THE ANATOMY OF THE HORSE

(1) Poll Evil.

The name given this disease is very explanatory, as it describes its situation, and intimates the severity of the disease; for, indeed, when this is serious, it is tedious, disagreeable, and dangerous, and is unsatisfactory to owner, patient, and practitioner. This is an aggravated type of fistula, being situated on the poll, between the ears, and immediately over the medulla oblongata. In aggravated cases the pus permeats through the tissues, and forms sinuses in every direction, portions of the ligamentum nuchea become ulcerated, and finally its continuity is dissolved. This increases the severity of the disease, as the detached pieces of ligament are extremely tough and tenacious, and directly interfere with the exit of the pus upwards, thus driving it into the deep tissues, and itself acts as a foreign body, and cannot leave the system unless by the aid of the surgeon's knife. We have frequently removed as much as half a pound weight of it at one operation. This disease is seldom if ever cured without the aid of the veterinary surgeon, as often, when apparently well, after many months, in consequence of the foreign bodies still remaining, they break out afew, and the last stage is worse than the first. When the pus is deep-seated and in considerable quantities (which is generally the case), and where there are pieces of detached tissue, the whole being confined, there being no exit for the pus, the tissues now become infiltrated with pus, lose the greater part of their vitality, and thus offer little resistance to the destructive process of suppuration, it extends downwards, the atlas and axis become involved, then caries (destruction) of the bones supervene. This describes a most serious case of poll evil, and when this stage has been reached, we have, dividing the pass from the spinal cord, only the capular ligament, which itself soon yields. The pressure which is thus occasioned speedily destroys life. As this is the organ which presides over the respiratory functions, and is now paralyzed, the respiration ceases, and the animal dies from apnœa.

(2) Diseases of the Eye.

We shall not enter at any length into the diseases of this organ, and for this reason, that there would be no practical benefit derived by our readers from it, the eye being so delicate, intricate and little understood, we do not feel as though we were doing our duty toward our patrons did we not discourage their treating this organ themselves, as the result, when they are their own doctors, is almost invariably disastrous. However proficient they may be in other branches, a veterinary surgeon should always be called in cases where the eye is affected. The following are amongst the principal diseases to which the "window of the soul" is subject: Traumatic ophthalmia, simple ophthalmia, cataract, conjunctivitis, amaurosis, etc.

(3) Osteo Sarcoma.

This disease has been described in different countries under different names. The cognomen given it is often nothing short of a misnomer, but our American countrymen have given it the only expressive or appropriate (though not very scientific) name it has yet received, viz., "Big Head." Writers have variously termed it osteo sarcoma, fibro-plastic degeneration of bone, spina ventosa, etc., speaking of it in a general way. In England we find it most frequently in cattle, and, as a rule, young ones are most liable to it; but it is also a source of annoyance to horsemen. In this country, it is seen in horses far more frequently than in Europe—at least, that is our experience. If a competent person is called upon to treat the animal in the early or incipient stage, then, by turning the skin back from the affected part and sawing away the diseased bone, the animal may be permanently cured; but if the disease is permitted to make any considerable headway, successful treatment can never be accomplished. The reason is, that the disease communicates itself to the surrounding portions of the bone, and, unless every vestige of the diseased tissue is removed, it will again appear, and finally, the animal dies from emaciation, or pure starvation, the disease having undermined the constitution. Or, should that not occur, mastication is prevented, the teeth being also involved, and, as the animal cannot eat, it follows he cannot live. The unnatural growth of the head is easily discerned, and the only salvation for the animal is to have him scientifically and immediately treated.

(4) Disease and Peculiarities of the Teeth.

