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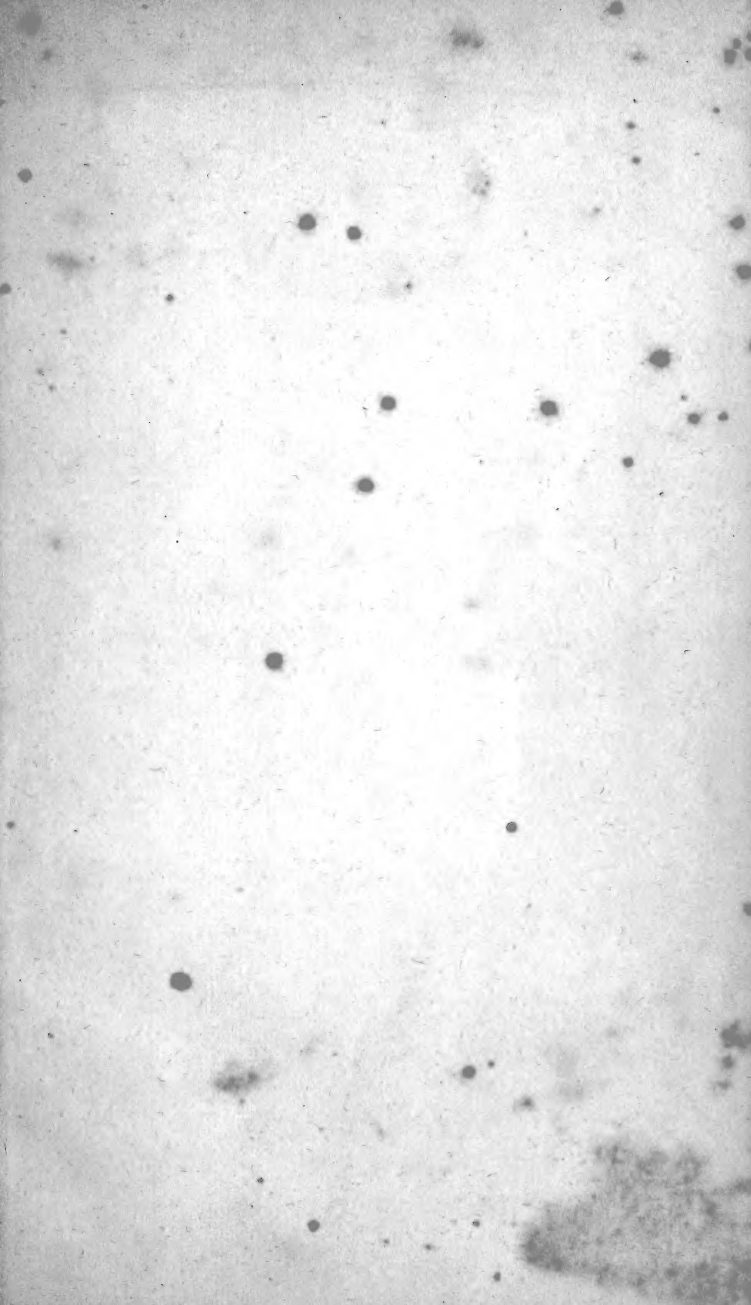
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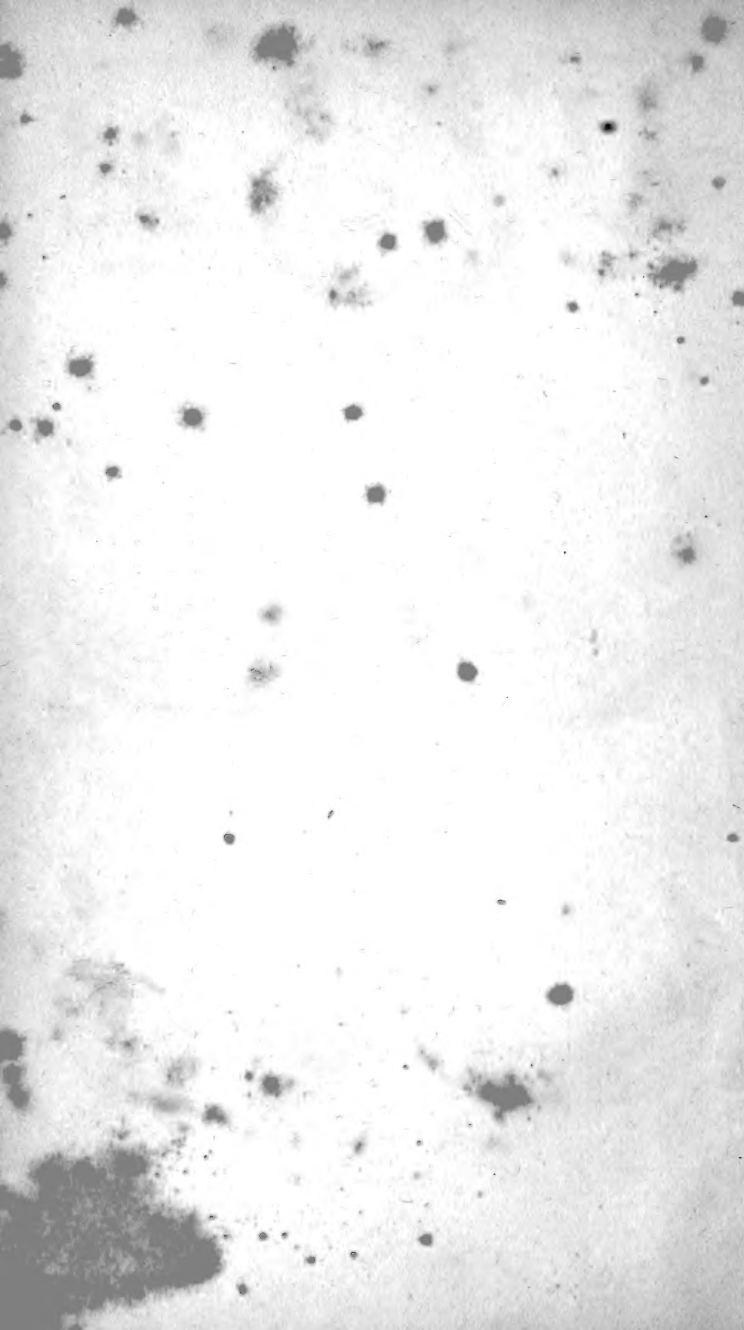
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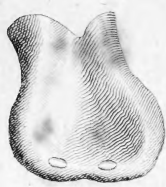




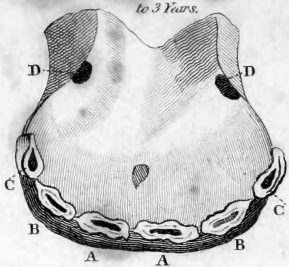


*Mirrored*

Colts Teeth of 3 Weeks.



State of a Colts Teeth, from 3 Months, to 3 Years.



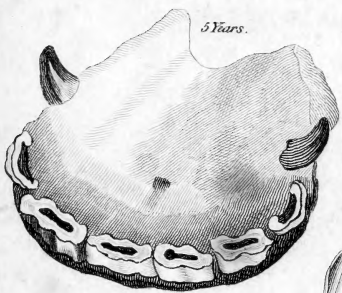
Colts Teeth of 3 Months



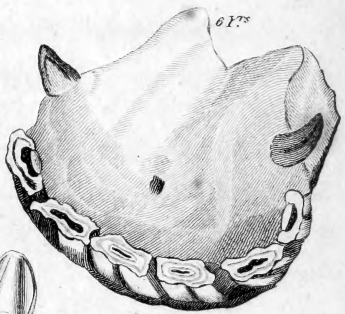
A. the Piners.  
B. the Separators.  
C. the Corners.  
D. the Tusks.

1

5 Years.



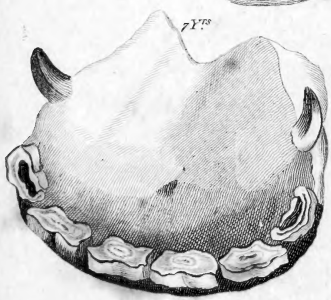
6 Yrs



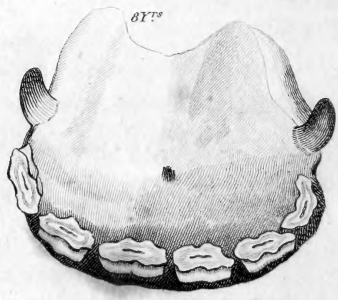
the Tusk



7 Yrs



8 Yrs



The Age of the Horse.

Determined by the Teeth.



# A TREATISE

ON THE

## AGE OF THE HORSE,

Being a true delineation, with instructions how to tell his age, from  
a foal to the period of sixteen years ;

TAKEN FROM ACTUAL DISSECTIONS,

AT THE

VETERINARY COLLEGE OF LONDON :

ALSO,

## AN ESSAY,

ON FOUNDER, CONTRACTION AND RUNNING THRUSH ;

Showing how thousands of horses in the United States, are annually destroyed by  
these three diseases, before they have arrived at one third the natural period of  
life.

ALSO,

THE CAUSES, BEST MODE OF TREATMENT, AND CURE BY THE USE OF THE  
HOT AND COLD BATH, INTRODUCED INTO THIS COUNTRY ON A NEW  
PRINCIPLE BY THE AUTHOR.

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9540 ✓  

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**BY JAMES CARVER,**

Veterinary surgeon, professor of animal medicines, and corresponding member of  
the London Veterinary Medical Society.

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**1818.**



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## PREFACE.

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THE utility of a knowledge of the veterinary art, is manifested by daily experience ; and, although so many treatises have been written on the ages of horses, that any person would imagine any more to be superfluous, I am sorry to say, that very few, if *any of them*, have proved by actual experiment what they have asserted.

Every treatise, which has fallen into my hands for five and thirty years past, has boldly asserted that a colt is foaled *without teeth*, but whether this error has originated for want of further investigation at birth, or for want of a knowledge of *anatomy*, is now to be proved from facts too incontrovertible to be doubted ; the ages as here delineated in this treatise being taken from actual dissection at the veterinary college of London, under the eye of professor Coleman.

When I had entered on my professional studies at the veterinary college of London, although my experience in India and other parts of the world had been very great, there were still some phenomena respecting the age of horses, which appeared to me extremely doubtful, which induced me to consult my worthy preceptor, professor Coleman, the best way to go about removing them. On the following day, after having made this request, he invited me to walk with him into the dissecting room, where he made to me the following observation, "I will now sir, answer the request you made me, respecting the doubts you entertained respecting the age of horses; you possess no doubt a great deal of experience, but here, in this room, is the school of investigation and truth; where by industry, labour and research, every doubt may be removed; may success attend them." Profiting therefore, by this hint, I sedulously went to work, and the following plates are true delineations of the age of a horse, taken from actual dissection at the veterinary college.

Whether these obstacles which might have been overcome, by a proper investigation, have slackened the courage of those persons entrust-

ed with the care and preservation of horses, or whether a crowd of self-opiniated men, whom we meet with almost every where, have been the cause of this error, it is certain, that it has not even to this day obtained a proper confidence.

Many people in this country think that the knowledge of the horse, is neither susceptible of any particular study, nor capable of further improvement ; in consequence, they are continually asserting that *experience alone is sufficient*.

I allow, that experience is of great service ; but I am sorry to say, that among those who boast the most of it, we often meet with no more than the name. A man may indeed see and own a great number of horses, without being the wiser for it ; because, whoever perceives nothing but what the difference of colour discovers to his sight, will never make any other than frivolous observations ; and as the knowledge of many *unconnected facts*, is difficult to be acquired, even under the direction of the ablest practitioners, it ought therefore to create no surprise, to see in the practice of every day, the destruction of thousands, by men assuming the *title and knowledge of veterinary surgeons*.

Before the veterinary art had assumed the form of a science, the practice of farriery, was too often attempted where theory was entirely unknown.

Whenever this happens, that branch of business may be considered nearly in the same state of perfection, that surgery had attained, when *barbers* were the general practitioners. At that time, considerable practice was joined to an almost total ignorance of the construction of limbs. The same may be applied to the art of farriery. Practice alone can never ensure perfection. But, to use a celebrated author's expression, "The knowledge of it is vulgarly thought so familiar and so common, that you can hardly meet with a man who does not flatter himself that he has succeeded; whereas, every science is founded upon principles, consequently *theory* must be *indispensably* necessary. A blind and boundless presumption is the characteristic of ignorance; the fruits of long study and application, amount to a discovery of innumerable and fresh difficulties, at the sight of which, a diligent man, very far from overrating his own merit, redoubles his efforts, in pursuit of further knowledge."

As in respect to the ages of horses, nothing is more frequent than to see, even judges (as they call themselves) take horses of thirteen or fourteen years of age, for six or seven years old; these errors show how highly conducive it would be to the public good, for every gentleman to have established rules on this important branch of veterinary science.

In this treatise, I know that I shall differ greatly in opinion from various respectable and good judges of horses: but whenever I do so, I beg to inform the reader, that I have no other motive than a wish to render the *art more perfect*, which I am attempting to describe and illustrate.

And if *the principles* recommended in it be deemed any way likely to be useful (as I hope they will, if candidly examined and judiciously practised) it will not fail of receiving the support and approbation of the public.

J. C. V. S.

# VETERINARY OBSERVATIONS

ON THE

## AGE OF HORSES.

THE teeth of a colt, as well as every other part of the animal, take their origin in the uterus, which circumstance may be ascertained on dissecting the jaws of a foetus, about the time it is foaled, or a few days after, at that time we find the molares or grinders; those in front, termed gatherers or nippers; and the four tusks perfectly formed, but having a glutinous consistence only.

The gatherers or nippers, are of the number of twelve, and are those which make their appearance first to the eye; we find immediately under them, the same number, that succeed the colt's teeth, which are through when the colt is about two years and a half or three years old.

### *THE AGE OF HORSES*

May be judged by several particulars, such as the length or shortness of the tusks; the deepness of the eye-pit, the gray horse turning white, and the black gray, particularly on their head.



Some people have carried their ridiculous opinions so far, as to advance, that there was a new joint growing out of the horses tail every year, by which they were able to judge with certainty, of their age, if *he lived* many years; but as all those remarks are totally destitute of sound practice, I shall not take the trouble of making any observations on the subject, but reject them as entirely erroneous, as I shall show hereafter. By experience founded on thirty years of theory and practice, I am persuaded, that the chief characters to judge correctly of the age of horses, are taken upon their teeth, excepting when they are very old, about thirteen or fourteen, at which period, the tusk loses its groove, and the eye pits become hollow, the hair white, particularly at the head, and the teeth very long and yellow. But before I attend to those things, I must first observe that horses have forty teeth, but the mares being generally without tusks, their number is but thirty-six. Some mares, however, in every country, but more particularly in India, have the same number; that is, the mares have tusks as well as the horses, in which case they are reckoned admirably good, and even superior to geldings for general use.

