more detailed account of laminitis will be given hereafter.

The treatment of muscular inflammation, when not caused by such a degree of violence as to destroy the vitality of the parts, is very simple, —a gentle purgative, rest, fomentations. Should atrophy succeed the active stage, a mild blister.

#### RHEUMATIC LAMENESS.

The lameness is characterised by what is termed metastasis, or a shifting of the seat of the disease from one part to another. The favourite seats of rheumatism, occurring after influenza, are the sesamoid bursae; but it may appear in almost any serous or synovial structure. It is not my intention here to enter into the pathology of rheumatism, that being reserved for another volume; but I may lay down a simple rule for its treatment. A strong vesicating blister should be applied to the part and around it without loss of time, all other local applications being in my opinion worse than useless. A blister is supposed to act by attracting the rheumatic poison into its vesicles, and removing it from the system by the bursting of such. It is recommended by Dr. Richardson and others that the blister should be near, but not upon, the diseased spot; but I have found this inconvenient, and a direct application to answer every purpose.

A horse suffering the greatest agony from rheumatism is relieved in the course of one day, provided a numerous crop of vesicles be produced. The cantharides blister is the best; a purgative is useful after the blister. If the lameness be not thus removed, colchicum and nitrate of potash are to be administered; and if these fail, the iodide of potassium, or carbonate of soda or potash, with vegetable tonics.

In dogs, rheumatism is commonly called *Kennel Lameness*.

It attacks young sporting dogs more frequently than any other class. The cause is usually to be found either in the construction of the kennels or their management; damp or cold situations, bad drainage, a short supply of clean straw, and want of exercise, are each and all liable to produce this intractable disease. The symptoms are general rigidity, accompanied with great pain, as evinced by the anxious expression, hurried breath

ing, disinclination to move, and pain on manipulation; the pulse is hard and quick. The tendency of the disease is to localise itself in the joints, attacking one or more at first, disappearing from there, and appearing in others.

*Treatment.* — Put the patient in a dry warm place, and administer an aperient. Great relief will be obtained by immersion in warm baths; care being taken to prevent chill afterwards. The affected joints are to be stimulated with soap liniment; alkalies, diuretics, and nourishing but easily digested food, are to be given; and when the more acute symptoms have passed off, citrate of quinine and iron.

The terms rheumatism and rheumatic lameness are often misapplied. For example, scrofulous disease of the joints in horned cattle is commonly thought to be rheumatic in its character, and due to external causes, such as cold, damp, &c.; whereas, in reality, it is an intrinsic disease, and due in the great majority of instances, more especially when it occurs amongst high-bred stock, to a system of in-and-in breeding persisted in for too long a period. Again, a disease — osteomalacia — often terminating in spontaneous fracture of the bones, which prevails amongst horned cattle pastured on poor land, and occurring mostly during dry summers, is supposed to be of rheumatic origin, whilst in reality the stiffness of the joints and lameness are symptomatic of mal-condition of the body generally, and of the osseous system particularly, due to the want of proper food in sufficient abundance, or to something deleterious in it. In Wales this disease is supposed to be caused by the animals eating the purging or mountain flax (*Linum Catharticum*), which is found growing amongst the pastures in such situations. I cannot endorse the popular idea that this plant is the cause, for cattle refuse to eat, indeed, turn away from it. I look upon it more as an evidence that the land is poor, and the pastures, particularly in very dry seasons, defective in nutritious elements.

The symptoms are depravity of the appetite, rapid emaciation, venous murmurs; stiffness of the limbs, swelling of the joints, and difficulty, or even inability, in rising from the recumbent position.

The *post mortem* appearances are remarkable. The whole body is wasted, the muscles anemic and flabby, the blood is thin and watery, and the tissues are cedematous and softened.

Parasites are often present in large numbers in the stomach and intestines. The bones are enlarged and softened, crumble upon the application of slight pressure, and if fractures have occurred some time prior to death, it will be found that the reparative process has been but very imperfectly and feebly established.

In this disease a peculiar pathological process obtains, similar to that which is witnessed in the general emaciation of phthisis pulmonalis, described at page 49 of my *Principles and Practice of Veterinary Medicine*, namely, the absorption of a tissue, and its redeposition; but in this disease, instead of fat being absorbed, it is found that the calcareous ingredients of some bones are removed by absorption, and deposited in the form of osseous tumours upon various other bones of the skeleton, obliterating cavities of reception, and causing deformity of the bones themselves.

The prevention of this disease is to be accomplished by proper diet; change of pasture if possible, if not, the addition of cake or other nutritious feeding material; whilst the pastures themselves are to be manured with artificial and other dressings — the phosphates of lime, nitrate of soda, or the salts of ammonia, as may be determined upon by a competent analyst.

In the early stages, the disease may be successfully combated by antacids, tonics, occasional but mild aperients, and proper food; but if the osseous system is greatly involved, treatment is useless.