In atrophy complaints, make a prudent use of the following balls; viz. Take of cuprum vitriolatum and tartarised antimony, an ounce of each; calomel, two drachms; opium, four drachms; anisated balsam of sulphur, a sufficient quantity to make eight balls; one of which is to be given every evening.*

BACK-GALLED.

This is an accident to which saddle-horses are very liable, particularly young ones, on account of the tenderness and delicacy of their skin; therefore, if a horse has a bad saddle, or been rode by a bad rider, or had a heavy load to carry, he is sure to get a sore back, which is often attended with more or less of inflammation, according to the cause that has produced it.

When the inflammation has advanced so far as to cause obstruction, there will be several little abscesses formed; but if the pressure is removed before the inflammation is too far advanced, the obstruction will be less, and will not require any other treatment than to wash the parts with salt water, and a little vinegar, or spirits of wine, after the back has been properly

* This is a case in which 13 grains of arsenic, mixed with six drachms of cordial ball will be found an admirable remedy.
cooled. But if nothing has been done, and the unequal pressure of the saddle continues to go on, the tumour may or may not grow larger, but instead of it there often oozes out a kind of thin lymph about the edges (called by farriers a sit-fast), which is nothing more than a piece of the horse's skin that is indurated, or callous, in consequence of the hard pressure which has previously existed.

The treatment consists in the first place, in altering the saddle so as to fit the horse's back; until then no cure can be expected; afterwards, if you find that the skin is broken into holes, commonly called warbles, it will be necessary to wash the parts with an equal quantity of spirits of wine, tincture of myrrh, and about a third part of spirits of turpentine. But in case of a sit-fast, let the indurated skin be well fomented with very hot water, three or four times a day, for an hour each time; in the interval of which a linen rag must be left on the sore, with a little fresh butter or hog's lard at night.

After a few days of this treatment, if the sit-fast do not fall off of itself, it may then be easily cut off with a sharp knife or other instrument; and after the operation the sore must be dressed with the common ointment recommended in
the article Anticor, or the one in the article Grease, &c.

BACK SINews,

strain of.

The back sinews, or flexor tendons of the legs in horses, are so frequently diseased, in consequence of the many violent exertions to which they are exposed, that it is almost indispensably necessary for every man, intrusted with the care and management of horses, to be acquainted with the anatomy of the parts which constitutes the back sinews, as it is called; therefore, those that are desirous of such instruction, may refer to the article Curb, in which it is fully described, in consequence of the two diseases arising from the same cause, viz. violent work and exertion. The advantages arising from inquiring minutely into the anatomical structure of those parts, will be of learning, that, in such a case, it is not sufficient to take care of the tendons, but of the whole leg; also, from the elbow to the very inside of the hoof, because the fleshy parts, or fibres, which compose the back sinews, are the only parts capable of contraction and extention; but the tendons, which are the continuation of the fleshy fibres
only, are capable of resisting any efforts; and in
some instances they will suffer to break, rather
than to be stretched.

Therefore if a horse, before perfectly sound in
his limbs, be suddenly attacked with lameness,
attended with a swelling from the knee to the
foot and this happens after hard exertion, such as
running, leaping, a fall, or slip, without any
wound, blow, or contusion, we may then suspect
the existence of a strain in the back sinews, or liga-
ments of the fetlock, coronet, or coffin joints.
When the disease is ascertained, nothing will be
more easy than to prescribe a proper remedy for
the affected parts.

Treatment. The cure of a strain in any
part it may happen, is extremely easy, if it is
attempted before a considerable inflammation
takes place. In this case we may, with safety,
make use of astringents; they will answer the
purpose very well by producing a revulsion of
the fluids, and preventing the irritation, which
soon takes place after the accident. A mixture
of vinegar and water, equal quantities of each;
to four quarts of this mix three ounces of
allum; white vitriol, six drachms; and spirits
of wine, half a pound: or take soap, united
with rectified spirits of wine, and camphor, and
essential oils. Or take oil of camomile and
brandy, of each four ounces; water of ammo-
nia puræ half an ounce; shake them together. All those receipts will make admirable applications to cure a strain, bruise, or contusion; if they are applied in proper time, that is to say, not exceeding twenty-four hours after the accident happened, it will be very proper also to bandage the parts, and to keep the animal at constant rest until their natural strength return. A poultice of bran and vinegar will be a very great improvement to the treatment above described; and, as its effect will be more durable than the liquid, I recommend the use of it particularly at night. But if the animal has been neglected, or two or three days are allowed to elapse before any thing is done in this case, it would be very dangerous to make use of the above treatment, or any other astringents. Such remedies would do a great deal of injury, by increasmg the irritation, and checking the circulation in the part, and would give rise to some of those hard swellings, which generally take place in the sheath of the tendon, called Ganglion*; which accident often produces a local lameness, that often renders the animal unfit, except for slow work only. In

* We call ganglion a circumscribed swelling, or hard tumour, situated about the tendons of the muscles and ligaments; they are formed of lymph, which is situated within the mucous capsule, or bursæ mucose of the tendons. These tumours never suppurate.
order to prevent such accidents, our first atten-
tion must be to subdue the great inflammation
and tumefaction, which generally takes place
two or three days after the accident. This ob-
ject will be accomplished by the constant use of
bathing the parts in warm water; in the inter-
val of which, the leg must be wrapped up in a
very large poultice of bran and water, and
boiled turnips, made as warm as possible.

