

## Veterinary Department.

### Structure of the Horse's Foot.

We have no hesitation in stating that two-thirds of the cases of lameness occurring in connection with the fore extremities of the horse, are due to some lesion or diseased condition of the foot, and as diseases of the feet are of such common occurrence amongst horses of every kind, we intend to devote several articles to the causes, symptoms and treatment of the various diseases. That our readers may more readily comprehend the nature of these affections, we deem it advisable to notice the structure of the foot, and in so doing we will first notice the outer or insensitive portion which contains neither nerves, bloodvessels, or absorbent vessels, but consists entirely of horn, and is familiarly known as the hoof.

The hoof represents a box or casement which envelopes the lower extremity of the limb, and is closely applied to the sensitive structures, being united to them by reciprocal elevations and depressions which beautifully fit into each other.

Viewing the general form of the hoof it appears cylindrical, the oblique section being the solar surface of the foot. Apparently the hoof is formed of one horny mass, but by the process of maceration it can readily be separated into three distinct parts, these three parts being known as the wall, the sole, and the frog.

The wall, also called the crust, is the part visible when the foot is on the ground, it is highest in front, gradually decreasing in height as it proceeds backwards, where it takes a sudden inflection inwards at an acute angle; the angle of inflection is called the heel, and the portion passing inwards to the centre of the foot and uniting with the horny sole is called the bar; the front part or bow of the hoof is known as the toe and comprises about two-thirds of the superficies of the wall.

The wall is connected above (around the coronet) with the skin, and its inferior border rests upon the ground, and to its circumference is united the circumference of the sole. The internal surface of the wall presents throughout its whole extent, parallel plates formed of semi-transparent processes of horn, and called the horny laminae, in contra distinction to the vascular plates which are situated on the wall of the coffin-bone, and called the vascular or sensitive laminae, the sensitive and insensitive laminae dovetail into one another, forming a firm bond of union between the organic and the inorganic structures of the foot. On the internal side of the superior or coronary surface of the wall, is a well marked depression, forming a groove in which is lodged a very important and vascular body called the coronary substance, its secretions penetrating the groove by numerous small orifices.

The sole of the hoof is the thick plate of horny matter comprised between the inner circumference of the wall and the bars, and therefore occupying the inferior portion of the foot, its external or inferior surface in the healthy foot is more or less concave, the inner or upper surface being correspondingly convex and is studded with numerous minute orifices into which are received the secreting villi of the sensitive sole.

The frog is the mass of spongy horn, somewhat triangular in form, and situated between the inflections of the bars; its under surface is marked by a triangular cavity called the cleft of the frog; this cavity being always broadest in the well-formed foot. The inner or superior surface of the frog receives the insertion of the vascular or sensitive frog, and also shows a triangular longitudinal hollow, which is divided by a conical projection designated the frog stay. The protuberant parts behind are called the heels or bulbs of the frog, and continuous with these parts and passing around the upper surface of the wall is a

band of considerable thickness, called the coronary frog band, which serves to unite the thin outer coating of the wall with the cuticular covering of the limb.

Having noticed the outer or insensitive part of the foot, we will now briefly describe the internal or sensitive structures, which consist of bones, ligaments, tendons, synovial membrane, blood vessels, nerves, and absorbent vessels, the sensitive laminae, sole, frog, and coronary substance.

The bones in connection with the foot are the coffin, navicular, and coronet bone, the latter is only partly within the hoof, its upper part entering into the formation of the pastern joint. The coffin bone is very irregular in shape and is extremely hard and porous, and is divided into the wall, sole, articular surface and wings. The wall is the part to which is attached the sensitive laminae, and in shape it is similar to the wall of the hoof, having on its upper part a well marked prominence for the attachment of the tendon which extends the foot. The sole surface of this bone receives the attachment of the sensitive laminae, and also the insertion of the tendon which flexes the foot. The wings are formed of the protuberances projecting from the back part of the wall; each wing is divided by a notch into two processes, the upper one is called the basilar process, and to it is attached the lateral cartilages. These cartilages are two thin plates of fibro cartilage, and from their elastic nature, they materially protect the sensitive frog and soft structures of the foot.

The navicular, sometimes called the shuttle-bone, is small and is situated between the wings of the coffin bone, and entering into the formation of the coffin joint, its lower surface is covered by fibro cartilage, and is in close contact with the flexor tendon. The coffin joint is a large and important joint, and is formed by the union of the three bones above mentioned. In our next issue we will describe the other sensitive parts of the foot.

### Care of Horses.

All horses must not be fed in the same proportions, without regard to their ages, their constitutions and their work; the impropriety of such a practice is self-evident. Yet it is constantly done, and is the basis of disease of every kind.

Never use bad hay on account of its cheapness, because there is no proper nourishment in it.

Damaged corn is exceedingly injurious, because it brings on inflammation of the bowels and skin diseases.

Chaff is better for old horses than hay, because they can chew and digest it better.