In this connection we will simply state the different diseases to which these important tissues are subject, and cursorily glance at their causes. Caries, irregularities, abnormal changes in alveolar process, parotid mouth, irritation during dentition, wolf teeth, etc. Caries.—This almost invariably is found (where it exists) in the molars, the others being seldom then affected. The pulp is generally the portion where the first symptoms of disease are observed, and afterwards permeats the entire tooth, unless arrested. We have seen it arise as the result of accident, and in very old horses it arises suddenly, and without any assignable cause; but the disease may originate in the fang or crown, but, as we have mentioned (no matter where it originates), ultimately involves the entire tooth. Irregularities.—Where the teeth do not wear with uniformity, then the edges of those not getting their due proportion of attrition wound the tongue or mucus membrane, causing greatly increased pain, and frequently preventing the animal from masticating his food properly, when lassitude and emaciation follow. Disease of the alveolar may occur from any of a number of causes. In many animals there is a natural predisposition to this, as to other diseases. A strumous condition of the bones may cause it, where the inter-dental spaces are far apart, giving an entrance to foreign bodies, which ultimately originate disease, where an ulcerated tooth is allowed to remain undetected, etc. Parotid mouth.—This is familiar to almost all horsemen, and consists in the superior maxillary overriding the lower, and protruding sometimes several inches farther forward than the lower. There is also a peculiarity in this mouth, which consists in the teeth being longer and larger than natural. Such horses graze with great difficulty, and are, as a rule, always in poor condition while on pasture, but when in the stable experience no difficulty. Wolf or supernumerary teeth are a source of inconvenience, and many experienced horsemen hold that they are injurious to the sight. We account for this on the ground that the teeth and eyes receive their sensation from branches of the same nerve, therefore it would be advisable to effect their removal. Horses, like all the other mammalia, suffer more or less when the new teeth are perforating the gums, and the dental irritation very often causes while it lasts, a good deal of inconvenience, bringing on diarrhœa, and giving the animal the appearance of considerable suffering, accompanied by a short, hacking cough.

(5) Parotitis.

This is inflammation of the parotid gland, and is caused both by external violence, and also as the result of necrosis, or other disease of the ramus of the inferior maxillary, or lower jaw bone. The chief interest to be attached to this is, when inflammation occurs, fistula is not an uncommon sequel, and when the integument here is perforated and the gland reached, the duct stenons is laid open, and frequently, without the owner of the animal being aware of the fact, the saliva (as already poured out, the owner thinking it is merely mucus or some purulent and comparatively unimportant fluid. When this occurs digestion is greatly impaired from the loss of this fluid; the respiratory function is also impeded by this inflammation, as the general enlargement causes it to press literally on the trachea. This gland is situated under the ear and close to the angle of the lower jaw, and in close proximity to the third upper molar tooth.

(6) Inflammation of the Submaxillary Gland.

This gland is divided from the parotid only by the stylo-maxillary ligament, and the general description of the parotid applies to this respecting its situation, but it is imbedded amongst the facial arteries and ganglion of nerves which are found in this situation. On this account surgical operations in this region require care, it opens into the sublingual region or floor of the mouth. Our object in drawing attention to this gland, and its anatomical relations, is that it is one of our chief diagnostic guides in cases of glanders, as it then becomes injurated, and apparently attached to the bone, and any circumstance which assists in diagnosing this disease is of paramount importance. Our reason for heading this inflammation of the gland is that when such occurs to any considerable extent it must be looked upon with suspicion, as it (the inflammation) always, to a greater or less extent, points to glanders.

(7) Fistulous Withers.

This we will deal with summarily, in consequence of having treated the subject under the heading of poll evil. The diseases are alike in all essential particulars except that of location, and therefore might for all practical purposes, be treated as one. Still there is a point or two to which we would call attention, viz.: Like shoes, we sometimes find saddles made and worn without any attention being paid to whether they fit the animal or not. In many instances both economy and common-sense are set at defiance, and the consequence is that the saddle-tree, which is hard and unyielding, presses on the horse's withers, causing, first irritation, then inflammation, then suppuration, and, finally fistulous withers. Some horses have the good fortune to be formed by nature with low withers, and they are seldom troubled by the saddle-tree, as it can not press on the spine, the lateral portions preventing this; but where the conformation of this part of the animal's economy is the opposite of that described, if the harness is not made specially for the animal it may fail to fit. The spine of the dorsal vertebræ becomes the seat of chronic inflammation from being frequently injured as above; they spread at the extremities, and death of the osseous tissue involved follows in most cases. This disease, which is of a disagreeable and dangerous nature, can be avoided by a little precaution, which, we might suggest, should in all instances be adopted, just as soon as there is the slightest sign of irritation present.

(8) Atrophy of the Muscles of the Shoulder.