This circumstance must be closely attended
to, because the emollient quality of a warm
bath, or poultice, depends entirely on a con-
tinual and proper degree of heat.

I venture to say, that if these warm baths
and poultices are properly attended to, their
effect will be almost certain, by relaxing the
parts too much distended; they will diminish
the pain and inflammation, and by restoring a
free circulation to the obstructed fluids, will
prepare them for resolution or suppuration.
This treatment is often the best to begin with,
particularly when there is any doubt of the du-
racion of the disease. But if the violence of the
symptoms should continue longer than a fort-
night, or so, then we may suspect that the acci-
dent has been complicated with a rupture or
fracture of some of the parts contained within
the hoof. It is in this present state of the dis-

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plied from the knees to the foot, and twenty four hours after, the use of warm baths, and poultices of bran and water must be continued, until the inflammation, produced by the blister, is subdued; after which time, a fresh blister may be applied again, and continued one after another as long as necessity requires.

I have met with a considerable number of cases of this kind in the course of my practice; but I flatter myself to have succeeded five times out of six in making a radical cure, although it is sometimes attended with a good deal of trouble and difficulty, if after a liberal use of this treatment the leg remain swelled, particularly about the fetlock joint, and on each side of the leg; in this case the actual cauters, or firing, will sometimes have a good effect in dissolving them, if the operation is performed with judgment and dexterity, and not to cut the skin through, as is too often the case, when performed by common farriers, &c.

During this treatment, it is necessary to give a mild purgative and a diuretic ball, administered one after another, in order to keep all the secretions regular, as the horse must be kept at constant rest as much as possible.

N. B. The strain of the shoulder, stifle, hip-joint, &c. requires no other remedies than those above described for the back sinews.
Therefore I do not see any sufficient reason to make different chapters of each of them, since it is true that they are all produced by the same cause, and cured by the same treatment.

BLEEDING.

It would be presumption for me to attempt to teach, or explain to any one of the stablingrians how to bleed a horse, or any of the different places to which this operation is usually performed in horses, and other domestic animals. But I hope that the following remarks on this subject, will be of some service to those that are not acquainted with the accidents that daily happen in consequence of bleeding: in the first place, we must observe, that the principal view in drawing blood, is to lessen its quantity, by which the remaining mass will circulate with more freedom in the vessels; second, it takes off the inflammatory tendency of this fluid, it removes spasms, and will prevent all bad consequences that may follow in plethoric habits, as the grease, and in most cases of lameness, &c. &c. yet it is necessary to remember, that blood is never to be taken away at random; but when it is absolutely necessary, for it is a fluid that may be easily reduced, but cannot be so easily replaced; be-
sides, the practice of bleeding frequently, or at such stated times is extremely improper, as it disposes the body to become lax, weak, and plethoric.

In bleeding, therefore, due regard must always be paid to the constitution, age, strength, &c. and several other circumstances the animal is, at the time of bleeding. Moreover there is another thing to be observed in drawing blood from any animal on trifling occasions, that is to say, when they are in health, on this occasion, this operation should never be performed, as I have said before: it disposes the animal to relaxation, weakness, and debility. Although we ought to be sparing of drawing blood from horses on trifling occasions, (and never in a state of health) yet when cases require it, I recommend to take away a greater quantity of this fluid at once, than is generally done in the common practice; my method is to bleed from three, to four, and five quarts, English measure, at one time; in an inflammation of the lungs, bowels, kidney, and bladder, and other diseases of the spasmodic kind, and in those cases particularly, we must pay the greatest attention to bleeding with a large fleam, because when the blood is drawn slowly by a small cut, the artery will fill up the vein as fast as it comes out; therefore, the obstructions of blood still
remain after bleeding, and for the want of this attention, we lose the good effect of this operation, as the animal remains in the same state as before bleeding; the want of this knowledge has been one of the principal causes of the little success in the cure of inflammation of the lungs, and bowels particularly:

It is to be remembered, that inflammatory diseases, particularly, when the bowels are affected, make a very rapid progress in horses; and if they are not overcome at the beginning by bleeding plentifully, the animal commonly dies in two or three days, of a gangrene, and mortification.

Blood-letting is certainly a remedy of very great importance, in horses particularly; in all cases above mentioned, and in fever, cold, strangles, falls, bruises, diseases of the eyes, &c. But this operation is sometimes attended with very bad accidents, which has frequently terminated in death. Therefore it becomes necessary to point out the causes, and how to cure such accidents when they happen. The internal cavity of the veins is liable to be inflamed from the operation of bleeding, more frequently in horses, than in human subjects, and when it takes place in animals, it generally arises from the pin used to stop the blood, passing improperly through the vein, as well as through the
skin, or remaining two long in the part after the operation; or from the lips of the wound not being brought into close contact, in which case the inflammation extends from the lips of the veins on the internal surface towards the head. The cut made by the instrument through the vein, must always inflame after every bleeding, or the wound would continue open. But, when the inflammation extends beyond the proper limits, suppuration soon takes place; and when the cavity of the vein inflames, it will generally extend as high as the head: while the vein below the orifice unites, and becomes impervious.

