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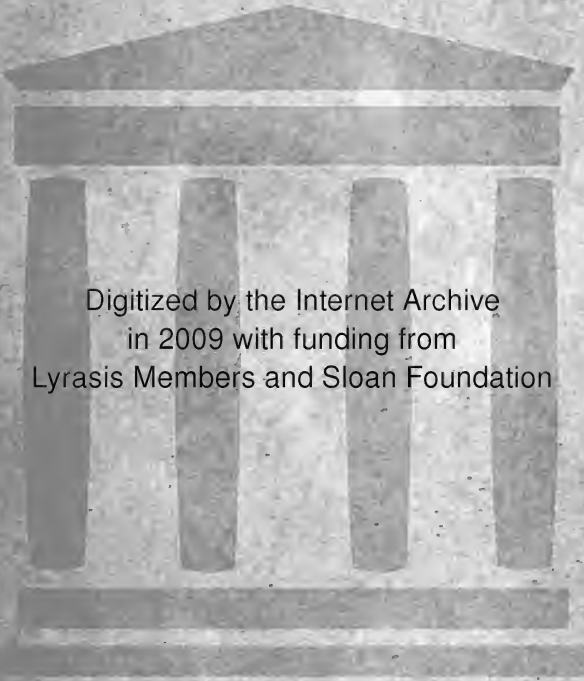
John W. Adams.

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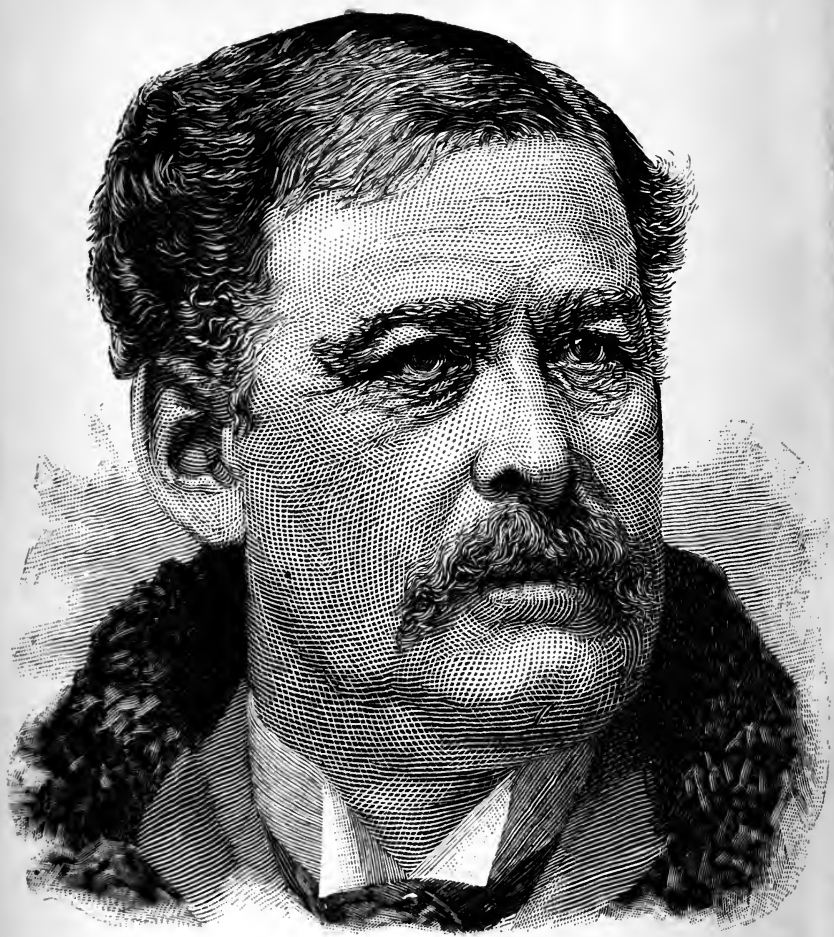








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PROF. GEORGE E. RICH.

ARTISTIC HORSE-SHOEING.

A Practical and Scientific Treatise,

GIVING IMPROVED METHODS OF SHOEING, WITH
SPECIAL DIRECTIONS FOR SHAPING SHOES
TO CURE DIFFERENT DISEASES OF THE
FOOT, AND FOR THE CORRECTION OF
FAULTY ACTION IN TROTTERS.

BY

PROF. GEO. E. RICH.

ILLUSTRATED.

NEW YORK:

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PREFACE.

In presenting this work to the horse-shoeing fraternity, the author desires to state that the illustrations and descriptions of shoes furnished do not represent impracticable theories, but are the result of long years of experience. Every one of the shoes described has been tested and found to do the work claimed for it. His object in bringing out this book is to elevate the practice of horse-shoeing and instruct those who desire instruction, as to the best methods of shoeing. He does not claim that the book is free from imperfections, but asks his readers not to condemn his methods without first giving them a thorough trial.

INTRODUCTION.

BIOGRAPHICAL SKETCH OF PROF. GEO. E. RICH.

The publisher of this work has felt that the many friends of Prof. Geo. E. Rich, as well as those who are likely to become his friends from the perusal of this book, would be glad to know something of his early history and to see a portrait of the man who has achieved such success as a practical horse-shoer and lecturer on the anatomy of the horse's foot. Prof. Rich was born in the village of Leona, Bradford Co., Pa., in the year 1847. His father was a blacksmith, and young George commenced helping him in his shop when he had to stand on a wooden box in the front of the anvil in order to wield his sledge successfully.

He began to shoe horses, when he was eleven years of age, in the village of Roseville, Pa., and worked in that place until he was fourteen years old. From there he went to Washington, D. C., and followed his trade of horse-shoer at the corner of I and 24th streets, shoeing large numbers of horses for the Government. Thence, after about a year, he went to Dunkirk, N. Y., and from there to Elmira, working in each place for several years. He afterwards worked for a couple of years in Tioga Co., Pa., as well as in Harrisburg.

From there he went to Baltimore, where he succeeded in getting a position in one of the best shops in that city. Being anxious to learn all he could in regard to horse-shoeing he worked for three dollars a week, and paid three dollars and a half a week for his board, but while working in this shop he made rapid advances in the art of horse-shoeing.

By a happy circumstance he made the acquaintance of Profs. Rockwell and Hurlburt, the former the inventor of the celebrated Rockwell Bit. Both these gentlemen were expert horse trainers. Mr. Rich worked for them for fifty cents a day. He had shod horses then for about ten years, but notwithstanding all this experience he could only make one kind of shoe, and fully realized that he had a great deal yet to learn about horse-shoeing.

When Mr. Rich first began work for Rockwell and Hurlburt they insisted upon his studying the anatomy and structure of the horse's foot, claiming that he could not shoe horses properly without understanding all about the foot he was manipulating. Of course it was very hard work, and he thought it more of a nuisance than anything else, but Prof. Rockwell insisted that he would not be fit to shoe a horse until he had mastered all these points. Before he left Mr. Rockwell he was getting three dollars a day, which was quite an improvement over the fifty cents a day with which he had started.

Mr. Rockwell taught him how to make quite a number of different kinds of shoes for different diseases of the foot. He has kept adding to these, for different purposes, until now he makes fifty-three different kinds of shoes, each one

adapted to some different condition of the foot, and designed either for curing some disease or for correcting some fault in gait.

During the past five years Mr. Rich has shod, probably, twenty-five hundred horses of all kinds, sound, lame and crippled.

He is now traveling, accompanied by several assistants, giving lectures in important towns in New York State and Pennsylvania. After explaining in one of his lectures all about the structure of the foot and how horses ought to be shod, he is called upon to shoe a great many horses who have been more or less injured by bad shoeing, and in nearly every instance he succeeds in accomplishing what is regarded by ordinary blacksmiths as wonders.

Of course he has now reached a point where he is, pecuniarily speaking, doing well, but he derives full as much satisfaction from the knowledge that his efforts to ameliorate the condition of that noble animal, the horse, are appreciated, as from any gain which comes to him from his work. He is acting in the capacity of a missionary among horse-shoers, and is teaching hundreds of them, who have previously had but crude notions about the art, how to shoe horses artistically and scientifically.

ARTISTIC HORSE-SHOEING.

CHAPTER I.

ANCIENT HORSE-SHOEING.

Horse-shoeing has been practiced in one form or another ever since the horse in remote ages was tamed and subdued for the uses of man. At first the shoes were doubtless constructed of raw hides, and extended sufficiently high on the hoof to admit of being fastened around it in some way. When man learned to convert iron ore into iron that, by the aid of fire, could be forged into any shape desired, it soon occurred to some inventive mind that shoes might be fashioned of iron and nailed to the horse's foot in some way. The man to conceive the idea of nailing shoes to the feet was doubtless the first one who had ever undertaken to study the anatomy of the foot. The idea, perhaps, may have been suggested by examining some old foot that in the process of decay of the animal to which it belonged, had naturally, on account of its hard substance, survived longer than the flesh or even the bones. This primitive anatomist saw that if care were taken a nail could be driven into the hoof without touching any sensitive point,

and then if this nail was clinched it would hold the iron shoe on the foot. No improvement over this system of fastening has been made, but vast improvements have been made in the nails by which the shoes are driven on, and also in the shoes themselves.

The horse, in a state of nature, requires no shoes. The natural growth of the hoof is sufficient to take the place of any ordinary wear, such as a horse would be subjected to in the process of hunting for its food in a wild

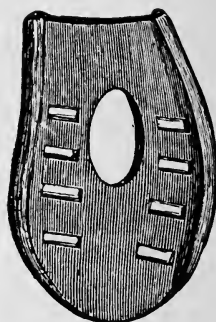
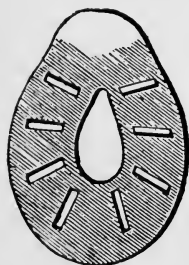


FIG. 1.—ANCIENT ARABIAN SHOE. FIG. 2.—MODERN ARABIAN SHOE.

state. When brought into the service of man, and compelled to use his feet on hard roads or pavements, the hoof of course naturally wears away rapidly. To prevent this wear the horse is shod, and the original idea of a shoe was simply to prevent the hoof wearing away.

To give the reader of this volume an opportunity to compare modern horse-shoes with man's first idea of a horse-shoe we present herewith several illustrations of shoes such as the Arabs and other European nations used centuries

ago. Fig. 1 shows an ancient Arabian shoe, while Fig. 2 shows a modern Arabian shoe. It will be seen that very little progress has apparently been made in the East in shoeing horses since iron was first introduced for horse-

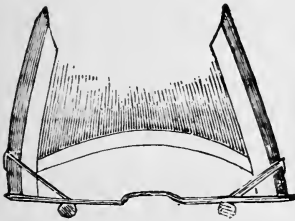


FIG. 3.—SHOWING THE METHOD OF FASTENING ARABIAN SHOES TO THE FOOT.

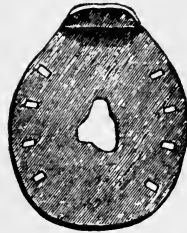


FIG. 4.—MODERN PORTUGUESE HORSE-SHOE.

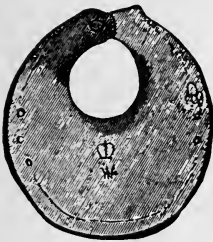


FIG. 5.—MODERN PERSIAN HORSE-SHOE.

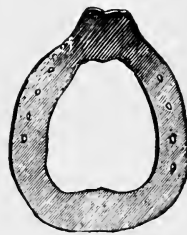


FIG. 6.—MODERN MOORISH HORSE-SHOE.

shoes. These Arabian shoes are simply pieces of sheet-iron stamped out to conform to a special pattern. The method of fastening these shoes to the feet will be found illustrated in Fig. 3. Even at this time the Moors, Persians and Portuguese use forms of horse-shoes in no essential particular an improvement over the ancient Arabian

shoes. Fig. 4 represents a modern Portuguese shoe. Fig. 5 a Persian shoe, while Fig. 6 shows a Moorish shoe. An inspection of these crude specimens of horse-shoes will be likely to suggest to the thoughtful reader that the people of the East are by no means either inventive or progressive. Placed alongside of modern horse-shoes these ancient samples present a rather sorry appearance. In Fig. 7 will

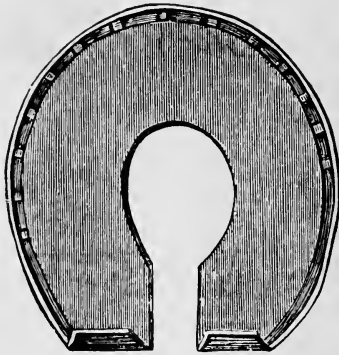


FIG. 7.—OLD ENGLISH SHOE IN USE IN THE 18TH CENTURY.

be seen the form of the old English horse-shoe used, according to Mayhew, an English authority, at the commencement of the 18th century. In comparison with the Arabian and Moorish or Persian shoes this old English shoe presents several important improvements. Instead of being fastened by the method employed by the Arabs the old English shoe was evidently nailed on the foot the same as shoes are fastened on now. But to the horse-shoer of that time it appeared necessary to employ many more nails than are now considered essential.

CHAPTER II.

ANATOMY OF THE FOOT.

If shoeing is not properly done it produces many diseases of the foot.

It is easily possible to ruin a good horse in a very short time by bad shoeing. It is also possible when a horse is lame from any cause to, in a measure, remove this lameness, and sometimes to entirely cure it by proper shoeing. No man can shoe a horse properly who does not understand all about the anatomical construction of his feet and legs. He must know how many bones there are in the foot, exactly where they are located, and what their uses are.

How many blacksmiths or horse-shoers are sufficiently familiar with the foot of a horse to describe the location of the different bones and give their technical names? It is safe to predict that only a small percentage could accomplish this feat, simple as it is.

We frequently hear horse-shoers claiming to understand the art in all its bearings, who could not even describe the shape of the coffin-bone, or tell where it was located. The author does not propose in this treatise to go into an extensive explanation of the anatomy of the foot, his object simply being to describe the different bones and tendons in such a way that the whole matter may be easily comprehended by anybody.

As the work of the shoer is confined solely to the hoof it is essential that he should understand its construction. It consists first of the Wall or Crust, the Sole, Frog and coronary Frog Band.

THE WALL is that portion of the front and sides of the foot from the coronet to the ground. It is through the wall that the shoer drives his nails, and it is upon the wall that the shoe rests.

FLEMING, a noted authority on horse-shoeing, says in his description of the wall: "The inner face of its upper edge is hollowed out in a somewhat wide concavity which receives, or rather in which rests, the coronary cushion. This concavity is chiefly remarkable for being pierced everywhere by countless minute openings which penetrate the substance of the wall to a considerable depth. Each of these perforations receives one of the ' villi ' or minute tufts of blood vessels already mentioned as prolonged from the face of the membrane covering the interior of the foot. Below this concavity, which receives a large share of the horse's weight, the wall is of about equal thickness from top to bottom. On the whole of its inner surface are ranged thin, narrow, vertical, horny plates, in number corresponding to the vascular laminae, between which they are so intimately received or dove-tailed (a horny leaf between two vascular ones) that in the living or flesh sides it is almost impossible to disunite without tearing them. The inner face of the lower margin is united in a solid manner to the horny sole through the medium of a narrow band of soft, light colored horn, situated between the two, which we may call the ' white line ' or ' zone. ' "

The dimensions of the wall vary in different situations. In front it is deepest, but toward the quarters and heels it diminishes and becomes thinner; at its angles of inflection (the points of the heels) it is strong. This structure is fibrous, the fibres pass directly parallel to each other from the coronet to the ground, each fibre being moulded on, as it is secreted, by one of the minute tufts of blood vessels lodged in the cavity at the coronet.

Fig. 8 shows the different kinds of horn of which the horse's hoof is made up. *a, a*, is the wall: the outer or dark

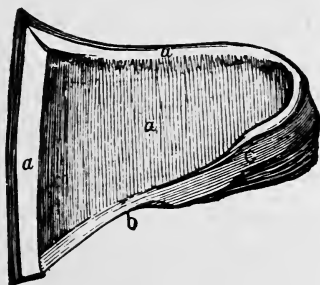


FIG. 8.

portion constitutes the crust of the wall; *b*, is the light colored or yielding horn of the sole; *c*, is the elastic horn of the frog.

Next we have to consider the **HORN**Y SOLE, and the same authority describes it as being “contained within the lower margin of the wall and is a concave plate covering the lower face of the pedal bone.” In structure it is fibrous like the wall, the fibres passing in the same direction, and are formed in the same manner by the tufts of blood vessels projected from the membrane which immediately covers the bone.

These tufts penetrate the horny fibres the same depth as in the wall, maintaining them in a moist, supple condition, such as best fits them for their office. The sole is thickest around its outer border where it joins the wall, thinnest in the centre, where it is most concave. A peculiarity of this part of the hoof is its tendency to break off in flakes on the ground face when the fibres have attained a certain length. The wall, on the contrary, continues to grow in length to an indefinite extent, and unless kept within reasonable dimensions by continual wear or the instruments of the farrier, would in time acquire an extraordinary distortion.

The Horny Sole for this reason is less dense and resisting than that of the "Wall," and is designed more to support weight than to stand wear.

The same authority, in describing the Horny Frog, states that it "is an exact reduplication of that within the hoof described as the *sensitive* or *fatty frog*. It is pyramidal in shape, and is situated at the back part of the hoof within the bars, with its point of apex extending forward to the centre of the sole, and its base or thickest portion filling up the wide space left between the inflexions of the wall. In the middle of the posterior part is a cleft, which in the healthy state should not be deep, but rather shallow and sound on its surface.

"In structure, this body is also fibrous, the fibres passing in the same direction as those of the other portions of the hoof; but, instead of being quite rectilinear like them, they are wavy or flexuous in their course, and present some microscopical peculiarities which, though interesting to the

comparative anatomist, need not be alluded to here. The fibres are finer than those of the sole and wall, and are composed of cells arranged in the same manner as elsewhere in the hoof; they are formed by the villi which thickly stud the face of the membrane covering the sensitive frog.

“The substance of the horny frog is eminently elastic, and corresponds in the closest manner to the dense, elastic, epidermic pads on the soles of the feet of such animals as the camel, elephant, lion, bear, dog, cat, etc., and which are evidently designed for contact with the ground, the support and protection of the tendons that flex the foot, to facilitate the springy movements of these creatures, and for the prevention of jar and injury to the limbs.

“In the horse’s foot, the presence of this thick, compressible, and supple mass of horn at the back of the hoof, its being in a healthy unmutilated condition, and permitted to reach the ground while the animal is standing or moving, are absolutely essential to the well-being of that organ, more especially should speed, in addition to weight-carrying, be exacted.

“The frog, like the sole, exfoliates or becomes reduced in thickness at a certain stage of its growth; the flakes are more cohesive than those of the sole.

“It must be remarked, however, that this exfoliation of the sole and frog only takes place when the more recently-formed horn beneath has acquired sufficient hardness and density to sustain contract with the ground, and exposure to the effects of heat, dryness and moisture.

“The ‘*Coronary Frog-Band*,’ or ‘*Periople*,’ is a continuation of the more superficial layer of the skin around

the coronet and heels, in the form of a thin, light-colored band that descends to a variable depth on the outer surface of the wall, and at the back part of the hoof becomes consolidated with the frog, with which it is identical in structure and texture. It can be readily perceived in the hoof that has not been mutilated by the farrier's rasp, extending from the coronet, where the hair ceases, to some distance down the hoof; it is thickest at the commencement of the wall, and gradually thins away into the finest imaginable film as it approaches the lower circumference of this part. When wet it swells and softens, and on being dried shrinks, sometimes cracks in its more dependent parts, or becomes scaly.

“The fibres composing it are very fine and wavy, as in the frog; they likewise spring from villi which project from the true skin immediately above the ‘coronary cushion.’

“The use of this band would to be twofold: it connects the skin with the hoof, and thus makes the union of these two dissimilar textures more complete, its intermediate degree of density and its great elasticity admirably fitting it for this office; and it acts as a covering or protection to the wall at its upper part, where this is only in process of formation, and has not sufficient resistance to withstand the effects of exposure to the weather. The greatest thickness and density of the band correspond to the portion of the wall in which the villi or vascular tufts are lodged, and here the horn is soft, delicate, and readily acted upon in an injurious manner, by external influences.

“Thus far, then, we have rapidly glanced at the anat-

omy and uses of the various parts entering into the composition of the horse's foot, and its horny box—the hoof. It may be necessary, before we pass to the consideration of the latter, as a whole, to allude to the structure and uses of that narrow strip of horn, whose presence every farrier or veterinary surgeon is cognizant of, but whose character and functions have been strangely left out of consideration by all anatomists hitherto. I refer to the 'white line' or 'zone,' the slender intermediate band that runs around the margin of the sole, and connects that plate of horn so closely to the wall as to make their union particularly solid and complete. When preparing the border of the hoof for the reception of the shoe, this part is easily distinguished by its lighter color (in a dark hoof), and by its being softer and more elastic than either the sole or wall, between which it is situated. It would appear to be secreted by the villi which terminate the lower end of the vascular laminae, and the horny leaves of the wall are also received into its substance—a circumstance that renders the junction of the two more thorough. I think there can be no doubt that the principal use of this elastic rim of horn placed in such a situation, is to obviate the danger of fracture to which the inferior part of the hoof—particularly the sole—would be liable, if the junction between the hard and comparatively inelastic sole and wall was directly effected without the interposition of such a body.

“It may be noted, that it is through this soft border of horn that gravel and foreign matters usually find their way to the sensitive parts of the foot, and there excite such an amount of irritation as to lead to the formation of

matter, and cause much pain and lameness; an accident which the older farriers termed 'gravelling.'

"In viewing the horse's hoof as a whole, and in the unshod state, we find that it presents several salient characteristics, the consideration of which ought to dominate or serve as a guide in framing rules for the observance of farriers in the practice of their art. The first of these is the direction in which the wall grows in a healthy condition.

"Viewed as it stands on a level surface, the hoof may be said to be somewhat conical in shape, its upper part being a little less than its base; and although, geometrically, its shape may be described as the frustum of a cone, the base and summit of which have been cut by two oblique planes—the inferior converging abruptly behind toward the superior—yet the circumference of the hoof does not offer that regularity which this description might imply; on the contrary, in a well-formed foot, we find that the outline of its inferior or ground border is notably more salient on the outer than the inner side, giving it that appearance which has been designated the 'spread.'

"A cone being intersected by two planes oblique to its axis, and not parallel to each other, gives a good idea, nevertheless, of the obliquity which forms so marked a feature in the hoof. The degree of obliquity of the front part or toe, and of the upper surface, varies with the amount of growth; but where this has been counterbalanced by a proper degree of wear, it will be remarked that this obliquity corresponds to the inclination of the pastern-bones immediately above the hoof, when the horse is standing.

"It will be obvious that this inclination also varies with

the breeding of the animal, and the conformation of the limbs; so that no definite degree can be assigned. But it must be pointed out, that giving the angle of 45° , as is done in almost every treatise on shoeing and the anatomy of the foot, is a grave error. Looked at in profile, a hoof with this degree of obliquity would at once be pronounced a deformity, and if the farrier were to attempt to bring every foot he shod to this standard, he would inflict serious injury, not only on the foot itself, but also on the back tendons and the joints of the limbs. Careful measurement will prove that the obliquity of the front of the hoof is rarely, if ever, in a well-shaped leg or foot, above 50° , and that it is, in the great majority of cases, nearer 56° . The sides or 'quarters' of the wall are less inclined—though the outer is generally more so than the inner; while the heels are still more vertical, and the inner may even incline slightly inward. Viewed in profile, the posterior face of the hoof will be observed to have the same degree of slope as the front face. In height, the heels are usually a little more than one-half that of the toe; both heels are equal in height.