Mix chaff with corn or beans, and do not give the latter alone, because it makes the horse chew his food more and digest it better.

Hay or grass alone will not support a horse under hard work, because there is not sufficient nutritive body in either.

When a horse is worked hard its food should be chiefly oats—if not worked hard its food should be chiefly hay—because oats supply more nourishment and flesh-making material than any other kind of food; hay not so much.

For saddle or coach horse, half a peck of sound oats and eighteen pounds of good hay are sufficient. If the hay is not good, add a quarter of a peck more oats. A horse which works harder may have rather more of each; one that works little should have less.

Rack feeding is wasteful. The better plan is to feed with chopped hay from a manger, because the food is not then thrown about, and is more easily chewed and digested.

Sprinkle the hay with water that has salt dissolved in it, because it is pleasing to the animal's taste, and more easily digested. A teaspoonful of salt in a bucket of water is sufficient.

Oats should be bruised for an old horse, but not for a young one, because the former, through age and defective teeth, cannot chew them properly. The young horse can do so, and they are thus properly mixed with saliva, and turned into wholesome nutriment.—*London Horse Book.*

### Another Horso Epidemic.

The *Melbourne Argus* alludes, in the following terms, to a remarkable affection among horses:

For the last three or four years the young thoroughbred stock in Victoria have been subject to a peculiar disease which has been named by racing men the nasal disease, from the swelling on each side of the face which is the chief indication of the complaint. From the first it was observed that the disease only attacked young thoroughbred horses, and always those in training, though one case is said to have occurred where the animal was brought up on pasture. Several racing stables suffered from the disease, and a number of splendid animals died from the disease, after suffering from it for months. There was now quite a panic among racing men, as the complaint was thought to be contagious, and from its mysterious and fatal nature everyone was afraid to invest in race-horses. A post-mortem examination was held on the body of Knavesmire by four veterinary surgeons, when the non-contagious character of the disease was at once established. The internal portion of nearly all the bones in the body was found to be quite soft and spongy, and from the general post-mortem appearance the disease was considered by the medical gentlemen to be of a rheumatic character, and identical with that known to European veterinary surgeons as osteoporosis. The disease is under the careful consideration of the medical gentlemen who attended the post-mortem examination, and an exhaustive report on it is expected shortly. Commenting on the above the *London Field* says:—

"We have no doubt that the opinion of the veterinary surgeons as to the nature of the disease was correct; at least, if the disease was not identical with 'osteoporosis,' it was very closely allied to it. Isolated cases of this peculiar softening of bone, in the horse and other animals are occasionally met with; but we recollect only one instance of the affection assuming an epizootic character, and extending to all the animals of the stud; the case is recorded in the *Veterinarian* for 1860.

"At first the disease was indicated by the following symptoms: Defective action of one joint or limb, followed by swelling, heat, and tenderness in the part. Shortly afterwards another limb would become affected in the same way, while the one first attacked would partially recover. In some cases all the limbs were thus successively attacked, and the head and other parts of the body participated in the diseased condition. Ultimately, from the excessive pain, the animals suffered in their general health, the appetite failed, and emaciation occurred. Treatment failed to relieve their sufferings, and, after in some cases many months, they finally succumbed.

"Post-mortem examinations were made, without leading to the discovery of any disease of the vital organs. The osseous structure generally was found to be swollen and porous, and the ends of the bones were commonly ulcerated. A most remarkable symptom was the detachment of the tendons and ligaments from the bones with which they were connected. This accident, when it happened, naturally reduced the animal to a pitiable state of helplessness.

"Microscopic examination of the diseased bones revealed a curious state of affairs. In osteoporosis the softening of bone is associated with dilatation of, and deposit of fatty matter in, the Haversian canals; but in these cases the enlargement of some of the long bones was due to the deposit of fat in the dense tissue outside the canals, while in the bones of the head the Haversian canals were so much distended as to alter the microscopic appearance of the bony tissue altogether. No facts which were ascertained during a critical inquiry sufficed to explain the origin of this remarkable malady. The animals attacked were all horses, none of the mares on the same farm being affected. There was no extension of the disease beyond its point of origin.

[A disease of a similar nature has been occasionally noticed amongst horses in the United States, and especially in the Southern States, and it is generally termed "Dig-heal," from the abnormal enlargement of the bones, due to an altered condition of their cancellated tissue. We believe the disease is always due to some local influence, either resulting from the condition of the soil or from the nature of the food. There is a very fine pathological specimen in the museum of the Veterinary College in this city showing the peculiar enlarged condition of the bones of the head. The specimen was forwarded by Mr. Harthill, veterinary surgeon, Louisville, Kentucky, a graduate of the Ontario Veterinary College].—*Vet. Ed. Canada Farmer.*

**LICE ON CATTLE.**—May be removed by pouring a small quantity of kerosene on the card with which they are carried. The application should be frequent, though in small quantities, till the lice all disappear. The louiest herd will be completely relieved of them in ten days by this application alone. Tobacco juice is also an effective cure.