By this term we mean wasting or shrinking of muscular tissue, accompanied by a change in the quality of the tissues. Of this there are two kinds, simple and numerical. The former appellation is applied where there is apparent diminution, that is, where it is perceptible; the latter to what appears as hypertrophy (enlargement), but in reality atrophy of the muscular tissue, the interspaces being filled with degenerated material of an adipose nature. This is the more serious form of the disease, being frequently mistaken for natural increase, inflammation, abscess, etc. When this form occurs the parts cannot be again restored to their normal condition, as the vitality of the part is dead, and some writers go so far as to compare it to gangrene. This disease is caused by inactivity, generally the result of some lesion of the limbs, prolific causes of which are navicular disease, laminitis and suppuration. Of course, there are numerous sources from which this disease originates, but the above are the more frequent. The continued flexed condition of the limb impedes the circulation. The oxygen, which is the great muscular reparative, is thus partially cut off, and we have, as a result, atrophy or sweeny.

(9) Shoulder-joint Lameness.

Of this there are three forms: Lesion of the articulating cartilages, sprain of the flexor brachii muscle, an injury which involves the anterior and posterior muscles. The first is caused by direct injury, rheumatism, or deep-seated inflammation. The capular ligament is affected in a similar manner, portions of it becoming hypotrophied and parts atrophied; at the same time the whole membrane is distended by the joint oil, or synovial fluid, which is secreted in unusually large quantities, consequent upon the inflammation which exists within the joint. The articulating cartilages become affected by this inflammation to such an extent that the natural attrition causes them to wear off quickly. On account of their unhealthy condition, and the disease in the parts surrounding them, the ulceration of their surfaces takes place; but should rheumatism be the primary cause, then the synovia becomes transformed into an osseous material and in the great majority of cases complete ankylosis of the joint takes place. When the lameness is caused by the sprain of the flexor brachii, it will be apparent from the fact that we invariably find a considerable and well-defined inflammation pervading its entire length, and it does not require a very critical examination to diagnose this, as it is confined to that muscle only, and the contrast between it and the surrounding tissues points out, unmistakably, the nature of the lesion. The lateral mobility of this joint at all times is greater than that of the others, and the muscles which keep it in place are, therefore, more apt, from violence, to be ruptured, sprained, or lacerated; and these muscles—the antea and postea spinatus and teres externus—being, as we have said, situated on the lateral aspect of the joint, when they are involved it cannot well be confounded with either of those described. Those muscles are intended to assist in the elevation and abduction of the humerus, and, when this is either impeded or suspended, we know at once that these muscles are the seat of disease; hence the importance of understanding their offices and situation. Atrophy of them is not infrequent as a result of shoulder-joint lameness. In this connection we might mention that when a horse is lame, and you are in doubt as to its location, should it be in the shoulder, the animal will describe a half-circle with each movement of the limb; if this is remembered, it will often render material assistance in diagnosing this lameness.

(10) Capped Elbow (Shoe Boil).

This disease is, as every horseman knows, a tumor, situated upon the point of the elbow, and is caused by direct pressure against the caulk or heel of the shoe; particularly when the latter is allowed to protrude too far backwards. There is no lameness in connection with it, but it is a very unsightly incumbrance when large, which is frequently the case, and unless in this particular (appearance) is comparatively unimportant.

(11) Elbow-joint Lameness.

This occurs from disease of the articulating surfaces, rupture, or laceration of either the ligaments or muscles with which it is in connection; the principle muscle involved is the triceps extensor brachii. If the internal ligament is the one which is affected, then the animal will hold the limb in a pointed or semi-flexed position; but should the triceps be injured then the fore-arm is flexed on the humerus, with the toe barely touching the ground, and the knee slightly elevated. When compelled to move, the animal appears to prefer falling rather than throw his weight on the limb, which he absolutely refuses to do unless he is greatly urged to do so. This is the great and unmistakable characteristic of this lameness.

(12) Thoroughpin of the Knee.

This and thoroughpin of the hock are indentical in every particular, except location. This swelling arises from an exudation of lymph into the interspaces of the region of the knee, and a distension of the bursa through which the tendons pass (perforatus and perforans) the tendons being sometimes themselves involved. The appearance of such a swelling as we have been describing is that of a hard, tense, slightly moveable, circumscribed protuberance, situated at the superio-posterior portion of the knee-joint.

(13) Complicated Splint.