“These features, as will be seen hereafter, are sufficiently important to be constantly remembered. The other characteristics are to be found on the lower or ground face of the hoof—the most important, so far as the farrier's art is concerned.

“In a natural condition, the whole, or nearly the whole of this face comes into contact with the ground, each part participating more or less in sustaining the weight thrown upon the limb. On soft or uneven soil, the entire lower

border of the wall, the sole, bars, and frog, are subjected to contact ; Nature intended them to meet the ground, and there sustain the animal's weight, as well as the force of its impelling powers. But on hard or rocky land with a level surface, only the dense, tough crust and bars, the thick portion of the sole surrounded by them, and the elastic, retentive frog, meet the force of the weight and movement ; and, in both cases, not only with impunity, but with advantage to the interior of the foot, as well as the limb. The horn on this face is, as has been said, dense, tough, and springy to a degree varying with the parts of which it is composed ; while its fibres are not only admirably disposed to support weight, secure a firm grasp of the ground and aid the movements of the limbs, but are also an excellent medium for modifying concussion or jar to the sensitive and vascular structure in their vicinity.

“The whole circumference of the wall meets the ground, and from the disposition of its fibres, the arrangement of the cells which enter into their composition, and its rigidity, it is admirably fitted to resist wear and sustain pressure. It projects more or less beyond the level of the sole, and the space measured between the white zone within it and its outer surface gives its exact thickness. This is a fact not without interest to the farrier in the operation of attaching the shoe by nails, as these have to be driven only through this dense horn—which in good hoofs cannot be said to much exceed half an inch in thickness—and in proportion to its thinness is the necessity for carefulness and address on his part, in order to guard against wounding or bruising the sensitive textures.

“The sole is more or less concave from its junction with the wall ; nevertheless, even on moderately firm ground, a portion of its circumference, which is generally the thickness of the wall, takes a share in relieving the latter of pressure. This is also a fact to be borne in mind. In soft ground, the whole of its lower surface is made to aid in sustaining the weight and prevent the foot sinking. But it must be noted that the pressure of the lower face of the pedal bone on the upper surface of the sole can never be very great, else the sensitive membrane between them would be seriously injured. This injury is prevented by the coronary, and, to a lesser extent, by the plantar cushion, which largely retard the descent of the bone on the floor of the horny box.

“The frog, on both hard and soft ground, is an essential portion of the weight-bearing face. In the unshod, healthy foot it always projects beyond the level of the sole, and seldom below that of the wall at the heels; indeed, it is found, in the majority of hoofs, either on a level with the circumference of this part, or beyond it, so that its contact with the ground is assured. Hence its utility in obviating concussion, supporting the tendons, and, on slippery ground, in preventing falls. In pulling up a horse sharply in the gallop, or in descending a steep hill, the frog, together with the angular recess formed by the bar and wall at the heel of the hoof, are eminently serviceable in checking the tendency to slip; the animal instinctively plants the posterior portions of the foot exclusively on the ground.

“Dark hoofs are generally the best ; they owe their color to the presence of minute particles of black pigment, which



FIG. 9.

contains a notable proportion of iron, and are somewhat resisting and indestructible.

“A good hoof should have the wall unbroken, its outer face smooth and even; the angle at the front not less than 50° —the lower or ground face of the front hoof should be nearly circular in outline—the sole slightly concave at the circumference, deeper at the centre; the border of the wall ought to be thick at the toe, gradually thinning toward the heels, but at the inflexion or commencement of the bar a strong mass of horn should be found; the bars should be free from fracture, and the frog moderately developed, firm and solid.

“The hind foot should possess the same soundness of horn, though it differs from the fore hoof in being more oval in outline from the toe to the heels; the sole is also more concave, the frog smaller, and the heels not so high. The horn is usually less hard and resisting—a circumstance perhaps due to the hind feet being more frequently exposed to humidity in the stable than the fore ones.”

VIEW OF THE BONES OF THE FOOT.

Fig. 9 shows a foot from which the skin and flesh have been taken and gives a view of the exact location of the bones. *A*, represents the upper pastern; *B*, the lower pastern; and *C*, the coffin-bone.

Now in order that all the bones and joints should work properly it is necessary to keep the foot at an angle of about 50 to 56 degrees. If we get the heel too high it is just as bad as it is to get it too low. Therefore particular pains

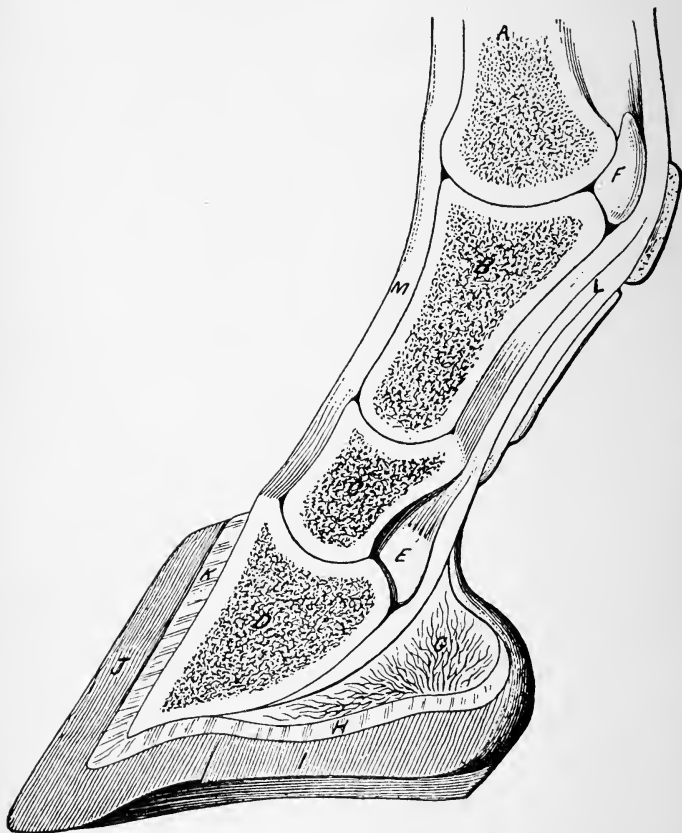


FIG. 10.

should be taken in leveling the foot in all cases so as not to allow the horse to rock one way or the other.

SECTIONAL VIEW OF FOOT AND LEG.

Fig. 10 represents a sectional view of the foot and a portion of the leg of a horse. *A*, shows the cannon-bone at the fetlock joint; *B*, is the upper pastern; while *C*, is the coronary or lower pastern bone; *D*, is the coffin-bone; *E*, the navicular or nut bone; *F*, represents one of the sesamoid bones; *G*, the sensitive frog; *H*, the sensitive sole; *I*, the horny sole; *J*, the outside crust or wall; *K*, the sensitive laminae; *L*, the main cord or tendon that runs up and down the back of the leg; *M*, shows the tendon of the extensor muscle of the foot and coronary bones. It can be readily seen by a careful examination of this illustration that it is absolutely necessary to keep the foot at a certain angle or slant, somewhere between 50 and 56 degrees, in order that the joints may perform their offices properly.

DISSECTED LEG OF A HORSE.

Fig. 11 shows a foot and portion of the leg dissected, all the hair and flesh being removed so as to show the tendons, arteries and blood vessels. *M*, is the main cord or tendon that runs up and down the back of the leg; *N*, is the extensor muscle of the foot; *O*, shows the lateral cartilages, while *P* represents the plantar nerve. The lower *M* shows the sensitive laminae, while *L* represents the outside crust or wall.

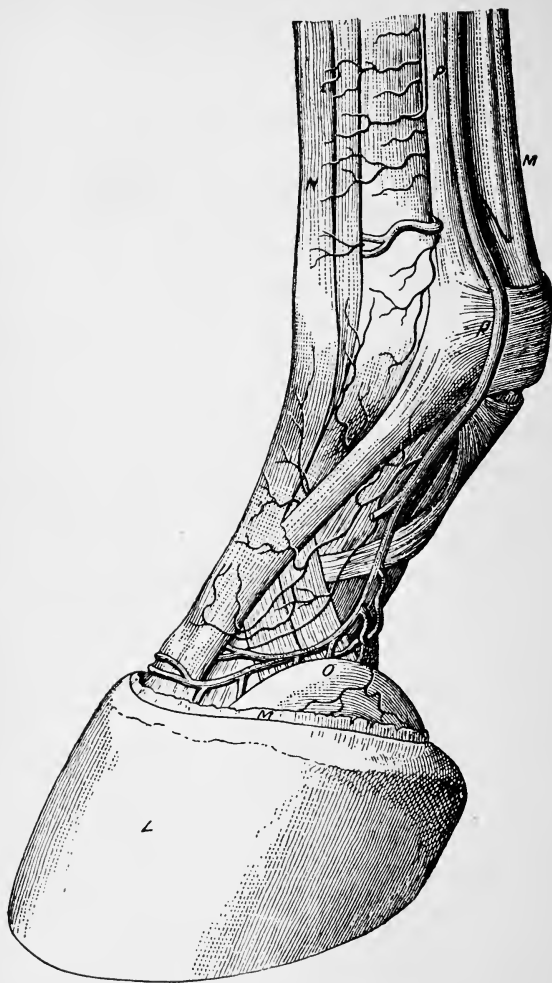


FIG. 11.

CHAPTER III.

HOW THE HOOF GROWS.

In any treatise on shoeing, the *growth* of the hoof cannot be left out of consideration, as on it the foot, in an unshod condition, depends for an efficient protection, while without this process the farrier's art would quickly be of no avail.

In its unarmed state, the hoof being exposed to continual wear on its lower surface, from contact with the ground on which the animal stands or moves, is unceasingly regenerated by the living tissues within. We have already referred to the special apparatus which is more immediately concerned in this work of regeneration, and pointed out that the wall with the laminae on its inner face* is formed from the coronary cushion at the upper part of the foot; the sole from the living membrane covering the lower face of the pedal bone; and the frog from the plantar cushion. It has been also mentioned that this dead horny envelop, instead of being merely in juxtaposition with this exquisitely sensitive secretory membrane, is everywhere penetrated to a certain depth on its inner face

* It is generally stated that the horny leaves are formed by the sensitive ones, with which they are in such close union. That this is an error, the microscope, physiology, and pathological experience, abundantly testify.

(with the exception of the portion of the wall covered with the horny leaves) by multitudes of minute processes named villi, which are not only concerned in the growth of the horn-fibres, acting as moulds for them, and endowing the hoof with that degree of lightness, elasticity, and toughness, which are so necessary to its efficiency, but also make this insensitive case a most useful organ of touch.

The growth of the horn takes place by the deposition of new material from the secreting surface; this deposition is effected at the commencement or root of the fibres; where the horn is yet soft, and its incessant operation causes these fibres to be mechanically extended or pushed downward toward the ground in a mass. Once formed they are submitted to no other change than that of becoming denser, harder, less elastic, and drier, as they recede farther from the surface from which they originated.

So regulated is this growth, generally, in every part of the hoof, that it would appear that the secreting membrane is endowed with an equal activity throughout.

But, though this equality in the amount of horn secreted over so wide a surface is an undoubted fact, yet it must not be forgotten that, under the influence of certain conditions, the growth or descent of the corneous material may be effected in an irregular manner, either through a particular portion of the secretory apparatus assuming a more energetic activity, or being hindered more or less in its function.

For instance, the way in which the foot is planted on the ground has a most marked influence, not only on the amount of horn secreted, but also on that subjected to wear.

When the superincumbent weight is equally distributed over the lower face of the hoof, the foot may be said to be properly placed as a basis of support to the limb. But when, through mismanagement or defective form, this base is uneven—one side higher than the other, for example—the weight must fall on the lowest part to a greater degree than the highest; thus causing not only disturbance in the direction of the limb and its movements, but considerably modifying the growth of the horn. This growth is diminished at the part subjected to most pressure—in all probability from the smaller quantity of blood allowed to be circulated through the secretory surface; while to the side which is subjected to the least compression, the blood is abundantly supplied, and the formation of the horn is consequently augmented. This is a fact of much importance and practical interest in farriery, as it demonstrates that any irregularity in the distribution of the weight of the body has a prejudicial effect on the secreting apparatus of the organ, and, as a result, on the form of the hoof.

When the weight is evenly imposed on the foot, this apparatus, being uniformly compressed throughout its extent, receives everywhere an equal quantity of the horn-producing material.

It is the same with the *wear* of the hoof. A just disposition of the weight is a necessary condition of the regularity of wear. While the animal is standing on unshod hoofs, the wear of horn is slight; it is in movement that it becomes increased, and this increase is generally in proportion to the speed, the weight carried, nature of the ground, and whether its surface be wet or dry. Each por-

tion of the lower face of the hoof—wall, sole, bar, and frog—should take its share of wear and strain; but it will be readily understood that this cannot be properly effected if the weight is thrown more upon one side than the other; that part which receives the largest share will be subjected to the greatest amount of loss from wear, and this, with the diminished secretion of horn, will tend to distort the foot and limb still more.

In a well-formed leg and foot the degrees of resistance of the different parts of the hoof are so well apportioned to the amount of wear to be sustained, that all are equally reduced by contact with the ground, and the whole is maintained in a perfect condition as regards growth and wear.

The amount of growth, even in a well-proportioned foot, varies considerably in different animals, according to the activity prevailing in, or the development of, the secreting apparatus; and in this respect the operations of the farrier, as we will notice hereafter, are not without much influence.

It may be laid down as a rule, that the horn grows more rapidly in warm dry climates, than in cold wet ones; in healthy energetic animals, than in those which are soft and weakly; during exercise, than in repose; in young, than in old animals. Food, labor and shoeing, also add their influence; while the seasons are to some extent concerned in the growth and shape of the hoof. In winter it widens, becomes softer, and grows but little; in summer it is condensed, becomes more rigid, concave, and resisting, is exposed to severer wear, and grows more rapidly; this variation is a provision of Nature to enable

the hoof to adapt itself to the altered conditions it has to meet: hard horn to hard ground, soft horn to soft ground.

In this way we can account for the influence of locality upon the shape of the foot. On hard, dry ground, the hoof is dense, tenacious, and small, with concave sole, and a little but firm frog; in marshy regions, it is large and spreading, the horn soft and easily destroyed by wear, the sole thin and flat, and the frog an immense spongy mass which is badly fitted to receive pressure from slightly hardened soil. In a dry climate, we have an animal small, compact, wiry, and vigorous, traveling on a surface which demands a tenacious hoof, and not one adapted to prevent sinking; in the marshy region we have a large, heavy, lymphatic creature, one of whose primary requirements is a foot designed to travel on a soft yielding surface. Change the respective situations of these two horses, and Nature immediately begins to transform them and their feet. The light, excitable, vigorous horse, with its small vertical hoofs and concave soles, so admirably disposed to traverse rocky and slippery surfaces, is physically incompetent to exist on low-lying swamps; while the unwieldy animal, slow-paced and torpid, with a foot perfectly adapted to such a region—its ground face being so extensive and flat that it sinks but little, and the frog developed to such a degree as to resemble a ploughshare in form, which gives it a grip of the soft, slippery ground—is but indifferently suited for traveling on a hard, rugged surface. In process of time, however, the small concave hoof expands and flattens, and the large flat one gradually becomes concen-

trated, hardened, and hollow, to suit the altered physical conditions in which they are placed.

The degree of health possessed by the horn-secreting apparatus at any time has also much to do with its activity in generating new material. When its blood-vessels become congested or contracted from some cause or other, its function is in a proportionate degree suspended, and the hoof grows in an irregular manner, and may be altered in thickness, texture, and quality.

In the ordinary conditions of town work and stable management, I have observed that the wall of a healthy foot—its chief portion, so far as farriery is concerned—grows down from the coronet at the rate of about one-quarter of an inch per month, and that the entire wall of a medium-sized hoof has been regenerated in from nine to twelve months.

The process of growth can be greatly accelerated and exaggerated by irritating the surface which throws out the horn material. Thus a blister, hot iron, or any other irritant or stimulant applied to this part, will induce not only a more rapid formation, but one in which increased thickness is a marked feature.

CHAPTER IV.

HORSE-SHOEING TO PREVENT OR CURE LAMENESS OR CORRECT
FAULTY ACTION.

LEVELING PLATE.

Every horse-shoer ought to have a leveling plate. I use a piece of marble say twelve inches square and two inches thick. After the shoe has been fitted to the foot I then heat it. By gently hammering it on the marble slab I make it perfectly level. A great many heat the shoe hot and then by applying it to the foot it is easy to see exactly which portion of the hoof needs to come off. I never put a hot shoe near the foot. After the shoe is made level on the marble slab I then make the foot level to correspond.

FORGING.

This is a very bad habit. A horse that forges continually is not regarded as very valuable. It is not particularly troublesome to overcome this habit. There are many different ideas on the subject, however. I have had horsemen come into my shop and say to me, "If you put the front shoes on too long the horse will pull them off." I know of a good many horses that I have ruined, before I learned any better, by putting the shoes on too short. When too short in the first place they become still shorter of course after the shoes are reset. Now does it look reasonable that we ought

to cripple our horses in their front feet by short shoes in order to keep the hind feet from striking? Let us try to find out what forging is anyhow. It is simply that the horse has more action behind than in front. The hind feet are thrown forward and strike the front feet before they can get out of the way. Obviously the only way to overcome this trouble is to increase the action of the horse in front and retard it behind. To do this I use a heavy toe-weight shoe on the front foot to make the horse reach farther. After the front shoe has been nailed on, take a rule and measure the distance from the coronet to the bottom part of the toe. Also observe the slant of the front foot. Then measure the hind foot the same way and it will be found in most cases that the hind foot is from $\frac{1}{4}$ to 1 inch the shortest. The shorter the foot the quicker it can be raised of course. Now I place my shoe on the hind foot so that the toe will project enough to make the distance from the coronet to the bottom of the shoe the same as the distance from the coronet to the bottom of the shoe on the front foot. The longer the hind foot is the longer time it takes for the horse to raise it in traveling. To set the shoe back on the hind foot only makes the horse forge all the more, for he is able to get his hind foot up much quicker than his front foot. Then if you let the shoe extend out pretty well behind and make the projecting portion pretty heavy it will tend to delay the action of the feet behind and prevent the horse raising his feet so high, and if he does not raise his feet so high he will not of course throw them so far forward and your object is accomplished.

TO SHOE A KNEE-SPRUNG HORSE OR A KNUCKLER.

The difficulties above mentioned are brought on by using too short shoes. They may also be produced in other ways. I think many horse owners contribute to bring about these troubles by permitting the shoes to remain on too long. Some people will never get a horse shod until the shoes drop off, on account of the expense. It thus happens that in many cases the shoes remain on the feet, six, eight or twelve weeks. Of course the foot grows out long and in climbing over this long toe with a large toe-calk on the shoe the horse strains the cords and tendons of the leg and when you stop him he will "go over a little" as it is termed. A horse does this to ease the strain on the cords of his leg and he will keep doing it more and more as long as the trouble exists. After a while the cords contract, and, failing to resume their natural position the horse is knee-sprung or knuckled. It is very hard to cure a knee-sprung horse, but they can be helped very much. I dress the foot perfectly level as in all other cases and make a good long shoe, one that will run out behind the foot say one or two inches. Put on a small heel-calk with no toe-calks. Nearly all horse owners when they think a horse's legs are strained use some strong liniment or a blister. In all cases of this sort there is a great deal of fever in the legs and we want to take out the fever, not put on something that will create more. Further along in this work a recipe will be found for a preparation for sprains, soreness of the tendons or any enlargement of the leg.

FITTING THE SHOE TO THE FOOT.

This is one of the most important points in horse-shoeing. In traveling about giving instruction to all classes of people, I have found a great many so-called horse-shoers who had not worked at the trade more than six months perhaps. Often as quick as a man gets so that he can dress a foot or fit up a shoe he calls himself a good horse-shoer and will start a shop. In order to secure work it is necessary for such a man to put prices down very low. In my experience I have found that two-thirds of the crippled horses have been made so by just such horse-shoers as I have described above. I call them horse-shoers for convenience only. Some of them will never be horse-shoers. Nevertheless they think when they put a shoe on, it is as good work as anybody can do, and usually such men are very much averse to learning how to shoe. I commenced helping my father at the forge when only eleven years old and have worked at the trade ever since, and I think it safe to say that I shod horses fully twenty years before I really knew anything about it. Now somebody will ask, how it is possible that you could work so long without knowing anything about horse-shoing. It is simply because I knew it all in the first place. I knew so much that I did not want to be told anything, and so went on year after year in the same old rut doing more harm than good all the time.

After I had been compelled to pay for three valuable horses I spoilt by bad shoeing, it occurred to me I did not know as much as I thought I did. Then I invested every

dollar I was worth and made an effort to learn how to shoe horses. I sought the best instructors I could hear of and found out that I had been all wrong in what I had been doing.

No man should be permitted to shoe a horse who has not passed an examination by a competent board appointed for the purpose. He should be compelled to study the horse's foot and understand it before being permitted to set a shoe.

A great many horse owners ruin their horses by taking them to men who know nothing whatever about the anatomy of the foot. The main idea of the average horse owner seems to be to seek out and patronize the man who will shoe the cheapest and make the shoes stay the longest, and they don't hesitate to call such a man a good horse-shoer. Very few probably know that a valuable horse may be completely ruined by an incompetent man in two or three shoeings. Some horses will stand poor shoeing for quite a while, but in the end they are sure to be injured.

"No frog, no foot; no foot, no horse," is a true saying. I claim that no horse should go over four weeks without having the shoes removed and the dry feverish growth of the hoof rasped away; that portion that would wear out naturally if the horse was not shod at all.

GETTING THE ANGLE OF THE FOOT.

When I have a horse to shoe I try and ascertain the correct angle of the foot to start with. Then dress the foot perfectly level in all cases, aiming not to have one side any higher than the other. I do not cut away the bars or braces as I did in the days gone by, neither do I cut the

frog, which is the natural cushion of the foot, taking off the the concussion caused by the striking of the foot on the ground. In the natural state the frog is shed every three months and should not be cut at all. If cut the pores will open and the natural moisture is permitted to dry out and the frog becomes hard. Cutting the frog will injure the growth of the foot materially. I never touch the frog except to cut off the ragged edges as they are being shed. The nearer the frog can come to the ground the better.

When large calks are used and the foot raised from the ground all the bearing on the frog is removed, causing the foot to draw up, the heels to draw in, and in a short time you have a bad case of contraction on hand.

In taveling about I have a wagon that with its contents weighs not less than 4,800 lbs., and this is pulled over hills and the roughest country roads without any calks on the front feet of my horses. The front feet of a horse act very much as the forward trucks of a locomotive. They carry about two-thirds of a horse's weight. The hind feet and legs are the propelling power which throws the animal forward when in motion.

If calks are desired they should be put on the hind feet. I never put on a hind shoe without a little heel calk. It helps take the strain off the tendons. If a flat shoe is used in front it can be made shorter when calked. If flat let the shoe extend back as far as the crust of the hoof. When the shoe is flat it permits the frog to come to the ground and all the cords and tendons of the leg are receiving their proper support. If we put on calks and take the frog away from the ground it will be necessary to make the shoe

at least from one-half to one inch longer. If this is not done the horse will have a tendency to rock back and then this causes knee springing or knuckling.

Short shoes are a great mistake in shoeing horses with calks.

BAR SHOE.