The first symptom of inflammation and suppuration within the cavity of a vein, is generally a small swelling about the orifice, the lips of which, soon separate from each other, and a little oozing ‘scapes from the cut. At other times, the swelling becomes so considerable as to produce an hæmorrhage, and where the swelling rises much above the cut, the vein is frequently callous, and enlarged as high as the head. This enlargement, and hardness proceeds, in part, from the coagulable lymph filling up the cavity of the vein, and in part, from the coats of the vein being thickened, and the lymph sometimes takes the shape, and firmly unites with the internal surface of the vein.
BLEEDING.

At other times, the coagulable substance does not unite to the vein, but acts as a foreign body on the whole of its internal surface; in many instances lymph has been taken from the jugular vein many inches in length, so as to extend as high as the veins of the face and neck, unconnected with its coats.

Abscesses also generally take place, sometimes with, and at other times without any communication with the vein, and when the inflammation continues below the orifice, as well as above it: in this case the vena cava, and even the heart itself will be diseased also, and of course render the disease very troublesome, and often incurable if improperly managed. The treatment when the vein swells immediately after bleeding, which is frequently the case in consequence of the blood running from the vein, into the cellular membrane; let the part be well fomented with the coldest water and salt, with an addition of vinegar, equal quantity to the water, in the interval of which the part must be kept wet night and day by means of a linen bandage tied round the neck. By following this treatment immediately after the swelling takes place, the horse will be perfectly well in two or three days without any further application. Camphorated spirits of wine, and soap, makes a very neat application to a
swelled vein after bleeding. But if the accident is so great, and seems to resist those remedies; in this case we must instantly apply a blister on the swelled part, which must be repeated as often as necessity requires, or until the enlargement is completely subdued.

But if this treatment has been neglected, and that every symptom announces a great inflammation and suppuration, the vein being callosous as high as the head, the lips of the orifice open as to produce hemorrhage; in such state the case requires different remedies which must be punctually attended to. A horse the property of a gentleman farmer in the vicinity of Dublin, was sent to me, at the time I was there in practice, in order to pass my opinion on the case of a bad neck, in consequence of bleeding, and ill treatment by the common farriers: the animal was sent to the slaughterhouse to be destroyed; the vein, neck, and head being considerably swelled, and ulcerated in several places, and the parotid gland nearly as large as a pint bottle. It was the 12th of August, 1794, the animal came to me; I first ordered the ulcers to have the matter discharged from them, and to be well fomented with warm water, then I began the treatment by allowing a free discharge to the matter confined in the different places, by which residence seve-
ral sinuses were formed. This done the actual cautery was applied to the lips of the wound in order to prevent any further discharge of blood or matter from the part where he was bled. A dose of purging physic was given, which operated very well. On the 13th the hemorrhage and suppuration again took place from the first orifice; the hot iron was repeated as before, 14th a blister was applied to the tumour near the head, and the discharge occasioned by it, diminished the enlargement; 15th, 16th, and 17th, no discharge from the vein. I then ordered the neck to be well fomented with warm water twelve hours after the application of the blister, and was continued almost without intermission to the 21st following, at which time a fresh abscess was formed which I opened, and discharged a great deal of matter. A piece of loose coagulum, about six or seven inches in length, was taken out of the vein, and a probe being introduced, a communication was discovered between the vein and the abscess, so as to have prevented all communication between the vein above, and the vein below. The vein being impervious near the head, a seton was introduced up the sinus to communicate with both openings and retained fifteen days; during which time the neck was well fomented with warm water, and the seton dressed with common
ointment. The 13th of Sept. the seton was removed, and the animal completely recovered from all danger, and almost fit for his usual work.

A vast number of troop horses with ulcerated necks in consequence of bleeding, are daily radically cured by the same treatment, to the great surprize of those persons who were so great advocates for the old erroneous system of introducing liquids, or corrosives of all kinds into the inflamed vein. A practice not only hazardous of producing instant death; but so cruel also by the inflammation and the pain it creates to the poor sufferer, that I hope will be a sufficient reason to be for ever abolished.

**BOTS**

Are worms produced by a kind of flies, having somewhat of a conic figure, their head being pointed, and their posterior part much larger; they are provided with two crustaceous hooks, by which they adhere closely to the coat of the stomach. But before we proceed any further, it becomes necessary to give the following account concerning the formation of these insects in the stomachs of horses*. These insects are

* See Vallisneri on Worms.
produced (says the author) by the eggs of a two-winged fly of the genus *Ætrus*, and nearly the size of the humble-bee, which deposits its eggs in the rectum of the horse. These flies, continues he, always live in the open field, and are seldom found near towns or houses; and this is the reason why those horses which are kept up in stables in the summer or autumn, are scarcely ever found to be subject to these worms. The author endeavours to persuade us that, when these flies have found their way into the horse’s fundament, the worms hatched from their eggs soon find their way further up to the intestines and stomach; and after a sufficient time for acquiring their destined growth, they naturally quit the stomach in order to be voided with the dung, or to crawl out themselves*.