But to give a general idea of the teeth which serve to ascertain the age, I shall divide them into three classes, viz:

### THE FIRST

Are those situated in the lateral and posterior part of the mouth; they are called molares or grinders: their use is to grind and chew the aliment; but they have no particular marks which announce a young or old horse, except by their number.

### THE SECOND CLASS

Are situated a little above the barr, or that part of the mouth which receives the bit of the bridle; they are four in number, one above, and one below on each side of the jaw, and are known by the name of canini, or tusks in the common way.

### THE THIRD CLASS

Of the teeth, are placed at the anterior or fore part of the mouth; they are twelve in number, six to each jaw; they are intended for the purpose of cutting grass or herbage; and for drawing hay from the rack, preparatory to mastication—which process constitutes the first preparation for digestion; and their second use is, for forming a characteristic sign of the age of a horse.

Most authors who have written on the age of the horse, have asserted that he is foaled without teeth, *but this is incorrect*, he is foaled with *twelve teeth*, called grinders, three on each side of the superior, and three on each side of the inferior maxillary jaw, and a few days after he puts out *four* more, which are placed

in the front of the mouth,\* they are called pincers ; soon after, that is in ten or twelve days, four other teeth make their appearance next to the pincers, and take the name of separators,† on account of their being situated between the pincers and the corners ; and about three or four months after the four corners‡ push forth ; after which, the twelve colts teeth in front, continue without any alteration, until the young animal arrives at the age of two years and a half or three years old ; which circumstance renders it very difficult to avoid being imposed upon, during the time, if the seller, for instance, finds it his interest, to make the colt appear older or younger than he really is ; in which case, every deception in the old countries is employed, as I shall show hereafter.

About two years and a half, or three years old, a colt begins to shed or change his teeth ; those called the pincers which secondly make their appearance, are the first which fall out ; so that when the animal gets three years or three and a half years old, he has four horses, and eight colts teeth, which are easily distinguished, the former being larger, flatter, and of a yellower colour than the others, and streaked from the end quite down into the gum ; further these four horses teeth or pincers, have a cavity with a black spot in the middle of it ; whereas the four colts teeth are round and white. When the horse comes to

\* See plate the first. † See plate the second. ‡ See plate the third.

four, or four years and a half old, he loses his four separators or middle teeth, and in the room of them he puts out four others, which follow the same rule as the former ones, called pincers.\*

The last milk grinder likewise does the same, and soon after, and very often before this period, the tusks make their appearance. From this time he is no longer called a colt, but a horse ; and if it is a female, on the falling of the corner nippers, she drops the name of filly, and assumes the name of mare. It is necessary to remark here, that it is at this period of time a horse is supposed to become useful, arriving at his strength, and being capable of enduring some fatigue ; and as until this period, he is in most countries except this, objected to for the purposes of utility, so it has become a matter of study with dealers in the old countries possessing colts, to make them appear older than they really are by the practice of bishoping, of which I shall treat more fully hereafter.

At five or five and a half years old, in a natural state, the internal wall of the corner nippers is on a level with the rest, and the tusks are completely come out, which now present a pointed body curved inwards, with the outer surface round and smooth, but the inner surface curved and grooved, which groove continues in the tusk until the period of about thir-

\* See plate fourth.

teen or fourteen years, and when this is entirely obliterated, and the inner concave surface of this tooth becomes perfectly smooth and rounding, you may with confidence call him sixteen years old. This assertion is made with much confidence, being founded on the practice and experience of thirty years in horses in all parts of the globe.

The same rule which we have observed in the growth of the teeth of young colts, takes place in their alterations, and their form, so that when a horse arrives at six or six and a half years old, the cavity of the lower pincers will fill up, and the black spots will entirely disappear;\* but whether or not, when the cavities are filled up, the black spots are of no further service to tell the age by.

Between seven and seven and a half years old, the two middle ones, called separators, on account of their situation betwixt the pincers and the corners on the side of them, fill up in the same manner;† and about eight, and eight and a half, the two corners on

Note.—I believe I am the first person who can confirm the idea of the possibility of telling the age of a horse until fourteen or sixteen years old; a fact, which is as common among the natives of the East as for an English jockey to tell the age of a colt. And it was during my residence in the upper provinces of Bengal, that I learnt from the natives of that country this mode of judging of the age of a horse by his upper teeth until that period.

\* See plate fifth. † See plate sixth.

After which, the upper one begins and follows the same order, that is to say, the two pincers begin at the side to do the same :\* so the under jaw terminates its process.

\* See plate Seventh.

The late professor Monsieur St. Bell, of the veterinary college of London, was the first who introduced into England this mode of judging the age of horses by the upper teeth, after the effacement of the *mark, bean* or *black spot*, by which we are guided in the under jaw, and which he says, he learnt in the riding houses in France, and which was first introduced there by the cavalry officers who brought it from India.

### THE MODE WHICH

The Bhramins of the East taught me was, that at two, and two and a half years old, two years elapsed between the disappearance of each of the next pairs ; that is, as the front *upper nippers* were found filled up, the two next were filled up at ten, and that the two upper corners lose their mark when the animal was twelve years old.

But though the cavity of the teeth do disappear something like the above, they do not always do it, with sufficient regularity, unless, as the Bhramins informed me, the horse is from his birth, kept in the same province and on the same provinder, and in the same climate where he was folded. That is, supposing a colt bred in Persia, or in the upper provinces of Candahar, Moulton, or any of the upper provinces of the Mogul Empire, and brought from thence say when a colt of four years old, into the lower provinces of Bengal, the climate, provinder, and the general treatment of his mouth from biting,\* and various other causes, would operate materially, so as not to always be a true criterion to go by. But if the horse is

\* The Persians invariably use nothing but the snaffle, but in the lower part of the provinces of Bengal the curb is invariably used. The provinder is also different.

fill up about nine or nine and a half years old ; at ten and ten and a half, sometimes eleven years of age, the two separators fill up ; and lastly, at twelve or twelve and a half years, the two corners are entirely filled up and the black spots disappear. At ten years, therefore in a great number of instances, the two intermediate upper nippers will be found filled up ; they become very blunt and begin to loose their internal cavity, and the fleshy ridges of the roof of the mouth becomes leaner. At twelve, when the disappearance of the upper roof is regular, those in the corner are effaced, and tusks very often a *rounded button*, the fleshy ridges are still less evident, and the nippers now begin to push forward in a horizontal direction. When a horse lives to be fifteen or sixteen, his incisive teeth become nearly triangular, and are still more

always kept in the same province, state, or district, where he was folded, this mode of judging seldom *produces error*: and this observation I have myself, from the inspection of many thousand horses, during a residence of near fifteen years in that country, found to be correct.

I also made the same observation on upwards of seven thousand Arabs imported from the Red Sea, and different parts of Arabia, for the honourable East India Company, which passed my inspection, during the last three years of my residence in that country. It may not be inapplicable to the subject, to make a similar remark respecting this country, by the introduction of a Canadian colt, in the same way, into the southern state of Virginia, or vice versa. As respects the difference between horses bred in the warm climates of India, and those bred in England, invariably found two years difference in alteration of the effacement of the mark, between the upper and lower jaw. That is, when I should pronounce a horse sixteen years

horizontal, the upper corner frequently becomes sawed as it were in two parts. They now are yellow, and sometimes black, and frequently the grinders are so irregular, as to make it necessary to have them rasped, from the inability of the animal to grind and masticate his corn : the eyes likewise become sunk, and the pits over them deep, and very much so, if it is the colt of a very old stallion.

As the animal advances in age, all these appearances very much strengthen. The nippers flatten at the side, separate from each other, and become scored and often furrows on their surface ; gray hairs often appear over the eyes, the anus projects, while the cellular membrane surrounding it becomes obscured ; *the lips become thin and pendent*, the lower one being often paralytic. But after the mark is out of the mouth, as it is termed, horses yet appear vigorous, having much of their natural spirit remaining ; and when a dealer becomes possessed of such a one he becomes an object worthy his attention, to give him a more youthful appearance. The principal part of which art consists in the

old in India, I should pronounce a horse in this country or England only in his fourteenth year, this therefore makes a difference of two years. But whether this difference will hold good, as respects the country and the climate of Canada and Virginia remains for further investigation.



*OPERATION CALLED BISHOPING.*

But as it is my duty to promulgate truth, and not error, I shall not go to the trouble to describe it, because, the description of the operation may have a tendency in a work like this, to promote its introduction sooner than it would otherwise become a practice. I believe it very seldom or ever practiced in this country. But in the old countries it is a very common practice among grooms and jockies.

The judgment gained by the teeth is sometimes liable to error, as some horses wholly living on grain, and early worked, must necessarily wear them more than others, feeding principally on succulent matter in crib biters, and those that champ much the bit this variation may be very considerable, and make not less than two years difference between them and others; nevertheless, as in the majority of instances, certain and definite so as it is universally attended to, and certainly useful; yet a too strict attention to it, leads those who are only moderate judges into very great error, by causing them to reject the most useful and valuable horses, without these marks as being supposed passed his work. Nothing is more fallacious than this; the common received marks of the age as promulgated by the common sayings of every groom and jockey, in pronouncing a horse at eight or ten years of age, grant a criterion of not a third

of the natural life of the animal, and not one half of the time in which he is useful, and fully capable of answering all the purposes for which this noble animal was intended; and I truly regret, that it is so much the custom in this country, where these generous animals are so very early put to labour, and so unremittingly forced to pursue it, that this mark is so much alluded to.

## OSTEOLOGY,

*Giving a description of the teeth, and mode of judging of the age of the horse, ox sheep.*

**THE** teeth are the hardest and compactest bones of the body, and are situated in the cavities between the tables of the jaw bones, which are called alveoli: they are usually forty in number in the horse, and as I have before observed, in the mare thirty-six, the latter commonly wanting the tusks. They are divided into incisors, cuspidati and molares,\* as they are called by farriers and horsemen. separators or nippers, tusks, and grinders. Each tooth is formed of a crown of a neck, and root. The crown is the upper part, composed of a shining compact portion called

\* There is now and then seen a small tooth near the first molar, which farriers call wolf's teeth, but which, by anatomical research, are evidently a species of bicuspides. Farriers and dealers in horses, who are ignorant of the anatomical structure, have introduced into this country the abominable practice of extracting this tooth, under the idea of curing the inflammation of the eye. The practice is too absurd, to give any credit to it. It is therefore hoped that every rational man who will give himself one moment's reflection, will never resort to so barbarous a practice. The cutting and raising of the frog from the ground to keep the foot in health; the cutting of the hair called the hooks and extracting the wolf's tooth, under the idea of curing the inflammation of the eye; and the absurd operation of burning for the lampas, for a disease that never existed; can by no means be reconciled to common sense.

enamel, and one less so, of the nature of common bone : the neck is not very evident in the adult horse, but is more plane in the colt. The roots are received into the alveoli ; and are not spread out into distinct fangs, as in the human subject, but are more case like.

Most quadrupeds having during life two sets of teeth, a temporaneous, or milk set, and a permanent, or adult set. The first usually appear at, or soon after birth, as may be seen in plate the first, and the other about the adult period. This change, by which the milk are displaced for the permanent set, is very gradually performed, some years elapsing between the appearance of the first and the last, by which means the animal suffers no inconvenience ; where they, however, all, or several of them, to remove at the same time, the animal would probably starve.

It is a curious fact, proved by various dissections at the veterinary college, that though the two sets of teeth appear, with an interval of some years between them, yet that the rudiments of both are found nearly at the same period ; at least we know, that as soon as the temporaneous set are evident, the traces of the others can be distinguished immediately under them, and are only prevented from making their appearance apparently by the pressure occasioned by the first : thus when one of the first set is drawn, its place is soon filled up by one of the second set, and this ap-

pears the reason of their early formation, that they may always be ready to fill up any accidental displacement, that may occur before that period. Was this not the case, another could not afterwards appear ; for nature who makes nothing in vain, nor keeps a useless part, as soon as a tooth becomes displaced, if another is not immediately springing up, the absorbents remove the alveoli, or socket in which it was placed, levelling it smooth, that it may not by its sharp edges wound the gums. Dealers generally know this early appearance of the second set when the others are removed, which they frequently practice to make young horses appear older than they are. Providence saw it was essentially necessary that there should be two sets of teeth, for as they grow but slowly in proportion to the jaws, so, had there been but one set, the disproportion in the growth between the jaws and the teeth must have separated, and made them wide apart as the jaws increased ; hence there is given at first a small and less numerous set, adapted to the jaws ; but as the rudiments of the second are larger and more numerous, though early formed, so they take up more room, and are actually at this early period situated in the branches of the posterior jaw, so that these necessarily evolve only as the jaw lengthens out.

The mode of removal of the first is a matter of great curiosity likewise, and is occasioned by an absorption of the fangs or roots of the tooth, whereby

it falls out, having no support ; this absorption of the fangs or roots of the tooth is brought about by the stimulus of pressure, which we know on the true principles of physiology excites these vessels most powerfully ; this pressure is occasioned by the tooth underneath, as this second tooth becomes evolved and hardened, so as to be more hard than the roots of the tooth above, and as by its evolution and growth, it presses on these roots and becomes absorbed, but while it is not perfectly hardened, and does not reach to press the temporary roots, they remain secure, and these teeth do their office ; and as this evolution is the permanent set, and are different, in the different individual teeth, so the removal of the temporary is stimulated at different periods, by which the animal is not inconvenienced as he must be if the removal of the whole took place at once.