Fig. 12 shows a bar shoe which is the nearest approach to

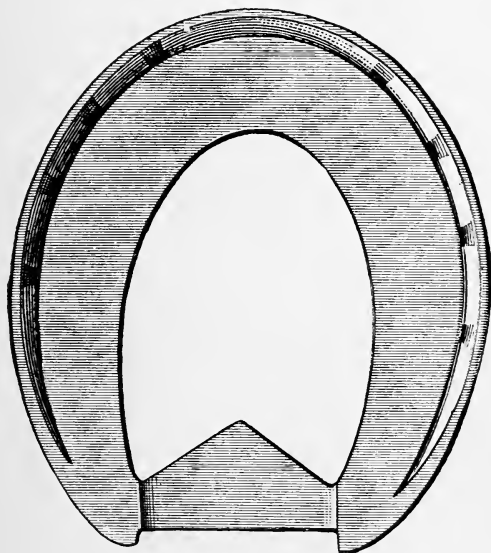


FIG. 12.—BAR SHOE.

nature in my opinion that we can get. When no shoes are used the weight of the animal comes largely on the frog which, as is well known, acts as a sort of cushion to relieve the pressure on the foot. When a bar shoe is used in shoeing, the bar presses on the frog and we get practically the

same effect as though the horse were traveling without shoes.

I suppose that I had shod horses for twenty years, more or less, before I knew why bar shoes were necessary. Of course when a man makes and applies a shoe which he does not know the use of, he naturally is liable to many faults in construction. Some people condemn bar shoes but it is because they do not know their uses, or how to make them, or how to put them on.

A man must know in the first place that the horse brought to him to be shod needs a bar shoe. He must understand the exact condition that the foot is in and what sort of a bar shoe is best for that particular condition. Sometimes we find horses with soft frogs and in other cases they have hard frogs. Now formerly I did not know but I could put on a bar shoe as well with a hard frog as with a soft frog. Right here let me explain the secret of success with bar shoes. If the frog is soft so that you can move it easily with your hands it will bear all the pressure which you can get from the bar shoe, but if it is dried up and hard it will not do to apply a bar shoe until some measures have been taken to soften the frog, otherwise the pressure on the hard frog will be so strong as to push the frog up into the sensitive portion of the foot and lame the horse. Of course the object of a bar shoe in all cases is to remove the bearing from the heels where there is tenderness arising either from corns or from hard pounding on pavements or hard roads.

In cases where the frog is hard it can be softened by soaking the feet for a time in warm water and applying warm flaxseed meal poultices at night until the foot is brought

into its proper condition. I use this particular shoe for all bad cases of contraction or where, as some shoers term it, the foot is hoof bound. I rasp the points of the heels down so that when the shoe is on there is a little space between the heels and the shoe, the pressure of the bar coming on the frog. When the horse steps the weight comes on the bar, the bar presses on the frog and the frog will settle enough to let the heels down easily upon the shoe. Under these circumstances of course the heel will naturally expand more or less and the contraction after a time be relieved.

I am not in favor of artificial spreaders of any kind. I believe the frog to be the best spreader in the world.

No clip is used whatever and in fact I have not put a clip on any shoe in the last six years. Many shoers seem to think they cannot get along without using side clips and toe clips. Wherever a clip is used it is necessary, of course, to cut through the outside wall. The clip rests on the sensitive laminae and every time a horse strikes anything hard there is irritation of the blood vessels, arteries and nerves. If we dress the foot perfectly level, fitting the shoes cold and using a good nail there is no trouble in making them stay on longer in fact than they ought to stay.

No horse should keep shoes on over four or five weeks at the outside without having them removed and the dry feverish overgrowth cut away.

TOE TIPS.

Fig. 13 represents a toe tip. This form of shoe comes the nearest to nature of any one made. By its use it will be seen that the quarters and frog come in contact with the

ground. I claim that the frog is the best spreader of the foot in the world. I never use any artificial spreader depending entirely on the frog to do the business. In all bad cases of contraction either use the toe tip, the bar, or the double half-bar, and let the frog come in contact with the ground. This shoe should be made of $\frac{3}{8}$ -inch steel and as thick towards the quarters as towards the toe. Be sure

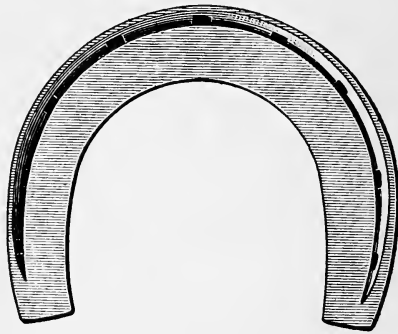


FIG. 13.—TOE TIP.

and fit it to the foot. After it is fitted, mark just as far back as it goes and notch in the hoof and set the tip in. By this means the toe is kept down to the same level as the heels and quarters. By slanting the tip towards the heels the toe is raised too high and lets the horse rock too far back, straining the main cords and tendons and in a short time the horse will be knee-sprung.

I have used this toe tip right on the pavements in the cities of Scranton, Philadelphia, Buffalo, Binghamton, New York City, and in other places two numerous to mention,

with the most satisfactory results. Some horses will not stand it, but others will.

HALF-BAR SHOE FOR THE FRONT FOOT.

Fig. 14 represents a half-bar shoe. This shoe can be made from machine-made shoes sometimes, but generally I turn

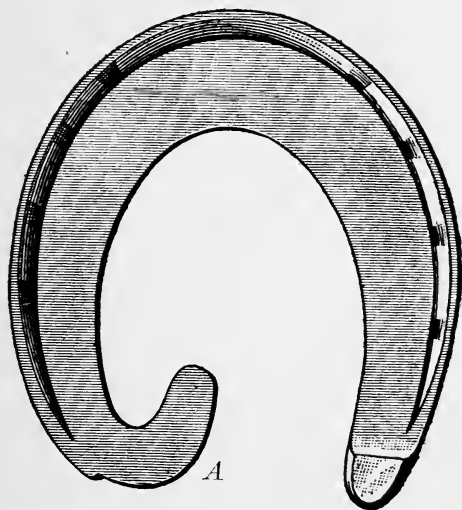


FIG. 14.—HALF-BAR SHOE.

my own shoes. *A*, shows the point where the bend should be made to form the half-bar. Shape the shoe so that the half-bar will press on one-half of the frog. In cases where one quarter is broken down or wired in, this shoe can be set to very great advantage. The other side of the shoe of course should be shaped in the usual way.

In cases of bad quarter crack where the trouble is all on one side I use this shoe. I also use it for bad cases of corns.

In shoeing either for quarter cracks or corns I do not let the quarters touch the shoe. When the quarter grows out or the shoe has pressed down so that the quarter touches, the shoe should be removed and a sufficient amount of hoof removed to keep the shoe from touching the quarter. Any

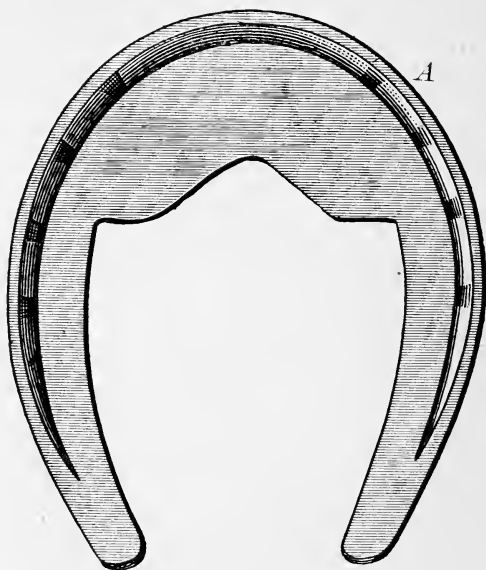


FIG. 15.—TOE-WEIGHT SHOE.

quarter, crack or corn, can be removed if the pressure is kept on the frog and away from the seat of disturbance.

TOE-WEIGHT SHOES.

Fig. 15 represents a shoe with a toe-weight. It is made out of heavy iron, say one inch or one-and-a-quarter inches by one-and-a-half inches. Fuller at *A* to the thickness

you want, then draw out the heels as light as you wish them to be.

I prefer this shoe to any toe-weight placed on the foot, and I believe that the action of any horse can be increased with this shoe, and the horse can be balanced quicker and easier than by the toe-weights on the top of the foot.

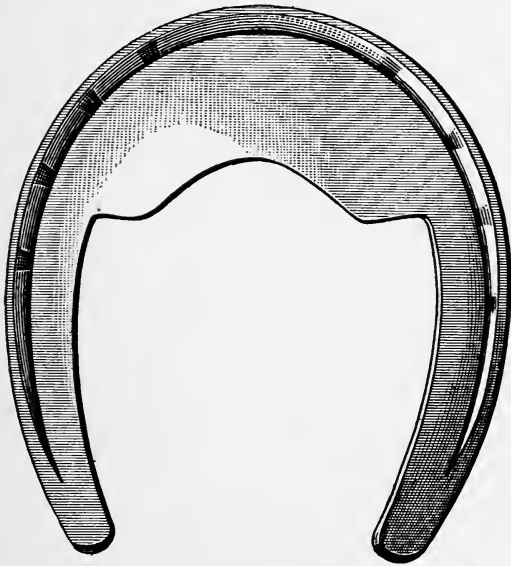


FIG. 16.—TOE-WEIGHT SHOE (CONCAVED).

Some horse men object to having a horse carry the weight in the shoe. Now reason will tell you if a horse carries the weight continually he will get used to it and it will not tire him or strain the cords of his legs; but if we give the horse all his work to do with light shoes and when we come to speed him, put on extra weights on the top of

the foot he may be able to go, say, a half mile all right, but in trotting a full mile is liable to strain the cords of his legs, because his muscle has not been cultivated up to the point of carrying this extra weight successfully.

I consider this the best shoe ever made to balance the action of pacers. By this I mean, if you want a pacer to trot use this form of a toe-weight with a side-weight behind. By shoeing in this way I can convert any pacer into a trotter when it is thought desirable to do so. In many cases heavy horses that pace can be made to trot faster than they can pace. With light horses it often happens that they can pace faster than they can trot, so that it is not always desirable to change their action.

Fig. 16 is a toe-weight shoe concaved on the ground surface, the object being to prevent the horse from throwing gravel in the eyes of the driver.

SHOE TO PREVENT INTERFERING.

Fig. 17 represents a front foot shoe for interfering horses. There is no question in regard to stopping any interfering horse with this shoe. The main secret in overcoming interference is to get a direct side weight. All the weight that passes the point of the frog on the other side deadens the weight we have on the outside and tends to overcome the attempt to produce a side-weight shoe. This point should be carefully remembered.

In making this shoe I take say, ten inches of iron for the shoe and bring it out of the fire with one-half of it hot. I use my fuller just half way, fullering down as thin as I want it. Then with the hammer draw the inside web out,

next bend the toe one-half and then go back to the heavy side, finish, fuller, crease it and punch the holes. After this return to the light side of the shoe and finish that. This gives a direct side weight to the front foot.

With front foot shoes it is necessary to increase the web

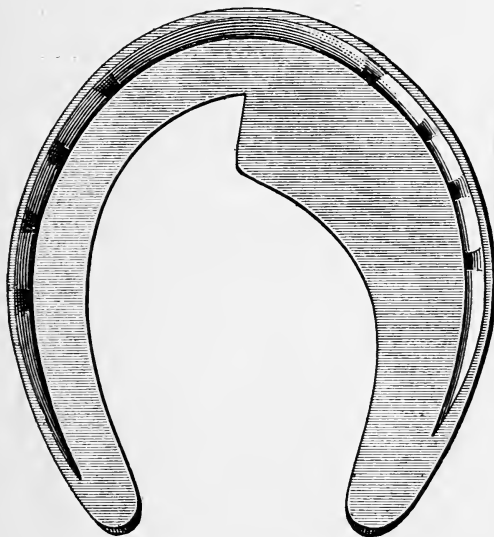


FIG. 17.—FRONT SHOE FOR INTERFERING.

on the inside because we must have a wider web on the inside than we do with hind foot shoes.

There is no guess work in regard to this shoe if you only get weight enough. If you use one of these shoes and it fails to prevent interfering all you have to do is to increase the weight of the web until you get enough to overbalance the foot and accomplish your purpose.

In case a horse swings and travels too wide in front I use

the same style of shoe, but put the weight on the inside. In all cases of ordinary interfering the weight should be put on the outside of the foot, with the exception of the shoe described in Fig. 19.

HIND SHOE FOR INTERFERING.

Fig. 18 shows a hind shoe for interfering or widening the action of a horse when it is inclined to rock or shuffle.

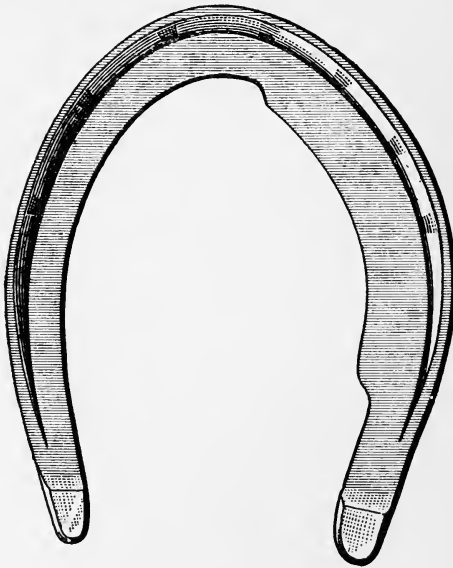


FIG. 18.—HIND SHOE FOR INTERFERING.

I use this shoe in all cases of interfering.

Be particular not to permit the side weight to run around the point of the frog. If you try the shoes made in this way and they do not seem to accomplish the purpose desired,

increase the weight and keep on increasing until the action desired is secured.

If the horse hitches or runs behind (sometimes called single footing) use this shoe. If you get weight enough you will stop him. It requires weight to balance any horse, and when you get weight enough you will balance him.

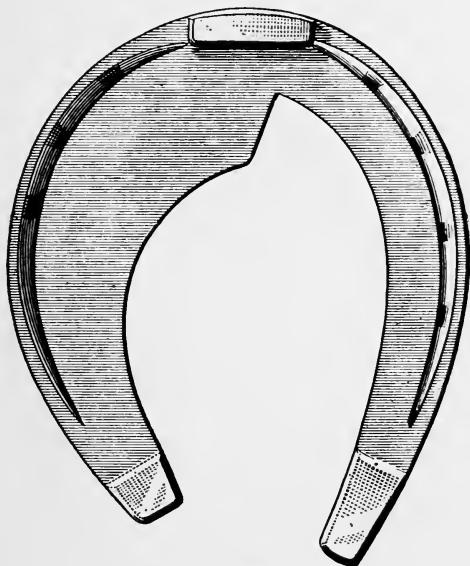


FIG. 19.--SIDE-WEIGHT SHOE.

SIDE-WEIGHT SHOE.

Fig. 19 represents a side-weight shoe to be used in all cases where horses have had a knee or ankle broken and the legs bend in. Then the weight should be put on the inside on the crooked leg. This tends to throw the foot inward and consequently to straighten the knee.

On the sound leg I put the weight on the outside in all cases. This shoe I have used with good results a great many different times.

SHOE FOR KNEE-KNOCKING.

Fig. 20 shows a shoe with an outside weight extended

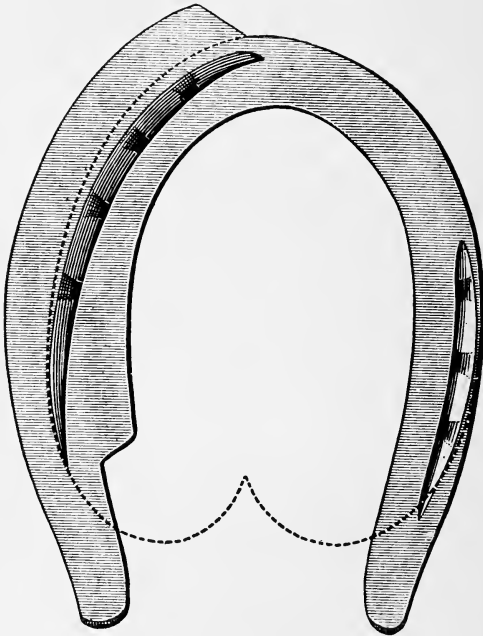


FIG. 20.—SHOE FOR KNEE-KNOCKING.

around one-half of the foot. This shoe I use in bad cases of knee-knocking. The illustration shows the ground surface of the shoe made for the right front foot. As the horse swings out and strikes this outside weight the foot naturally has a tendency to strike on the inside of the toe, which

it will be seen is not creased and has no nail holes. The effect of this shoe is to make the horse carry his feet outward and away from the other foot, preventing the knocking of the knees together.

Make a little crease on the inside of the heel and use three nails, as shown in Fig. 20.

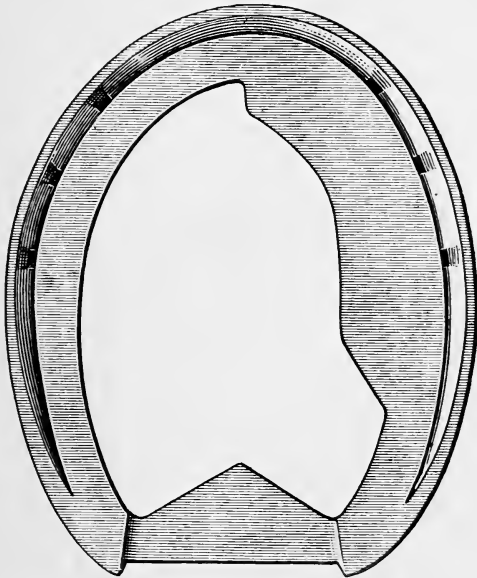


FIG. 21.—SIDE-WEIGHT AND BAR COMBINED.

The dotted lines show the position of the foot. All that portion of the shoe outside the dotted lines of course will be entirely outside of the foot.

I made the first one of these shoes that was ever made, and have corrected more than one hundred cases of knee-knocking horses. I have shod horses in twenty-one differ-

ent States and three Territories and never saw such a shoe until I made it.

This shoe can be used with perfect safety.

COMBINED SIDE-WEIGHT AND BAR.

Fig. 21 represents a side-weight and a bar combined. In

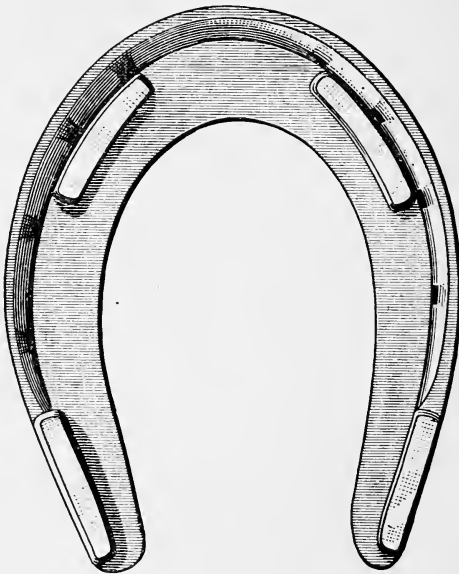


FIG. 22.—FOUR-CALK SHOE.

case your horse needs a bar shoe and you want to use a side-weight to widen his action or to stop him from interfering, this shoe will accomplish the purpose, but be careful and not let the side weight pass the front of the frog. Keep the most of the weight on one side of the shoe and get it on exactly opposite where the horse hits.

You will never fail to correct a case of interfering with this shoe if you only have weight enough.

FOUR-CALK SHOE FOR RING-BONES, SPAVINS, ETC.

Fig. 22 shows a four-calk shoe to be used on horses having ring-bones, curbs, spavins or sore tendons. In fact this shoe may be used with almost any horse that is lame and for whom it is painful to travel with a high toe-calk. With the four-calk shoe the horse has a level foundation and equal bearing, and when he picks up his foot he has no toe-calk to climb over, he simply rolls over the front calk as it were.

A horse with ring-bones, curbs or spavins will hardly limp with this style of shoe, where he can scarcely hobble along on an ordinary three-calk shoe.

In all cases where anything is the matter with a horse's foot I raise the heel more than I do the toe and oftentimes no toe-calk at all is a great deal better.

The closer we keep the foot to the ground the better it is in all cases.

IMPROVED SHOE FOR TENDER FEET.

Fig. 23. Mr. Wm. H. Russell, the author of "Scientific Horse-Shoeing," first constructed and used this shoe. His description of it is as follows: "This shoe is made of steel and is well concaved on the ground surface. The bars are made so as to fit upon the bars of the foot and bear weight as the unshod hoof does in a state of nature, preventing bruises in the heels and quarter cracks. I have tested this

shoe on horses that were quite sore and lame, successfully. In making this shoe the bars are sprung down from the heel to their points on the ground surface about one-half inch. The effect of this is to soften and mellow the jar. If the shoe is well tempered it will allow the bars to spring with the horse's weight, and will be found one of the best devices

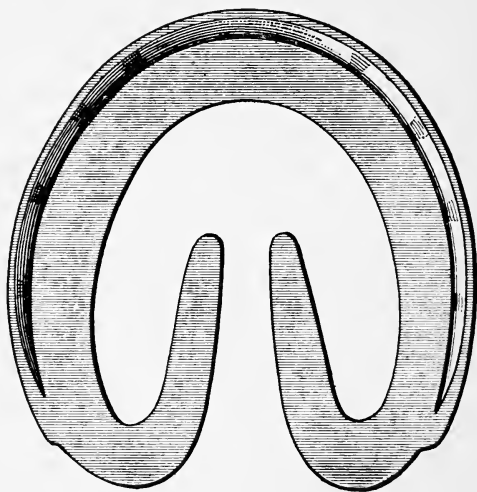


FIG. 23.—SHOE FOR TENDER FEET.

possible to relieve the effects of concussion in tender-footed horses as well as to quicken the action in trotters, leaving the frog firm and unimpaired to perform its important functions of cushioning the foot and shielding the sensitive parts from injury.”

EXTENSION CALK SHOE.

Fig. 24 shows a three-calk shoe with an extension toe at *A*. If the horse is inclined to pull his load from one out-

side point of his toe, let the toe calk extend over as at *A*. Then when the calk strikes at *A* it is necessary for the animal to settle square down on his feet and go directly over at the toe.

In the case of a great many horses the outside quarters

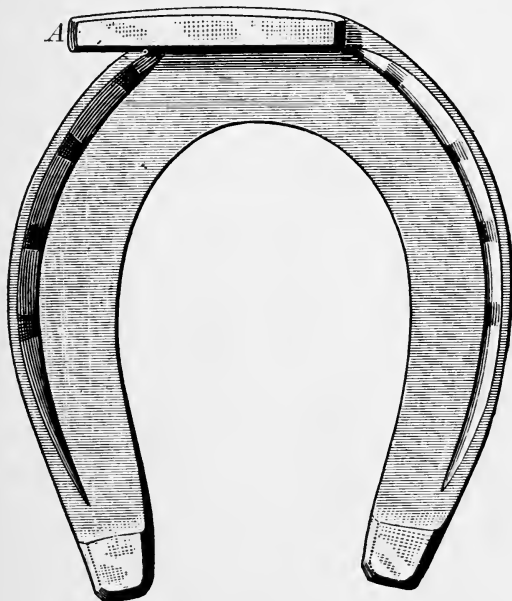


FIG. 24.—EXTENSION CALK SHOE.

and calk will wear off while the inside will wear very little.

By the use of this kind of a shoe all this is prevented and the horse must travel perfectly square, whether he is a heavy draught horse or a light road horse.

FRONT FOOT FLAT SHOE.

Fig. 25 represents a flat front shoe made out of inch by half-inch iron. Crease all around the toe.