I have practised the veterinary art above thirty-six years, and endeavoured to observe this subject with every attention and assiduity possible, but I always found that the generation of bots in the stomachs of horses are produced by a much shorter process than the

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* Any man that has taken the least trouble to make observations on this subject will soon find that it is quite the contrary. The cavalry regiments, for instance, afford us incontrovertible proofs of it, to those who will recollect that there are horses in every regiment that have been eight or ten years without any grass at all; yet they are found to be very much troubled with bots and worms of all kinds.
one above described. It is true that bots take their origin from the species of flies here described; but my opinion on the subject, so far as I have been able to observe, is, that the kind of flies above described are continually about horses, or about their green forage; such as grass, clovers, lusarn, sainfoin, vetches, &c. Food of this description, either green or dried, that kind of flies seem to be particularly fond of in the month of August, which is about the season of the year that these insects lay their eggs; they at that time deposit on the forage, and are attached so closely to it, that horses are obliged to swallow these eggs along with their food; by which process bots are immediately hatched in the stomach, and will remain there during the animal's life*. They may be swallowed by the horse biting his own hair (or skin) upon which, in the summer season, flies deposit their eggs also, which the animal licks up with his tongue and swallows them: in either case these bots acquire a residence until they become too numerous; at which time some of them will lose their hold of the insensible coat of the stomach, in which they so firmly

* This is so true, that hardly any medicines have the power to discharge them from the insensible coat of the stomach, where they are so firmly attached, that spirits of wine, and even spirits of turpentine, have not the power to destroy bots.
Bots attach themselves, and will fall into the intestines, and by the peristaltic motion of these viscera they are carried off and voided with the dung. These are the observations I have been able to collect on this obscure subject; which I believe are infinitely more probable, than to imagine that flies will lay their eggs in the fundament of a horse, and hatch there, and from thence run up about thirty-two yards, which is nearly the length of the horse’s bowels, against the peristaltic motion of those viscera, before they arrive into the stomach. This opinion appears to me rather too improbable to deserve any credit.

Bots, when they are in large quantities, are very destructive to horses; they will deprive the animal of his nutriment, prevent digestion, and do great damage to the stomach, inasmuch as to produce death. I have seen several horses, the stomachs of which were pierced through, the bots making their way into the abdomen, in which case the animal must die. Some of these animals insert themselves between the coats of the stomach, where they are almost hid. But a small quantity of bots may be of some use, and that is, in assisting the cuticular coat to break down the food; for they are found in almost all horses at a certain season of the year.
BREEDING

To cure a horse troubled with bots is a task extremely difficult, not to say impossible, as I have observed before, they cannot be detached from the cuticular coat of the stomach by muriatic acid, spirits of wine, spirits of turpentine, nor by any thing else which we know, so that no medicines will destroy them while attached to the stomach, but when detached they may be voided by means of purgatives. Therefore it is absolutely doubtful whether destroying bots, while they are not in great numbers in the stomach, is of any service; because I have constantly observed, that in the act of dying, and even after death, they still adhere very closely to this viscus.

Common oil, given in large quantities, has sometimes succeeded in detaching bots from the stomach, and, indeed, it is the only remedy that seems to have any effect in making them lose their hold from the stomach, on account of having, as we may reasonably suppose, a poisonous quality to that insect. After they are loose, they are very easily voided by means of purgatives.

BREEDING

Is a subject of too great importance to the improvement of domestic animals to be
omitted in this work, particularly when I consider the little assistance the public have received from any veterinary exertion on this important point; however, I shall beg leave to decline giving any practical remarks on this subject, as I conceive that breeders, farmers, &c. do not need such information; I shall therefore confine myself to the theoretical parts of it, and the errors committed in the bad practice of breeding with unsound animals, either male or female; such as horses nearly or totally blind, unsound lungs, or other internal viscera; spavin, courb, or a tendency to cracks or grease, or any other deformities in their external structure, &c. and also the mistaken notion of many breeders, to send a mare in foal to a straw-yard, or to starve all winter at grass, eight or nine months previous to her foaling.

But in order to go on gradually, and to satisfy some readers, fond of anatomy, it becomes necessary to begin with the structure of the uterus and its appendages. Relative to mares:

The uterus is placed between the bladder and rectum. But it is requisite to observe here, that there is a curious difference, which it is difficult to explain, between the uteri of mares and of other quadrupeds, and that of
human subjects—it is, that they have horns. The horns of the uterus, we may reasonably suppose to be intended for containing more than one young; and this was tried and confirmed by Mr. Hunter. But this, in respect to mares, is generally attended with disadvantage; for when she has two young, or more than one, I have observed, for more than thirty years, that one of the two will die; and very often both. This being certain, it would therefore seem that mares are altered by art from other quadrupeds, in not being capable of nourishing more than one young. The young are formed in the horns of the uterus, in which there is a glandular structure, called Ovarium, at the extremity of each horn, and may be considered as the female testes; they have no direct communication with the uterus, and are only connected with it by cellular membranes.