The living powers in the teeth are kept up as in bones in general, by nerves and blood vessels, which, on dissection may be traced entering the hollows in the roots. It is evident, that the vessels must be considerable, from the great hæmorrhages that sometimes follow from the extractions of the human teeth. The nerves enter by means of the anterior and posterior maxillary canals as we have described.\* Nor

\* Some of the nervous branches furnishing the human teeth, are passing under the ear above the tuberosity of the jaw ; and it is by dividing or burning the nerve, at this part (a dangerous practice) that itinerant practitioners pretend to cure the tooth ache, which

have we any reason to doubt that they have absorbent; but, on the contrary, we see that their growth is increased until the adult period, and the roots of the temporaneous removed; and hence there is every reason to suppose their earth is absorbed and *re-deposited* as in other cases, for we find in the human when a tooth is drawn, the next can branch out so as nearly to fill up the space, so careful is nature in supplying waste. The sensibility in teeth is well enough known among ourselves from the disagreeable effect of acids, and certain sounds setting them, as we term it, on the edge, and the latter must arise from the peculiar connexion between some of the auditory branches of the fifth pair of nerves probably; but many of these phenomena are wholly without our reach. The effect of sand or other gritty matter, between the teeth, likewise demonstrates their sensibility fully, which is also evinced by their feeling under inflammation so much longer. The teeth of quadrupeds are not so liable to diseased decay as the human, yet now and

in the under jaw sometimes succeeds. And we have cases related, when the filing of the teeth (so strong is the connexion with the sentiment principle) has occasioned convulsions; and a child, whose gums were lanced, for the purpose of permitting the freer egress of the tooth, has just shivered and died. Upon the principal of analogy of feeling, how great and severe must be the pain of resorting to that abominable practice, among the ignorant practitioners of extracting the wolf's teeth. All most all horses have wolf's teeth in all parts of the world, but I can confidently assert that I never knew an instance where they did harm.

then it does so happen, and a horse is found with appearance of pain, and a dislike to the act of eating.

The rudiments of the teeth may be detected very early in the embryo, in the form of mucus, involved in a membrane; bony matter is gradually thrown out in this, and the mucus then becomes absorbed. The enamel is a particular deposit, not following altogether the nature of bone, and is placed differently in different animals. In the human, and carnivorous brutes, it is placed exteriorly as a covering to the teeth, giving them firmness. In grammivorous animals, on the contrary, it is placed in perpendicular plates, within the body of the teeth; where, by its great hardness, is always keeping up ridges and a rough grinding surface: for, as there is by this means alternately a perpendicular layer of common bone, and plate of enamel, so as the bony part is wearing more readily than this, there is always a number of inequalities remaining on the surface of the grinder, admirably adapting them for the purpose intended, and by this firmation remaining perfect to the last of the animal existence.\*

\* We may from hence learn, that the enamel is not for the purpose principally of preserving the teeth dentists constantly insist on; perhaps any particular preservative quality in it, is one of the least of its uses, or the teeth would seldom be free from decay. In the horse it is evident there are parts entirely deprived. If, as at the depressions on the broad surfaces of the grinders, as on the surface of the worn incisive or nippers, yet, from observation neither of these become carious. In our own front teeth it is the same, wear-



The teeth are the only bones without the investure of periosteum, being in their own crown and neck uncovered, but their roots are surrounded by the proper membrane of the gums.

### *THE INCISIVE TEETH*

Are six in number to each jaw, which in older books of farriery, before this art had assumed the form of a science by the establishment of the London veterinary college, were called the nippers ; the next gatherers, or separators ; and the outer, corner teeth ; but it would be better to say, the first, second, or third incisives, beginning at the corner. These teeth are curved, which is favourable for the pressure they undergo ; the upper being more so than the lower ;

ing from an edge to a flat surface by age, but never decaying in this part ; when they do, it begins at the neck, where the enamel exists ; and the first carious spot that is seen in a grinder, is usually in the deep depression in the middle, where, the enamel can suffer no abrasion ; add to which, that decay in a tooth may generally be stopped, if the whole of the decayed portion is filed away. Now, it is a well known fact to the people of this country, that some tribes of Indians always keep their teeth filed to a point, yet seldom is a decayed tooth seen among them, at the most advanced period. The real and principal use of this substance, is by its hardness to give firmness to the teeth, and perhaps it has a similar use with the cuticle or outer skin, to defend the inner substance of the tooth from external applications, thereby blunting their sensibility, which in carious or abraded teeth is very great.

they have two surfaces, an inner and outer, the inner is rounded, but the outer has a groove up the middle. Their upper surface presents a hollow, which as it wears away in some degree at certain periods, is regarded by some as a criterion of age, and in fact, forms the best mode of judging of the number of years the animal has lived, *but is a very uncertain one as to his real value.* The incisive teeth differ from each other as respects appearance; the corner ones are nearly triangular; these have likewise a species of artificial side, or internal wall, which is on a level with the rest for sometime after it appears.

### *THE CUSPIDATES, CANINE OR TUSKS,*

Are, as I before observed, usually wanting in mares, and are four in number, one on each side of the lower and upper jaw, on what is called the barr, and in the space between the incisive and molares. Those of the anterior jaw are especially nearer the nippers than the posterior.

There are but one set of these, which appear at the adult period of four or four and a half years old (and in warmer climates considerably sooner) growing slowly, and when completely evolved, presenting a curved appearance, turned inwards, with an outer plane surface, and an inner one that has two perpendicular grooves with an intermediate rising, the end is

pointing, which by age wears away, with the internal grooves, leaving the tusk blunted, and the internal surface equal with the outer ; this therefore may be a guide, when a horse is suspected to have been bishoped.

### *THE MOLARES OR GRINDERS*

Are twelve to each jaw (and are the teeth that are *born with the colt.*) The upper are larger and stronger than the under, as they form the fixed point upon which mastication is performed ; their upper surface presents nearly a long square, the first not so complete as the rest, being nearly triangular in many instances ; this surface is very uneven from the alternation of the enamel and bony portions ; and has the anterior teeth hung over the posterior, so the ridges of the one set are received into the depressions of the other, by this means permitting the mouth to shut completely in a state of rest.

These teeth of horses sometimes become carious, but this is seldom ; at times there is likewise there situated before the first molare a small *bicuspis*, called wolf's tooth, which from the irregularity of its growth, has by grooms and jockies been thought to do harm in injuring the eye ; nothing but a want of anatomical knowledge could have produced the introduction of so gross an error, it having

no connexion with the eye, and in fine should never be noticed.\*

The grinders sometimes wear away, so as to prevent mastication, when this is the case, the point should be filed smooth, by the veterinarian; but the breaking them away with a *hammer and chissel*, as performed by the *common smith*, or the extraction of teeth in this way, is not only a very dangerous but a brutal practice; for from the great strength with which they are implanted in the alveoli, the jaw is always more or less fractured in these cases; for it should be remembered, that the roots though equal in number to the human fangs, are yet formed into one cone-like body, which renders the extraction of them very difficult.

We have already observed, that in dissecting a *fœtus*, we find all the teeth perfectly formed, and that they are extremely soft, having a jelly-like consistence only, resembling little bladders. Every one of these little bladders, if I may be allowed the expres-

\* The blacksmiths of this city, many of whom have *assumed a knowledge* of this *branch of science*, universally persuade and often prevail on people to extract this tooth, under the idea of curing inflammation of the eye; but this cruel, barbarous and shameful practice should be strongly reprobated by men of sense. I have repeatedly been applied to perform this operation, but I never have yet committed so gross an error in practice.

sion, are intended to form as many teeth ; for which purpose nature has provided them with a considerable number of blood vessels, &c. The hardness of the teeth increases gradually, according to the age of the foetus ; probably on account of the natural disposition of the fluid to incasterate, which property it is possessed of.

The mucus fluid which surrounds each tooth, acquires also the same degree of consistence, and contributes to the formation of the white or enamel of the teeth, in the same manner that the blood distributed to the skin, produces hair, and to the foot, horn, &c. &c.

As to the black spots in the middle of each tooth, we can form no other opinion than that they are the result of the extremity of the blood vessels, obliterated as soon as the air penetrates into their cavities ; which operation occasions their superficies to become dry and hard, and therefore rise to the formation of a black spot.

From this arises the difference between the teeth of a horse and the human subject, their origin being the same in both ; but those little cavities which exist also in the last, are entirely obliterated in the external extremities of the teeth, in consequence of their flat and sharp figure ; whilst in horses on the contrary,

their front teeth are square, and quite open at their external extremities.

If this fact be well ascertained, we may venture to say, that the black spots situated in the cavity of each tooth, are caused by the extremity of their blood being dried and hardened by the air; and if this operation has been performed too soon, or with too much violence, or if the fluids, which serve for the growth of the teeth, become too susceptible of dryness (which is supposed to be the most probable opinion) in either case, the substance of the tooth will be too compact, the juices intended for its growth will find obstacles, and the last cause will keep the cavity open for life. This opinion is supported by experience; which proves that the teeth of horses, whose cavities remain open, are much harder than others that are not so.

As to the black spots of the teeth, they will never wear off, if it happens that the mucus which surrounds the little bladders or teeth above mentioned, acquires a degree of solidity sooner than the bladders themselves; the small vessels, which serve for the nourishment of the tooth, suffer too great pressure by the mucus humour, intended in its origin, for the formation of the white or enamel of the teeth. This cause seconded by too great hardness of the tooth, will

leave it in a morbid state, and the black spot will never wear off, though the cavities are filled up.

We may therefore pronounce with good authority, that this effect is produced by a premature and too hard pressure on the extremity of the blood vessels of the tooth.

Mares and geldings are more subject to be defective in the mark for their ages than stallions, because their fibres, as well as those of the females, of every other animal, are weaker than the male.

### *OXEN AND SHEEP*

Have their ages observed by their horns, which are more conveniently examined, and more certain in their appearances than their teeth. Oxen have a permanent and temporaneous set of horns. Sheep have only the permanent set.

In neat cattle the age is sufficiently indicated by the general appearance, till the third year, when the temporaneous fall, and are replaced by a permanent pair. These appear with a kind of button at the end; and as each succeeding year's growth protrudes this nobby extremity from the head, a circle or round ring is formed; consequently in these animals, if three years are reckoned for the button at the extremity, and an

additional year for every circle, we shall have the age of the beast; though it is not unusual among the knowing graziers to scrape or rasp down these rings, to deceive the unwary. In those kine who have no horns, the general appearance are considered, with the whiteness and equality of the teeth, which in the old are uneven, yellow, and sometimes black. Neat cattle have incisive teeth, only in the posterior jaw; nature deeming it necessary to have no anterior nippers in them, for they gather long grass principally, which they wrap into a turf with their tongues, and apply it to the under or posterior jaw, and cut it off with their under teeth; they change their temporary set earlier than the horse, and get a pair every year, till they are five years old; thus having eight nippers at this time, when they are called full mouthed.

Sheep have their age indicated by the horns and teeth. The horns in those who have them, are more usually examined; these form the criterion, and a year must be counted for every one of the rings. Where they have no horns, the teeth do not change. Mr. Buffon, I think, says, they have in their third year, four broad teeth (they before begin their second dentition at twelve months) in the fourth year six, and in their fifth year eight of the same kind. But this does not appear correct; for it is observed that at twelve months, or one shearing, a lamb puts out his



new front nippers, and every succeeding year, or shearing, he gains two more until he is four years old; having then eight in his lower jaw; his upper jaw like that of the ox is without them.

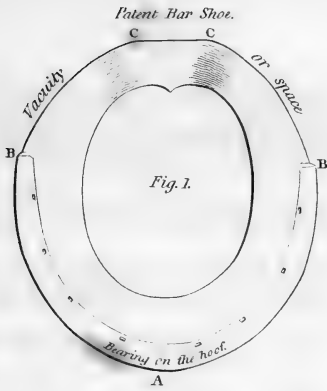
The age of goats may be determined in the same way; and in the deer, it is told by an additional branch appearing in the palm, in the antlers or horns.

# ON CONTRACTION,

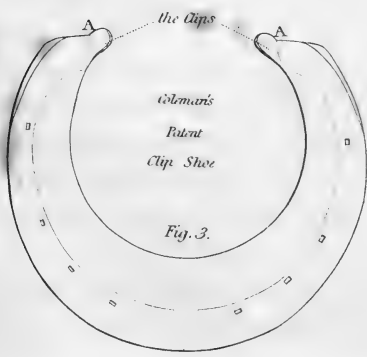
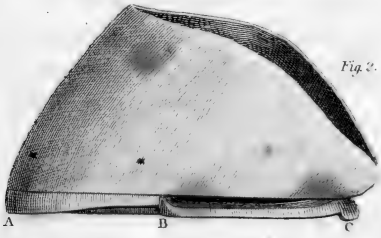
## FOUNDER AND RUNNING THRUSH ;

### THEIR CAUSES, BEST MODE OF TREATMENT AND CURE.

The present professor of the veterinary college, very judiciously began his career by teaching the mode of *preventing* some of the most destructive diseases that occur to the horse, but more particularly contraction, which ends in the ruin and destruction of many thousands of horses, before even one half of their services have been required of them. If therefore, this evil can be remedied, which it may be, by the application of the patent bar shoe and cold bath, for a couple of hours every day, how many horses in the course of a few years may not be saved to government and their owners. This was at once showing his own ingenuity, and rendering himself eminently useful to the public. On my first arrival in this city, *I laboured hard to walk in the footsteps of my worthy preceptor, but for the want of proper support, from those who ought to have consulted their interests, it was through the combined villainy and artful chicanery of the smiths and coachmen of the city frustrated.* Now, as prevention must be ever superior to cure, so must the means that prevent diseases of the feet, be more important than those that cure them ; it was this that led pro-



A Contracted hoof shod, with the Patent Bar Shoe, shewing the vacuity from B to C.





fessor Coleman to apply his attention to the physiology of the foot, and the art of shoeing. Let us now examine the causes of this destructive disease. The horse, of all other animals, contributes most to the pleasure and advantage of man; hence as soon as he arrives at maturity (and very often before that period) he is brought from a state of nature to a life of art, and thereby doomed to labour and fatigue, which of course subject him to a variety of diseases, from which in a natural state he would forever remain exempt. The diseases to which his fore feet are liable, in particular, deserve our attention, being more exposed to injury from a number of causes, than any other part of the body.

An inquiry therefore, into the causes of these diseases will in some measure lead us to proper remedies; or what is of much greater consequence, will point out the means by which *many of them may be prevented*; as diseases, and more especially those in the horny substances of the feet, are more easily prevented than cured. For it is not with horses, as with the human subject, where, if the life of a man can be preserved, though a limb be lost, he may nevertheless, be a useful member of society; but unless a horse be preserved sound and active in all his limbs, he is only fit for the meanest drudgery or becomes a burden to his owner. The greatest neglect, with respect to the management of horses feet,

is not attending to what is most *natural to them*, whether *in shoeing, stable management*, or in the means most commonly used to preserve them cool, moist and sound ; for we find that horses in a state of nature, running at liberty, have always good sound hoofs, and are never troubled with diseases of the feet. Hence it is evident that besides faults in shoeing, there must be during their confinement in the stable some material mismanagement.

This assertion I shall now endeavour to prove, by making a few observations on the means commonly used by people to preserve them moist, sound and tough, by the use of greasy and oily applications.