This has received the name "complicated" on account of its involving the three metacarpal bones. It is situated on the posterio-superior aspect of the cannon bones, and consists of an osseous deposit, varying in size from that of a garden-pea to a hickory-nut. This is the most important description of splint, being always severe, tedious, and sometimes incurable, as it involves the ligaments, tendons, and occasionally some of the bones of the inferior row of the knee. When this latter occurs, the lameness is of a decided type and incurable. The peculiarities of the lameness are the same as those arising from splint, of any kind, the difference being in degree. The peculiar symptoms are—the animal appears slightly lame after being driven some miles, and upon examination nothing abnormal can be detected; a rest, the length of which varies from twelve to thirty-six hours, will be sufficient to temporarily remove the lameness at this stage of the disease. It again returns with increased severity, after being driven a little, and when the animal is put in the stable he holds the limb in a semi-flexed position, or points it. Now, upon close examination, tenderness upon pressure over the seat of disease will be evinced. In some cases when sufficiently developed, or the examiner's sense of touch is delicate, the splint itself will be found. Then our diagnosis is complete.

(14) Simple Splint.

This also consists of an osseous deposit, and is situated about the centre of the middle third of the cannon and splint bones. The description of the other "complicated splint" in every particular applies to this, with the exception of severity and location.

(15) Superior or False Ringbone.

We can dismiss the consideration of the above species of ringbone with a few words, as it seldom, if ever, causes lameness, and affects portions of the large pastern bone, which, in this connection, are unimportant.

(16) Median Ringbone.

These different kinds of osseous deposit might, with propriety, be considered alike, were it not that they affect different parts of the bones, and also effect the animal unequally. The one now under consideration differs from that which we have been just describing, from the fact that the parts involved are more accessible to treatment, and are less complicated, there being also, in this instance, a better chance of success, the pastern joint being here the seat of disease. The causation of ringbone, no matter how situated, is alike, is universally admitted, nature, if allowed, will cause the gradual removal of all that portion of the hoof-tissue which is found to be superfluous, in the same manner as the epithelium of the other parts of the body, when its usefulness ceases, is gradually removed; for it must be remembered that the hoof, like the human nail, is composed of only condensed epithelium. We might say, in this connection, that smiths should never be permitted to perform that operation called opening the heel, for they thus remove the material the horse which nature has deposited to prevent the lateral portions of the hoof approaching each other. A mistake may be made in supposing feet which are naturally *small* to be *contracted*. There is a great distinction between these two conditions, for in the former case the animal may never become lame, but in the latter he invariably does. It must now be accepted as an axiom, that laceration of the tendons is not the primary cause of navicular disease, but, where the bone is itself the seat of disease, the laceration of the tendons is but a further development. The best authors formerly taught that the disease was *incurable*, but such is not the case for if properly treated when it first makes its appearance, it can be overcome and perfectly cured. And this we would like to indelibly impress on the mind of our readers.

(17) Ringbone (Inferior).

Of this description of disease there are three kinds, the more serious of which involves the superior extremity of the coffin-bone, and inferior extremity of the small pastern bone, or os corona, thereby impeding the action of the joint, and when the deposit becomes ossified, complete ankylosis takes place. The name itself is indicative of the disease, as it consists of an annular osseous deposit around the joint. None of these completely surround the joint; but this, as it involves the most important part of the structure, the articulation, is called true ringbone. When this is well established, the joint is completely stiff, and by the unnatural movement of the animal this is at once apparent. The size of the osseous deposit is no criterion as to the amount of lameness which is occasioned, as a very small deposit sometimes causes great lameness, and the reverse is also observed. This is not the cause of the disease, but the result of an effort of nature to strengthen a part that is weak, which is either congenital or the result of working the animal before the bones are sufficiently matured to offer sufficient resistance. The lateral portions, surfaces of the joint, are sometimes the only places where these deposits appear, the anterior portions being free. We might remark here, that, when the sides *only* are affected, the lameness is not so severe. As a rule, this species of ringbone is incurable, as the hoof presents an obstacle to treatment which cannot be overcome.

(18) Navicular Disease.