This shoe is made perfectly flat on the ground surface

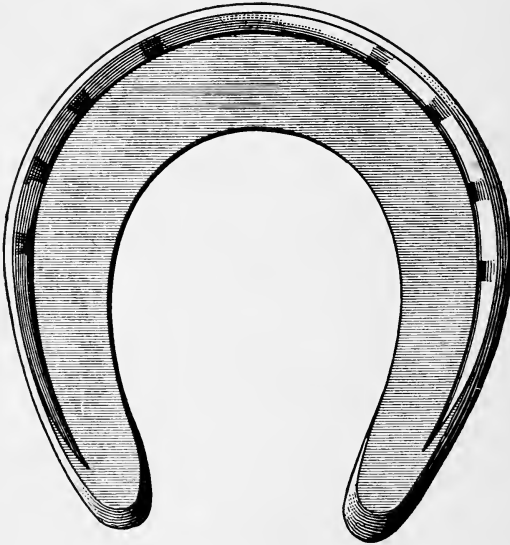


FIG. 25.—FRONT FOOT FLAT SHOE.

and is as good a shoe as can be used on front feet. The nearer we keep the feet to the ground the better.

Fig. 26 represents the foot surface of the shoe shown in Fig. 25, and also gives a clear idea of the concavity of this side of the shoe.

FIG. 26.—FOOT SURFACE OF FRONT FLAT SHOE.

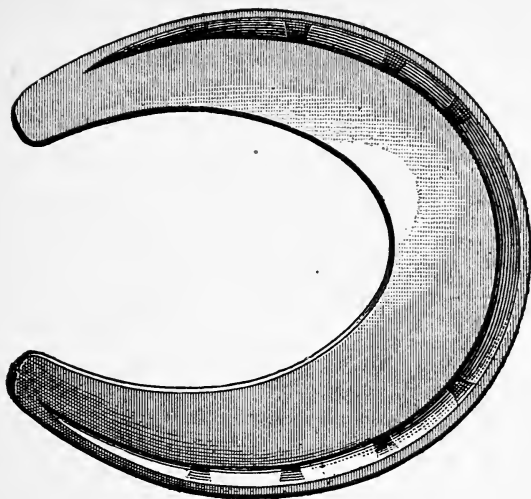
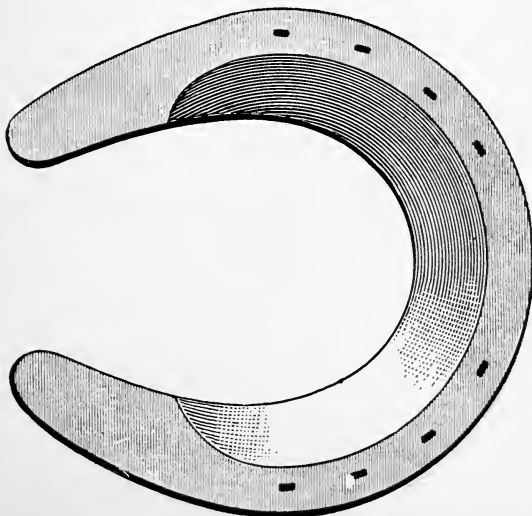


FIG. 27.—CONCAVE SHOE.



CONCAVE SHOE.

Fig. 27 represents a common front shoe concaved so as to prevent picking up gravel. The shoe is made from one inch by one-half inch iron, or you can use any weight of

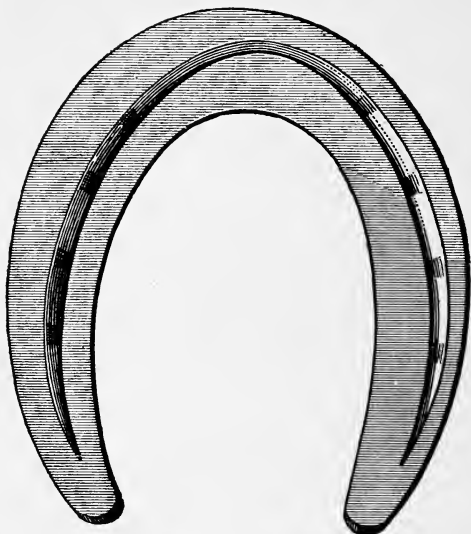


FIG. 28.—SHOE TO MAKE A HORSE TRAVEL SQUARE.

iron that may be needed. If the horse is quick of action the use of this shoe will prevent his throwing gravel into the face of the driver. It is also a good shoe to prevent the balling of snow in winter, as snow cannot stick to it very well.

SHOE TO MAKE A HORSE TRAVEL SQUARE.

Fig. 28 represents a shoe designed to make any horse travel square. Some horses travel all on one side and one

side of the foot does not seem to grow because the animal strikes so hard on that side that it kills the growth of the horn. In applying this shoe first level the foot, of course as near as possible. Then measure the slant of the foot that goes the fastest, afterwards measure the slant of the

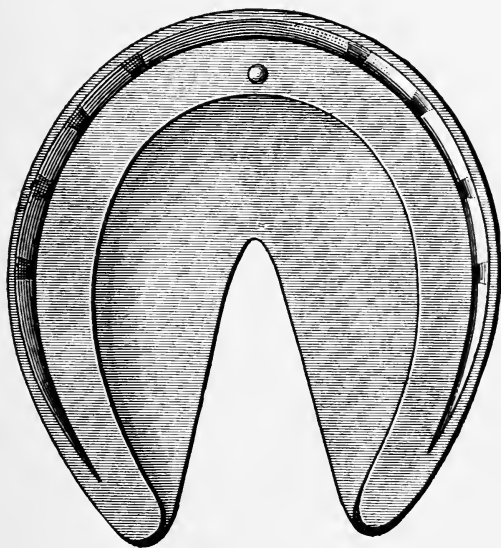


FIG. 29.—SHOE WITH PLATE ATTACHED.

other foot and you will find that it will be necessary to let the shoe on the slow foot extend out on the side so as to have the same bearing from the centre of the coffin-bone on both sides of the foot. Then make the shoe as shown in Fig. 28 and you will have an equal bearing on both sides.

SHOE, WITH PLATE ATTACHED, FOR DROPPED SOLES.

Fig. 29 represents a shoe with a plate fitted into it which I use in all cases of dropped soles. The object of the plate is to take all the bearing off of the outer crust or wall. The dropped sole occurs generally in large heavy horses. In using ordinary shoes the concavity of the bearing surface throws all the weight upon the wall and very little of the shoe touches the sole. The result of this is that the sole

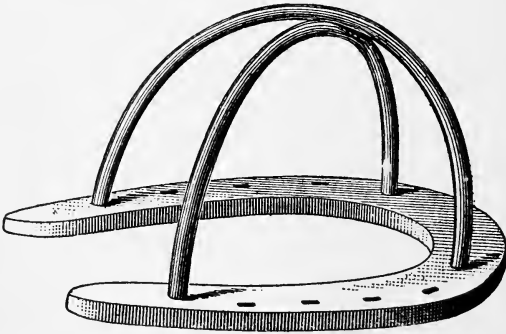


FIG. 30.—STIFLE SHOE.

keeps dropping down. In using the shoe illustrated in Fig. 29, apply hoof ointment and a packing of oakum so that the shoe will not bear hard on the wall. This will hold the sole up and take the strain off of the wall and in time the sole will go back to its proper place. It is sometimes a good plan to apply a blister around the coronet to force the growth of the foot and soften it up.

STIFLE SHOE.

Fig. 30 represents a stifle shoe. There is an old saying that "my horse has got a stifle out." I was born, you might say, a blacksmith, and I have heard my father say many a time that he had got to go out and put the old horse's stifle in. Now I don't think the old gentleman ever saw a horse with a stifle out.

We have what we call stifle difficulties, but if the horse gets his stifle out he will never do any more work. To get the stifle out he has got to break a band of bone like the knee-pan in man, and after this bone is broken it can never be replaced.

There are cords and muscles that draw over the stifle the same way as they do over the knuckles of the hand and it is these that slip and get out of place, and to cure such troubles a shoe is used made in the style shown in the illustration. This is to be put on the well foot, the object being to make the horse stand on the crippled foot and hold his cords and muscles in their places until they are relaxed.

Before using this shoe it is necessary to be very careful to ascertain that the trouble with the horse relates to the stifle. I have frequently seen cases where owners of horses thought that the stifle was out of place and the only trouble was that the horse had been pricked with a nail.

FLAT TROTTING PLATE.

Fig. 31 shows a flat trotting plate or a shoe for pacers; can be made in the same style with light steel. With pa-

cers it is necessary to pursue exactly the opposite course to what is necessary with trotters.

As a general thing the lighter the shoe the faster a pacer will travel. I make pacers shoes down as low as 4 oz. and from that up to whatever size it may appear necessary for the horse to carry. Always punch your nail holes as near the toes as possible with all light shell horses.



FIG. 31.—FLAT TROTTER PLATE.

COLT'S SHOE.

Fig. 32 shows a colt's shoe. The first two or three years a colt is shod more pains should be taken with the shoes than is required afterwards. A colt's foot is like the foot of a growing boy. It is not very strong and it does not take but a little to get it twisted and warped out of shape.

One great trouble with horsemen is this. They will go into a blacksmith's shop and say to the blacksmith: "I want some old shoes put on the colt, because I want something light." By such a plan as this it is frequently the case that you get a 16-oz. shoe on one foot and a 10 or 12-oz. shoe on the other, and the result is that the colt is unbalanced and

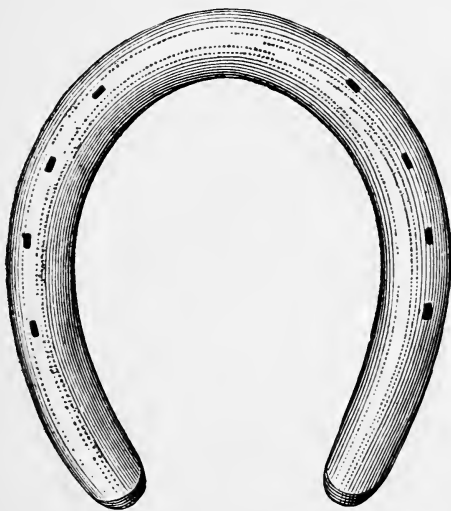


FIG. 32.—COLT'S SHOE.

in a little while he is interfering, and soon gets to forging perhaps.

Now we should equalize the weight of the shoes, getting them as near the same weight as possible on both front feet, and as near as possible the same weight on both hind feet.

To make the shoe represented in the illustration, take common half round iron, say $\frac{5}{8}$ or $\frac{1}{2}$ inch wide and don't crease it at all. They can be shaped around the horn

of the anvil and made almost as fast as a hen can pick up corn.

Dovetail the nails in and make everything perfectly smooth. With this style of shoe a colt will have shoes of equal weight and is not likely to get into the habit of interfering or forging. I consider them the best shoes which can be put upon a colt.

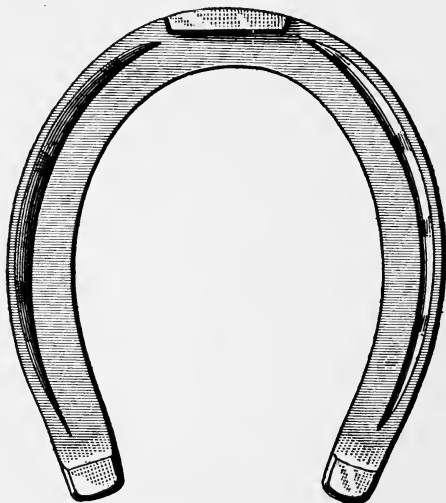


FIG. 33.—HIND SHOE WITH THREE CALKS.

HIND SHOE WITH THREE CALKS.

Fig. 33 shows a shoe with three calks. It is made the same as any common shoe, having three calks. It is used in cases where horses have heavy pulling to do.

I always make low calks. In most cases horse-shoers get the calks too high, which causes a rocking and wrench-

ing motion that produces more or less strain and injury to the tendons. Be careful in applying this shoe, as in other cases, to have the foot perfectly level.

TOE-WEIGHT AND SIDE-WEIGHT COMBINED.

Fig. 34 represents a toe-weight and side-weight combined.

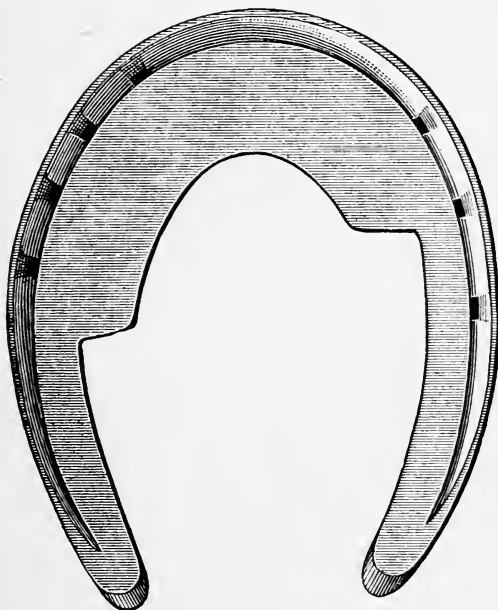


FIG. 34.—TOE-WEIGHT AND SIDE-WEIGHT COMBINED.

When it is desired to increase the action of a horse in front, the toe-weight should be used, and if it is desired to have the same horse travel a little wider, use the side-weight also; forging one side so the weight will extend about an inch further towards the heel than the other.

In case the horse swings his feet outward use the heaviest weight on the inside of the foot, which has a tendency to draw the foot back and make the animal travel square. If he throws his feet too close together the additional weight

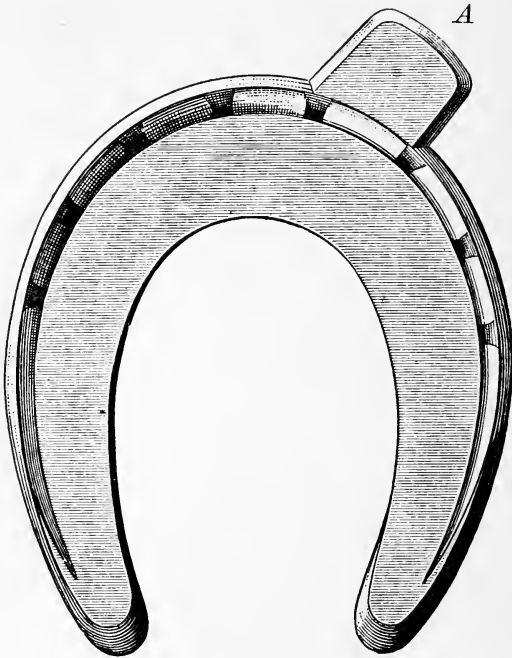


FIG. 35.—SHOE TO PREVENT PADDLING AND KNOCKING.

should be used on the outside of the foot, the object being to make the horse spread his feet in traveling.

The same shoe may also be used to correct what is called weaving, or where a horse throws his feet in traveling outward and inward in a sort of weaving motion.

This shoe makes a very good toe-weight and side-weight combined. It can be calked or not as may be required.

SHOE TO PREVENT PADDLING AND KNEE-KNOCKING.

Fig. 35. This shoe is made out of inch by half-inch iron,

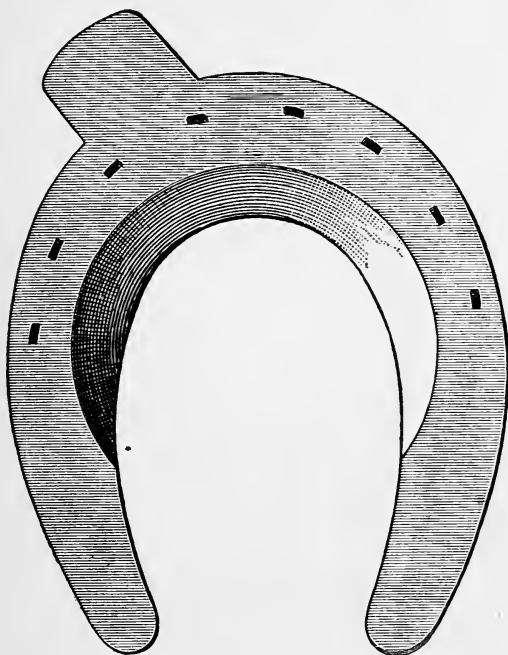


FIG. 36.—FOOT-BEARING SURFACE OF FIG. 35.

creased all the way around, and should be used in all cases of paddling.

The great trouble with many horses and knee-knockers is, that they strike on the outside point of the toe. Take any common shoe at the point indicated by *A*, say, weld on a

projection of half an inch to three-quarters of an inch in length. It may be an inch longer if necessary. As the horse strikes this projection in traveling he swings over and settles on the inside point of his toe. When this is

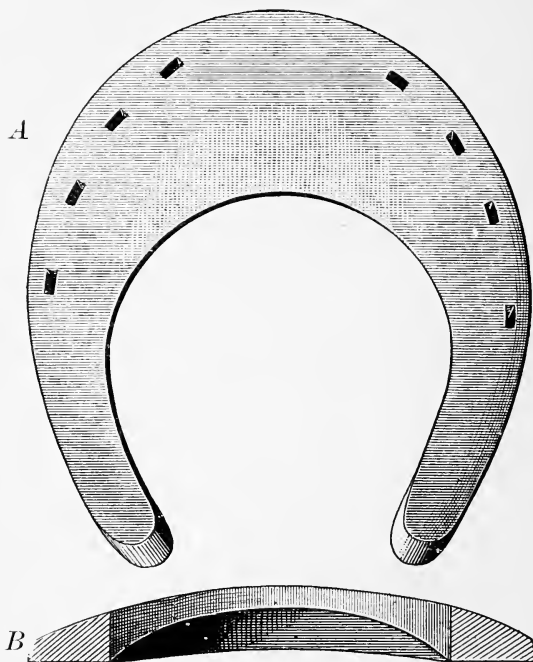


FIG. 37.—ROLLING MOTION TOE-WEIGHT SHOE.

accomplished it is necessary for him to swing his foot out.

I have stopped very bad cases of knee-knockers with this shoe and have had no trouble with it made exactly as represented in Fig. 35.

Always be careful to make the foot level in all cases,

when shoeing for different diseases and the correction of bad habits.

Fig. 36 shows the foot-bearing surface of Fig. 35, as well as the concavity which it is necessary to give to the

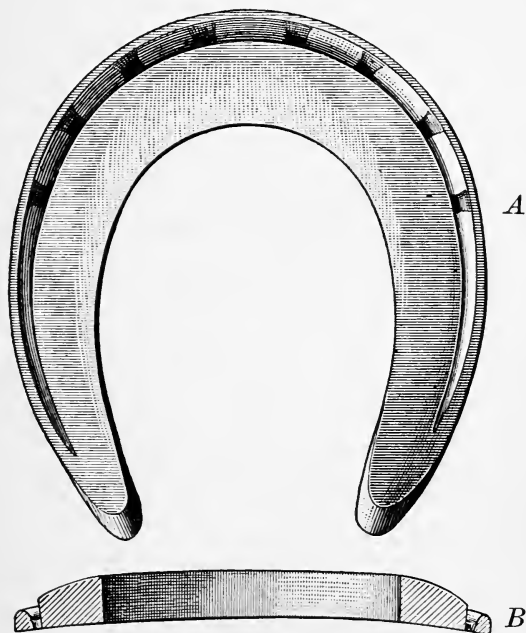


FIG. 38.—ROLLING MOTION SHOE.

toe inside, and the position of the nail holes. It also shows where the spur is welded on.

ROLLING MOTION TOE-WEIGHT SHOE.

Fig. 37 represents a shoe having a toe-weight and a rolling motion combined. This shoe tends to increase the

action in the fore-legs of the horse, the rolling motion making it easy for him to travel. *A*, shows the bottom of the shoe which is not creased, the nails being dove-tailed in so that the heads will set perfectly smooth with the surface of a shoe when it is on. *B*, is a sectional view of *A*, and shows the method of constructing the toe, revealing the convexity of the ground side.

ROLLING MOTION SHOE.

Fig. 38 represents the rolling motion carried to an extreme. This shoe should be used in bad cases of stumbling. It should be made out of inch by half inch iron. Do not draw the inside web at all, but leave it the full thickness, forge the outside edge and crease to the shape shown in the illustration. This will give the horse action and makes him raise his feet higher so that when he sets them down there is nothing to impede his movements, as would be the case with an ordinary toe. This shoe, represented by *A* in the engraving, should be made flat in all cases. *B*, is a sectional view showing the slant and proper curve for the toe.

DOUBLE HALF-BAR SHOE.

Fig. 39 shows what is termed a double half-bar. This is designed to take the place of a full bar, and the method of construction will be seen by an inspection of *A*, which shows a completed shoe. Half bars are attached and curl around each side of the frog, relieving the heels of all undue pressure.

B and *C*, show sectional views of the bars, giving an idea of their construction and thickness.

In all cases of corns on both sides I have used this shoe with great success.

It has also proved very successful in all cases of contraction. The shoe should not be allowed to touch at the heels.

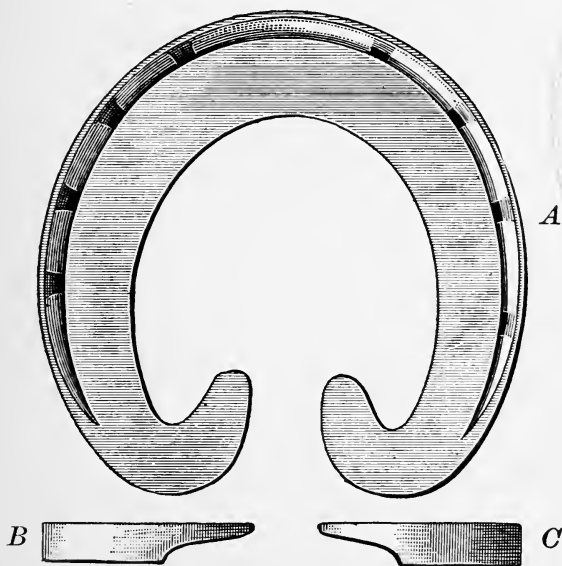


FIG. 39.—DOUBLE HALF-BAR SHOE.

The foot should be dressed perfectly level with the exception of what is taken off from the heels to prevent the shoe bearing and touching on the quarters.

When the quarters get crowded down so that they touch the shoe, it should be removed and the quarters cut down

again so as to relieve the pressure. This shoe can be called the same as any bar shoe if necessary, but the closer we keep the diseased foot to the ground, the better it will be, and the sooner it will get into good condition.

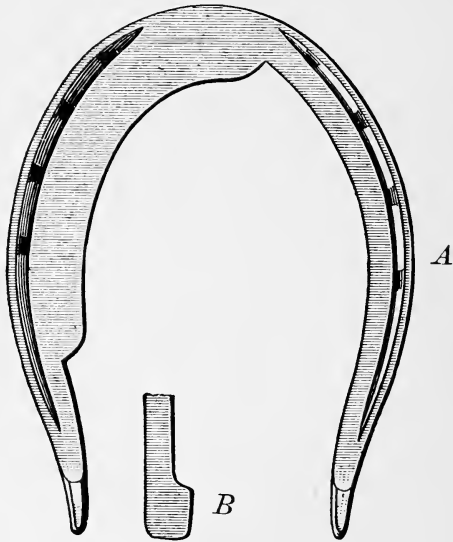


FIG. 40.—SIDE-WEIGHT AND TOE-WEIGHT COMBINED.

SIDE-WEIGHTS AND TOE-WEIGHTS COMBINED.