*On the absurd practice of stuffing, greasing and oiling horses' hoofs.*

There are many things practised, with regard to the management of horses in general, which custom alone has established, and are now universally esteemed so essentially necessary, that they are received as undoubted maxims, and submitted to without any inquiry into the reason or propriety of them. That a man who shall recommend a free circulation of air, the laying aside the use of clothing, or for horses to stand *without their litter* during the day time, and all with the sole view of securing

them *against* disease, runs the hazard of being considered as a *fit inhabitant* for *St. Luke's* or *Bethlehem hospital*, than his *having pretensions* to the possession of his *rational faculties*. However, with respect to all greasy or oily applications, so often prescribed and recommended by authors who wrote before the establishment of the veterinary college, I must be so singular as to dissent from this received maxim, and show, that all such filthy applications to the hoofs of horses, are rather pernicious than salutary. It is to be observed, that when young horses are taken up from the fields, their hoofs are *cool, sound and tough*. These are found from experience to be good qualities; but horses are no sooner introduced into the stable, than their hoofs are greased or oiled, sometimes every day; and if they are kept much in the stable standing on dry litter, without getting their hoofs even moistened, it of course makes them grow hard, dry, and brittle, and when they come to be shod, in driving the nails causes them to split off in chips. Now, if these same horses, with dry, hard, brittle hoofs were turned out to graze in the field (which in a city cannot always be done) their hoofs in time would become, as they were originally in a state of nature, sound, tough and good. I would therefore ask all advocates for greasing and oiling hoofs, what is the cause of this change? It certainly cannot be said that the hoofs were greased while at grass; It therefore must proceed from the *dew wet*, and *moisture* of

the grass, of which water is the principal ingredient; from the same cause do we not also find that the hoofs are always in a better state at the end of the winter, than after the dry months of summer? We also know as a certain fact, of which we have daily proofs, that when all other means have failed, we turn horses out to grass to recover their decayed brittle hoofs. And we find also that the hind feet of horses from standing in the moisture of their own dung, are always in better condition than the fore feet, which stand upon hot and dry litter.

It is also very well known to physiologists, that the hoofs of horses are porous, and that insensible perspiration is carried on through those pores in the same manner, and according to the same laws of nature that take place in other parts of the body. Now, it is a fact very well known to almost every one, that greasy and oily medicines applied to the skin of the human body prevent perspiration, which is always attended with some bad consequences; upon the same parity of reasoning, then, why will it not hold good, that greasy applications will shut and close up the pores of the hoof, by being absorbed into their substance. Hence the natural moisture which should nourish the hoof is prevented from arriving at the surface, on which account, it becomes as if it were dead, consequently dry, brittle and hard.



The original practice of greasing, or oiling horses hoofs, probably took its rise from observing that grease or oil softens dead substances, such as boots, harness, bridles, &c. But this does not apply to the hoofs of horses, there being a great difference between dead and living parts of animals; the latter having juices, &c. necessary for their own nourishment and support, while the former require such applications as will preserve them from decay. Hence it is we see that horses standing for any considerable time, upon hot, dry litter in the stables, having their hoofs greased or oiled, and kept dry, are subject to so many diseases of the feet; whilst the hoofs of those horses that go to the cart and plough, though never greased, are not only better in every respect, but are less subject to complaints which are always the attendants on obstructed perspiration. Another practice amongst grooms equally pernicious, is the stuffing up horses hoofs with hot resinous and greasy mixtures, under the notion of softening them. Various are the prescriptions recommended for this purpose, many of which are of a quite opposite nature, for the purpose intended.

Thus, after hard riding on dry, flinty, hard roads, when the feet cannot be otherwise than in a hot inflammatory state, in order to cool and soften the hoofs, equal parts of turpentine, rosin, grease, &c. are melted together, and applied sometimes nearly boiling hot; others apply grease and tar, poured

boiling hot on the soles, mixed with tow under the shoe, with splinters of wood, &c. Let me now ask any man of sense, are these articles of an emollient cooling nature? or are they not on the contrary, hot and irritating, calculated rather to increase than decrease the inflammation of the feet, and thereby render them brittle, dry and hard; and by obstructing the natural perspiration, to produce many bad consequences? There is also another great impropriety in gentlemen suffering their grooms to stuff the feet with rotten dung and stale urine. This, it is true, is moisture, but is it not moisture of the very worst kind, on account of the salts and volatile alkali contained in the mire? which in itself contributes much to hardening and drying the hoofs, in place of softening them, besides the other bad effects that arise to the frog, &c. from the rottenness of the dung. But without commenting further upon the various compositions and pompous prescriptions recommended by the smiths and grooms, I trust sufficient has been said to convince the judgment and good sense of every owner of a horse, never to despise for its simplicity, hot and cold water, it being more cooling and moistening to horn than any other substance in the *Materia Medica*.

The fact speaks for itself, by their acting in the very teeth of their own principles, when they apply it, with a view of nourishing and softening (as their phrase is) the horn of the foot. Now, the fact is, that oil has no power of softening horn in the smallest de-

gree, for every one knows that it is the common practice of all comb makers, and other artificers who use that material in their business, to employ warm water, or the vapour of water, in order to produce the softening effect upon it; for it is also well known that all the coarser oils become converted into a kind of varnish when applied to the feet of the living horse, in the course of a few hours, in consequence of the steady evaporation of the thinner parts of the oil, and its absorption of oxygen from the atmosphere. It is from this cause therefore, that the animal is precluded the advantage, which must evidently result from the cooling and refreshing effect of water, which may come in contact with his hoofs as he travels on the road, unless he were to remain with them immersed in the fluid, by which means his hoofs might occasionally become cooled, though not softened by its absorption. It is also impossible that occasionally meeting with the fluid in this way on the road, can have the effect of cooling his feet, while thus heated in a varnished case, except during the momentary space of time, which is occupied in its trickling off the hoof, as no portion of water can be arrested by the varnished surface. The effects therefore, of evaporation, which are so surprisingly great, in the production of cold, must be nearly if not utterly precluded; which makes it manifest, that in this way, and upon this principle, the use of oil must inevitably contribute to heat the foot. Now, if these facts be admitted (and I do not see

how they can be denied) it will follow as a natural consequence, that the use of oil must be the means of rendering the hoof both hard and brittle, as well as hot; for if the oil operating as a varnish, precludes the effectual application of water to the horny box, the only substance in nature, calculated to soften it, the fact is clear, and all wonder ceases, at the frequent occurrence of contraction and sand crack, which daily and hourly are to be met with throughout the country, to the injury and destruction of so many thousand animals.

If therefore, the practice of oiling and greasing of horses hoofs were to be laid aside entirely in this country, and the more rational mode of immersing the feet in a tub of water adopted, as it now is, throughout the British army, the different veterinary colleges throughout Europe, as well as most of the private and public stables in England, and the use of all kind of stoppings that consist of grease, tar, turpentine, rosin and such like pernicious materials. be utterly discarded, I repeat again how often a valuable horse might be saved to his owner, and how many thousands to the country; for it is a notorious fact that more than one half the horses in the United States, more particularly those used in the mails and cities, are nearly rendered unfit for service before they are ten or twelve years old.

If this mode of treating the feet were generally adopted, with the principles of shoeing which I have so earnestly endeavoured to establish, we should seldom see running thrushes, which, though rarely the cause of lameness, are nevertheless, the concomitants of contracted heels and quarters; and though no application to a thrush, can be of use, unless the frog get pressure upon the ground, without which, it cannot long remain healthy, yet as people are anxious about some dressing, the *oxymel of verdigris* commonly called *mel Ægyptiacum*, may be applied on a piece of tow, and if a piece of cork as hereafter recommended, dipped in tar, be placed upon this dressing, so much the better. This application not only removes the fetor of the thrush, but by its moderately stimulating quality, it induces that condition of the sensible frog, which is so favourable to the reproduction of sound horn. Whereas tar, turpentine, and all greasy applications applied in the common way, though they may correct the fetor for a short time, will eventually exasperate the disease, by increasing the inflammation and encouraging the separative action of the sensible frog; by which means, the possibility of that organ resuming its original healthy action of forming new horn instead of matter, will be effectually precluded. It is highly necessary to remark here that the use of blue vitriol and such like violent astringents, as are so commonly used by every groom and coachman, through the city, which may stop for

a while the running of the thrush, evidently does it so suddenly, as frequently to occasion diseases of the eyes, and very often canker of the whole foot, which eventually renders the poor animal entirely useless, without the owners ever knowing the causes.

We shall now proceed to give a more general idea of the uses and function of this singular organ, which for years, even long after the establishment of the veterinary college, appears to have remained entirely unnoticed until Mr. Coleman introduced his patent frog for the cure of contraction and thrush; still every groom and jockey in the country will attempt to define it in his way, and tell you “that it is natural to all horses to drain off the bad humours.” But whether salutary or beneficial, I will only undertake to say, that whenever thrushes do occur, they not only prove extremely troublesome, but from the tenderness and lameness which they occasion to feet affected with them, horses are often rendered unfit for service, both from the injudicious mode of shoeing, and from the treatment they receive on their return to the stable.

But to explain this more particularly, there is in the middle of the frog a cleft or opening, by which the heels have in the natural state, a *lateral* degree of *contraction* and *expansion*, especially when the horse treads his heels on the ground; hence when

deprived of this pressure, the sensible frog ceases to perform its proper function, and pain and inflammation are the consequence, producing that wasting and rottenness of its external covering which falling off in detached pieces, never, until restored to its proper and natural pressure, acquires its proper solidity; hence that tenderness which ever after remains, when any hard substance touches that part of the foot, and consequently subjects the horse to lameness, too frequently brought on by the slothful neglect and bad management of the groom. Fresh air and regular exercise being as essentially necessary for the health and preservation of this organ as any other; for running thrushes like other diseases to which pampered horses are too frequently subject, are seldom or ever known in those countries where horses range at large, neither are they so frequently to be met with in the country among labouring horses, whose exercise is regular, and whose hoofs are so frequently exposed to coolness, wet and moisture in comparison to those kept in public cities.

With respect to the

### *CURE OF RUNNING THRUSHES.*

Where it has been of long standing, it cannot be cured but by removing the first cause, which is to give the frog pressure, and when sound, keeping the

feet cool and moist with simple plain water, and at the same time having recourse to internal remedies, by way of revulsion, such as bleeding, purging, and diuretic medicines : and appropriating such a degree of pressure to the frog, *as its diseased tenderness will admit*. In some cases, there is not only a discharge of foetid matter from the cleft of the frog, but often times, and at the very same time, a greasy discharge from the round protuberances of the heels, and hollow of the pastern joints. It is therefore necessary in such a case to make a distinction, for when of a soapy consistence, thick and clammy, it is either canker or grease, which renders another mode of treatment necessary ; and proper means, such as before advised, must be used to correct the habit of body ; and should it already have become so malignant in its disposition as to terminate in canker, and become very foetid, poultices of pulverised charcoal must be applied, and the dressing to consist of the mildest escharotic powders, such as white and blue vitriol, burnt alum of equal quantities mixed together with burnt charcoal made of horse radish, and sprinkled on the diseased part. In respect to the nature of thrushes, there has been a difficulty attendant on their formation, which before the establishment of the veterinary college, created much perplexity from the views which were then entertained of that disease ; but from the indefatigable attention and researches of professor Coleman, we are happy in say-



ing that this disease as well as canker, grease, &c. is now perfectly under the command of the veterinary surgeon.

This important organ, which as before observed, had not been so much noticed, nor received any distinct appellation, until Mr. B. Clark's writings made their appearance; and in his elegant work on the foot of the living horse he has ventured to call it the frog stayer, or bolt, which like an insuted tooth, more firmly holds the horn to the sensitive frog; for whilst the sensitive frog falls into the inverted arch of the horny frog, and is thus firmly held in its place, this part entering in the opposite direction into the sensitive frog, serves reciprocally to confirm and fix those parts together and preserve them from external injury and dislocation.

I hope that this discovery respecting the nature of thrushes, will not be unacceptable to those who are in any way interested about horses, as it not only sets in a clearer light the mode of treatment and cure, when the horse is labouring under the complaint, but what is more to be estimated than either, shows how simply it may at all times, and at all seasons of the year, be so easily prevented and kept in health. Yet it is a curious and at the same time an incredible fact, that though almost every person conversant with horses appears to know the value of wide heels, a sound broad

frog, and a cool state of the hoof, yet few can be made sensible of the necessity of adopting or even resorting to the means that will preserve the foot in this desirable condition.

Now, the common practice adopted by most of the grooms of this city of letting their horses stand through the day upon litter, must materially contribute to accelerate this contraction, which it is of so much importance to guard against; for, if the litter be the least wet, it must become exceedingly hot, in consequence of the putrefactive fermentation engendered in it, which has now been so accurately ascertained, from various experiments tried at the London and Dublin veterinary colleges, not only to be productive of contraction, but even glanders, inflammation of the lungs and eyes, and other diseases. It is therefore evident that next to bad shoeing, the use of the litter is evidently the grand excessing cause of running thrush, which is generally connected with contraction of the heels and quarters. Now should any one be inclined to doubt, that the application of wet litter is capable of altering the condition of the frog and hoof, yet surely no one will hesitate to admit, as before observed, that wet litter, on account of its acrimony, must increase the thrush, as well as contraction; for which reason horses through the day should stand on the pavement or plank of the stable which

should be swept clean, and as the litter would by this means be the less fitted for the purpose of manure, on account of its being less imbued with the animals urine (the admixture of which with the straw, is of more importance to the farmer than that of the fæces,) and stables in Europe are now constructed, so as to carry off the urine into a proper receptacle, by which means it can be appropriated to the purpose of any compost, instead of being permitted to mix itself with the litter, or run to waste. But besides contributing to the contraction of the feet, as well as to produce and expedite running thrush, the practice of letting horses stand through the day on litter, also lays them more open to the attack of that sudden inflammation of their feet, called

### *FOUNDER,*

Which it must be observed, is to be distinguished from that chronic species of founder, that depends upon gradual contraction of the heels and quarters, it is slow in its progress, and consequently so in the lameness attendant upon it. For the soft cushion which the litter affords to the feet. (independent of the affair of heat) must render them less capable of bearing violent and sudden battering upon hard roads, during a long journey.

And by way of illustrating this fact, it may not be improper to remark, that it is no very uncommon cir-

circumstance, even for horses that have been some time at grass, during which time they have of course trod upon a cool, as well as elastic surface, to be attacked with founder, in all their four feet, after being suddenly rode a great distance on a hard road, especially during hot and dry weather.