We have, as most of the readers of THE SPIRIT are aware, written frequently on this malady; still the subject is so transcendentally important that we might write on it until our articles came under the eyes of every horseman in the country before we would either have exceeded our duty, or ceased to pour forth valuable information. It will be, we are afraid, years before this subject receives the amount of attention to which it is justly entitled. A celebrated French chemist, when delivering his opening lecture to his class said, "Gentlemen, the history of organic chemistry is the history of carbon." This he repeated fifty-three times in succession, raising his voice to its highest pitch and gradually lowering it to a whisper. We might, to a certian extent, follow his example, by iterating and reiterating that navicular disease is a curse, bane, and life-long torture of innumerable members of the equine family. If the horse were, for a moment, like Balaam's ass, endowed with speech, he would say in substance: "Your carlessness and ignorance have brought this disease upon me; rid me of it, or shoot me." In fine, we have too much faith in the honor, humanity, and keen sense of right, which is the just attribute of the average American horseman, to believe for a moment that, had he the slightest conception of the inexpressible torture and excruciating agony with which this disease entails on his dumb companion he would willfully be the cause of it. Having made these few introductory remarks, we will proceed to give a short, plain, but scientific description of the disease. It is the most fruitful cause of permanent lameness of all others; nay, if the number of all the others were carefully computed, it would be found that this, navicular disease, renders perfectly miserable more animals than all others combined. In many cases where it exists, it is attributed to the shoulder, etc. It has been said by some writers to be caused by rupture or laceration of the perforans tendon, at its junction with the navicular bone (synovitis-osteis), the navicular bone itself being the one involved, which leads to exostosis, caries, and, finally, fracture of the bone. This, occuring within the confined box of the hoof, involves the surrounding tissues, the inflammation is intense, suppuration follows, and on account of the unyielding nature and rigidity of the walls, the suffering is simply indescribable. Too pieces, as they cause increased resistance to the motion of the flexors and keeping the perforans on the stretch, shoes, whose heels are disproportionately thinner than the toes, throw the weight with undue severity on the heel (this causes synovitis or inflammation of the synovial membrane), and bad shoeing, are fertile sources of this disease. Another circumstance which should not be lost sight of is that, when animals are thus maimed, the disease is then not infrequently transmitted from parent to offspring. The disease is thus perpetuated, and, to our mind, this, in a great measure, accounts for horses becoming thus affected when they have received every care and all precautionary measures have been adopted. People purchasing horses would improve their chances of getting animals who would not be likely to be thus affected by carefully inquiring into the family history of the animal about to be purchased, when the price paid, or other circumstances, make this precautionary measure sufficiently important to warrant their doing so. There are two kinds of contraction; one consists of parietes or walls of the hoof being compressed literally, and the other vertically; but the former will, for all practical purposes, be found the more reliable guide. An apparent contradiction might here be mentioned, that is, if we accept the opinion of some writers, who maintain that a wide heel is sometimes indicative of the presence of navicular arthritis, as the pressure from above downward affects the navicular bone. Many have been, and we are sorry to say will be, deceived by taking external appearances only as the guide as to soundness in this respect, for it is a well established fact that, by a certain mode of treatment, the external evidences of the disease may be overcome while the internal lesion is still present. The contraction may be temporarily got rid of, but the disease, as we have mentioned, is still present. The horse when thus affected, if compelled to undergo severe exercise, as much as possible avoids coming down on his heels: he does so at all times, but particularly so when speeded, as the momentum is thus so much increased. The human subject, when the victim of a malady called "Pott's disease," acts in exactly the same manner, seeing they both take the same precaution to attain the same end. We cannot well define the difference between instinct and sense. A good deal of theoretical reasoning that formerly prevailed is now proved to be theory only. Formerly, it was the practice to advise extensive paring of the hoof; now, it be averted, and will terminate in what is called resolution, or, in other words, favorably. Our reason for emphasizing those two very important words "at once," is that the lymph or serous fluid coagulates very quickly, and becomes transformed from a fluid into a semi-solid form. This change is what gives the disease at this juncture its most importance, as a perfect cure cannot by any possibility be effected now. It has now to be considered as a chronic case. The principal characteristics of the disease in this (chronic) form are the partial descent of the toe of the coffin-bone, the absorption of its borders, the shape of the sole being changed from a concave to an oval form. Now a mass of imperfect horn forms around the toe, hence the appearance soon afterwards of "seedy toe." Causes: Over-work, injudicious feeding, being watered while in a state of perspiration, or, while warm, being allowed to remain standing in a draft, and thus, being cooled suddenly, the pores of the skin closed abruptly, and the poisonous effete material compelled to remain inside; and lastly, it occurs occasionally, as a sequel to pneumonia.

(21) Fracture of the Superior Spinis Process of the Illium.