Fig. 40 shows a side-weight and toe-weight combined. I use this shoe in balancing the action of all horses. If the horse is inclined to hobble or hitch I use this shoe on the hind foot and increase the weight. There is no question as to the good results of applying this shoe to any horse if you get weight enough. If the first shoe fails to produce the proper result, increase the web, always placing the

weight on the outside of the foot. I use a very light heel and no toe-calks. On the hind shoes of all speeding horses, and generally on light driving horses, I always use small heels, then when a horse reaches out the heel gives him a firm grip on the ground so that he will not be likely to slip or

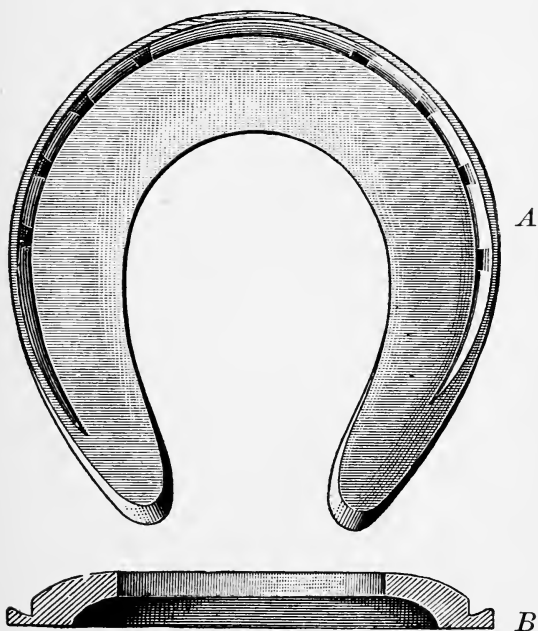


FIG. 41.—ROLLING MOTION SHOE.

strain himself. *A*, shows the completed shoe ; while *B*, gives an idea of style of the calk used.

ROLLING MOTION SHOE.

Fig. 41 is a rolling motion shoe. The advantage of this shoe is that it increases the action of a trotter and quickens

his pace. In a common flat shoe a horse has to keep climbing from the time he raises his heels to the time he gets over the point of his toe. With this shoe the rolling motion

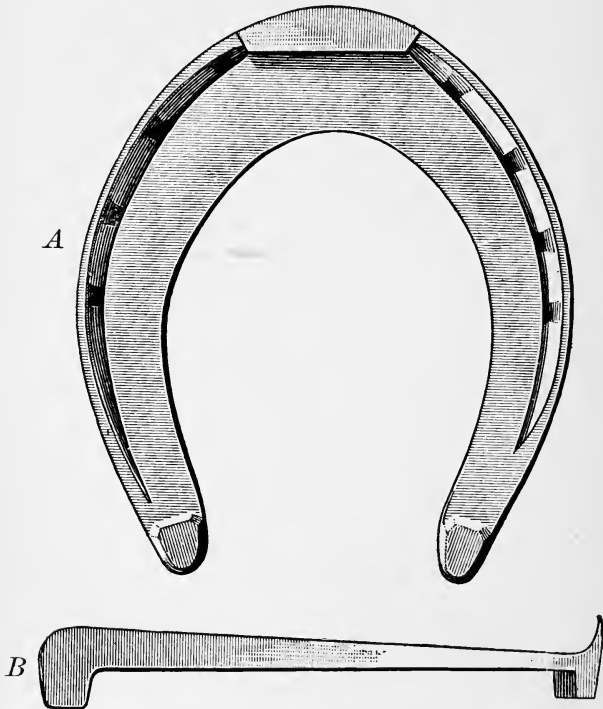


FIG. 42.—FRONT SHOE WITH THREE CALKS.

comes in the moment he begins to raise his heels. *A*, represents the bottom of a completed shoe; while *B*, shows a sectional view giving a clear idea of the necessary roll, together with the position of the creases.

FRONT SHOE WITH THREE CALKS.

Fig. 42 represents a common front shoe with three calks. This shoe is made the same as any ordinary shoe with the exception that the calks are made lower, as with low calks the foot can be kept in better condition than with high calks.

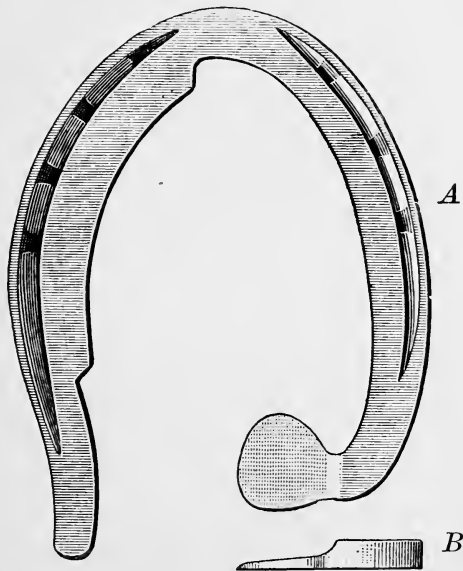


FIG. 43.—HALF-BAR AND SIDE-WEIGHT COMBINED.

As a general thing I do not approve of making the calks of any shoes over half an inch high. Many people are apt to want high calks. The higher the calk the more rack and strain there is. More ring-bones, curbs and spavins are brought about by the feet rocking on high calks than by anything else. *A*, represents the complete shoe; while *B*,

shows a sectional view of the height and shape of the calk. I always make the toe-calk a little bit the lowest.

HALF-BAR AND SIDE-WEIGHT COMBINED.

Fig. 43 represents a side-weight and half-bar shoe combined. When it is necessary to widen the action of a trotting horse, this side-weight is used, and in case the quarter of the same foot has grown in and wired under, the half-bar is used, covering just half of the frog. This will spread out the quarter to where it is wanted. *B*, shows the thickness of the half-bar as it rests on the frog.

It should be borne carefully in mind that the bar only touches and presses on half of the frog. It will not do to extend it clear across the frog. This shoe should be used in all cases of broken down quarters, or corns, or quarter cracks.

A PLAIN HIND SHOE.

Fig. 44 shows a plain hind shoe. On light driving horses I use no toe-calk. This shoe should be made of steel. Turn up a very light heel, in all cases making the weight as nearly as possible equal on both sides. When this style of shoe is used for road horses they should be made very long. The shoe should project at least one inch back of the foot, the object being to support the main cords and tendons and the ankle joints. This takes off all concussions and will prevent knuckling. In case a horse is inclined to knuckle, a good long shoe should be used and the heel should be raised. Use the same style of shoe for the front

foot as for the hind foot. That is as long a shoe as would be used in difficulties of knee-sprung animals. Knuckling and knee-springing is brought on by straining the tendons and cords. To give the animal relief, of course the strain must be taken off. *A*, shows the complete shoe ; while *B*, represents a sectional view with the heel properly turned up.

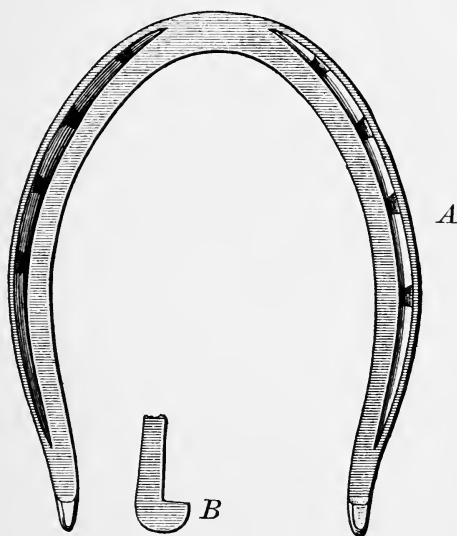


FIG. 44.—PLAIN HIND SHOE.

PLATE FOR RUNNING HORSES.

Fig. 45 is a plate for running horses. It is made of steel, very light, and varies in weight according to the size of the horse to which it is to be applied. I make them as light as $1\frac{3}{4}$ oz. and from that up to 4 ozs., according to the weight the horse is designed to carry. They are made

with four nails on a side and placed as shown in the engraving. No calks whatever are used on the plate, the object



FIG. 45.—PLATE FOR RUNNING HORSES.

being to use as light a shoe as is compatible with a proper protection of the foot.

CHAPTER V.

CLINCHING TOOL.

In this connection (Fig. 46) is described one of the most useful little tools which I have ever handled. It is used instead of a rasp for cutting out the small portion of hoof driven outward by the nail, and interfering unless it is removed with proper clinching. This bit of hoof is usually rasped out, but in rasping it a portion of the hoof on each



FIG. 46.—CLINCHING TOOL.

side of the nail is cut away to clinch the nail. The tool in question will gouge out just enough hoof to admit of the nail clinching in good shape. Rasping or filing under the nail weakens the walls of the foot and it is far better to remove the small portion of hoof necessary by this clinching tool.

HANDLING BRIDLE.

I shoe all kickers, and handle all ugly horses with this bridle. Any open bridle can be converted into this kind of bridle by means of the Rockwell Bit. No. 1 in Fig. 47 represents the nose piece, which is 18 inches long and is

attached to the side pieces ; and after it is on the horse you can take it up so that it will fit. This piece should always be made 18 inches long so as to double it in attaching to the

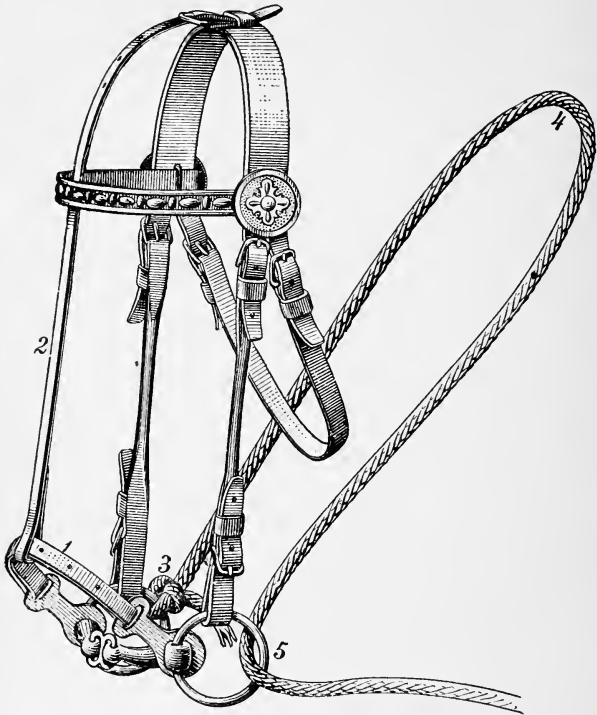


FIG. 47.—HANDLING BRIDLE.

bridle. No. 2 in the illustration is 24 inches long, running from No. 1, to the top of the bridle. No. 1 shows where the rope should always be tied. Then let it run over the neck as indicated at No. 4, then down through the ring in

the bit at No. 5. This rope should be half an inch in diameter and 12 feet long. It may not be necessary to use it as long as this ordinarily, but in bad cases it may often come in handy. I handled an ugly horse in this way. I put on the bridle and take him out doors where I can have plenty of room. Step to one side and give him a sharp pull. Every time you pull say "whoa." Then try the same tactics on the other side. When you get on the other side he will be likely to follow you. If he does you may know he is thinking of the bit. Draw up the rope tight and have some one hold it, then pick up his foot and if he does not stand drop the foot and give him a few more strong pulls of the rope. You will find that he will not think very much about kicking, but his mind will be on the bridle and there will not be time for him to telegraph back to his heels to kick.

DIFFERENT PARTS OF THE BODY OF THE HORSE.

The two parts of the head of the horse which correspond to the temples in man are above the eyes. The orbit, which is formed of seven bones, four cranial and three facial bones, contains the globe of the eye. On the inner angle is situated the *haw*, shown at *A* in the engraving.

At *B*, the *eye-pits* are indicated. These are the indentations which are located between the ear and the eye and above the eye-brows.

C, represents the front of the head or the face from the eyes to the nostrils. This portion corresponds to the upper part of a man's nose.

The neck of the horse is designated by the word *crest*,

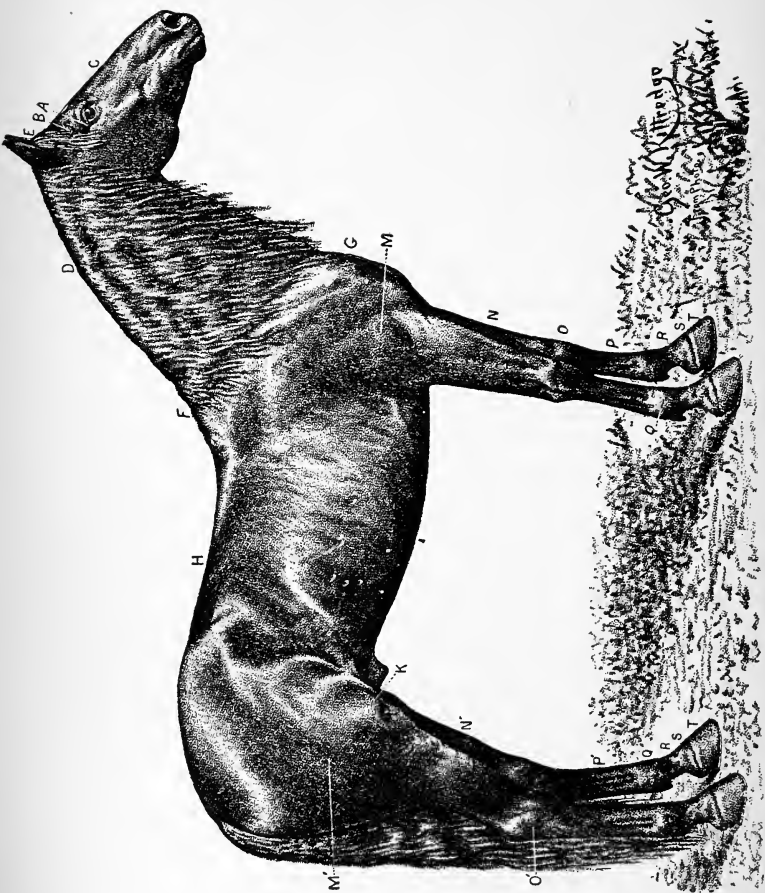


FIG. 48.—DIFFERENT PARTS OF THE BODY OF THE HORSE.

and is shown at *D* in the engraving. The crest comprises all that portion of the neck covered by the mane.

E, is the *forelock* or that portion of the mane which naturally falls over the forehead between the eyes.

The *withers* indicated at *F* is the spot where the shoulders meet.

The *chest* is shown at *G*, and is that part which is in front between the shoulders and below the throat.

The *back* is shown at *H*. It commences at the withers, *F*, and extends along the spine as far as the crupper.

The space between the back, *H*, and the stomach, *J*, is called the *barrel*.

The *flanks* lie at the extremity of the stomach and extend as far as the hip bones.

M, represents the shoulder, while *N* indicates the arm.

O, is the knee-joint. This corresponds to the wrist in man.

P, is the *shank*. It commences at the knee-joint and corresponds to the *Metacarpus* in man.

Behind the shank is a tendon which extends from one end to the other and is called the *back sinew*.

Q, is the *fetlock-joint*. The fetlock itself is a tuft of hair covering a sort of soft, horny excrescence, which is called the *ergot*.

R, shows where the two pastern bones are located and is that portion of the leg between the fetlock-joint and the foot.

S, is the *coronet*; a slight elevation lying below the pasterns, which is furnished with long hair falling over the hoof all around the foot.

T, shows the hoofs, or it may be said the nails of the foot, as the hoof correspond to the nails in the human hand.

K, in the hind leg, represents the *stifle*, which is the joint of the knee and contains the knee-pan. This corresponds to the knee in man. It is situated below the haunch on a level with the flank and shifts its place when the horse walks.

M, shows the thigh, which corresponds to the leg in man. It extends from the stifle down to the hock. The hock is the joint which is below the thigh and bends forward. This thigh-joint corresponds to the instep in man. The hinder part of the hock, which is called the point of the hock, is the heel. Below the hock are the shank, the fetlock-joints, the pastern and the foot, as in the fore-legs.

N, shows the upper portion of the hind leg.

THE CORRECT ANGLE OF THE FOOT.

Very few horse-shoers, comparatively, understand that there is a correct and incorrect angle for the foot to assume when it is placed flat upon the ground. Some shoers cut too much from the toe, throwing the foot too far over in front, while others cut down the heel too low, necessarily throwing the foot too far back.

Fig. 50 shows an illustration of a foot with the angle properly indicated. Of course this angle will vary a little in different horses and here is where judgment is required in the horse-shoer. About 53 degrees may be considered the right thing for the front foot, while 58 or 60 will be the average angle for the hind foot. Almost any horse-shoer

can construct an instrument with the degrees marked on so that it will be easy to ascertain exactly the angle of any foot.

RESULTS OF USING POOR NAILS.

Fig. 50 shows a foot with the shoe attached, a portion of which has been cut away for the purpose of illustrating

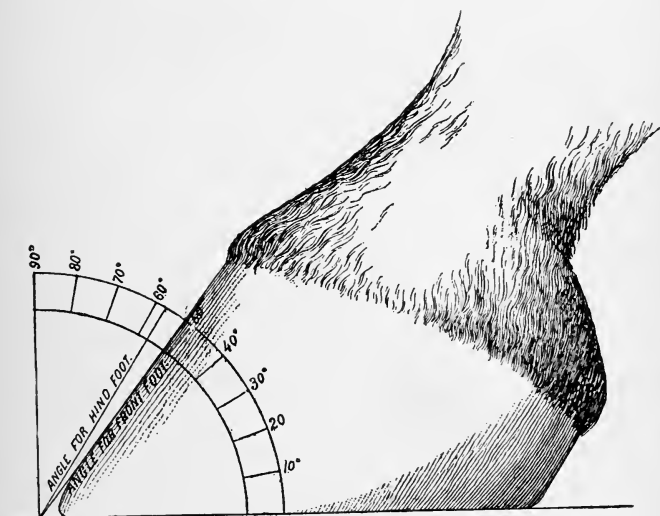


FIG. 49.—CORRECT ANGLE OF THE FOOT.

how a poor nail may work serious and sometimes fatal injury. *A*, shows the coffin-bone; *B*, the sensitive sole; and *C*, indicates where the nail split, and a portion of it penetrated through the sensitive sole and nearly through the point of the coffin-bone. The moral of course to be drawn from this is that no horse-shoer should ever be tempted to

use a poor nail. I do not use or recommend any other nail except the Vulcan Nail, made by the Fowler Nail Co. of Seymour, Conn. I once lost a horse by using poor nails. The illustration shows exactly how a nail in this particular

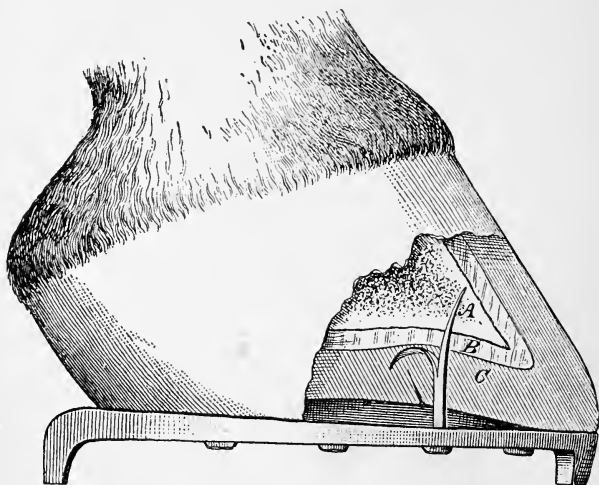


FIG. 50.—RESULT OF USING POOR NAILS.

case did its fatal work and the horse died of lock-jaw. The illustration was made from the foot taken from this horse. I have never found a Vulcan nail during the twelve years I have used them break or split.

CHAPTER VI.

FEET, ETC.

FRONT VIEW OF A DISEASED COFFIN-BONE.

Fig. 51 represents the front view of a diseased coffin-bone. When ossification takes place throughout the

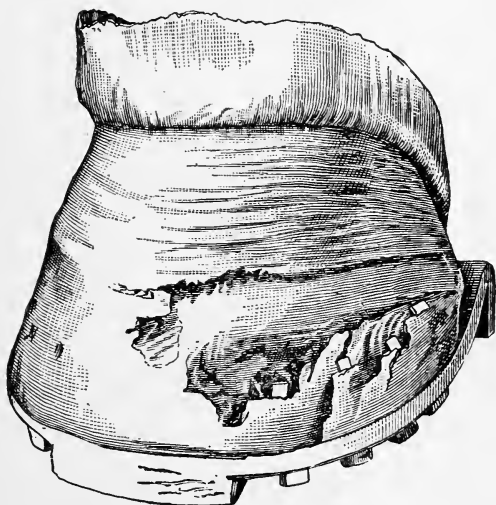


FIG. 51.—FRONT VIEW OF A DISEASED COFFIN-BONE.

entire structure of the bone, the outside bone around the edge of the coronet becomes enlarged. A great many people term this a bad case of ring-bone, but it is not ring-

bone, it is a genuine case of diseased coffin-bone, and there is no cure for it. As soon as the foot assumes the conditions shown herewith, the quicker you kill the old horse the quicker you will give him relief.

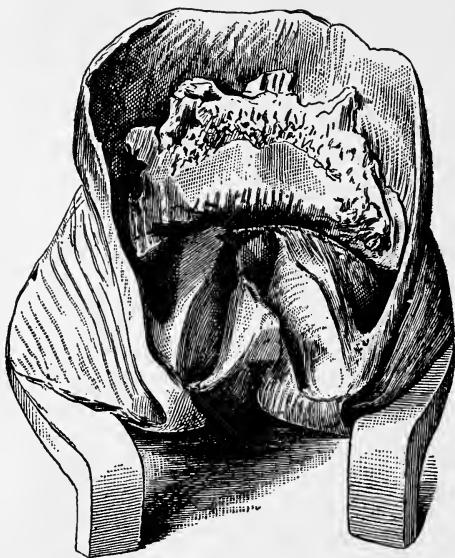


FIG. 52.—BACK VIEW OF A DISEASED COFFIN-BONE.

BACK VIEW OF A DISEASED COFFIN-BONE.

Fig. 52 shows a back view of a diseased coffin-bone. All the relief which can be given to a horse thus afflicted is to shoe him as near level as possible, raising the heel-calks and letting the shoe extend out say an inch-and-a-half or two inches back of the foot.

Fig. 53 shows a back view of the near front foot of the same horse. Fig. 52 being the off front foot. Fig. 53 also

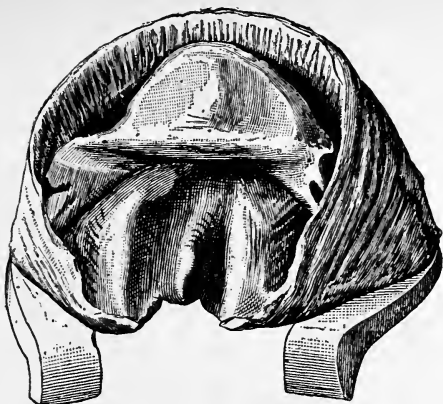


FIG. 53.—PERFECT REPRESENTATION OF A COFFIN-BONE.

gives a perfect representation of a coffin-bone. It will be seen that there is quite a difference in the feet.

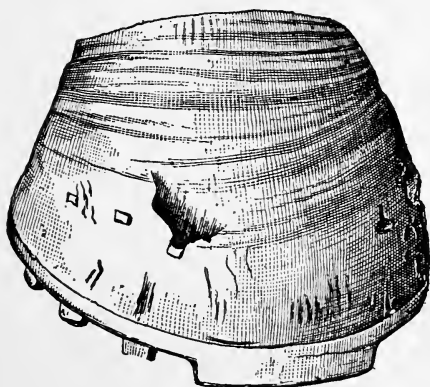


FIG. 54.—FRONT VIEW OF A PERFECT FOOT.

Fig. 54 gives a front view of a perfect foot, as shown in the back view of Fig. 53.

A VERY THIN SHELL.