For the five hundred sensible laminæ surrounding the anterior surface of the coffin bone, and the five hundred horny laminæ surrounding the posterior surface of the hoof, which are so intimately connected with each other, and which contribute so much to the support of the animal, are scarcely ever stretched to their utmost extent, while the horse is at grass, both on account of the gentle nature of his voluntary motion in the act of grazing, the springiness of the surface of upon which he treads. When, therefore, these elastic sensitive fibres within the hoof, are called upon under the circumstance before described, to perform sudden and violent action, the frequent reception of shocks, to which they have for some time been unaccustomed, produces that high active inflammation, which running on to separation, frequently occasions the cast of the hoof, and not uncommonly ends in mortification of the part and the death of the animal.

Having therefore entered so far on the subject of founder, I shall proceed to give its true definition, together with its

*Causes, best mode of treatment and cure,*

And that on principles never before defined or made public in this country.

*THE TERM FOUNDER,*

Is indeed frequently applied to lame horses, and that in a very vague manner, and without any determined or fixed meaning; for, when a horse shows any impediment in the motion of his fore legs, he is by most people pronounced to be foundered, whether he is really so or not; that is according to what is termed or understood by the word founder, for want of making a proper distinction between different diseases of the feet; and if we consult authors who wrote on the subject, before the establishment of the veterinary college, we shall find their accounts very dark and imperfect, calculated more to bewilder the imagination than convey any perfect idea of the disease; and hence it is that so many errors are committed in practice to the ruin and destruction of so many fine horses in the public cities of the United States.

When a horse is attacked with this disorder, he always shows great restlessness, is hot and feverish, heaves much at the flanks, breathes quick, has a strong quick pulse, and groans much when moved

about, at the same time shows great symptoms of pain, sometimes in one, but more frequently in both fore feet ; for which reason he lies down much ; but when forced to move forwards he draws himself together, as it were into a heap, by bringing forward his hind feet almost under his shoulders, in order to keep the weight of his body as much as possible from resting on his fore feet.

This disease has always been considered a most destructive one, and what has rendered it more unfortunate, is, that farriers and others have always mistaken it for an affection of either the loins or chest, and hence their applications being made to those parts, the disease has usually terminated in death or incurable lameness ; many of them have also thought that the grease or fat (as they call it) of the body was melted, and falling downwards produced lameness ; and no sooner is the horse attacked with this complaint, than rowells and blisters are immediately applied to drain off the supposed humours, the shoes are also ordered to be made hollow, so that boiling grease, tar, turpentine, &c. are applied by way of stuffing or stopping the soles of the feet, already pared to the quick.

It is universally allowed that the causes of this disease proceeds from too violent exercise upon pavement, stony ground and turnpike roads, and to this we may add bad shoeing, from unequal pressure

upon the horny sole, pressed between two hard bodies, the weight of the animal above pressing on the coffin bone, and the horny sole below coming in contact with pressure from the stones, and then permitting the horse to stand on snow, and to go into cold water. It also often occurs after riding through snow for some time, and then bringing the animal into a warm stable: the small capillary vessels of the feet are quite unable to bear this change, and the feet consequently fall into a state of inflammation. It, I believe, also frequently occurs from the injudicious mode of suffering horses to eat and drink too much when warm.\*

\* It has been a generally received opinion among veterinary practitioners in England, that neither food nor water, given in improper qualities and at improper times, had the influence of being the sole cause of this disease. And I do not hesitate to confess that I have for many years been of the same opinion. But from several conversations which I have had on this subject with Mr J. Tomlinson of the Lancaster line, whose opinions and judgment respecting horses, their general treatment, diseases, &c. I very highly estimate, I must candidly confess, that I have on serious reflection, seen cause to value his arguments, which have come so home, as to cause me to reflect and seriously to investigate the subject, and endeavour to ascertain if possible, whether distension of the stomach from over feeding, or a sudden check from too large a quantity of cold water thrown into the stomach while hot, could have the power of suddenly checking a return of the circulation in the lacteal system, and thereby also preventing a return of the circulation through the capillary vessels of the feet, could have a tendency to heighten considerably the disease by the

All these causes are more powerful when a horse is plethoric or in full habit of body, and not accustomed to his regular exercise.

fever or inflammation this stoppage naturally produces in the laminæ of the foot.

If this should be the case, the only rational way which I can account for it, is this : the whole contents of the abdomen of the horse, but more particularly the stomach and colon, is very powerfully supplied with lacteals and lymphatics, which we find on dissecting, to be long slender pipes, surrounding in every direction the intestines, circulating a milk white fluid, distended with chyle or lymph. They are in some parts to be found as large as common goose quills, at the same time there are many not larger than the smallest arteries in the body, of course any thing *pressing* upon them, as when the stomach and colon are distended with food and water, it must of course impede the circulation, and thereby stopping the return of the blood from the feet cause the smaller vessels surrounding the laminæ and sensible sole to distend and sometimes to burst. The same extremities of the lacteals have likewise a communication with the capillary arteries of the guts, the lacteal veins also have valves at several distances, which stop the return of the blood from the intestines and the extremities, consequently, why may not distension of the stomach from either food or water, have the power of stopping the return of the circulation, through the capillary vessels of the feet, and if so, it can easily be accounted for why food and water improperly or imprudently given may not have the influence of greatly accelerating the disease called founder (at the same time, I say that founder originates from various other causes, more than the latter) as a further corroboration however, of the probability of the above statement, I will merely state some other circumstances of analogy in other diseases, where it is well known that distension of the stomach has this ef-



From what has already been said respecting this disease, it is evident that the circulation is increased and the blood chiefly determined to the fore feet, attended with symptoms of violent pain and inflammation.

fect. We all know that gout in the human subject causes a pain in the great toe; but gout is a disease of the stomach, arising from indigestion, when that organ is improperly distended with roast beef, wine, &c. We also know that sleepy staggers, mad staggers and stomach staggers are all produced from nearly the same cause, which by stopping a return of blood from the brain, causes vertigo, delirium, madness, &c. from the several capillary vessels of the brain being obstructed. I therefore say, that if this obstruction has the power of distending and causing rupture of these small vessels of the brain, why should it not, by the same parity of reasoning, be as likely to have the same effect on *one extremity as the other*; and if so, I must of course become a convert to Mr. Tomlinson's opinion. Mr. Tomlinson, it is true, is not a regularly bred veterinarian, nevertheless, if he or any other man, from a long course of experience and observation among horses, can advance an argument sufficiently demonstrative of the probability that food and water has this effect in the horse, it is my duty to stand open to conviction and acknowledge the position correct. It has however, been accurately ascertained by an experiment tried by professor Coleman, during my residence at the college, that liquids do become absorbed by the deeper seated absorbents of the intestines.

On or about the first of April, 1814, a condemned animal was kept three days without water, at the end of which time, three pails of ink water was prepared and given to the horse, and he drank nearly the whole of it, the horse was killed ten minutes after he had drank it, and on examination it was found that the coloured liquid could be traced though all parts of the system.

J. C. V. S.

*THE CURE,*

Therefore, must be commenced by diminishing the circulation, giving slabs internally, with glisters and an opening diet, together with the following emollient poultices:

Linseed pulverised,	- - -	10 ounces,
Meal or flower,	- - -	15 ounces.

Mixed up with vinegar.

Or a poultice made of mashed potatoes with some linseed meal moistened with vinegar, I have found to be attended with very beneficial effects. They are to be applied warm all round the hoofs, to soften and keep up an equal perspiration, but by no means to resort to that abominable practice of paring the sole and frog to that excess so frequently had recourse to ; to pare away the hardened surface of the sole in order that the poultice may have the desired effect, by increasing the perspiration through the pores is all that is necessary. In all violent inflammations of this nature, whether from this or any other cause, nothing more contributes to give relief than local bleeding from the cannon or metacarpal vein which runs down on each side of the pastern joint, or scarifying the lateral cartilages deeply in their whole extent, and putting the foot or feet in warm water, diluted either with vinegar, sugar of lead, or sal ammoniac ; and a mild blister rubbed round the coronet, I have found in all desperate cases attended with the most beneficial effect.

There is however, a species of founder, which so far as relates to the time occupied in its approach and development, holds a sort of mean between acute and that chronic inflammation which sometimes proves fatal in a day or two, and which always accompanies more or less contraction of the heels or quarters; this kind of founder is from its nature incurable, as it is not, as professors Coleman and Peal observe, in the power of art to restore it to its original elasticity, parts which have become converted into bone. Mr. Braey Clark, however, in corroboration of this, has shown us, what was not so much as suspected before his profound investigation of this interesting and intricate subject was made public by his experiments, and that is, that the coffin bone itself in consequence of its imprisonment within the hoof, undergoes a material alteration in its structure, though those ignorant of the anatomy of the foot, would never have suspected this, for want of a knowledge of the difference of structure in a natural coffin bone, and one that has suffered from contraction. Now, let any one go on the commons and pick out two feet, the one shall be the foot of a colt whose habits and work till ten or twelve years, has been chiefly in the country, the other shall be that of a horse whose work and labours have been confined to the city and turnpike roads, macerate the two feet and examine the difference of structure.

I have in my possession several of these bones, which may be examined at any time, and by any one

desirous of investigating the fact, to convince themselves how erroneous those ideas formerly were on this subject ; a visit for that purpose would amply reward their trouble.

A representation of these bones, and their difference of structure, will sufficiently exhibit the cause of our want of success in restoring the feet by sending out horses to the meadows with a view of opening their heels ; and the great change that shoeing produces.

The general figure that these bones exhibit, will show how materially they have suffered, the organization of its surface being almost perfectly obliterated; the sides of the bone, from a wide crescent, have now by the powers of absorption, become oval, or of a parabolic figure, and from partially sloping have become nearly upright ; this exquisitely beautiful configuration, has been termed by Mr. B. Clark during his ten years experiments to ascertain these facts, the *patiloba*, which exhibits all round the bone a beautiful collection of ragged cells and cavities, for the admission of veins, arteries, nerves, &c.

People in general may not, but physiologists well know there can be no regeneration or restoration of parts so altered.

It is the absorption of this beautiful structure, that causes the bone to become too small for the whole of

the cavity of the hoof; the hoof therefore being composed of horn and not of bone, expands and becomes too large for the altered bone within, and the horse when brought up from the meadows and put to work becomes *pomme convex* footed, by some termed foundered. But notwithstanding that some feet do expand on being turned out to grass, yet we find that such feet soon begin to contract again when the horse is brought back into the stable; which circumstance depends partly on the previous disposition to contraction, which the use of the shoe has induced on the living parts within the hoof, and partly upon the drying and shrinking, which takes place in the horn, and the consequent loss of elasticity at the quarters.

Since it is therefore proved, that the coffin bone does undergo a sensible diminution in its size and alteration in its structure, from this power alone, we ought, as Mr. Clarke and professor Peal observe, to be the less surprised at the change that takes place in the soft and elastic parts within the hoof, from the operation of the same cause. Having therefore insisted upon the advantages that will result from keeping the feet immersed in the bath, it may naturally be expected that I should give some direction about paring and preparing the feet when a long run of grass is determined on, either for the purpose of restoring the feet or benefiting the general constitution of the animal. In these respects I trust I have

sufficiently explained myself in my first publication on shoeing; I will however add (and I cannot say more if I were to write till doomsday, than repeat the text, of my worthy professor Coleman, when he lectures on the foot of the horse) the whole is combined in four words, *gentlemen give the frog pressure*. I therefore repeat that when the frog becomes decreased, restore it to health by the application of the *mel Ægyptiacum*, and give partial pressure till you get it into that state; and when so, and the frog has grown of sufficient size to come in contact with the ground, and on a level bearing with the shoe, the more pressure you give it, the less you will find it inclined to disease. For experience, which after all, could alone decide the truth or falsehood of our speculative opinions, has long since, by the experiments made by Mr. B. Clark, convinced us that no decisive or permanent advantage is to be obtained from the practice in any case where the animal has been shod and driven on pavement for any considerable length of time, and we are now convinced from dear bought experience, reluctantly to add testimony of its being frequently productive of infinite mischief, as well from what has been before stated by inducing fresh derangement of the living parts, which did not exist in such feet before they were placed in their new predicament.

But lest it may be supposed, that I reprobate altogether the plan of turning horses out to grass with-

out shoes on, I admit with many other of my colleagues, that it may be had recourse to occasionally with advantage, when it is intended to keep them out for a few days or a few weeks only; and even in this case, provided horses are turned into low and swampy ground, it is doubtful whether it would not upon the whole be more wise to let the shoes remain on, provided care be taken to remove them often enough to prevent their getting into the interior edge of the crust. If however, the popular opinion and prejudice which exists on this point, cannot be removed, would it not be well to refrain from having them shod for a week or ten days after their return to the stable, which might be the means of mitigating the evils which too commonly result from the ordinary practice.

In my former work on shoeing, I noticed that shoeing, let it be practised on whatever principle it may, is sure, sooner or later to produce an evil. In consequence of fixing an unelastic piece of iron to an elastic piece of horn, a circumstance which simple as it may appear never perhaps occurred to many, though dealing in horses all their lives. It should be understood that the foot of the horse in a state of nature never comes to its proper growth or size until the end of the fifth year, it then becomes a perfect

circle, and as broad from heel to heel as from heel to toe.

Whereas, in England (though there the practice of late years is now much done away) and particularly in this country, horses are put to work and shod at three, and sometimes before three years of age; by which means many diseases in many shapes are brought on, long before the foot has attained its perfect shape and symmetry: it is in consequence of this absurd practice that thousands and tens of thousands of horses in this country are ruined, or rendered useless to their owners long before they have arrived at one third the period of existence assigned them by Providence. It is however, with some satisfaction, I am in this place able to observe, that a more politic system has for some years began to prevail among the more enlightened in England, who value their horses, and who now do not shoe them until the fifth year, but use them with tips only, until that period; this principle I have endeavoured to inculcate as much as possible, but people immediately cry out, "O, that may do very well in England, but it will not do in this country upon turnpike roads, &c." People unwilling to see will always keep their eyes shut, and people unwilling to listen and learn are always inclined to deafness. Let me now ask those people who reason thus, how is this done in many parts of the world, but more particularly in India,



where the country is principally composed of rock, where shoes are never known ; and as a farther corroboration of this truth, it is a well known fact, that before the Cape of Good Hope fell into the hands of the British, shoes were entirely unknown ; and where can we find a country more rocky or mountainous than that part of the world. This circumstance I myself ascertained from many of the most wealthy inhabitants of the Cape, when it was given up to the British in 1802, on my return from India. Being anxious to prove this, as it is a circumstance of importance, though doubted by many, I can if necessary, produce gentlemen residing in this city, who for many years have carried horses to the West Indies, who have informed me that many of them carried to those islands from this country, have after a short period of time acquired such a hardness of hoof, as to render shocing entirely unnecessary.