Fracture of this bone is one of the most frequent of any to which the horse is liable. It is generally caused by the animal falling on his side, or from direct violence; the latter frequently occurs from the animal striking the part against the jams of the stable door, etc. The muscular contraction here is very great, and when the fracture occurs the broken piece is at once drawn downward and inward; the natural elevated ridge is thus changed into a smooth plane. This condition is called "hipped." We have seen horses, immediately after receiving such an accident, start off without, apparently suffering either inconvenience or pain. The more serious result to be apprehended is that arising from cares of the detached bone, which induces sloughing, and the formation of sinuses in different directions. This seldom occurs, the rule being that no subsequent trouble is caused.

(22) Hip-joint Lameness.

This disease is usually seen in young animals, and is due to hereditary taint, and seldom originates in the animal in which it appears, and we will, therefore, pass it over quickly; but it may be caused by rheumatism, accident, etc. There is a protuberance on the femur which is called trocantur major, and this is usually the seat of disease, being situated on the external lateral and superior portion of the femur. The reason that the disease is located here is that the protuberance mentioned gives attachment to many important muscles. From its prominence, it is greatly exposed to injury; and when fracture occurs, the muscles acting antagonistically, draw it out of the normal position. After injury of any considerable amount, an exudation is here effused which accounts for its being situated on the sides. This occasions lameness, and not infrequently carries on necrosis of the upper portion of the ischia; this diseased bone, acting as a foreign body, soon gives rise to abcesses. The serious form arises, as a rule, from external violence, the result of which is a serious abscess in the areolar tissue between the tendon of the gastrocnemius internus and the skin. The osseous tissue not being involved, this is by no means as serious as the synovial description. Still, it is an eye-sore, and invariably the animal is suspected of kicking, either in harness, or stable or both. It, of course, reduces the value of the animal, but is not considered as an unsoundness if lameness does not accompany it.

(25) Curb.

This is occasioned by an injury or sprain to the calcaneo-cuboid ligament. The injury was formerly believed to be seated in the cellular tissue, or occasioned by rupture of the annular ligament, and some writers still hold to this opinion; but our examinations in the dissecting room, and other indisputable proofs, confirm the theory above advanced that the ligament mentioned is *the* one involved. When the injury is of a very serious nature, the annular ligament and also the tendon, are involved. As a rule, the injury occurs where the ligament is attached to the cuboid, or a little further on, where the small metatarsal and ligament join. The attachment of this ligament (calcaneo-cuboid) with os calsis may be either violently severed or severely lacerated. In the first instance, it requires a great deal of discrimination to determine whether the protuberance is composed of ligament or bone, as the sensation transmitted on handling it is very similar in either case. Some professional men do not hesitate to admit that they cannot make a positive diagnosis in such cases. If the metatarsal or os calcis are involved, the protuberance can be easily recognized from its position, viz., on the posterior aspect of the joint, and a considerable distance from the os calcis. Lameness from this disease is, in the great majority of cases, observed in young animals, but age is no preventative. After the primary lameness has subsided, there is seldom a repetition of the lameness, and it is an unsettled question whether the existence of an old curb should be considered as an unsoundness or not. A malformation of the hock, as a rule, predisposes it to curb, and if the length of the os calcis is out of proportion, we are almost sure to have, at some period, true curb. The amount of lameness occasioned by curb is frequently dependent on the age of the patient. In aged animals, the osseous tissue being matured, there is sufficient firmness to resist the deleterious changes which would otherwise occur, and, as a consequence, the lameness usually subsides comparatively soon. Young animals, when so affected, offer little resistance, for the reason above intimated, and, therefore, suffer more, and are laid up longer than their more venerable neighbors. In both instances, putting the animals to work when scarcely well or the disease still in progress, is, it might be safely said, *the* cause of the continuance of the lameness, and also its recurrence, when such occurs. A large protuberance very frequently causes only slight inconvenience, and *vice versa*. The characteristic symptoms of lameness from this cause are an indisposition or inability to articulate the joint. The limb is kept elevated, in order to prevent tension of the involved tendon, which is now extremely painful on pressure. Horses that have a faulty conformation of the hocks would be considerably improved by having the heels of their shoes high. By this we do not mean caulks, but gradual thickening from toe to heel. Toe pieces will counteract the benefit to be derived from high heels, and should be dispensed with. Horses requiring shoes such as we describe should have them frequently removed, so as to keep the heels of the shoes a uniform thickness.

(26) Thoroughpin.