Fig. 55 represents a very thin light shell, the finer the breed of the horse the thinner and lighter the shell in every case. On this account great judgment is needed on

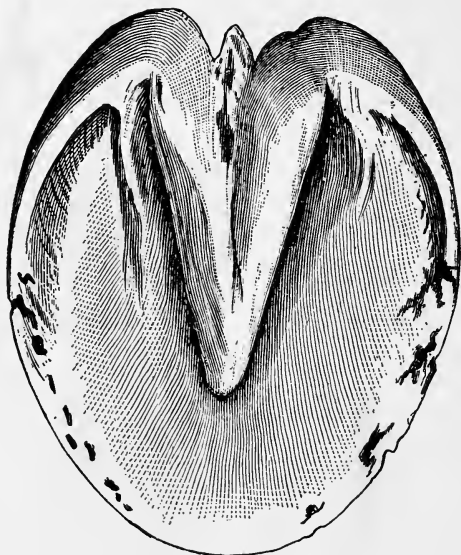


FIG. 55.—VERY THIN SHELL.

the part of the horse-shoer to determine what sized nail to use. I use nails as small as No. 2 and up to as high as No. 7, but do not use many No. 8's, and have not driven a No. 9 horse-nail in seven years. The horse the foot came off, shown herewith, was shod on Monday and the next Friday was dead. There is no question in my mind as to what the trouble was with this horse. He certainly died with lock-

jaw. There were only two nails in the outside wall, the rest being in the laminae, some of them coming clear through the lining of the foot, penetrating a mass of blood vessels, arteries and sensitive nerves.

This foot came off a Hambletonian trotter. These trotters have the lightest shells of any trotting horses in the world.

Too great care, it will be seen, cannot be taken in dressing the feet of fine bred horses, and great care is needed not to use too large nails.

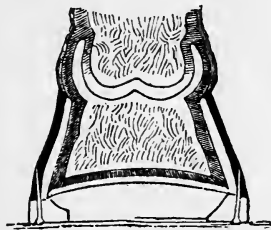


FIG. 56.—SECTIONAL VIEW SHOWING HOW NAILS SHOULD BE DRIVEN.

Fig. 56 shows a sectional view of a horse's foot, the exact location of the wall of the foot through which the nail must be driven can be readily seen. The most casual observer will notice that a trifling deviation of the nail from the proper course will send it into the sensitive laminae where it will produce lameness and serious injury.

FOOT OF A HORSE THAT DIED OF LOCK-JAW.

Fig. 57 represents the foot of a horse that died of lock-jaw. Now I am free to confess that I have killed two valuable horses in my life by driving the nails wrong and pul-

ling them out again before the owner could see what had been done. In performing this operation sometimes the point of the nail will twist off and remain in the foot. Now whenever this happens the outside crust or wall should be opened at once and the piece of nail removed or the horse will die of lock-jaw.

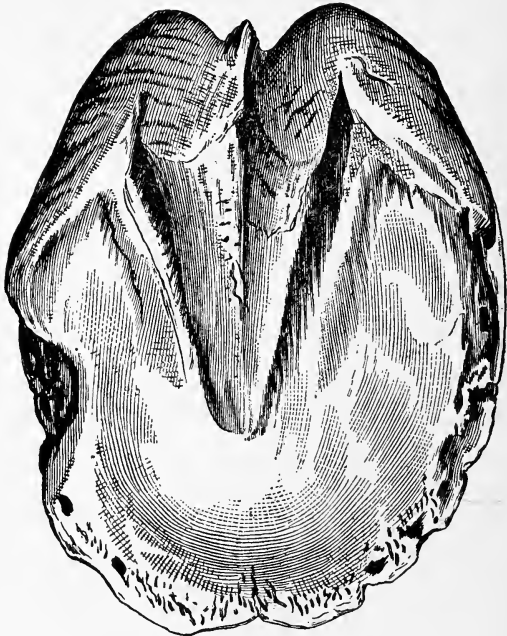


FIG. 57.—FOOT OF A HORSE THAT DIED OF LOCK-JAW.

COLD VS. HOT HEATING.

Right here let me say a word with respect to hot fitting. I talked in favor of hot fitting for twenty-one years.

Why did I do it?

Simply because I could dress and level a horse's foot a great deal easier that way than I could with a file or rasp. Now the sensitive laminae of the horse's foot between the shell and the lining of the foot is similar to the sensitive portion under the human finger-nail, and just as far as the heat goes it kills the sensitive laminae and burns them out. After we get the laminae burnt out on both sides of the foot to the depth of the thickness of the sole, if the horse happens to be very heavy, the sole is forced down and then we say he is in the first stages of founder. I have foundered at least five hundred horses in my life with hot shoes and nothing else. I don't allow myself or any man under my instruction to touch a hot shoe to any horse's foot.

The foot should be perfectly level in all cases, and the shoe should be made perfectly level before applying it to the foot. All we take off from the foot we take off from the bottom of the foot, and never set the shoe back and chop all the way around the outside. When this is done all the strength of the shell around the outside is cut away and this will cripple the best horse in the world. This is a great mistake.

For twenty-one years I used to fit the foot to the shoe and not the shoe to the foot. The first thing I used to do after pulling off a shoe was to cut the heels down. After I got the heels cut down low enough to suit me I would put my buttress or knife in one side of the frog and cut that side down. Then I would cut the other side down and if the man was paying me a little extra price why I would cut it all out. Now the frog does not want to be touched with a knife at all.

Under natural conditions the frog is shed every three months in a healthy foot and ought never to be touched by the farrier ; when the sensitive frog is subjected to the ordinary banging and concussion which it will receive if let alone the outside horny frog will shed itself. Cutting the frog away stops the growth of the foot at least a year.

FOOT SHOWING A TOE CRACK.

Fig. 56 represents a foot with a toe crack. This is a very common occurrence, but toe cracks are not seen nearly as

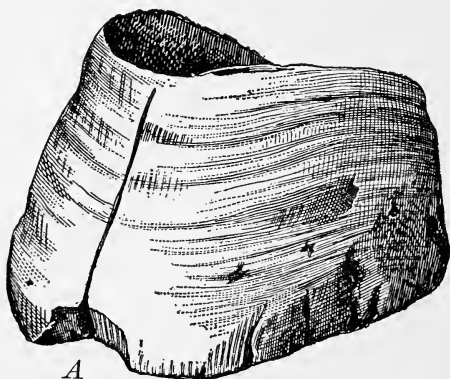


FIG. 58.—FOOT SHOWING A TOE CRACK.

often as quarter cracks. The point *A* in the engraving represents the split in the toe. In shoeing a split toe always cut out the hoof with a knife or rasp to the shape shown in the illustration. By this means the bearing is taken off from the crack. In such cases a calk shoe (such as will be found described elsewhere) is used. This lets the horse

over easy and relieves the strain on the toe. It is very important to avoid all strain at the point where the crack is.

In this particular case it will be a good plan to use a bar

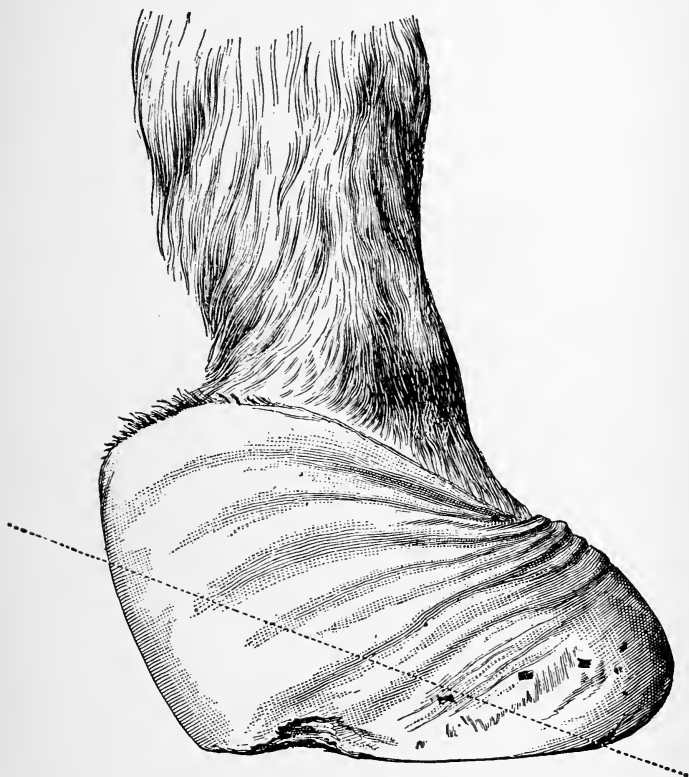


FIG. 59.—A HORSE'S DEFORMED FOOT.

with the four-calk shoe. As the heels are expanded the crack in the toe is closed up. A fruitful cause of toe cracks, in my opinion, is the use of too large clips.

A HORSE'S DEFORMED FOOT.

Fig. 59 shows the foot of a colt which was ruined by not cutting the heel for five years.

I have frequently had horsemen come into my shop and say, "Don't cut the heel any, cut the toe but not the heel."

The horse whose foot is shown in the engraving was spoiled by his owner, who insisted that nothing should be cut from the heels.

The poor blacksmith, however, was the man who had to stand the blame.

When the heel is left too high the horse's foot is thrown over in front, bending it up and throwing the pastern bones and coffin-bone out of position. Instead of keeping their natural position, these bones, in the example under consideration, had been thrown into a vertical position. In shoeing a horse the heel must be cut down just as much as any other part of the foot. Of course there are naturally high heels and naturally low heels. A horse-shoer, if he understands his business, will know just as soon as he picks up the foot about how much to cut off and where to cut. I have seen horses ruined by cutting the heel too much. If the foot, however, is kept at an angle of about 53 degrees, it will not be very far out of the way.

FOOT WITH SECTION OF WALL REMOVED.

Fig. 60 represents a dark colored foot. It is a curious fact that a light colored foot has a thinner shell than a dark colored foot. The piece from *A* to *B* in the illustration represents the outside crust or wall and laminae taken

out of the side of the foot to show the internal construction. It can be easily seen by an examination of this illustration that there is not very much thickness in any foot into which a nail can be driven. The importance, therefore, of

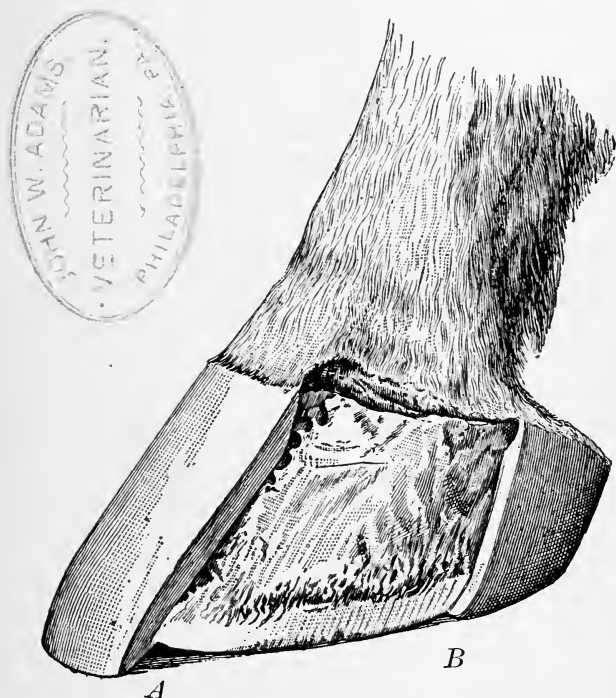


FIG. 60.—FOOT WITH SECTION OF WALL REMOVED.

understanding the construction of the foot so as to locate nails properly cannot be overestimated. If the nail is driven inside of the wall it strikes the laminae, and if it goes inside the laminae it hits between six and seven hundred blood vessels. In most cases dark colored feet have a

shell as thick again as light colored feet. A white foot with a dark streak or a dark foot with a light streak can stand more banging, go barefooted longer, and is far tougher than any other kind of a foot.

SHOE WITH PORTION OF HOOF CLINGING TO IT.

Fig. 61 represents a shoe and a piece of foot that has been pulled off from the horse. When this happens it is

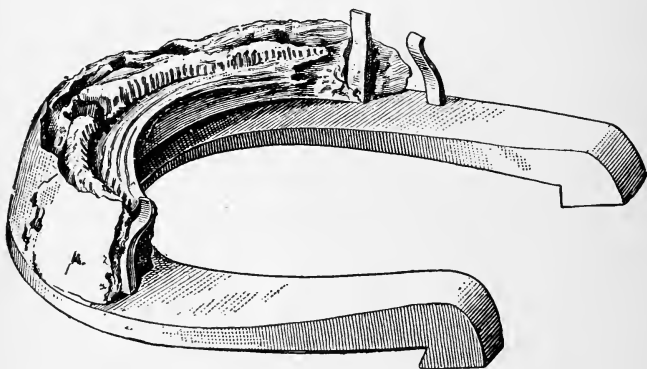


FIG. 61.—SHOE WITH PORTION OF HOOF CLINGING TO IT.

caused by rasping too much with the corner of the rasp under the clinches. The outside crust or wall should be subjected to just as little rasping and filing as possible. It should be understood that the shell of the foot is not very thick. A man cannot file with the corner of a rasp under the clinches and make a groove big enough for a canal boat to run in without getting the whole shell off.

With the ordinary method of clinching by rasping a groove under the clinch, if the horse gets his shoe off he is

liable to pull a part of his foot off. Now I do not file with the ordinary rasp at all. I have a little gouge so constructed that I can take off just what the nail turns up as it comes out and by using the tool the shell is not weakened at all. A great many after they get the shoe on and clinched, rasp and polish the foot up to the hair. I never do that now. It should never be done in any case. When it is done the shell of the foot is greatly weakened and all the pores opened.

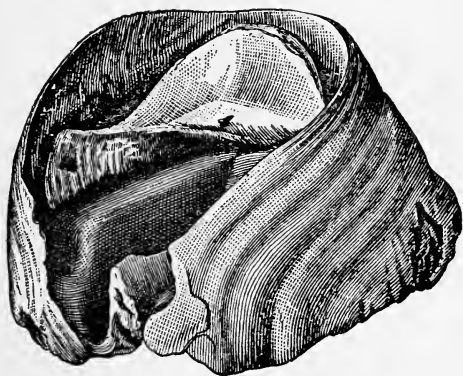


FIG. 62.—A BAD CASE OF CONTRACTION.

No more rasping or filing should be done on the outside wall than is absolutely necessary.

A BAD CASE OF CONTRACTION.

Fig. 62 represents a bad case of contraction. Few people comprehend how much a horse suffers as his foot is being drawn in at the heel by improper shoeing. This difficulty is called by some people contraction, and others say that

the horse is hoof bound, but whatever you call it, the horse should be given immediate relief. An animal thus afflicted suffers as much as a man would suffer with a pair of extremely tight boots, and perhaps more. It is no wonder in cases of contraction that a horse tries to relieve the pain he suffers by walking on his toes. The contraction of the foot presses on the blood vessels and nerves and in a measure shuts off the circulation, causing intense pain. Any man can easily tell when a horse is suffering from contraction by examining the lateral ridges of the hoof.

CHAPTER VII.

SPECIFIC DISEASES AND ACCIDENTS.

GLANDERS.

This highly contagious disease is believed to be almost invariably incurable by any known means, and hence it is not here introduced with any hope of its cure, but solely that horse-masters should be able to recognize it, and, when discovered, to prevent its being spread. The symptoms are—a yellow discharge from one or both nostrils and a swelling of the glands under the throat. If one nostril only is affected, the corresponding gland is enlarged, while the other remains in a healthy state. Sometimes the disease continues in this stage for many months, but, sooner or later, the discharge increases in quantity, and becomes green and very offensive, and the mucous membrane of the nostril becomes ulcerated, and the swollen glands harden, and attach themselves closely to the jaw-bone. It may be distinguished from the swelling and mucous discharge which accompany ordinary cold by the absence of fever, and by the continuance of the disease for a long period of time; also by the swelled gland adhering to the jaw, which is a very characteristic symptom. The inflammation in glanders is of a chronic character, and there is little heat of surface. The ulceration of the mucous membrane is also pe-

cular to the disease, and never accompanies ordinary cold, in which, also, the discharge is almost always equally copious from both nostrils. From strangles it may readily be distinguished by the absence of suppuration in the glands, and by the hardness and adhesion of them to the jaw. Glander, likewise, is the disease of old or adult animals, while strangles very rarely attacks any but young ones. In strangles, also, the mucous membrane lining the nose is intensely red, while in glanders it is only moderately so; the discharge likewise in strangles is profuse from the first.

The cause of glanders is almost always contagion; but in some few cases it appears to be generated, or rather to degenerate, from common catarrh or strangles. Still it is very difficult to arrive at certain conclusions upon this subject, because, instead of degenerating, it may only have assumed the form of these milder diseases at first, and yet all the time have been true glanders. But whether it is so or not, it appears quite clear that many cases apparently of these mild diseases gradually became converted into glanders from some cause or other, and are then totally incurable. The point at which the change takes place cannot be defined; but the most experienced surgeons begin by pronouncing them cases of common cold or strangles, and end by asserting that they are true glanders; and the state of the constitution marks the alteration, the horse having become thin and haggard, with his coat staring and rough. Mr. Coleman relate a case in which several sound horses on board ship were obliged to be closely confined under closed hatches, in consequence of which some of them were suffocated, and the remainder showed unmis-

takeable signs of glanders, although there was not the slightest reason to believe that they were inoculated with it by contagion. It is, therefore, reasonable to conclude with the majority of writers on the subject, that glanders is generated by foul stables; want of ventilation and overcrowding being generally the chief cause and origin of the disease. The essence of the disease appears to be an ulceration of the mucous membrane of the nostrils, which speedily contaminates the nearest lymphatic gland, and finally attacks the whole system, constituting the form called "farcy,"—to be presently described. The ulcers discharge a poisonous matter, which is capable of communicating the disease to other horses or to man, or if absorbed into the system, as it always is in course of time, it destroys the health with more or less rapidity, but with great certainty. But this matter must actually touch the mucous membrane of the sound horse, and no mere breathing will suffice to give the disease. It is by drinking out of the same bucket, or by smelling one another, and rubbing noses together, or licking one another, that one horse affects another; and if the stalls were higher, it would be carried from one to the other much less frequently than at present. But no one with any prudence would run the risk of keeping an infected horse; and the sooner such an animal is shot the better for all parties, since neither horse nor man is safe from inoculation, with all the care in the world; and in the latter case it is a frightful disease indeed, and one which no one is justified in risking under any pretence whatsoever. Treatment seems to wholly thrown away, though some few cases are recorded in which sulphate of copper given inter-

nally and applied externally to the nose, has apparently cured the disease. The Spanish fly is also said to have had the same good effect, but I know nothing from experience of these effects ; and I should be very unwilling to try any experiments on such an intractable and loathsome complaint. When the disease is established in a lot of horses, they had better all be destroyed, and the stable treated as for mange. The clothing should either be destroyed or well washed, and then baked ; the wood of all the stable utensils should be painted, and the ironwork exposed to a red heat. These means will prevent its being reproduced, and if proper cleanliness and ventilation are maintained afterwards, whereby the disease may be prevented from being generated, there is little fear of its occurring again ; but if Professor Coleman's opinion is correct, that it is almost always generated, and consequently if the first attack was the result of filth and neglect, unless the management has been altered, it is scarcely reasonable to expect anything else but a repetition of the same disease occurring from similar causes.

FARCY.

By the term Farcy is understood the train of secondary symptoms which follow glanders ; and, just as we see in the syphilis of man a primary sore occurring on a different part, followed by inflammation of the absorbents, enlarged lymphatic glands, and an eruption on the skin, so in the horse glanders begins as a series of primary sores in the mucous membrane of the nose, together with an inflammation of the lymphatic gland, or glands, of the throat ; and

when this state is followed by secondary symptoms, they receive the name of farcy, though the two diseases are the same, as is proved by inoculation. Mr. Youatt was of the opinion that the farcy-buds, as they are called, arise from the inflammation of the absorbents, at the situation of their valves, and in their course to the great blood-vessels of the chest; but this can scarcely be the case, because the farcy-buds almost always make their appearance first upon the lips and skin of the nose, parts which are more distant from the chest than the original ulcers, and certainly not on the line of any valvular absorbents. The fact is, that, as in syphilis, the matter is absorbed into the whole system, and is then deposited upon the surface, choosing, apparently, the most highly organized skin, in preference to that furnished with fewer blood-vessels. The appearance is as follows: First of all small tumors arise, frequently in the course of the veins, but often in other situations; and as they grow they become hard, and suppurate; after which they burst, and discharge a thin watery matter; the sore presenting the same appearance with almost all poisonous sores, viz., a deep central cavity, with a rugged, hard, and elevated edge, and an unhealthy watery discharge. Sometimes the insides of the hinder extremities are affected equally with the fore-quarter; but more often the latter is the chief seat of the eruption, the inside of the arm, the tender skin of the brisket, the muzzle, and neck being thickly studded with farcy-buds and sores in all stages of progress. By-and-by, the deep-seated absorbents become affected, the ulceration extends deeply between the sheaths of the muscles and tendons, and

even into the chest; and, at last, the whole cellular membrane and lymphatic glands become one mass of disease, finally wearing down the horse by irritative fever. This is the regular course which will occur in most cases; but there are numerous exceptions, in which farcy breaks out suddenly without any warning of these small and insidious steps, and the ulcerations run their course more rapidly than I have here described them. With regard to the identity of the two diseases, there can, I think, be little doubt on the matter, when it has so often been demonstrated by inoculation that the matter of either will produce a primary sore in the shape of glanders, followed by secondary ulcers in the shape of farcy. The latter disease, when inoculated into the system of another horse, does not at once reproduce its own likeness, but only by means of a glandered ulcer of the nose, or of any other part in which it is inserted. If it is inserted in the skin, it is some time in breaking out into ulcers, and it does not always succeed; but *finally* the secondary symptoms appear just as if it were introduced into the Schneiderian membrane; hence, it is reasonable to conclude that the two are identical, and that the analogy with syphilis is complete. Farcy is distinguished from several other diseases which resemble it by the following signs:

From *Grease* it may be known when it attacks the legs, by the inflammation being less acute, though the swelling is often more sudden, but the redness and glossiness are not so great; also by the following symptoms given in the table herewith:

IN GREASE.

There is generally some crack or evident appearance of grease, with ichorous discharge from the skin, and great redness and glossiness of it. The swelling is very great, but it is greatest towards the lower part, which is evidently the *fons et origo mali*. This attack is often called the "swelled leg," which is perfectly distinct from the ordinary *filled leg*.

IN FARCY,

There are always some ulcers irregularly circular, and with hard edges; skin not very red or shining, but swollen, and free from discharge. Great general tenderness, but no cracks in the heels; absorbents inflamed, and showing hard lines and knots in their course. The inflammation extends upwards, and the swelling is greatest above the hock.

From *Surfeit* farcy is easily distinguished by the absence of all ulceration in the former, and by the hair in it merely coming off, leaving a bare place beneath; the little lumps in surfeit are not so large as in farcy, except in the very early stage; and they come out over the body suddenly, while farcy appears a bud at a time.

From *Anasarca* there can be no difficulty in distinguishing this disease, because in the dropsy of the cellular membrane there are no lumps, but an uniform swelling of the limb. There is a local œdema of the brisket, which is called water-farcy, most improperly, being merely a sign of general weakness, from the vessels giving way in the most depending part of the body.

The treatment of farcy may be conducted upon more probable grounds of a cure than in the case of glanders—that is to say, if the horse is not so thoroughly infected as is sometimes the case. When glanders is detected early, it is usually a very virulent case, because trifling attacks of it are generally overlooked, and are suffered to degenerate into farcy before anything is done; and thus it is

said that the farcy is often curable, while glanders is scarcely ever so. Now, when this is said to be the case by the very men who maintain their identity, there must be some extraordinary process of reasoning going on in their minds ; but the truth is, as I have remarked, that whereas those cases of glanders which come under treatment are very severe ones, so they are difficult of cure ; and in the same way farcy is seldom suffered to be developed from glanders when that was originally in a malignant form ; and hence, by being mild, it is curable. Such I believe to be the explanation of the fact, which is universally admitted, that farcy is much more amenable to treatment than glanders as usually presented to the veterinary practitioner ; the former being seldom malignant, and the latter generally so. The cure is effected by local as well as constitutional means.