When they are removed the animal loses all desires, nor can she have any young. The young of all animals are first formed in the ovarium; in time it distends and bursts through this gland, and escapes into the fimbrid of the fallopian tubes, which are ready to embrace the ovum when it is on the point of bursting the ovarium; the fallopian tubes, having a communication with the uterus, convey the
ovum to the horns*. In the human subject, the foetus attaches itself to only one particular part of the uterus; and it is the same in cows, sheep, &c. But the placenta in the female horse, occupies the whole internal surface of the uterus; and the same structure takes place in asses.

This short abstract of the anatomy of the uterus, will be sufficient to perceive, that at the earliest period, the embryo, as secreted from the blood of the male, consists of living filaments, which possess certain capabilities, or irritability, sensation, and association, and also some acquired habits, or propensities, peculiar to the male or female.

The form, solidity, and colour, of the particles of nutriment, laid up for the reception of the first living filament, as well as their particular kind of stimulus, may contribute to produce a difference in the form and solidity of the foetus, so as to resemble the mother as it advances in life. So these nutritive particles are supposed to be similar to those which are formed for her own nutrition.

Upon these principles in breeding, it is evident that the first attention of the breeder, is to choose a mare, in size, frame, bone,

* Dr. Highton, and Mr. Cruickshank have gone so far as to say the sinuose embraces the ovum.
strength, and free from any internal or external defects. But above all, the choice of a stallion most becomes the object of our attention, as in him should exist all the points and good qualities that it is possible for a good horse to possess; since it is perfectly ascertained, that all his imperfections will be hereditary to the offspring. One should think that such observations must be sufficient to reject a stallion which has the least appearance of disease; particularly bad eyes, bad lungs, or any of the abdominal viscera; spavin, courb, cracks, and contracted feet, or any other bad conformation in these organs; tendency to grease, which is one of the worst hereditary diseases in horses. It is also necessary to descend to the minutæ of symmetry in his external structure*; such as the head, neck, shoulder, forehand, ribs, back, loins, joints, pasterns, and feet; and even to the temper of both sire and dam. This point will be of some importance also, as it will tend to prevent the procreation of vices or imperfections.

Now it becomes necessary to say a few words concerning the improper and intolerable practice of letting mares in foal, or mares and colts, subsist upon bare lanes or barren pastures, for

* For a further detail of the external conformation of the horse, the readers may see my first publication, in which this subject is fully explained.
the first summer, and perhaps during the ensuing winter. On this subject I must be allowed to observe that the most desirable object to breeders of every denomination, should be to endeavour, in the two first winters, to acquire all possible advantage in size, strength, and bone: this desirable end will be accomplished by keeping the colt upon the judicious and plentiful supplies of food, as the qualifications of the young horse or filly, so implicitly relied on, in short, good, and wholesome food, and luxuriant pasture, in a proper time of the year, will undoubtedly produce size, strength, and bone.

While, on the contrary, the first opportunity of acquiring those perfections will be totally lost by an injudicious keep during the two first years; from which an irreparable deficiency occurs, that can never again be supplied in the same subject. In short, I beg to repeat again, that any animal kept in a famished state becomes weak and spiritless; their body will become emaciated, the circulation of the blood will be faint and languid, the blood will lose its natural colour and quality, and in time the animal becomes the opprobrium of a complication of disorders, which are consequently owing to an impoverished state of the blood and juices.
I shall now terminate this subject by reminding the reader once more of the impropriety and danger of breeding from unsound horses, since the fact justifies the great consistency of rejecting stallions with the least appearance of disease, indicating even the slightest probability of transmission to the offspring; it will also point out to them the inconsistency of breeding upon the absurd idea of economy; that is to say, that miserable custom of sending the mare in foal to a straw-yard, during the whole winter previous to her foaling; being reduced to such a state of poverty, she becomes totally inadequate to the generating of a fine, strong colt, from the defect of nutrition, and a kind of distress, that air and exercise alone cannot repair.

**BROKEN WIND.**

This is a disease which is by no means easy to describe, and still much more difficult to cure. It is, in reality, a broken lung, and does not exist in any other animal but the horse, at least not the common quadrupeds, not even the ass, which has occasionally all the other diseases of the horse, except pummy feet and moon blindness. The general and common causes of it are over distention of the stomach, with hard
and violent exertion at the same time, which cause will increase the circulation of the blood, and, consequently, the respiration also. But the lungs cannot expand sufficiently, the diaphragm cannot descend, as the stomach will not allow it: in this case, the circulation being hurried, the lungs do not receive the necessary change, in consequence of their now comparatively collapsed state, the animal then endeavouring to take more air, actually occasions the cells to break, or something else must give way, and the air escapes from the cells into the cellular membrane of the lungs, and perhaps there act as a foreign body. It cannot produce the necessary change upon the blood when thus diffused; difficulty of breathing arises from the difficulty of the blood passing through the lungs. The expiration is always slow, which is seen by the flanks being long in rising up, because there is no direct communication with the bronchia, as in the healthy state of the lungs. Inspiration is, however, performed in about one-third the time of expiration, which is seen by the sudden descent of the flanks; the lungs, from containing more air, are specifically lighter than healthy ones.

Pleurisies, an inflammation of the lungs, frequent cold, and perhaps a mal-conformation of the thorax or breast; frequent coughs, coming
on now and then, at last becoming worse and worse, will sometimes end in this disease. Nevertheless I have seen several cases of broken winded horses without any manifest previous illness.