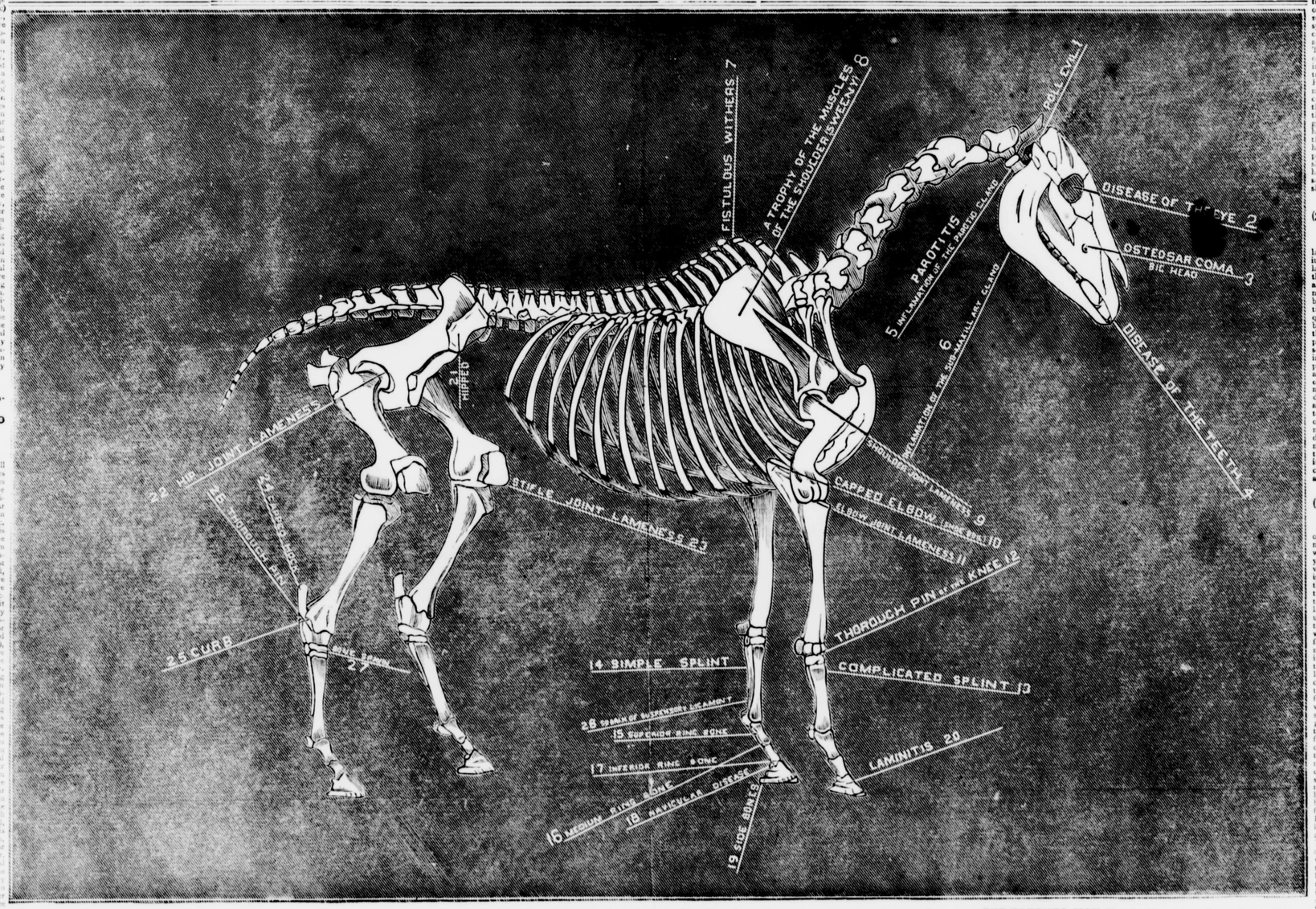
This is due to a bursal enlargement, and generally makes its appearance on the external, lateral and superior portions of the joint; though frequently accompanied by bog spavin, is never the cause of the latter, they being entirely separate and distinct. One may come on subsequently to the other, and thus get blended; it occupies both sides of the joint, but for all practical purposes they may be considered separately. When the os calcis is imperfectly developed, thoroughpin generally results, and this arises from disease of the tendon of the flexor pedis perforans muscle. In such cases local dropsy may be superinduced. Of all the diseases this joint is subject to, the one under consideration is of least consequence, as the lameness occasioned by it is of short duration, and not of a serious nature. The real objection to thoroughpin is that, when large, it is an eye-sore, and thus depreciates the intrinsic value of the animal.