The local remedy is the destruction of the ulcer or bud, either by the actual cautery (the budding iron), which should be applied to every ulcer or bud so as completely to destroy it. The knife should first divide those buds which have not ulcerated, after which the iron will act more energetically upon them, and yet with less destruction of the surrounding skin ; or the sulphate of copper should be freely rubbed into the ulcers, and made to destroy their surface. Arsenic and strong nitric acid, likewise, have been used with success, but their power is too great to be trifled with by an inexperienced man. Whatever local remedy is used should be followed up wherever the bud makes its appearance, as there seems to be no tendency to heal without some destruction of parts giving a new and

healthy stimulus to the fresh surface. The constitutional treatment is still more important than the local, and should consist of such substances as will cause an excessive secretion from some organ, carrying with it the poison of the disease; and this substance should be as little lowering to the horse as possible. Three such medicines are known, viz., mercury, arsenic and iodine, all of which are paraded by their several advocates as certain cures. The bichloride of mercury (corrosive sublimate) is the form generally given, in doses of from 5 to 15 grs., dissolved carefully, and then added to a pint of gruel, the next morning. If arsenic is given, it may be administered according to the formula already given; and I believe it to be by far the best remedy in farcy, and the least injurious to the horse. But it is only as an experiment upon a horse which would otherwise be shot that I should ever advise the owner to use these powerful drugs without regular advice, as it will seldom happen that he will be able to calculate the proper dose, or to know when to push it, and when to hold his hand. Sometimes, however, such a case occurs as the one I have alluded to, and then he may feel justified in trying his luck; and if so, I would suggest his giving the biniodide of mercury as follows: Biniodide of mercury, 3 to 5 grs.; linseed meal and water, enough to make a ball. To be given three times a day. This I believe to be more likely than any other remedy to effect a radical cure of the disease. The dose may be increased up to 8 or 10 grains, with care; but the above will generally be found sufficient, and more safe than corrosive sublimate or arsenic.

GLANDERS IN MAN.

Glanders in man is a horrible disease, capable of being inoculated from the horse when there is an abrasion of the surface. Numerous cases of this kind have occurred, all of which have been fatal when allowed to reach the stage of absorption. If, however, the inoculated sore is destroyed by the hot iron, or by lunar caustic or fused potass, there is very little risk of the disease spreading; and therefore the groom who has the care of a glandered horse, and who finds a sore on his arm or hand, should always consult a skillful surgeon at once, and follow his advice, if he prescribes any form of caustic, on the supposition that it is the disease we are now considering. When it has been absorbed, there seems to be little chance of a cure, though there are one or two doubtful cases on record in which it is said to have been effected. At all events it is worth the trial, and the biniodide of mercury holds out the best chance of a cure, in doses of one-third of a grain three times a day.

STRAINS AND BREAKS-DOWN.

Strains may affect either the muscles, joints, or tendons, and each of these three sets of organs are constantly suffering from them. Muscular strains consist of an absolute tearing of the fibrous tissue composing the muscles, or else of such an approach to a disruption as to have an equally prejudicial effect in producing lameness. In some cases the whole of a small bundle of fibres is torn across; but this is not the usual degree in which strains occur, and the

most common amount of mischief is only a slight separation of a few of the very small fibres of which the bundle is composed; and this state is then generally spread over a considerable surface, producing considerable soreness from inflammation. *Tendonous and Ligamentous Strains* are very similar in their nature, and consist either in an absolute tearing apart of these fibres, or such an approach to this as to cause great inflammation, and consequent incapacity for using them. Sometimes what is supposed to be a strain of the tendon is really an inflammation in its sheath, which causes great swelling and pain, and the limb is thereby rendered quite useless for the time being.

Strain of the Shoulder is generally a cloak for the ignorance of the groom or other attendant upon the horse, it being really a very rare accident, though often assigned as a cause for lameness which is really in the feet, legs, or knees. It is an inflammation of some of the muscles of the shoulder following violent strain, and generally confined to the serratus muscle, which slings the body to the shoulder-blade, and which is sometimes strained in coming down from a high leap, etc. The symptoms are a dragging of the toe in the walk, with deficiency of action on the trot, and a drop of the head while the affected leg is being extended, and not while it is on the ground; hence, when shoulder lameness, is mistaken for foot lameness, the groom is apt to shift the blame on to the wrong foot. It may also be distinguished by laying hold of the affected leg, and drawing the whole *together with the shoulder* forwards, when, if the latter is affected, the horse will give evidence of pain, which he will not do if the foot or leg is the seat of

the mischief. The treatment for shoulder-lameness lies in rest, bleeding, purging, cooling balls, with nitre, etc., and if it continues, the insertion of a rowel in the bosom. A cooling diet of green meat will also be needful, and all the corn should be taken away. After all the heat has disappeared, the horse may be turned loose into a box, and in another fortnight he may be walked out with a leading-rein; but it should be two or three months before he is again mounted.

Strain of the Stifle is confined to the joint, which becomes hot and tender, and often swells considerably. The remedies are the same as for the shoulder, but a blister will often prove very efficacious, and it may be used in preference to a rowel, and repeated again and again.

Strain of the Round-bone, or Whirl-bone, as it is termed by horsemen, is really confined to the hip-joint, which is often strained, but more frequently said to be so than really affected. It is very difficult to pronounce with certainty that this joint is strained, but sometimes the wasting of the muscles affords unmistakable evidence of the nature of the disease. Blisters and embrocations afford the greatest chance of relief; but when the wasting is very marked, and there is no evidence of present mischief, nothing but compulsory work will cure the disease. Light farm-work, such as harrowing and the like, will often do more good than all the applications in the world, simply because the muscles have lost tone, and require the stimulus of necessity to make them recover their power.

Strain of the Back-sinew occurs in all the varied degrees from a slight strain to a breaking-down. When the sinews are merely slightly strained, it is generally their

sheath which is affected ; but if there is very great swelling, especially after racing, the chances are that there is actual breaking down of the fibres of the tendon or suspensory ligament, and often to a considerable extent. It is very unusual, however, for there to be an actual and entire separation, and the most ordinary condition is for the horse to come in from his race very lame indeed, yet without his fetlock touching the ground, and with only a partial separation of the fibres, so that if it were not for the pain, he would bear his weight on the leg. In the worst cases, however, the fetlock-joint actually touches the ground behind, and the leg is for the time rendered quite incapable of bearing any weight at all. There is generally some warning of this state of the tendon, which enlarges about midway between the knee or hock and the fetlock, and forms there an oval swelling. When this is the case, the chances are ten to one that an actual breakdown occurs, although there may be no absolute lameness ; but the inflammation is a sign that the tendon is in an unfit state for work, and that it will most likely give way in the next severe gallop. The proper treatment consists in cooling *general remedies* ; such as purging, bleeding if necessary, and the nitre and tartar emetic ball. To this is to be added light food, consisting of bran mashes, or green meat, without corn, and *entire rest*. Locally cooling lotions are to be applied, and ice, if it can be procured in sufficient quantity. A bran poultice should be applied, with several lumps of ice in it ; and as fast as they melt fresh lumps should be added. The poultice is best put in an old worsted stocking, which will hold a large mass of bran

round the leg. In this way the active inflammation may generally be speedily subdued, reducing it to the state in which strains of the back-sinew usually appear; but, of course, the more complete the rupture of the tendon, the greater the difficulty of effecting a radical cure. But it should be known that these parts reunite and that a broken-down horse will often recover the use of his leg for ordinary purposes; though he will seldom stand the severe trial which racing or training demands. After the ice poultice has been discontinued, and at the end of three weeks or a month, when the leg is quite cool, it may be necessary to blister or fire the limb, or to apply a charge. If the strain is very severe, nothing is so effectual as firing, followed by a blister. Next to this comes an ordinary blister with mercury or the biniodide of mercury. The charge is a good remedy after this last, as it prevents the horse from using the tendon too soon, and affords a firm mechanical support. The good effect of the arnica is also very considerable. In old swellings of the back sinews, consisting of an enlargement of the sheath, rather than of a real break-down, a sweating embrocation, will often effect an absorption of the swelling, and prevent further mischief; but it should not be used when there is any heat of the part, the cooling lotion being then the proper remedy. It should always be remembered that in strains, when there is increased heat of the leg, cooling medicines, low diet, and cooling lotions are the proper remedies; and that firing, blistering, and stimulating embrocations must be deferred until this treatment has had time to produce the desired effect. If the contrary plan is pursued, matters are only rendered

worse than before, and a slight strain is often thereby converted into serious mischief. This golden rule should be rigorously acted on by stablemen in all cases.

BROKEN KNEES.

Broken knees, like strains, are of every degree, from the slightest touch to the horrible wounds of the joint which sometimes occur when a horse is dragged over a flinty road, or falls over a heap of stones. These accidents, however, rarely occur, if we are to believe the assertions of horse salesmen, who pledge their honor (!) to the fact that each case has been occasioned by the manger, or by a stone wall in hunting, if the horse has at all the appearance of that class of animals who are likely to be used as hunters. But, leaving the cause out of the question, it remains to consider what is the best treatment when it unfortunately happens that a particular horse has really touched his knee by a contacts with the ground. This will depend upon the extent of mischief, which may be one or other of the three following degrees: First, if the hair and cuticle only are rubbed off, and the *cutis*, or real skin, is entire, the best plan is to give the horse a dose of physic, and bathe the knee night and morning with hot water, if there is any swelling, or to apply the tincture of arnica diluted with water, in the proportion of two drachms of the tincture to a pint of water; then, when all the inflammation is gone off, which will usually be in a couple of days, apply a blister to the whole of the knee except the back, which is to be

well guarded with lard, and this will bring off all the hair, which will be renewed, together with that covering the part rubbed off, in about three weeks, and will almost invariably prevent any blemish, which is very apt to show itself if the blister is not applied ; for although the hair comes on again if left to itself, it is often of a different color to that of the surrounding parts, and the critical eye distinguishes the blemish at once. Secondly, if the true skin is cut through so as to show the cellular membrane beneath it, but the joint itself is not exposed, a physic ball may be given as before, and hot fomentations applied if the bruise is very severe, or the arnica wash at once if there is only moderate swelling. As soon as the inflammation is abated, I should here also apply a blister, because I have always found that the swelling caused by it contracts the wound, and that the consequent blemish is much less than would otherwise be the case. Indeed, I have succeeded in this way in effecting *almost* complete cures of very large wounds of the skin, where a piece of it as large as a 25-cent-piece has absolutely been cut away, besides more extensive abrasions of the cutical around its edges. Such a broken knee would, in the ordinary way, have exhibited a permanently bare spot of the size of a 10-cent-piece, but by the above treatment the bare space was not bigger than a pea, and sometimes scarcely so large. After the blister has risen, it must be carefully dressed with sweet oil, or lard without salt, sometimes called "fresh liquor"; and when the wound on the knee throws out healing granulations *above the level of the skin*, they must be kept down to the exact level by touching them freely with a piece of

blue-stone every day. The whole art consists in causing the wound to contract by the swelling and stimulus of the blister, and in keeping down the granulations, or "proud flesh," as they are called, by means of caustic. The groom, however, should carefully avoid touching these, unless they are above the surrounding skin, for below its surface they are useful and necessary to the healing process. Thirdly, when the joint itself is opened, the aid of a veterinary surgeon should be called in, who will decide upon the propriety or otherwise of destroying the animal. Sometimes there is only a small opening, which may at once be closed with the touch of a hot iron; and at others there is a discharge of serum, which the uninitiated will mistake for synovia (joint oil); but in any cases it is better to have the advice of a competent judge of the injury.

KNOCKING DOWN OF THE HIP.

The point of the hip is often knocked off by the horse being cast in the stall or in the field; sometimes by falling into a ditch in the dry summer weather, when the struggles of the animal will often break off the extreme point of the hip, especially if at all ragged, and then the muscles, acting upon the broken portion to which they are attached, draw it down out of its place, and the hip is said to be "knocked down." After a time it does not much interfere with the ordinary action of the horse; but I am not aware of any horse having been able to race after such an accident, though many otherwise likely colts have been thrown by, and used for the stud or other purposes, in consequence of

its occurrence. Nothing can be done to relieve the horse, and time only will remove the lameness, which at first is often very considerable, from the bruises which the muscles have received, as well as the disruption of their fibres which must necessarily have occurred.

QUITTOR, PRICKING, THORNS, ETC.

Quittor consists of a sinus running downwards beneath the horn of the hoof, and occasioned by a blow or other injury of the coronet; or by some cause which has produced an abcess under the horn. It is, in fact, a sinus under the hoof; but those only are generally called *quittor* which depend upon bruises or wounds of the coronet; while those sinuses arising from pricks or inflamed corns are called "sinuses of the foot." In the former case a stimulating application, thrust in with a probe covered with lint, will generally cause adhesion of the sides of the sinus, and effect a cure. A strong solution of nitrate of silver, or chloride of zinc, is the best remedy. If the sinuses arise from below, and break out on the coronet, an opening must be made in the sole of the foot wherever the prick or corn produced the mischief, so that the matter will always gravitate towards the bottom, and thus the sinus will heal at the top. The nitrate of silver will here also be a good dressing; or the friar's balsam may sometimes be used with advantage.

Pricks in shoeing are constantly occurring, especially in country districts, where the smith often drives three or four nails in succession before he gets one to come out at the

right place; and the horse's flinching clearly shows the sensible part into which the nails have made their way under his wild blows. It often happens that the injury is not at once detected, but a day or two after shoeing the horse is evidently uneasy in his foot, and more or less lame. On removing the shoe, it is found that there is great tenderness at some particular part of the foot, and sometimes a great bulging; but this is seldom evident so soon. It is the better plan to place the foot in a cold bran poultice, without a shoe on, and wait for a day or two, when, if the foot continues very hot, the smith must pare down the horn over the suspected place, and let out the matter if there is any; or, if necessary, bleed at the toe, which is likely to relieve the inflammation, and prevent suppuration, if it has not already occurred. If matter has formed and is let out a little, friar's balsam is pushed into the abscess on a piece of lint, and the shoe tacked on; but the lint must be so placed as to be capable of being pulled out on the next day, so as to leave a clear opening for the matter to escape. In a few days the shoe must be taken off again, and any ragged pieces of horn removed, as well as the opening enlarged if necessary. The sinus may now be treated as described under quittor. Sometimes a prick occurs from a nail picked up on the road, and then the accident must be treated as if it occurred in shoeing.

Thorns received into the skin in hunting are often very troublesome, and should be searched for most carefully when they are suspected to be present. The best way is to wet the leg thoroughly with hot water, and then to smooth the hair down slowly with the fingers, when the slightest

inequality will be discovered, which in the dry state would be readily passed over. When the thorn is found, it may be extracted with a pair of tweezers; or sometimes it may be necessary to slit the skin up for a short distance, in order to reach the butt-end of the thorn, which should be removed entire if possible.

CASTRATION,

Is the operation of removing the testicles of the horse, and is now performed with great dexterity by our best veterinary surgeons, and with very little risk to the colt. It should, however, never be attempted by any one but the above gentlemen; and I shall not occupy space here by a description of the operation. It is generally performed upon the colt at or soon after weaning-time; but in many cases, when the head and neck are sufficiently developed, it should be deferred to the spring of the second year.

RUPTURES.

Ruptures at the Navel are cured by passing a strong pin through the skin, and then winding some cord round it, so as to produce inflammation and obliteration of the passage. But this should always be left to the regular practitioner.

NERVING.

Nerving is an operation done upon the nerves of the feet, by which they are divided, and thus those organs are rendered for the time insensible to pain. It is easily done by

any one who knows the relative situation of the veins, arteries and nerves ; but no one who is not accustomed to the knife should attempt the operation.

ADMINISTRATION OF CHLOROFORM.

Chloroform may be given to the horse. By means of a nose-bag it may easily be introduced into his system, by which he is rendered wholly insensible to pain ; but the veterinary surgeon should always have the control of so active an agent.

CORNS.

There are several forms in which these troublesome growths manifest themselves, though their cause and location are generally the same.

The seat of corns is always in the sole of the foot, or its lower connection with the wall in the posterior portion of the hoof, at or in the angle made by the wall in its return to form the bars.

The primary cause of all corns in the horse's foot is an uneven ground surface, resulting either from the improper leveling of the foot by the farrier or its previous neglect. Let the foot always be pared level, and the shoe properly adjusted to the wall, and corns will find no abiding place in feet possessed of these conditions.

Hard corns are a fungoid growth upon the inner sole, at its junction with the horny laminae, and lie beneath, as well as at the side and rear of the foot bone. This substance bears some resemblance and is analogous to the corn of the

human subject, being a thickened deposit of a kind of hard skin, and, from its crowding into the sensitive surfaces, the source of so much trouble and pain. The corn may be generated by severe contusions upon the inner sole, but it generally arises from a lateral compression of the horny hoof inward upon the sensitive parts.

The vertical pressure of the horse's weight upon the foot bone is oftentimes so severe, and its winged extremities are imposed down upon the underlying membrane and sensitive sole so suddenly and forcibly as to bruise them against the horny sole or shoe without. The bruise thus established develops the wet or sappy corn, which consists of an effusion of blood or serum into the pores of the horn, marking its location by leaving a stain upon the outer sole. When the stain appears dark, and is easily removed by paring away, the corn is old and working out, but when the stain appears bright and ruddy, by penetrating further into the horn, the corn is new, and needs attention. These corns may be aggravated by additional injury, and terminate in a more serious form, known as the superative, in which case the sensitiveness will be greatly increased, causing intense pain, and, as a necessary consequence, acute lameness, or finally resulting in laying the foundation for a quittor.

In preparing the foot for the shoe, if the horn should exhibit signs of moisture or discoloration, caused by the exudation of a sappy or wet corn, open the centre of the part indicated, and gradually remove the sole, until the foreign matter is released. The foot must next be dressed down until it requires a perfect level basis. For draught

horses, let the toe be shortened and the heels lowered; apply a bar shoe the toe calkin to be set well back from the front of the shoe. After the shoe is on put a few drops of spirits of salts, then some hoof ointment to stop eating. This way I have cured some very bad corns.

SORENESS OF THE FLEXOR TENDON.

As its name implies, this complaint is an injury to the back sinew, from the effects of over-taxation. Work horses are liable to become so affected, though it occurs more frequently in the running and trotting horses, by reason of their immense strides, the force of which has a tendency—when prolonged to a certain extent—to cause the tendons to become swollen and inflamed.

The shoe should extend well back at the heels, the calkins being at least one-half inch higher at the heels than at the sides of the toe, where it should be well rolled on the ground surface, in order that the horse may be enabled to “get over” the toe of his foot with but little strain on the flexor tendon.

I have also found the scoop-toed rolling-motion shoe very successful in the cases of trotting and running horses. The feet should always be well leveled and straightened, and the toes shortened as much as safety will permit. A preliminary application of bandages with cold water may be found beneficial. Make a shoe wide in web, with four calks all put on length ways.

THE MULE.

As this "drudge of all servants" is of a different variety of the same species as the horse, his foot also [partakes of the difference. Upon examining it, we find that in front the mule's foot is round and full. From the quarters to the heels, however, the difference in its shape appears. instead of inclining at an angle equal with the face—as is the case in the horse's hoof at the heels—it is nearly perpendicular.

Care must be taken that the foot does not grow too long or too high at the heels or toe, as the outer frog would thus be prevented from touching the ground. The tendency then would be for the hoof to contract on its ground surface. I have seen the walls at the feet come together, from coronet to ground surface, until the foot was hardly more than half its natural diameter. The heels overlapping each other, had crowded the bars and frog out of sight, raising the inner spur and bars as high as the coronary band. As the crowding of the bars thus necessitates a displacement of the internal structure of the coffin-bone being raised behind, the weight presses it forward against the laminae. The laminae in this part being overtasked, soreness and finally lameness ensues.

In many instances the mule is treated for lameness or strains, when the proper remedy was to have had his feet properly dressed and suitably shod. Do not permit the heels to grow to an extreme height; pare them down as much as can be safely done, and reset the shoes every three

or four weeks ; leave the frog and bars untouched and the heels unopened.

In shoeing the mule for draughting purposes, toe and heel calking will be required. In such cases, have them low, and of the same height, that the foot may be kept as near to the ground as possible, and the animal will travel with more ease and safety. Let the shoes be adjusted in a manner so as to fit the wall; and to avoid the possibility of cramping the foot, use small nails, with the nail holes straight punched.

CHAPTER VIII.

RECIPES.

Scratches.

A disease which attacks the heels, consisting in an inflammation, swelling, and consequent chapping discharge of foetid matter, most commonly occasioned either by inflammation of the foot, want of exercise, or by neglect in cleaning or drying the heels carefully. In cases of this kind, exercise is essentially necessary, to be assisted by a few applications of my hoof ointment and careful grooming. In inveterate cases, where the disease appears to have become habitual, the eruption is known as grease, and there will be more difficulty in its removal, though the same treatment, generous dieting, good grooming, and regular exercise will tend to recover it.

For sores like the preceding kind, make applications of my hoof ointment. When the frog is diseased, saturate with a piece of white cotton; press it into the opening in the cleft until it is well filled. The outer surface of the affected parts may be then given a slight coating, to protect the diseased portion from foreign particles of dirt.

Precautions to be Observed in Buying and Trafficking in Horses.

In buying a horse the greatest precaution is necessary lest the purchaser is cheated. Every part of the horse's body is liable to defects and derangements—it behooves us therefore in examining a horse not to be in too great of a hurry, especially if we have to deal with cunning and bold jockeys, who know how to disguise the faults, peculiarities and age of a horse, and how to manage to deceive the purchaser by all kinds of tricks, the effects of which are very useful in the hands of a designing jockey. In purchasing, this point should be well considered, lest we should pay for an apparent value which will sooner or later disappear and cause us to regret our purchase, hence I would advise those who do not understand this business to take counsel with a trusty friend, instead of depending upon their own judgment in such dubious matter.

Finally, we have to mention a few tricks which are frequently resorted to by horse dealers to facilitate the sale of horses, these tricks are angleizing, dressing, peppering and whipping the horse. By angleizing a common horse, he is made to look nobler. Dressing the feet, mane and inner ear is a great means of embellishing the horse, for he seems to acquire a more imposing posture, the neck looks more slender and graceful, the hearing becomes more acute, he is more attentive to everything that is taking place around, and the pendulous ear looks more erect.

Balling.

To prevent the feet of horses from balling with snow, let the frog of the hoof and the fetlock be cleaned and well rubbed with soft soap previous to going out in snowy weather, it will effectually prevent their falling from what is termed balling. Accidents will be prevented by this simple precaution.

String Halt.

This is a kind of lameness peculiar to the hind quarters of the horse, which occasions a sudden jerking of the legs upwards, when it seizes the outside muscles the horse straddles and throws his legs outwards, when the inside muscles are affected his legs are twitched up to his belly, sometimes only one leg is affected; the cure is difficult and rarely accomplished, rubbing and fomentations are recommended with daily moderate exercise, by which the blood and spirits may be equally divided into the disordered muscle and its corresponding one.

Hide Bound Horses.

A horse that is hide bound grows lean, has a feverish heat, his skin sticks to his ribs, the spine becomes harder than usual, small boils break out on his back and yet his appetite sometimes continues good. As this disorder is seldom an original complaint, generally arising from some former cause, regard must be had to that cause in the

method of cure. Bleed about $\frac{1}{2}$ gallon from the neck vein, then take $\frac{1}{2}$ pint of linseed oil, $\frac{1}{4}$ pint spirits of wine, mix together and rub them strongly against the hair, in the warm sun in order that the skin may be relaxed and a sweat break out, after which the horse should be well curried and put in a warm stable with plenty of litter, then feed the condition powder once a day for ten days in a bran mash.