There have been instances of horses who have lived, and do a great deal of work for several years, broken winded; and others have died of it in a few months. In any of these cases, respiration will be laborious, and the animal will become unfit for violent exertion. This disease does not admit of a permanent cure, at least no medicine as yet had any salutary effect; but in order to render the disorder more supportable, and render the horse more fit for work, we must sometimes bleed, unless extreme weakness or old age should forbid, and repeat it according to the degrees of strength and fulness; to which we may add occasional doses of purging medicines, to keep the body open; because these kind of horses require regularity in physic, exercise, diet, &c. as the disease may probably have arisen from a due want of attention to these circumstances. Afterwards it will be proper to give the following balls, viz. take salt of hartshorn, nine grains; gum ammoniac, four ounces; tartarized antimony, five drachms; calomel, three drachms; anisated balsam of sulphur,
sufficient quantity for nine balls. Give one of these balls daily for a fortnight or three weeks; omit for a week or two, and then repeat, having a strict care as to the regimen and exercise, which must be long and extremely gentle; and, upon the whole, he should have little hay, little water, and, in place of this, those substances which afford most nourishment in the least compass; as carrots, corn, beans, or peas, barley, &c.

BROKEN KNEES.

This is an accident in horses too well known to need any description. But it is necessary to remark here, that the knee is a joint, and a wound on any joint requires more particular remedies than any other wound that may happen in any fleshy part of the body; it becomes, therefore, indispensable to make the following remarks on the nature and treatment of wounds on the joints, as accidents of that kind are very frequent to horses, and the common mode of treatment recommended in almost every farrier's book, often fails of success.

The first object to consider is to give the following anatomical description, such as is demonstrated by Mr. Coleman, at the Veterinary College, in order to convince the reader of
the danger attending a wound in the joint; particularly when some of their ligaments are broken or open.

The joints, mucous capsules, veins, the chest, and the abdomen (says Mr. Coleman), are so many circumscribed cavities, and contain fluids which have no communication with the air; but their cavities are more or less filled with a fluid, secreted by the arteries of each part, for the purpose of preventing friction. If the ends of bones, or surfaces of tendons were allowed to rest, and move on each other, or if the lungs and intestines, at every inspiration, were to come into actual contact with the lining of the chest and abdomen, a considerable degree of irritation would take place. To prevent such effects, an oily fluid is placed between the solids, to prevent the possibility of the one touching the other; and this fluid is formed from a fine vascular membrane which lines the different cavities. The fluid secreted in the joints is called Synovia, and was formerly supposed to be formed from the fatty substance found in many joints, termed Synovial Gland. But as every secretion comes from the blood-vessels, and as this part is very little vascular, there can be no doubt but that the joint-oil, as it is called, must be secreted from the same source as the
other secretions. Besides, there are some joints without fatty substance, but none without synovia, or joint-oil. Bones are connected by ligaments, and which frequently surround a joint; but in the smaller joints of the extremities of horses, the tendons frequently in part supply the place of ligaments. In either case, the secreting membrane lines the ligament, or tendon, and is then continued over the cartilages which cover the ends of the bones. This being the general mechanism of most joints, the bones are prevented from dislocation, and yet allowed to move to as great an extent as their muscular and mechanical functions will admit; and the joint-oil within the cavity not only serves to lubricate the parts in health, but preserves a constant separation between all the solids of the joint. This accounts for the great pain and disease, in all cases where the synovia, or joint-oil escapes; it is therefore evident that the membrane lining the joint is immediately squeezed between the two ends of the cartilages, and every motion of the limb produces pain and inflammation. Independent, however, of this cause, it is found that where the cavity of the stomach or intestines are by any accident ruptured, an immediate alteration and cessation of the pulse frequently takes place, even when unaccompa-
nied with any external opening. In this case death probably ensues, from the same cause as a blow on the stomach without rupture. The stomach is so important to the welfare of the animal, that life cannot long be supported, if the vitality of the stomach is destroyed.

But the exposure of cavities of joints seems to destroy life by local irritation. Inflammation to all fresh wounds, in a certain degree, is absolutely necessary to the cure, as digestion is to the health of the stomach. Without inflammation, a joint once open, or a bone broken, could never unite; but Nature has wisely ordained, that when a soft or hard part is divided, blood shall escape, and inflammation ensue. The coagulable parts of the blood either become a living organ, or a medium for the reception of blood-vessels from the original parts.

It sometimes happens, however, that the inflammation both of hard and soft parts is greater than merely necessary to form the bond of union. When inflammation extends much beyond the divided parts, great constitutional irritation takes place; and if a joint be opened the synovia escapes, the hard parts touch the

* Mr. John Hunter very properly considered death from this cause as a general sympathetic effect.
inflamed surface, and consequently occasion death, or a stiff joint.

This summary anatomical description of the joints will, I hope, be sufficient to shew the danger of a cut on the horse's knees, particularly when the capsulary ligament is open, as is often the case. A horse that gets a slight fall upon his knees, and has a cut that goes no further than skin deep, requires no other treatment than to have the sore washed with a sponge dipped in warm water, in order to clean the part from every gravel or sand, and then plentifully embrocatie the wound with equal quantities of extract of lead, tincture of myrrh, and water; bandaging over a pledget of tow wet with the same, repeated twice a day. This should be continued for two or three days, in the interval of which, particularly at night, a pledget of tow, dipped in Venice turpentine, and bound with a good poultice of bran and water, will perform a cure in the course of a week or ten days.