The grand secret lays here, and I wish to be understood that I do not mean that horses under all circumstances, are to go entirely without shoes, but only as circumstances will admit ; or that tips be applied at the toe instead of shoes, until the foot has arrived at its proper growth : for instance horses worked on the Jersey sands do not stand so much in need of shoes as those horses used in the city, nor do horses at cart or plough in the country need shoes so much as

those working in the city or on turnpike roads.\* All that I contend for is this, and that I will maintain, that if all horses were left to run at large in the fields until five years old, (or shod with tips only, if worked before that period,) and the knife entirely abolished and the rasp only used until that period, the foot might in nine cases out of ten, be kept without contraction until at least one third the natural period of their lives (say twenty four years) instead of which nine horses out of ten are contracted and rendered almost useless before they have attained their tenth year. There is however, one argument to be taken into consideration to reconcile this reasoning, and that is, that a foot in a state of nature never wants cutting, because nature performing her own work, throws off all superfluous parts by a natural exfoliation; therefore if you never cut, but use the rasp instead of a knife, you thereby assist nature, in performing her own work, whereas by the cutting you alter nature, and thereby disease her; by cutting you also invite the growth of horn, which a rasp round the edges would not do. The most plausible reason for cutting instead of using the rasp, is this, that from the defence afforded by the shoe, the parts of the hoof are growing, and having no means of wearing away it

\* It is also well known that the British government, as well as the India company are now raising regiments of cavalry, with tips only.

must be removed before the shoe be applied again. The sole being held firm by the nails embracing the wall, its flakes have not the opportunity of discharging themselves, and will also want removing with the knife ; the sole thickens under these artificial circumstances and the frog of course, say the smiths, should undergo the same discipline in being pared, with the other parts ; and this reasoning, before late experiments taught us better, has met with an acquiescence from the commencement of the shoeing art, perhaps even to this day. The projecting solid appearance of the frog, its consistence resembling that of leather or hard cheese, cutting with a smooth and polished surface, invites the knife, and causes it to be more sliced by the smith on that account than it otherwise would be ; and the smith as well as people in general arrogating to themselves a superior knowledge to the Almighty, fashion it to the conception they have formed in their own mind, of the figure it should receive ; whereas if people would only be contented to follow and imitate nature as near as possible, they would seldom err so often as they do. As respects the wall of the hoof, it should be remarked, that where there is a demand for its wear it grows as rapidly as when in a state of nature, and exposed to the ground ; but when shod, it loses this power to so great a degree, that in many horses a few thin slices only can be removed, and the frog being of slower growth than the wall, and the heels closing

from the compression, its circulation and health is affected, and the failure of its growth and that ragged oblong figure we so often see in contracted feet are the necessary consequences. Let us now see what those rags are, and how they are formed, and we shall then in truth see whether cutting of the frog is necessary or not. That there are no rags or scales on a natural frog in a sound healthy state, is evident, and so it is almost always found to be in frogs at the commencement of shoeing, if the animal has been left to run until, or near the time that nature intended for its development. But if a slice only is once taken away from this part at this time, and its exterior coat removed, and the interior one exposed, it being of a more moist succulent nature, quickly dries in the air and heat of the stable, &c. and contracting cracks their edges, in drying, reflect or turn back and create a ragged uneven appearance, this being also removed by another deeper incision, getting nearer and nearer to the quick (or sensible frog underneath) at each cutting, till the frog flayed and diminished in its size, becomes so dry, brittle and hard, as to render it too tender to come in contact with hard bodies; and by this imprudent obstinacy of smiths in general, they by a few cuts of their abominable buttrass, in a few minutes, do more mischief than nature can repair in as many months.

There are however, at times exfoliations of the frog which take place, but this is only an effort of nature to rid herself of its superfluous growth; Indeed it has for many years of late been the wish of professor Coleman and Bracy Clark, to bring that part of their studies and experiments before the public, as gives me this opportunity of laying before the public, a general view of those things, as being the most useful sort of addition to the stock of knowledge we are in possession of, and which will account to many for the frequent claims I have already made to the views or the discovery of new objects, when I made my attempt in introducing a new system of shoeing in this city. It will however, no doubt soon be seen, how far I was correct, and how far it will yet stand the test of inquiry, which cannot but prove of public utility by improving a knowledge of this branch of the shoeing art, so much wanting improvement; although I am a considerable sufferer by this attempt, it is yet to be hoped that time will lead to a better treatment of the biped as well as the quadruped.

# PROPOSALS

FOR THE

ESTABLISHMENT OF VETERINARY FORGES,

FOR IMPROVING THE SHOERING ART

IN THE UNITED STATES,

ON PROFESSOR COLEMAN'S SYSTEM,

AS NOW ESTABLISHED AT THE

ROYAL VETERINARY COLLEGE OF LONDON,

*And at the different veterinary colleges of England, Ireland, Scotland, France, Germany, Spain, Portugal, Russia, and British India.*

An establishment of this kind not being generally known to be of such public utility, or national importance, as it really is, the author of these proposals conceives that a short statement of its views, and objects may be an acceptable offering to those unacquainted with it. The extreme ignorance and incompetency of the greater part of practitioners on the diseases of horses, and the many formidable diseases which destroy or render useless so many of these noble animals in all our public cities, long before the end of one third of the natural period of existence assigned them by Providence, induces the author respectfully to invite the different agricultural societies of the union, or any respectable body of men, to form themselves in a society for the establishment of forges

and for the improvement of this branch of the veterinary science ; and to provide smiths to be men of respectable characters and good workmen, for carrying the same into effect, in conjunction, with a *scientific practitioner of the veterinary art*, under whose direction and controul this establishment shall be conducted.

The grand object of establishing these forges, is not only to cure and prevent corns, thrushes, canker, founder and contraction, (five of the most formidable diseases to which the foot of the horse is subject,) but also to introduce and disseminate the true principles and practice of the shoeing art, and to open a school of instruction, to which city and country smiths from all parts of the United States, will be invited to attend, and receive private lectures, on the anatomy, economy and functions of the foot of the horse ; by which means this useful and domestic branch of science, may gradually become dispersed throughout the union. Medical students also will be invited to render themselves useful in the neighbourhood where they reside, by receiving instruction in the anatomy and physiology of the horse, and by learning how to perform operations and to administer medicines, where no regular and scientific aid can be procured. Sensible of the advantages which may be made to result by their obtaining a knowledge of comparative anatomy in this way, the young student may with-

out disparagement to his profession, be hereby rendering a useful piece of service to himself and his country ; we may then hope to see that these things will be in a fair way of reformation altogether ; and that cloud of ignorance which has so long obscured and stigmatized the practice of the profession in this part of the world, will gradually be dispelled ; and that in a few years there will not be a city, town or country village in the United States, but will boast of a practitioner, whose abilities may do honour to his profession. Such an establishment has been the means of saving many thousand fine horses in the British cavalry, and might be commenced on a small scale, and at a small expense : the patronage of the public will be necessary to carry it into full effect. Great and unremitting exertions it is to be hoped will be made by every one who sets a value on his horse or his dog, whether for pleasure or as objects of commercial concern and domestic importance, and by those, who from patriotic motives are zealous to promote the prosperity and welfare of their country. It must also be taken into consideration, that a veterinary establishment of this nature may be supposed to clash with the prejudices as well as the interests of the smiths, grooms and coachmen, who are most likely to think the establishment an infringement on their rights ; consequently they will endeavour to frustrate its execution. The opposition of such men was the principal cause of the failure of an attempt to form such an establishment in this city.



*Cities, country towns and villages and proprietors of mail and stage coach establishments,* will find an object of great commercial, as well as domestic importance, to procure smiths, who will receive instruction and establish themselves on their different lines. In a political point of view, also, this establishment may become of great importance, which must be sufficiently manifest; so fully of late, was the utility of it estimated by the government of Great Britain, in their military and mail departments, that an annual grant of fifteen thousand pounds sterling, has been voted for the support of the veterinary college, and for the education of youth in the shoeing art. Proprietors of such establishments will therefore find it their interest to transmit their proposals to Dr. Carver. Happy for the profession itself, and much more happy for the community at large, if this object could be effected; and it is hoped that the time is not far distant, when it may be honoured by a legislative consideration, and that the present generation, may see the practice rescued from the ignorance and barbarity, by which it has so long disgraced this part of the world. Any number of gentlemen, therefore, in any of the public cities of the union, who may feel desirous of stepping forward to sanction and carry this plan into full effect, will on application to Dr. Carver receive any services that may be in his power. Smiths and others desirous of receiving

instruction, will of course apply to the controuling committee, when such shall be established, for an introduction to Dr. Carver, and who on receiving the same according to such rules and regulations, as may be hereafter suggested by them, and the veterinary surgeon, shall be supplied with models of all the college patentshoes, hammers, counter sink nails, punches, fullers, instruments and drawing knives. Gentlemen travelling through the United States, and who are subscribers to this plan, and may be desirous of giving encouragement to an establishment for disseminating this useful and necessary branch of knowledge, will be entitled to a set of the model patent shoes, with instructions from Dr. Carver for their uses and application.

Country smiths, and other respectable young men desirous of entering on this branch of the veterinarian art as well as to learn the surgical and operative parts of the profession, may find it an object well worthy their own interests to qualify themselves.

## SUBJECTS

WHICH WILL BE TAUGHT AND DEMONSTRATED

TO EVERY SMITH,

ON RECEIVING INSTRUCTION,

*AT THE NEW VETERINARY FORGE.*

1. An introductory lecture giving a general view of the nature of the shoeing art.
2. The views commonly entertained of the shoeing art, and causes of its defects by various characters, supposed to have a knowledge of these things.
3. Reasonings founded on the natural foot, but which are irrelevant on the foot being shod.
4. Various principles of shoeing, as they are called, examined. Good and bad shoeing pointed out.
5. One principle only—to follow nature as near as can : that defined and how to be obtained.
6. Fitting shoes and driving nails, discretionary circumstances only, pointed out.

7. The difference of the foot after shoeing observed, with a series of nine years experiments for accurately ascertaining the effects of the shoe after being shod, by B. Clark, F. L. S. and V. S.

8. A variety of different experiments on the foot of the living horse, explained during my residence at the college.

9. A description of the foot and hoof of the horse, in which their true nature is endeavoured to be established, (not merely as a defence for the foot, but as a non-resisting machinery for the exertions of the animal and repose of the weight,) pointed out and explained.

10. Of the heels : apparent offices of the heels as elastic beds for the weight of the animal, explained and pointed out.

11. The extraordinary state of the foal's foot, which does not obtain its full developement until the fifth year, explained and pointed out.

12. How the weight is received and distributed over the basis of the foot exhibited, explained and pointed out.

13. Wall of the foot described ; its curious termi-

nation in the centre of the foot, explained and pointed out by dissection. The bars as elastic processes also defined.

14. Of the frog, how a space in the foot is provided for it by nature, as the elastic key-stone of the foot, demonstrated by dissection. Also the cleft of the frog and the frog stay described.

15. Cushion of the frog and its uses described and demonstrated by dissection.

16. An extraordinary and hitherto undescribed part, the conoary frog band, pointed out by dissection.

17. The frog stay described by dissection ; the rupture of that organ described and pointed out as the real cause of running thrush, by B. Clark, V. S.

18. The frog shown to possess the power of maintaining its own figure ; and the curious doctrine of shoeing smiths in this respect, pointed out.

19. Their reasons for cutting the frog explained, and the remarkable interruption to the growth of it from that cause, pointed out.

20. How ascertained ; its causes suggested, and the cutting of it unnecessary, nearly in all cases. The

frequent cause of ragged frogs pointed out. The natural full grown frog, never ragged if never cut, pointed out.

21. The singular effect of shoeing on the frog described, with its natural exfoliations considered and explained.

22. The different degrees of pressure the frog ought to receive when in health, and when in a state of disease, pointed out.

23. The sole, its singular mechanism exhibited by dissection.

24. Thickens by shoeing, and the wall also retarded and disturbed in its growth by shoeing, explained.

25. The horny and sensible laminae described by dissection. Five hundred of the former surrounding the anterior surface of the wall, with five hundred of the latter plates of horn surrounding the posterior surface of the coffin bone, and coming in contact with each other, is shown to support the whole weight of the animal, proved by experiments at the veterinary college.

26. The bearings of the natural hoof on the ground; its natural exfoliations, &c. pointed out; its natural form at five years old, as broad from heel

to heel as from heel to toe, also explained ; never of an oblong form in a state of nature.

27. On standing in the stable ; how it proves the entire destruction of the foot for want of proper stable treatment and management.

28. On shoeing—on neat shoeing—on levelling the toe—on expanding of feet ; how to be obtained—together with a closer examination of the nature of these things pointed out and explained—how and why the shoeing art has for so many ages been involved in a cloud of darkness. With conclusions how this branch of the veterinary art may be drawn from contempt to respectability.

## CONCLUSION.

All I believe, that can now be added upon this important subject is, that while the abominable system of shoeing, now in use among the smiths of this city, shall continue, and while they are able by their combinations to frustrate every attempt to introduce new principles, and lessen the sufferings of this faithful slave to our labours and pleasure, it will be useless for any further attempts to be made ; for it must now be evident from what has been premised, that it is from the practice of bad shoeing, now so obstinately persisted in, that all the diseases here mentioned, particularly contracted feet, originate. Indeed, when we consider and compare the important functions of the foot of the living horse, with the delicacy of the parts as described within the hoof ; and if we at the same time subjoin the education of those to whom custom unfortunately has hitherto committed the preservation of this important organ, it will create no surprise, to see so many diseased and lame horses in all the public cities of our union, actually owing to the ignorance and depravity of those rustic vulcans the generality of whom have never read their horn book, ignorant even of the first principles of their art, unwilling to be put to the trouble of learning, or to the mortification of owning that they need it, obsti-



nately maintaining their own opinions, whereas their candidly pleading ignorance, would on the contrary ennoble them. But no, they cut into a horse's foot, as a carpenter does a piece of wood ; and instead of furnishing additional strength, and rendering the foot capable of resisting the hardest bodies, by taking away no more than is necessary or as much as nature intended should exfoliate, and which she so wisely always leaves her mark to go by, they destroy with their destructive buttrass, those very parts which nature formed and designed for that wise and important end ; therefore, it is an easy task to prove in defiance of all they can advance, that they do not only counteract the intentions of nature, but as I before observed, produce diseases, instead of preventing them.