Strain of the Shoulder.

Horses that are weak before and lower footed with an unsteady tread are most liable to contract this disorder, which consists in a twist or sprain of the strong muscles that attach the shoulder to the body; taking up the foot and bending the limb will further prove the existence of a strain, if the horse evince pain, whereas if it lie in the foot the lame leg can be moved as supple as the other, the difficulty of ascertaining the real seat of lameness is sometimes so great, being entirely invisible, as to cause many expedients to find the exact place, for this purpose hold up his head high and after comparing and finding no difference in the shoulders, let go the head, when he would be observed to flinch upon bringing it towards the affected side; let a person rattle some corn in a seive at a distance behind him, alternating the sides, he will be observed to evince pain in turning his neck and straining the affected side, not so the pain in the foot; the horse will step short and throw out his leg in a semi-circle when he has received a prick in shoeing, this last sign is not to be taken as final indication of a strain in shoulder, the foot is to be exam-

ined and the smith questioned as to his skill and carefulness in shoeing.

Cure, if the injury be considerable, as when a horse has been thrown, he should be bled at once in the plate vein, a laxative ball or purgative must follow, proportioned to the actual state of his body at the time; I would advise a liniment for the same to be used once a day for ten days, of 1 pint of alcohol, $\frac{1}{2}$ pint linseed oil, 4 ozs. arnica, 2 ozs. squills, and 2 ozs. spirits of hartshorn.

To Cure Wind Galls.

On the first appearance of wind galls the cure should be attempted by restringents and bandage, for which purpose let the swelling be bathed twice a day with vinegar or a decoction of oak bark and alum, if this method after a proper trial should not be found to succeed, some authors have advised that the swelling be pierced with an awl, or opened with a knife, but mild blistering is in general preferred to these methods, a little of the blistering ointment should be laid on every other day for a week, which brings on a plentiful discharge, but generally in a few days dries up, when the horse may be put to his work. This is the only method to save scars, which paring leaves behind and unless skillfully executed too often leaves a fullness of the joint with stiffness.

Wind-Broken Horses.

This disorder is commonly caused by surfeiting, violent exercise when the stomach is full, or by being ridden or

driven into water when hot and sweaty, or from an obstinate cold not well cured. For the cure of this disorder I would advise that the horse should have good nourishment, plenty of corn and little hay, and that every day the water given him be impregnated with half an ounce of saltpetre, and two drachms of sal-ammoniac. The hay made of white clover is good for this disorder.

To Save Horses from Fire.

Horses are frequently burnt to death when barns and stables are on fire, owing to the impossibility of leading or driving them out of the building, while their eyes are dazzled by the blaze, I assure all that by simply covering their eyes with a bag, coat, or pocket-handkerchief, they may be led out of danger without trouble or difficulty.

Weak Eyes or Hooks.

First, rowel below the eyes and in the jaws, then if the eyes are much inflamed bleed two gallons from the neck vein, and use the eye wash or eye lotion every morning; move the rowels every day, and let them remain in 15 or 20 days. If the eye shows a white speck in the centre there is no cure for it—the nerve of the eye is affected, but as long as the eye runs water there is hopes of it, or the eyelids swell. All young horses are liable to have weak eyes.

Eye Lotion—How to Make It.

Take a good quality of linseed oil, 1 pint, add to it 2 ounces of spirits of ether, gum camphor $\frac{1}{2}$ oz. Let it stand in some warm place until the oil cuts the gum, and it is fit for use. Apply it to the eye every morning with a feather; get it into the eye as well as possible. This is better in the winter than the wash, but the wash is best for summer.

Eye Wash.

Take sugar of lead 2 drachms, white vitrol 1 drachm, laudanum 1 dr., add to this 1 quart of soft water; let it stand for 6 or 8 hours and it is fit for use. Wash the eye out well with cold water; follow this up for 3 or 4 weeks, and then if the eyes are not much better, bleed and give mild physic. The horse should be kept on low diet and not overheated or worked too hard. Scalded bran and oats are good.

Hoof Bound, or Tender Feet.

Cause of this is fever in the feet. Founder or gravel, the symptoms are hot feet and a drawing in one inch from the top of the feet at the heels. Never have the feet spread at the heels nor rasped about the nail holes, for it will do the feet an injury. Follow the directions given here. Use either the hoof ointment or the hoof liquid; apply it according to the directions. For hoof bound or tender feet, apply it all around the top of the hoof down one inch every

third day; if for split hoof, apply it every day. First have a stiff shoe on the foot and cleanse the cut or crack. Never cut or burn for it.

Hoof Ointment.

Take rosin 4 ozs., bees-wax 6 ozs., lard 2 lbs., melt together; pour it into a pot and add 3 ozs. of turpentine, finely pulverized verdigris, enough to color the mixture green, 1 lb. of tallow, stir all until it gets cool. This is one of the best medicines for the hoof ever used. It is good for calks or bruises of the feet. Follow directions.

Hoof Liquid.

For tender feet, hoof bound, etc. Linseed oil or neats-foot oil, $\frac{1}{2}$ pint of either, turpentine 4 ozs., oil of tar 6 ozs., organum 13 ozs., shake well and apply it as the directions for the ointment tell. This is the best if the horse has been lame long—it penetrates the hoof sooner than the ointment—both of them should be applied at night, so that the horse can go to work in the morning. He need not lose one day's work.

Lung Fever.

Symptoms—The horse is taken with a chill and then breaks out in a cold, clammy sweat, holds down his head, never offers to lay down, but groans when made to move, ears and legs deathly cold. The cause of this is change from warm to cold stable, and too much cold water when warm.

Cure—Bleed 4 gallons from the neck vein, and take 1 oz. of aconite, add to it $\frac{1}{2}$ gallon of cold water; drench him with one gill of it every three hours, blister him over the lungs, then give him water to drink that hay has been boiled in, add to each gallon of it 1 oz. of gum arabic, and $\frac{1}{2}$ oz. of spirits of nitre, give this every four hours, rub well, foment and rub the legs with alcohol and camphor until they get warm—do not move him. Keep him in the open stall if hot weather.

Cleansing Powders.

This is used when the blood is out of order, good to restore lost appetite, yellow water, and to be used where it is spoken of. Take 1 lb. of good ginger, 4 ozs. of powdered gentian, 1 oz. of nitre, $\frac{1}{2}$ oz. of crude antimony, mix it well, give one large spoonful every day in wet food. This is perfectly safe.

Hoof Evil, Thrush or Grease Heels.

Cause of this disease is over feed, and a want of exercise, or standing in a filthy stable. Symptoms—A discharge of offensive matter from the frog of the foot and round the top of the foot; often the frog of the foot will come out, then a stiff shoe must be put on to keep the foot from contracting.

Cure—Bleed and physic, poultice the foot with boiled turnips, and some fine ground charcoal, this must be done every night for two or three nights, then wash the foot clean with castile soap and soft water, and apply the blue

ointment every day. Keep the horse on a clean floor and he will be well in twelve days.

To Make the Blue Ointment.

Take the ointment of rosin 4 ozs., $\frac{1}{2}$ oz. finely ground verdigris, 2 ozs. turpentine, 2 lbs. mutton tallow, $\frac{1}{2}$ oz. oil origanum, $\frac{1}{2}$ oz. tr. of iodine, mix well. This is one of the best medicines that can be made, for scratches, hoof-evil or cuts, and is good to apply on fistula after the rowels are taken out.

To Make the White Ointment.

For rheumatism, sprains, burns, swellings, bruises, or any inflammation on Man or Beast, chapped hands, lips, black eyes or any bruise. Take fresh butter 2 lbs., tr. of iodine $\frac{1}{2}$ oz., oil origanum 2 ozs., mix well for fifteen minutes and it is fit to use. Apply at night, rub it well with your hand—if for human flesh lay on warm flannel.

Nasal Gleet or Discharge from the Eye and Nose.

The cause of this is neglect in distemper, or overheat or cold. This is a white discharge and is not contagious, and can be cured.

Cure—Stop working him; take of alum $\frac{1}{2}$ lb., $\frac{1}{2}$ lb. of rosin, $\frac{1}{2}$ lb. blue vitriol, grind and mix well with $\frac{1}{2}$ lb. of ginger; give one large spoonful every night and morning; bleed one gallon. Keep him out of the wet and not work him.

Disease of the Kidneys.

Caused by feeding dirt or musty grain, hard drawing, overloading, or too much turpentine.

Cure—Blister over the kidneys, and give the following pills every day: Take 1 oz. rosin, 1 oz. juniper berries ground fine, 2 ozs. flour, make into a stiff paste, divide into 7 pills, give one every night, use the cleansing powder every day; if the horse has trouble to get up when down, swing him up for two weeks and give no food but that which is clean—this is half the cure. Do not work or ride him.

Black Liniment.

This is good to apply on poll evil—fistula. Take of linseed oil $\frac{1}{2}$ pint, tr. of iodine 3 ozs., turpentine 4 ozs., oil of origanum 1 oz., shake well and apply it every day, rub in with the hand, wash the part clean before applying it. This is good on any swelling.

Sore Mouth or Tongue—Called Canker or Thrush.

Symptoms—The mouth runs water; the horse throws his hay out of his mouth. The cause of this is often from frosty bits being put into his mouth or by eating poisonous herbs.

Cure—Take of borax 3 drachms, 2 dr. of sugar of lead, $\frac{1}{2}$ oz. alum, 1 pint vinegar, 1 pint of sage tea, shake together and wash the mouth out every morning. Give no hay for twelve days.

How to Remove Warts.

Cut them out by the roots—Take the Tenaculum or hook, run it through the wart and draw and cut round it, and draw it out; if it should bleed too much, take 5 grains of nitre of silver and 1 oz. of water, wet a sponge and merely touch the part with this wash, and it will stop the blood, treat as a fresh wound, every time you wash it scratch the scab off so the scar will be small. This is the only sure way to treat them.

Bots.

Symptoms—Very much like those of colic—the ears and legs are hot, and sometimes the sweat will start in the flank and breast.

Cure—Make $\frac{1}{2}$ gallon of sage tea, add to it 1 oz. of alum, drench with one-half of it, and if he is not better in thirty or forty minutes, give the balance, and bleed 1 gallon. In six hours give a mild physic; this will never fail if given in time. Never give turpentine, as many do, it will affect the kidneys.

Colic.

Symptoms—The horse lays down and gets up often, and looks around at his flank; his ears and legs are cold. Cause of this is cold water and change of food, over quantity of acid collecting in the stomach.

Cure—Take laudanum $\frac{1}{2}$ oz., sulphuric ether 1 oz., $\frac{1}{2}$ pint of water, milk warm, drench, and if not better in

forty or fifty minutes, bleed and repeat the drench. Do not allow the horse to be moved while sick.

Founder in the First Stages.

Symptoms—The horse is stiff, his feet hot, and often trembles, very thirsty.

Cure—Bleed from the neck vein 3 or 4 gallons, or until he falls, then give the following: $\frac{1}{2}$ oz. of aloes, 4 drachms gamboge, $\frac{1}{2}$ oz. of oil of sassafras; make this into a pill, give it, and give him all the sassafras tea he will drink; turn up his feet and fill them full of boiling hot lard, bathe his legs in hot water and rub them well. This will never fail to cure in forty-eight hours.

Sick Stomach—Debility.

Symptoms—The horse refuses to eat, thirsty, hangs his head, reels when he walks, eyes are dull.

Cure—Bleed $\frac{1}{2}$ gallon, then if he will eat a mash, give him one; give no hay; then give him $\frac{1}{2}$ oz. rhubarb every night until his bowels move, then take of gentian root 4 ozs., fenugreek 2 ozs., nitre $\frac{1}{2}$ oz.; mix and give a large teaspoonful every day; do not give too much to eat when his appetite returns

Distemper.

Symptoms—Swelling under the jaws; can't swallow.

Cure—Bleed 3 gallons and physic; then if a tumor is found under the jaws, open it—if not apply the general liniment to the swelling, or the white ointment—make it break

on the outside if possible, then give the cleansing powder for ten or twelve days in mashes. Turn him out if you can get pasture.

General Liniment.

Turpentine $\frac{1}{2}$ pint, linseed oil $\frac{1}{2}$ pint, aqua ammonia 4 ozs., tincture of iodine 1 oz.; shake it all well. This is used for different things spoken of in the different recipes, sores, swellings or sprains.

Broken Knees.

This is caused by the horse falling on the knees. First cleanse the part of all gravel and dirt, then wash them. Take 2 gills alcohol, $\frac{1}{2}$ oz. of arnica, tie the knees up in coarse linen, and if they swell in twenty-four hours, bleed and keep the bowels open with mashes, and then apply the blue or iodine ointment every other day. Do not use the horse until he is perfectly well, or it may cause the knees to break out again.

Worms.

Symptoms—The horse eats, but will not thrive; his belly gets big, his hair stays.

Cure—Give 1 quart of strong tea made of wormwood, at night; the next day give 7 drachms of aloes, 2 drachms of calomel, make it into a ball and give it; give no cold water for forty-eight hours, make it milk warm; give him two or three bran mashes, and some of the cleansing pow-

der; if he shows any more symptoms, repeat the dose in three weeks. This will never fail.

Physic Ball.

One-half ounce of aloes, 3 drachms of gamboge, 20 drops of the oil of Juniper, make it into a pill with a few drops of molasses; wrap it up carefully in a thin piece of greased tissue paper; draw out the tongue with the left hand, place the gag in the mouth, and run the pill back with the right hand until it drops off; let the head down and give a sup of water. First prepare the horse by giving one or two mashes.

Iodine Ointment.

Get 1 oz. of the grease iodine, 1 pint of alcohol, let this stand in the sun two days, and this is the tincture of iodine. Take 2 ozs. of tincture and $\frac{1}{2}$ lb. of lard; mix them well, and you have the iodine ointment. This is used wherever the recipes refer to the ointment.

Big or Milk Leg.

This is brought on by a hurt, a want of action in the absorbent system—it is dropsy of the muscles of the leg.

Cure—Apply the liquid blister every three hours until it blisters; then in six hours grease with soft oil of any kind; then in eight days wash the part clean and apply it again—repeat it three or four times, then use the iodine ointment. If this does not remove it all apply the spavin medicine.

Liquid Blister.

Take of alcohol 1 pint, turpentine $\frac{1}{2}$ pint, aqua ammonia 4 ozs., oil of origanum 1 oz., apply this as spoken of every three hours until it blisters. Do not repeat oftener than once in eight days, or seven at least, or it will kill the hair.

How to Tame a Wild Horse.

Halter him, and then take the warts from the leg, dry and powder, then blow it up his nose; then take oil of arodium, drop a few drops on your hand and rub it over his nose—this will make him follow you and you can do anything you wish.

How to Make a Horse Stand to be Castrated.

Put chloroform on a sponge and hold it to his nose a few seconds until he closes his eyes; remove it and halter him. This can be given to perform any operation. You can buy it at the drug store for seventy-five cents per pound.

Spavin and Ring-bone Medicine.

Take of cantharides 2 ozs., mercurial ointment 4 ozs., tincture of iodine 3 ozs., turpentine 4 ozs., corrosive sublimate 3 drachms; mix all well with 2 pounds of lard, color it if you like. Follow the directions here given.

If for ring-bone or bone-spavin, cut off the hair from the part affected, and merely grease the lump with the ointment. Rub it in well with the naked hand. In two days

grease the part with lard, and in four days wash it off with soap and water, and apply the ointment again. So repeat it every four days. If for wind-galls or bog-spavin or curb, apply the ointment every six days.

Johnston's Liniment.

Take oil of origanum 1 oz., alcohol $\frac{1}{2}$ pint, oil of cedar $\frac{1}{2}$ oz., oil of cloves $\frac{1}{2}$ oz., turpentine $\frac{1}{2}$ oz., olive oil 8 ozs., shake well. This is used for most all complaints of the muscles.

Opedeldoc.

Take alcohol $\frac{1}{2}$ gallon, 2 pounds of castile soap, 4 ozs. of gum camphor, 2 ozs. oil of amber, place the alcohol into a pot in hot water, shave up the soap and keep it hot until all dissolves, and you have the original opedeldoc.

Fresh Wounds.

First, stop the blood by tying the arteries, or by applying the following wash: Four grains of nitre of silver, 1 oz. of soft water; wet the wound with this and then draw the edges together by stitches one inch apart, then wash clean, and if any swelling in twenty-four hours, bleed and apply the blue ointment, or any of the ointments spoken of. Keep the bowels open.

Green Ointment.

Take 6 pounds lard, put into a 10-gallon kettle, add 2 gallons of water, cut jimpson weeds and fill them in and

cook four to six hours, slow, until the water boils off, then put it into jars, add to each pound of ointment 1 oz. of turpentine. This is a good and cheap stable ointment, for scratches, galls, etc.

Lampers.

All young horses are liable to this trouble—it is nothing but inflammation of the gums.

Cure—Bleed or scarify the gums; never burn off for it spoils the teeth and adds to the cause of the disease. Give a bran mash; rub the gums with salt. Give the cleansing powders.

To Make Old Horses Young, or Get Up and Howl.

Take the tincture of asafoetida 1 oz., tincture of cantharides 1 oz., oil of anise 1 oz., oil of cloves 1 oz., oil of cinnamon 1 oz., antimony 2 ozs., fenugreek 1 oz., 4th proof brandy $\frac{1}{2}$ gallon; let it stand ten or twelve days, and give ten drops in a pail of water, or to a gallon.

To Make Ointment Like Sloan's.

Take mutton tallow 4 lbs., bees-wax $\frac{1}{2}$ lb., turpentine 3 ozs., melt over a slow fire and when partly cold add the turpentine and you have the same ointment Sloan sells for everything. Try it and prove its value.

Butten Farcen.

Cause—Overheat, high feeding, and no exercise. Symptoms, the limbs swell up and break out in running sores.

Cure—In the first stages bleed and physic, then take of gentian 2 oz., ginger 3 oz., make a stiff paste and divide into twelve parts, add to each separately 10 grains of arsenic, make into pills, give one morning and evening, until it makes his mouth sore, then wash the sores clean, and apply the blue ointment to them. If not better in three weeks bleed and repeat the pills. Apply the different liniments to the legs if they swell. *Be careful not to get the matter on a wound, for it will kill you!*

Water Farcy.

This is a swelling along under the chest and forward to the breast. Bleed and rowel in the breast and all along the swelling, six inches apart; apply the general liniment to the swelling, move the rowels every day, let them stay in until the swelling goes down. Give soft food, mashes, with the cleansing powders in it. This is dropsy, and there are many causes for it.

Diabetes.

Too free discharge of urine, or cannot hold his water.

Cure—Give $\frac{1}{2}$ oz. tincture of cantharides every ten or twelve days, and if not entirely well repeat it, and bleed 1 gallon from the neck; feed clean food. The cause is rotten or musty grain, or too free use of turpentine. Keep him open with mashes and green food.

Contraction of the Tendons in Neck.

Symptoms—Often the head is drawn to one side; again, the horse cannot get his head to the ground. Cause of this is spraining the horse, and rheumatism contracts.

Cure—If it is taken in the first stages, bleed from the neck 2 gallons, then foment or bathe the part well with hot water; rub it dry, and take the general liniment and apply two or three times a day, which will cure it. If it is of long standing blister along the part affected, with liquid blister; do this every three weeks until he is well, and rub with white ointment.

For Rheumatism.

Take alcohol $\frac{1}{2}$ pint, oil of origanum $\frac{1}{4}$ oz., cayenne $\frac{1}{2}$ oz., or gum myrrh $\frac{1}{2}$ oz., 1 teaspoonful of lobelia, and let all stand over-night, then bathe the part affected. This is the best medicine I ever used.

Heaves.

Take 4 ozs. balsam fir, 4 ozs. balsam copaiva, $\frac{1}{2}$ oz. asafoetida, 4 ozs. vinegar, 3 ozs. alcohol. One teaspoonful every day. Tartar emetic, as much as will lay on a ten cent piece, every three days.

Dope to Trade on.

Four ozs. black antimony, 2 ozs. cantharides. A small spoonful twice a day will fat a horse in ten days.

Condition Powders.

One pound fenugreek seed, 1 lb. anise seed, $\frac{1}{2}$ lb. cream tartar, $\frac{1}{4}$ squills, 2 ozs. antimony. One tablespoonful twice a day in a bran mash.

Gargling Oil.

One quart linseed oil, 1 pint barbadoes tar, 1 pint turpentine, 4 ozs. oil of vitriol.

To Spot a White Horse Black.

Three ozs. litherage, 6 ozs. quick lime; beat it fine and mix together, put into a pan and pour a sharp lye over it, then boil it and you will have a fat substance swim on the top with which rub on the horse in such places as you desire to have black.

To Make a White Star.

Take a knife and shave the hair off. Put oil of vitriol on the spot you design white, with a feather.

Stoppage of the Urine.

Symptoms—Frequent attempt to urinate, looking around at his sides, lying down, rolling and stretching.

Cure—Take $\frac{1}{2}$ lb. alum, 3 drachms oil of camphor, grind and mix. Make this in three pills. Give one every day with a drench made of a small spoonful of saltpetre, and 2 ozs. water.

Lock-Jaw.

Bleed largely and apply chloroform to the nose until the jaws fly open. Put a gag in the mouth, and 2 ozs. tincture asafetida every six hours, and a dose of physic. This will cure if there is any cure.

To Stop Blood.

If you can get hold of the artery tie it up, if not use the following: 10 grains nitrate of silver, and 4 ozs. of water. Apply it to the wound and it will stop bleeding immediately. Apply this to warts after cutting them off.

For Killing Lice.

Take $\frac{1}{2}$ pound of sulphur, 1 oz. spirits turpentine, mix well with 3 lbs. of lard. Do not let the animal get wet. Give a few doses of condition powders.

Loss of Appetite.

Bleed half a gallon. Give a few doses of condition powders. If he lacks life, tie a small piece of asafœtida on his bit.

Big Head.

Four ozs. Venice turpentine, 2 ozs. Spanish flies, 2 ozs. oil origanum, 2 ozs. spirits hartshorn, 2 drs. corrosive sublimate.

Thumps.

Symptoms—The horse is almost exhausted, breathing is very hard. The difference between thumps and lung fever is distress of the heart, which you may hear at a distance of twenty feet.

Cure—Bleed largely and it will stop suddenly. Dissolve

1 dr. of nitre and a large spoonful of salt in $\frac{1}{2}$ pint water, drench every six hours for three times. Do not work the horse for a week.

To Cure Knee-Sprung Horses, or for Cord Soreness or Enlargement of the Joints, or Knuckling.

Take 2 ozs. extract of Goullard's lead, 1 quart good cider vinegar. Let stand three or four hours and bathe cords or parts affected every night and morning. Use a bandage if convenient; will remove all fever or inflammation.

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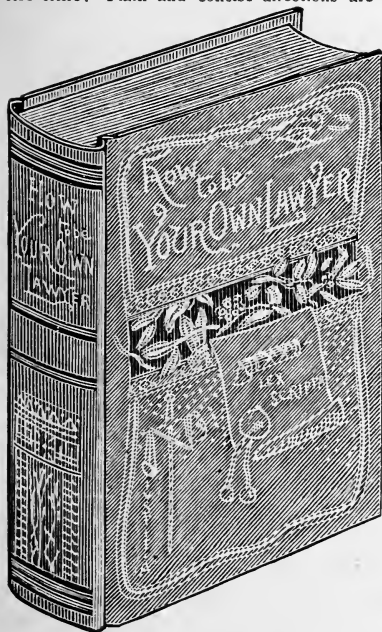
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