But should the accident be so violent as to rupture the capsulary ligament, and allow the synovia, or joint-oil to escape, it is in this case that a different treatment is required, than what is prescribed in every farriery book, both ancient and modern, which are all erroneous respecting wounds in the joints.
The usual remedies are, to rub the surrounding integuments with hot oils, or to inject corrosive fluids into the cavity of the wound, in order to shut up the mouth of the vessels (as they say). Contrary to this principle, I beg leave to observe, that when foreign matter, of a stimulating nature, is inserted into the cavity of the joint, death, or a stiff joint, must generally be the consequence. This practice is so hazardous, that the least motion of the limb will be very likely to force some particles of the caustic within the cavity of the ligament. Therefore such a practice also must be for ever rejected; but on the contrary, if we find that the capsular ligament is open, let us immediately apply the actual cauterity to the external surface of the wound, so as to stop the discharge of synovia, taking care not to go too deep. The greatest attention must be paid to perform this operation before any collection of matter or pus is formed in the joint; because, in this case, the actual cauterity would confine the pus, and would to a certainty break out again in some other place, or else destroy the animal; matter cannot be confined; it must find its way out ultimately.

After the operation, let the part be well fomented with warm water, and covered with a
large poultice of bran and water, if the part will admit of one; or, if not, the warm fomentation of warm water must be continued with the greatest punctuality, in order to keep the inflammation within limits, and to prevent the wound from bursting open, which accident may happen on account of the impossibility of keeping the horse's legs in an horizontal position, as we do in the human subject, nevertheless, if the synovia continues to run, let the actual cautery be applied again, and that without any hesitation, until the running of the joint oil cease: which is the only remedy that must fix our attention in this present state.

Should any enlargement remain after the cure is finished, a few mild blisters, applied on the part, will reduce it completely. During this treatment, a mild purgative will be extremely useful, repeated once a week; because the animal must be kept at rest until the oozing of synovia is completely stopped.

Should any proud flesh arise, so as to prevent the surface of the skin from uniting, apply a solution of blue vitriol, or a little fine powder of the same on it, to diminish its growth, and continue the poultices and warm fomentations until a perfect cure; which will certainly succeed, if the treatment here recommended be punctually and judiciously attended
to. In support of the treatment here recommended, it will become necessary to mention a bad case of ruptured ligaments of the knee joints.

A bay mare of captain Dickin’s troop, aged four years, had been down and broke both her knees to such a considerable extent, as to leave no hope of making a cure of it. The wound of one knee in particular was about two inches in circumference; the ligaments of the joints were open to such an extent, as to leave no hope of saving the animal’s life, the effusion of synovia was considerable; and the inflammation and swelling extended as high up as the lower part of the shoulder; the animal came under my care, April 20th, 1806.

Treatment—the wound being cleaned with warm water, the actual cauterity was applied to the external surface of the wound, so as to stop the discharge of Synovia; and both knees were fomented with warm water. The next day the discharge still continued, the synovia was continually escaping out in consequence of the capsular ligament not being closed. The 22d, the hot iron was again applied, and a mild purgative was given, which operated sufficiently.

The 25th, a small discharge came from the wound and the cauterity, was again repeated; 26th and 27th, the fomentations and
poultices were continued; 28th, a part of the cauterized surface of the wound separated, and healthy granulations appeared; but a small discharge of synovia came from the centre of the original wound, the cauterity was therefore repeated; no more discharge of synovia was observed. Fomentations and poultices were continued, and the purgative repeated; 30th, and the 1st, 2d, and 3d, of May, every thing was going on very well except the granulations or proud flesh, were higher than the surface of the skin; and to diminish their growth, a solution of blue vitriol was applied to the wound, and the poultices and fomentations continued. Gentle exercise was ordered for half an hour, the 3d, 4th, 5th, the swelling of the fore arm and shoulder considerably abated, and no discharge of synovia. The solution of blue vitriol, poultices, and fomentations were repeated. The wound after this time gradually contracted, and with the assistance of a common ointment composed of venice turpentine only, applied on the wound; the mare was perfectly cured, and discharged from the hospital stables the 15th of June, following.

N. B. It is in my power to mention a vast number of cases of broken knees, and opened joints, by sharp instruments: such as stable forks, nails, &c. which have been radically
cured by this treatment, and would probably have been lost by any other method so much recommended in the old systems of farriery.

BRUISES or CONTUSIONS.

All animals particularly horses, are extremely liable to receive violent bruises or contusions, which accident is sometimes attended with some fatal consequences; it therefore becomes necessary to dwell a little on the subject, in order to shew that a violent bruise though not apparent at first, may terminate by death in horses; as well as it frequently does in the human species.