(27) Bone Spavin.

This is a most frequent source of lameness, and to avoid getting, not only an animal not afflicted with it, but also not likely to be, you must know what to avoid, viz.: A hock, whose conformation is not itself a predisposing cause, though it may be tolerably well turned, still, if out of proportion to the other joints, of course it is likely to cause trouble. We are unable to trace the origin of this term, but what is meant by the word spavin we are, or should be, familiar with; it is understood to mean osseous enlargement on the internal, lateral and inferior portions of the hock. That it is here located can be reasonably accounted for when we consider that it is more exposed to pressure from the shape of the limb to which it belongs; hence, when severe concussion occurs, the greater portion of the weight is thrown thereon, and if it occurs from an hereditary tendency, of course it is natural to find it in the offspring about the same neighborhood where it appeared on the parent. The articulating surfaces have also an inward tendency, and this conduces greatly to the strength of the limb. In human anatomy the general conformation of the joints is similar. Horses that grow unnaturally large, or at least that appear so, are most liable to this disease. There is a great difference of opinion, both amongst veterinary writers and also horsemen, as to the kind of hock which is most likely to originate spavin, and on this account we refrain from giving our opinion, but we might simply say that neither shape, form, nor conformation are exempt; we are inclined to think that it is not on account of the great difficulty of coming to a correct understanding on the subject, amongst the gentlemen referred to above, that arises the diversity of opinion, but that each practitioner or observer decides from what he himself happens to meet, or see, and not from the grand average. The hock consists of seven bones, and when the disease is present, the three cuniform, and occasionally the head of the metatarsal, are involved; they in extreme cases, ulcerate and necrose. What seems curious is that the inflammation originates in the exterior of the cancellated portion of the bones; an aqueous exudation is then thrown out between the periosteum and the bone; hence the extreme pain and consequent lameness. Thus the destruction spreads from one bone to another, until complete ankylosis supervenes; from the aqueous exudation becoming of an osseous nature, it locks or binds the affected bones so that the joint then moves as if made of one piece. The diagnostic symptoms of this lameness are: Previous to any external abnormal appearance, lameness comes on gradually, but rather persistently. At first only a little stiffness is observed, the peculiarity being that the animal steps on the toe with a short, sharp, unsteady limp, which wears off after a little exercise. The lameness increases in proportion as the disease advances; the same peculiarity, as to using the toe, is observed, if made to move in the stable, which was manifest outside. About this stage, the third week, there will be pain upon pressure over the seat of spavin, and, after a short time, the spavin will itself be apparent to a tolerably experienced eye. Should proper treatment be now adopted, the lameness can be cured, and generally the destruction of the joint averted. Occult spavin is but an aggravated form of the above, but is not so easily diagnosed, and is, as a rule, incurable.

(28) Sprain of the Suspensory Ligament.

This is an exceedingly strong tendon, composed of white fibrous glittering material, and situated on the posterior aspect of the cannon bone. It arises from the upper posterior portions of the bone. It is, so to speak, embedded in a hollow, being laterally bounded by the small cannon bones. There is a dichotomous bifrication of it immediately above the fetlock, where it becomes attached to the sesamoid bones, and then passes toward the extensor pedis, where it again becomes united. If there is any elasticity of this ligament, it is so slight as to make it a matter of doubt as to its existence. Our own opinion is that it is inelastic. Its office is to keep the semoids in place, prevent over-extension of the fetlock, and keep the hoof in its normal position. Without this tendon, or, if it were exercised, the toe would turn up, and the animal thrown on its heels. There are two descriptions of sprain to which this ligament is subject; first, where inflammation is occasioned, without any assignable reason, even the most careful driver will often find his horse lame, but be entirely at sea as to why, as he has apparently met with no accident; secondly, when, from accident or otherwise, severe laceration has taken place, almost or entirely rupturing the ligament, and this is what is termed "broken down."



The above illustration displays at a glance the exact locality of prominent diseases which afflict the horse. One of the leading Veterinary Surgeons of Canada writes regularly for **"THE TORONTO MAIL,"** and will answer all questions sent in by subscribers. By the aid of this Chart, parties desiring to obtain advice will be able to state the locality and peculiarities of their horses' trouble so accurately that the Veterinary Editor can give them direct and satisfactory answers.

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