We shall now conclude our present remarks, that horses by thousands in the United States are annually destroyed by the above destructive mode of shoeing, and with circumstances of shameful barbarity, by error produced upon error, and which custom has rendered too familiar for us to see in its true enormity ; and whole centuries have blindly passed away, in which those errors have not been perceived, in an ignorant and thoughtless acquiescence with them ; and in this wretched state, often are they seen severely punished and abused, even when they have done their utmost labour, because they cannot do more : and the laws which maintain the most trifling rights of men,

in respect to personal safety, have provided no protection to these innocent and often beneficial slaves, from ill usage however gross and unmerited. And much of this ill usage comes from the ill temper and savage disposition, of the half drunken people usually employed about them, who have neither patience nor feeling, for the failing their miserable condition brings upon them. It seems also a monstrosity of injustice, that after the use of his feet has been taken from him, he should be abused because he cannot go, especially when we recollect his willingness on all occasions to exert his strength and power for us by the slightest intimation of our wishes, even to the extinction of life itself; and contributing as he most willingly does, to the benefits of every class of society, the pomp of the great, the interests and pleasures of the middle ranks, and the wants of the poor, not deserving such a return. It is now only necessary to add, that in corroboration of all I have here said to strengthen the belief that contraction is not only to be prevented and warded off even to old age, but that it is even when very far advanced, capable of being mitigated so as to render the animal useful to double and treble the period he usually is, and if this assertion is a fact, I say it is a discovery of great magnitude and economy to the owners of every animal so afflicted. When I first commenced this subject on contraction, I informed my readers that professor Coleman commenced his career at the veterinary college of London by teaching the mode of curing and preventing some of

the most formidable diseases incident to the foot of the horse. And I am happy in saying that he has amply completed his researches, and that hundreds and even thousands of horses have been and are now saved to the British army in this complaint. The last returns to parliament, proved a saving of one hundred and twenty horses in every regiment of cavalry, annually: therefore, by the use of the patent bar shoe, which answers all the purposes of an artificial frog, when properly applied, and the simple immersion of the feet in a water bath for two or three hours every day, or every other day, as occasions and weather permit, our ends are obtained. By this method the nourishment natural to the hoof, has free access to the surface, and by these simple means only in conjunction with the preservation of the bars and binders, and never touching the frog in shoeing, are a number of diseases of the feet to be both cured and prevented.\*

\* Before I left England I myself saw several hundred young horses then raising by the government and the honourable East India company, at their stud in Hartfordshire, under the experience and guidance of Mr. Bloxham and Mr. Field, veterinary surgeons to the first and second regiments of horse guards, where the happiest results are experienced from this mode of raising horses without shoes, until their fifth or sixth year, by abolishing the knife, and using the rasp and tip only. It should also be remembered that when you once begin to cut a colts foot you invite the growth of horn, and thereby commence an evil you must of necessity go on with, but if you have not used the buttress, you leave nature to her self, and she wisely does her own work by throwing off all extraneous substance of the frog and hoof by a natural exfoliation.

# RECAPITULATION

OF THE

TREATMENT AND CURE OF CONTRACTION, FOUNDER  
AND RUNNING THRUSH.

If a person own a young horse four or five years of age, having perfect feet, let him be careful of preserving the frog, bars and binders, keeping the frog on a level with the shoe, consequently always in contact with pressure, the heels are constantly expanding, and neither contraction nor thrush ever takes place : but the moment you deviate from this rule, either by raising the frog from pressure, or cutting the frog, bars and binders, from that moment the functions of nature are altered and disease commences her ravages.

If however, you have a horse seven, eight or ten years of age, and the heels from bad shoeing are high and contracted, commence by cutting them down to about two or two and a half inches, rasp the quarters, and if the frog then comes on a level with the horn, apply the clip thin heel shoe ; but if the frog even after cutting still remains too elevated to come in contact with pressure, apply the bar shoe, and the pieces of cork to make it do so. If the frog is dry and there is no thrush, keep it in the bath, but if not,

keep it dry and get it sound by the application of the college *Egyptiacum* before you suffer moisture to touch it. The expansion of the heels should be watched at every shoeing, and the shoe widened every time the horse is shod, by these simple rules, and a little attention to the subject, in a few months thousands of horses may be saved to the United States.\*

\* In corroboration of all that I have hitherto advanced on the subject of rasping the heels and quarters, in conjunction with immersion in the bath, I relate the first experiment I made during my residence at the college.

While on a visit at Hampstead, a gentleman, a friend of my father's, who had purchased a very fine hunter whose feet were in a high state of contraction, applied to me for advice, the horse was about ten years of age: I commenced by rasping the heels, and at the quarters from the coronet to the basis, just sufficient to prevent drawing blood; the button of the walls at the quarters, were cut down flat by the smith, as near as could be permitted: by this the frog which was before contracted and raised from pressure, was now brought to bear upon the ground, and to promote which, the toe was cut off square, as far as it would permit. This operation being performed, the horse was every day immersed in the bath for two or three hours, and without being shod suffered to run out at his pleasure on a piece of ground adjoining the stable. In about nine weeks from the commencement, I found that the heels had considerably expanded by the power of contraction, which the weakening of the quarters with the rasp, had given to the bars, and which before were scarcely visible, now grown large and strong; the frog also, by being brought in contact with pressure, had by this time grown down, and was sufficiently large to be nearly on a level with the heels, which hitherto had been prevented by the contraction of

The system here laid down of curing diseases of the feet, has, I am confident never been introduced or put in practice in this country. I shall therefore derive some consolation from one reflection on the subject, that is, even though much enmity and prejudice still exists among the smiths, by a determined perseverance in their present destructive mode of shoeing, a considerable share of the evil, will by the introduction of the bath and the bar shoe, be removed; and the rapidity of contraction will in most cases not only be considerably decreased, but the services of the animal prolonged for many years to their owners. However, like many other evils in society, it is a fact much easier felt and perceived than remedied, nevertheless, I am not without hopes, that what I have here loosely suggested, may still be acted upon by gentlemen acquainted with their own interest and thereby determined to maintain the same prerogative in their stables as in their parlours. At the same time it is equally clear to me, that in order to lessen these enormous and growing evils, as respects the dominion and influence which many gentlemen's servants have and do possess in their masters stables, that we have by no means so much to learn as to unlearn, for

the quarters. The horse being now fit to be rode, he was shod with professor Coleman's patent clip shoe, which soon brought the frog on a level with the shoe; and when I left England, this horse had then been hunted for one season and his feet so improved as scarcely to bear credibility.

I have more than once known, that merely for the sake of establishing their own ridiculous and pernicious mode of shoeing, when I have differed from them in opinion, they have on purpose lamed their master's horses and imputed the fault to the shoes, after having in vain tried every sort of invention and lies to discredit the use of them. And I repeat that until this desirable change can be effected by gentlemen being resolved to crush the present vindictive spirit of opposition and misconduct in their grooms and servants, when my services are called upon to render assistance to their afflicted animals, we never can expect to see the veterinary art, or any branch of it prosper in this country.

If on the other hand, contraction has already taken place with any degree of violence, and you are desirous of a cure so as to render a horse serviceable for years to come, you must, to succeed effectually, first commence the operation in quite a different way, by giving your horse up from work, for the space of ten or fifteen days, and cutting down the foot only as far as is necessary (and no farther than nature has left her marks for your guidance and instruction.) If the frog in this operation comes in contact with pressure, which is so much the better, cut the hair off all round the foot lock or pastern, from the pastern joint to the coronet, and apply a mild blister, such as the following:

Cantharides	-	-	-	2 drachms.
Mustard	-	-	-	$2\frac{1}{2}$ do.
Venus turpentine	-	-	-	$1\frac{1}{2}$ ounces.
Wax and adepts each	-	-	-	1 ounce.

Mix the whole into an ointment and rub in about an ounce in each foot.

Let the blister remain on about two days and two nights, and on the third day grease the blister with lard, and immerse the foot in a bath of warm water, and apply the emollient poultice at night. The horse should now have walking exercise twice a day, and when the blister has operated sufficiently, and the hair commences its removal on the part, and the horse is sufficiently well to bear shoeing, let him be now shod with the patent bar shoe\* and if the rising or prominent part at the middle or heel of the shoe, as represented in plate two, figure one, should not touch the frog, supply the vacaney and obtain partial pressure by the application of pieces of cork dipped in tar, which must be introduced between the cavity of the shoe and frog, and as you observe the frog to descend, grow sound, strong and healthy, the more pressure you give it the better. The clip shoe may then be applied as his constant shoes, without further trouble. by the application of the cold bath a couple hours every day during hot and dry weather.

\* Plate 2, figure 2.



## FOR THE CURE OF RUNNING THRUSH.

All that need be said for the cure of thrush, is, to give the frog pressure ; if the frog is in a healthy state and always in contact with pressure by being kept on a level with the shoe, no thrush will ever make its appearance.

If however, the thrush has already commenced its ravages in the cleft of the frog, and the frog is much decayed, and there runs a fœtid humour, the commissures and cleft of the frog must be well washed and cleansed from all filth and dirt, and washed every day with strong brandy and water, and the following ointment applied.

*Mel Ægyptiacum,*

Pulverised verdegris - - - 4½ drachms.

Mel - - - - - 2½ do.

Vinegar - - - - - 1½ ounce.

Or a solution of blue vitriol boiled over a gentle fire till it has acquired a proper consistence and red colour.

By a few applications of this ointment, the frog will acquire a degree of health and hardness, when the college bar shoe must be applied, and the same pressure as before observed, till it has acquired suffi-

cient size, health and strength to bear the weight of the animal, and when you have once got it to bear on a level with the shoe, the more pressure you give it the better.

If however, an obstinacy to heal should be observed, as is sometimes the case, the horse must go through a mild course of alterative physic, by which, with a little nitre in his water night and morning, or a few diuretic balls, a cure is generally performed. It may be necessary to keep in remembrance, that an obstinate thrush of long standing, approaching to canker, can never be cured but by internal medicine and bleeding. The horse should also be dieted on soft marsh feed and as many potatoes as he will eat.

Respecting the cure of founder, I trust sufficient has been said on the subject for the guidance of a cure. I will however add, that in desperate cases, I have always been successful by the application of the following poultices : take of bran a quarter of a peck, water a sufficient quantity, boiled ten minutes, and then thicken it properly with linseed meal, add as much vinegar as you can, to give it a proper consistence, and apply this from the articulation of the shoulders to the feet for a couple of days, after this apply the mild blister from the articulation of the knee to the coronet, previously cutting off the hair. When the blister has acted about twelve hours, im-

merse the feet in a warm bath, if you can get the horse to stand; if he cannot, continue the poultice over the blister. The horse should have an opening soft diet with an ounce of nitre, night and morning, and a pound of salts every two or three days, but no nitre on the day that salts are given. The blister must be continued and renewed every eight or ten days, and the warm bath and emollient poultices for a month or six weeks. When the horse can bear his own weight it will be best to turn him out, and leave his exercise to his own free will. A diuretic ball every three or four days, with a few purgative alterative balls will be of great service to keep the bowels in a proper state.

The purgative alterative balls are composed of a drachm and a half of aloes and two drachms of soap, one to be given every twelve hours till the body is opened. The frequent application of the blisters as before prescribed, will produce an external irritation on the parts, which may often succeed in restoring the legs to their natural suppleness; particularly if the case is recent, and the poultice be properly applied every night from the knees down to the feet. This treatment requires a great deal of perseverance and patience, and in many instances a complete cure has been performed by it, but never in very desperate cases by any other method.

If the treatment here recommended, does not complete a cure, the disease will terminate with more or less dreadful effects; the play of the joints will be confined, the legs will move with difficulty, and the animal will be lame during the remainder of his life. Having disclaimed the idea of writing a regular treatise on shoeing, in these essays, I shall now close the subject, by hoping that the cardinal maxims laid down in Mr. Coleman's system of shoeing, and which I printed in a small pamphlet some time ago, will remain in full and undiminished force. They have stood the test of more than twenty years experience, and may chiefly be compiled under the following heads, namely: that the frog and bars shall be scrupulously preserved, and the frog always brought in contact with pressure if possible—that the shoe shall rest on the under edge of the crust and bars alone, and touch the sole at no one single point—that such portion of the sole as may be necessary, shall be carefully removed with a drawing knife, and only hollowed out sufficiently to allow a picker to pass all round, from the point of the toe to the extreme angle of the heel, where the cavity ought to be greater than at any other part—that there shall be no superfluous weight of iron in the shoe, and that the nails shall be driven as little backward in the quarters as is compatible with the secure fastening of the shoe.

And I am perfectly satisfied, that the enforcement of these simple rules, and the use of the patent bar

shoe\* and the cold bath, will not only be the means of preventing many, but mitigating and warding off even to old age, most of the evils which daily spring from that pernicious method of shoeing now practised by the smiths in general of this city.

\* Plate 2 figure 2.

TO PRIVATE GENTLEMEN,

OWNERS OF BREWERIES,

MAIL STAGE ESTABLISHMENTS

AND LIVERY STABLE KEEPERS,

*The following useful improvements in veterinary science is respectfully submitted.*

The various medical uses to which Dr. Carver's patent, universal, veterinary *medical bath* may be applied in restoring horses feet, that are constantly in use, and battering over the pavement of a large city, will render it a valuable acquisition to the public. It may be applied, under its various modifications, for all diseases of the feet, particularly contraction, founder, sand cracks and running thrush—to diseases of the skin—of the lungs—and for inflammation generally. For tetanus and many other disorders, both external and internal, to which horses and other quadrupeds are liable.

It is also recommended, as a useful introduction into all infirmaries and large establishments where a number of horses are employed, such as breweries, mail stage establishments, sugar houses, private and public stables.

To the southward, and the westward, and in the West Indies, in large and extensive cotton farms and plantations, where tetanus, and other spasmodic disorders so frequently occur among the negroes; the hot and vapour both will be found extensively useful in saving the life of both man and beast.

Dr. Carver however, with a view of making its usefulness more general in the breweries, private and public stables of the city, for the cure and prevention of founder and contraction, which disable so many fine horses in all the public cities of the United States, has simplified and modified his universal bath so as to render it less expensive, as well as to give less trouble to servants.

A model of Dr. Carver's universal and modified bath, may be seen at his residence, and all applications for a knowledge of its principles, and also for the application of the patent bar and clip shoes, in aid and assistance of the cure of contraction, &c. in conjunction with the use of the bath, will be punctually attended to.

**TERMS OF CHARGES**

FOR THE PRIVILEGE OF USING

***DR. CARVER'S PATENT BATH.***

	For 14 years.
For all public livery stables	\$10
For all mail stage establishments	10
For all breweries not exceeding ten horses	5
For private stables	5

Note. All persons disposed to purchase patent rights for a city, town or state, will please to apply to

J. CARVER, veterinary surgeon.



## COLLEGE CERTIFICATES.

*Veterinary College, July 12, 1815.*

These are to certify that Mr. J. Carver has attended the veterinary college as a resident pupil for three years, and having been examined by us, we consider him as qualified to practise the veterinary art.