I said in my first work, and will repeat it again in order to caution the readers, that when a bruise has destroyed the solids, the functions of those latter parts are abolished, which functions depend upon a due and determinate motion of the fluids through the sound vessels, or the discharged humours, collected either in the natural or preternatural cavities of their body by their bulk and quality: press upon the adjacent parts, and either totally destroy, or at least disturb their respective functions. The humours thus discharged, may, by their continuance and stagnation in the cavities, acquire
such a degree of acrimony, as to corrode the surrounding parts.

When the internal parts are bruised, and the external integuments entirely confine the extravasated fluid, the consequence is, that an ulcer, and perhaps a caries of the bone, will almost be unavoidable:

The cure of contusions or bruises, consists in the use of remedies that dissolve coagulated fluids, and restore the tone of the vessels; for external applications, when the skin is not destroyed, an astringent warm poultice of sharp vinegar and bran, having previously rubbed the part with a little camphorated spirits of wine, makes a very good dressing; or salt and water, and equal quantity of vinegar and spirits of wine. But if in spite of this treatment, which it is always the most proper to begin with, and the part should continue to swell; then a different mode of treatment must be pursued. Accordingly we must apply constant warm bathing, or fomentations of warm water, and poultice of bran and boiled turnips, when the part will admit. This emollient treatment will answer admirably well, it will prepare the bruised parts to resolution or to suppuration. The first should always be preferred, but if it fail in spite of proper applications; then suppuration must be encouraged, to take place as soon as possible.
sible, in order to avoid gangrene and mortification, if an abscess takes place, and we are convinced that pus is formed, our indication then is to procure a speedy vent for it. It is however a good practice not to make an opening till we are perfectly sure that matter is formed, and ripe enough to be open. After the pus is evacuated, the sore must be dressed with common digestive ointment until the cure is finished, which will be in the course of a week or ten days from the time the abscess has been opened.

Should it happen that a lump, or callosity remains after the cure is completed, the application of one or two blisters will reduce them, and indeed, a good blister applied to a bruise, is the best remedy I know, and will certainly succeed in case of a fresh contusion, infinitely better than any of the astringents whatever, so strongly recommended in all farriery books.

BURNS AND SCALDS.

This accident although a rare one in horses, yet it will unfortunately happen sometimes, when by neglect of servants, or otherwise, the stables are set on fire, and horses are burnt to death; and those that escape, are very often so miserably injured, as to require imme-
diate assistance to save their lives. Accordingly when the skin remains entire, and the accident recent, in this case let the parts be well bathed with spirits, such as brandy, rum, or spirits of wine; and in the interval of those baths, let them be dressed with a liniment, composed of camphorated spirits, yolk of eggs, and olive, or sweet oil, well beat together to a proper consistence, laid over the parts.

But if the skin or integuments are destroyed as to allow a quantity of hot serum to run out, then it requires dressings of a milder description: such as fomentations of warm water, and a common digestive ointment to the sores.

If the animal is off his food, and shews any symptoms of fever, let him be bled, give him warm mash, and warm water gruel for his drink.

An excellent remedy in this case, and indeed, in almost every stage of burns or scalds, is to bathe the parts with a strong decoction of sage, thyme, and rosemary, adding a pint of spirits of wine to half a gallon of the decoction, and two ounces of crude sal ammoniac; this will make an admirable application, it will encourage a good digestion, it will guard against gangrene and mortification, and will cure it if actually present. There is another accident which frequently happens by fire, that is when horses
are not burnt, but when they are suffocated by the smoke. In this case our first step must be to restore the functions of the lungs; which will be done by bleeding very largely, and quickly, by opening both jugulars at once, taking about four quarts of blood at one time, and paying every attention to keep the animal in an open and pure air, in the most easy posture possible. At the same time let the nostrils be stimulated with volatile spirits of sal amoniae, and introduce a few drops of the same in the corners of the eyes, will be of great service, and likewise the legs and belly should be well rubbed with spirits of turpentine, all these volatile and spiritous applications, are of very great service in case of suffocation, or suspended animation.

In the year 1799, I was at Stratford upon Avon, in Warwickshire, visiting the different quarters of the 13th light dragoons, where I was veterinary surgeon at that time. About one o'clock at night, a private stable where captain Kent, of the said regiment, kept his two horses, took fire; I was called out in a very great hurry to give the horses assistance. When I got there, I found the two animals had been dragged into a field, where the stable was fortunately built separate from any other building; they were apparently suffocated; they had in reality life (but that was all) I immediately set
a farrier to bleed them from both jugular veins at once. I have not been able to ascertain the quantity of blood they lost, because they bled on the ground; during which time I was employed rubbing their legs and belly with spirits of turpentine; a few minutes after they began to recover; an hour after I ordered them to get water gruel for a drink, and early in the morning, each a warm mash of bran. This diet had been continued about a fortnight, during which time, each of them took two doses of purging physic, which operated very well. One horse got quite well in five or six weeks, but the other remained very poorly with a hard cough, which continued very severe for about six months; nevertheless by frequent gentle bleeding, and proper administration of tonic medicine, he got perfectly sound in the course of twelve months.

CALCULUS.

Although it is an uncommon disease in horses, to find stones in the bladder, yet, from a long perseverance in dissecting a great number of horses, in the different slaughter-houses of London, Dublin, &c. &c. I have been able to discover a vast number of important facts, relative to the anatomy, physiology, and treatment