*Henry Cline, surgeon,  
William Babington, M. D.*

*Ashley Cooper,  
J. Cook, M. D.*

*G. Pearson,  
Henry Clui, jr.*

*Edward Coleman, prof.*

*Wm. Sewell, assist. pro. and treas.*

---

Theatre of Anatomy, Physiology, Pathology and Surgery, October,  
1815.

*By Mr. Wilson, Mr. Charles Bell, and Mr. Brody.*

This is to certify that Mr. J. Carver, veterinary pupil under me, has attended a course of lectures on the human subject and chemistry, under sir H. Davy, jr.

*Edward Coleman, president.*

*William Sewell, assist. prof.*

---

*Royal Veterinary Medical Society, July 12, 1815.*

We hereby certify that Mr. J. Carver is a member of the London Veterinary Medical Society, and that his observations have contributed to the advancement of veterinary knowledge.

Signed by order of the Society.

*Edward Coleman,  
William Sewell, V. P.*

S. DUFFIELD, Secretary.

To Mr. J. Carver, V. S.

---

The above veterinary diplomas have been examined and approved by the president, vice president, secretary and members of the Philadelphia Agricultural Society.

R. VAUX, secretary.

IN THE PRESS,  
AND WILL BE READY BY THE FIRST OF JULY,  
**A TREATISE**

ON THE  
**DISEASES OF THE EYE OF THE HORSE,**  
WITH PLATES,  
TAKEN FROM ACTUAL DISSECTION

AT THE VETERINARY COLLEGE ;

Showing their causes, symptoms, prevention, best mode  
of treatment and cure.

ALSO,

**A TREATISE**  
ON THE  
**LAMENESS OF HORSES,**

WITH PLATES,  
SHOWING ALL THE VARIETIES OF LAMENESS TO WHICH THE  
HORSE IS LIABLE ;

TAKEN ALSO FROM ACTUAL DISSECTION

AT THE

**VETERINARY COLLEGE ;**

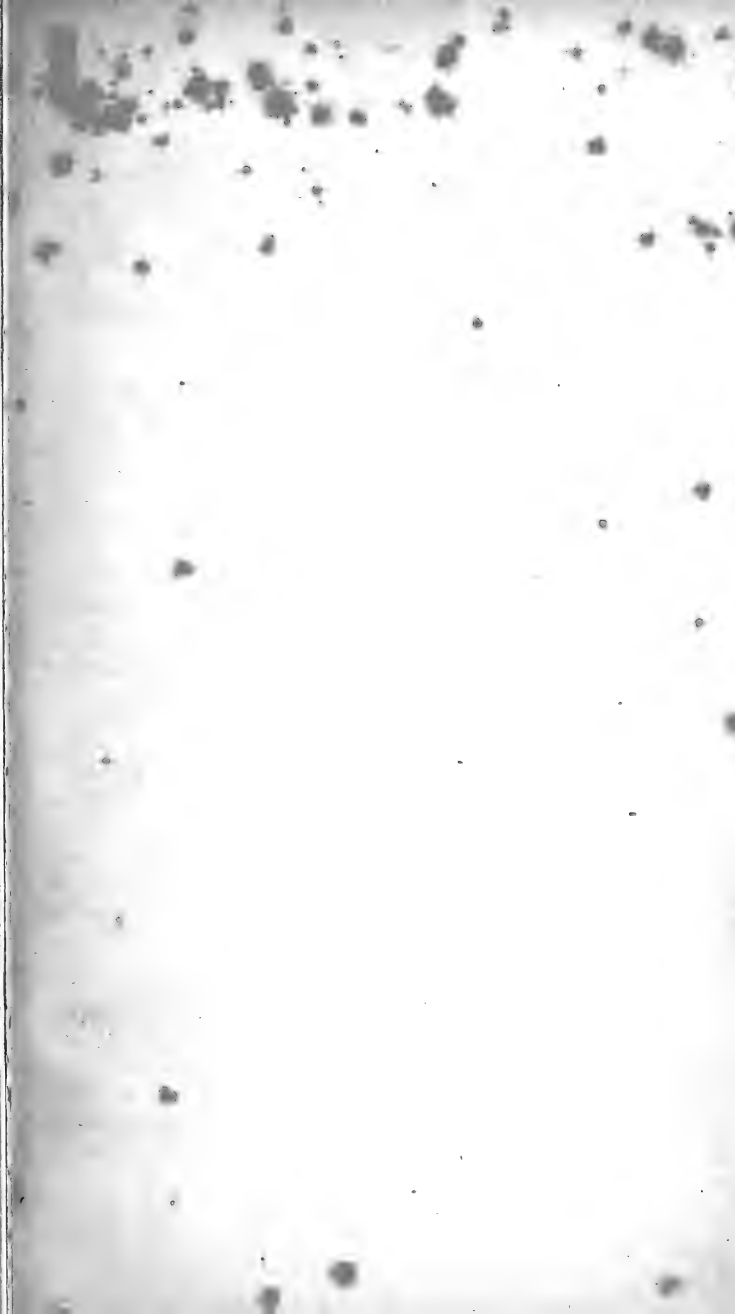
Showing their causes, symptoms, best mode of treatment  
and cure,

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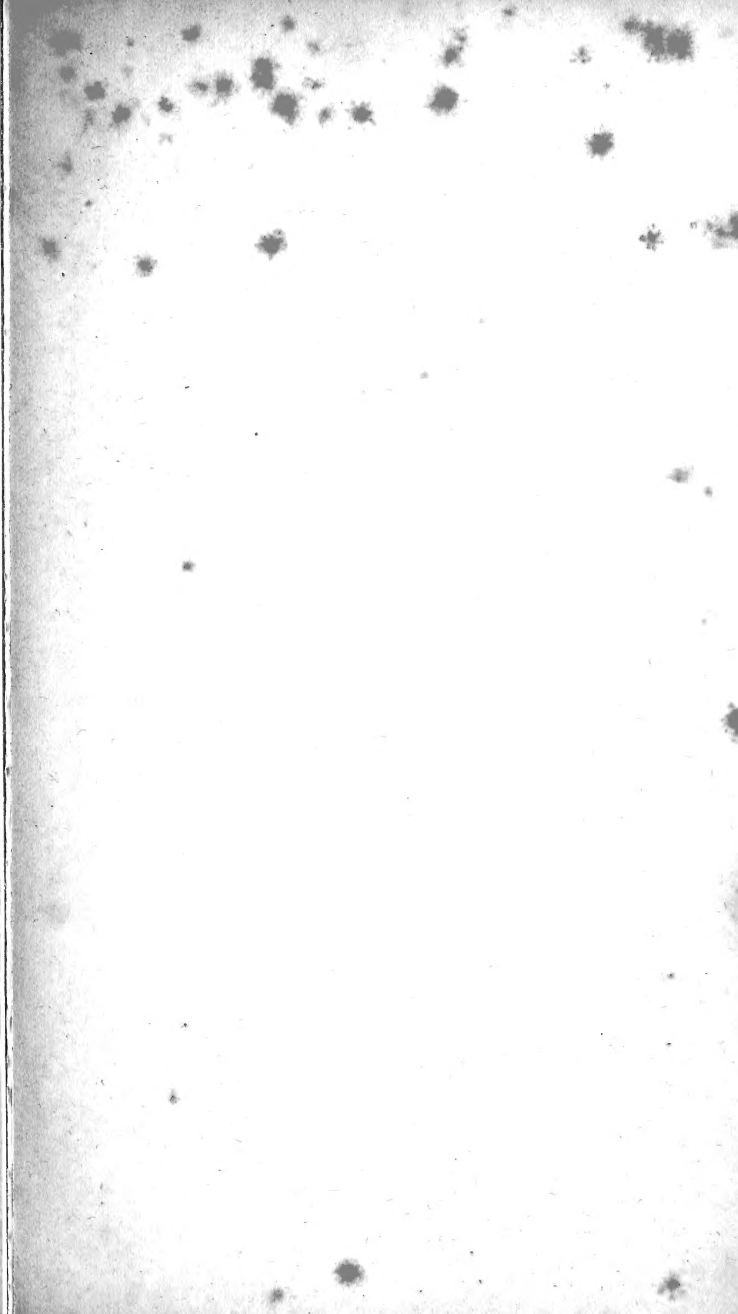
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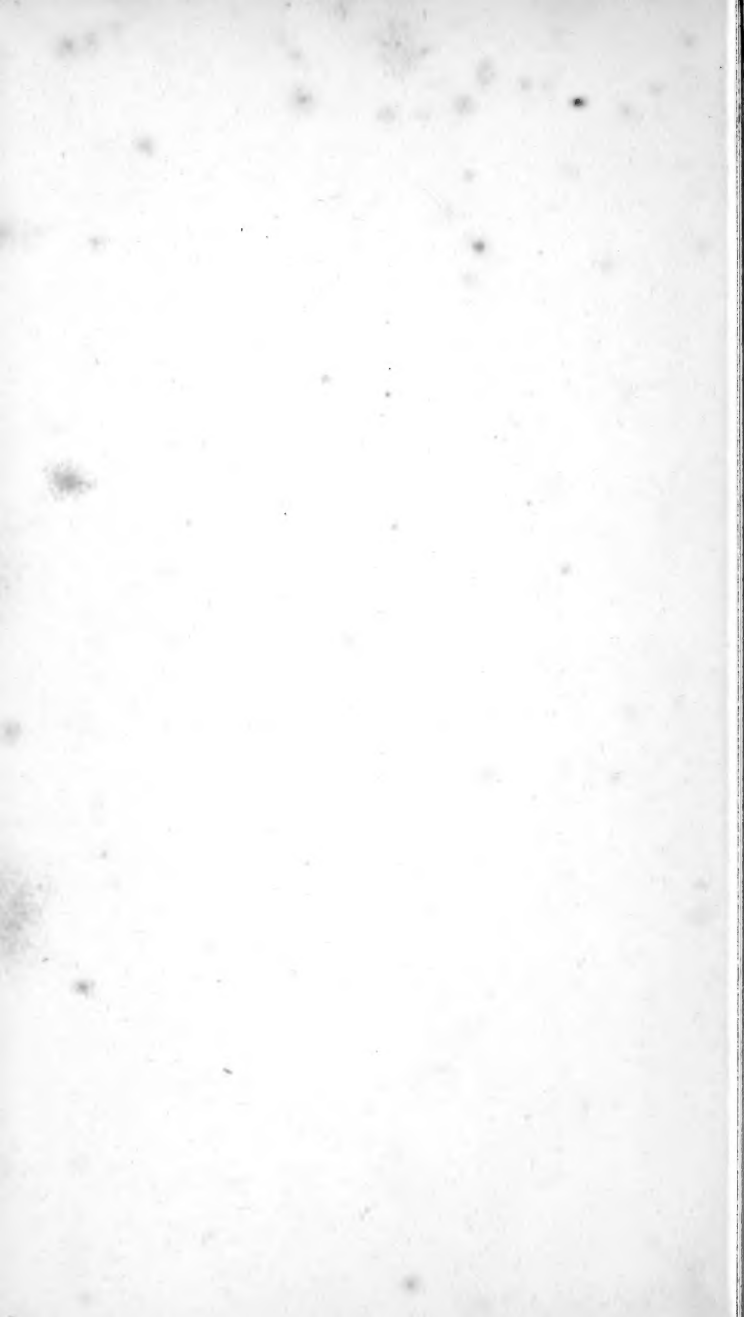
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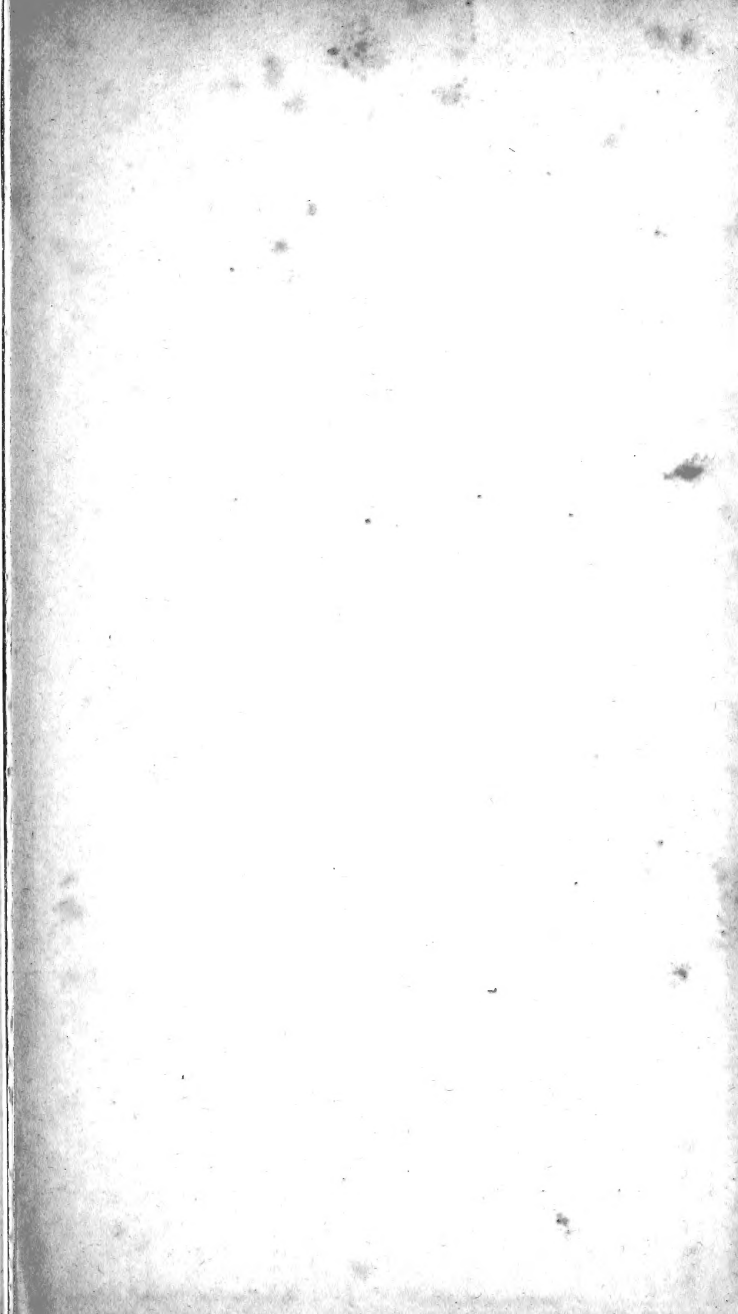
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