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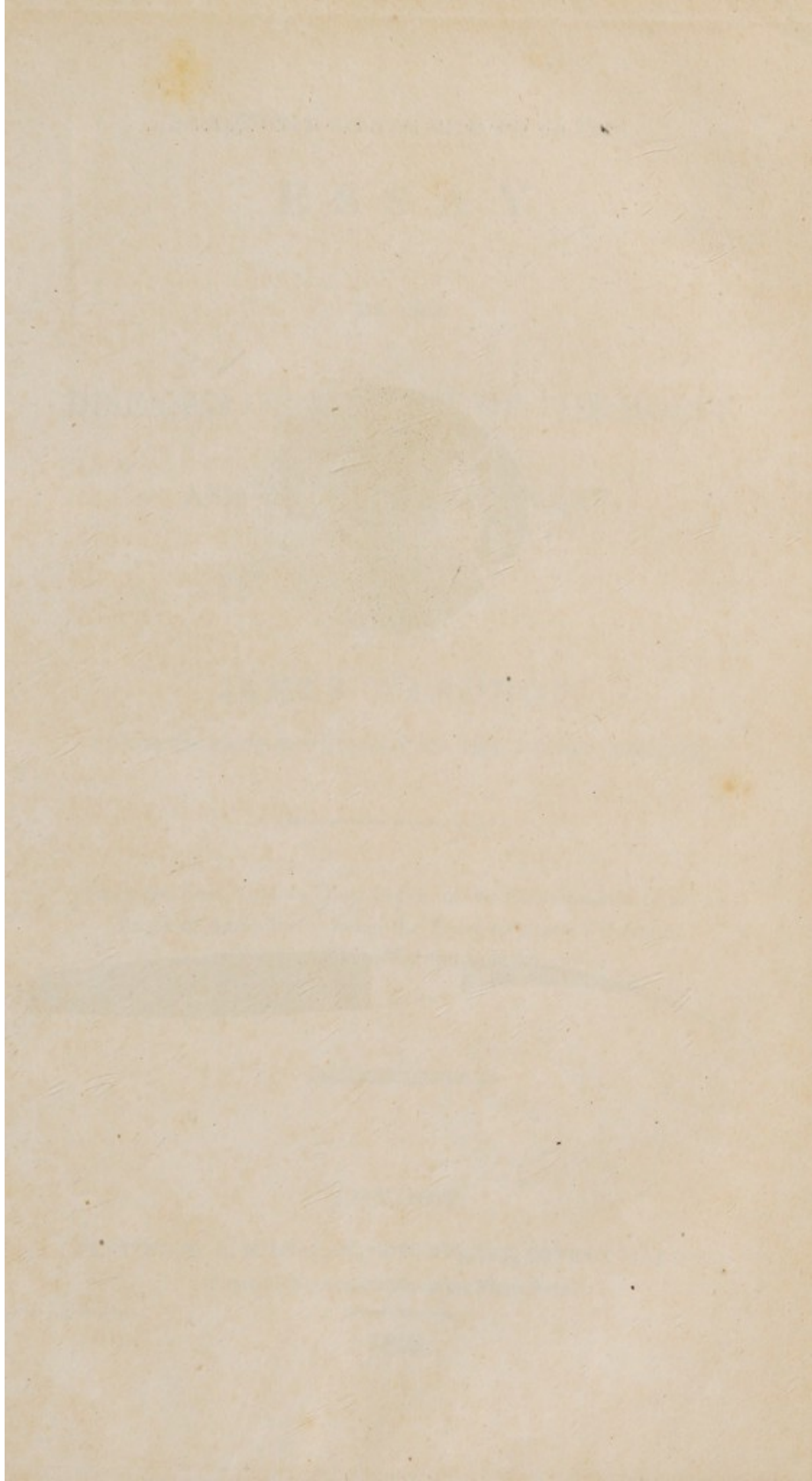
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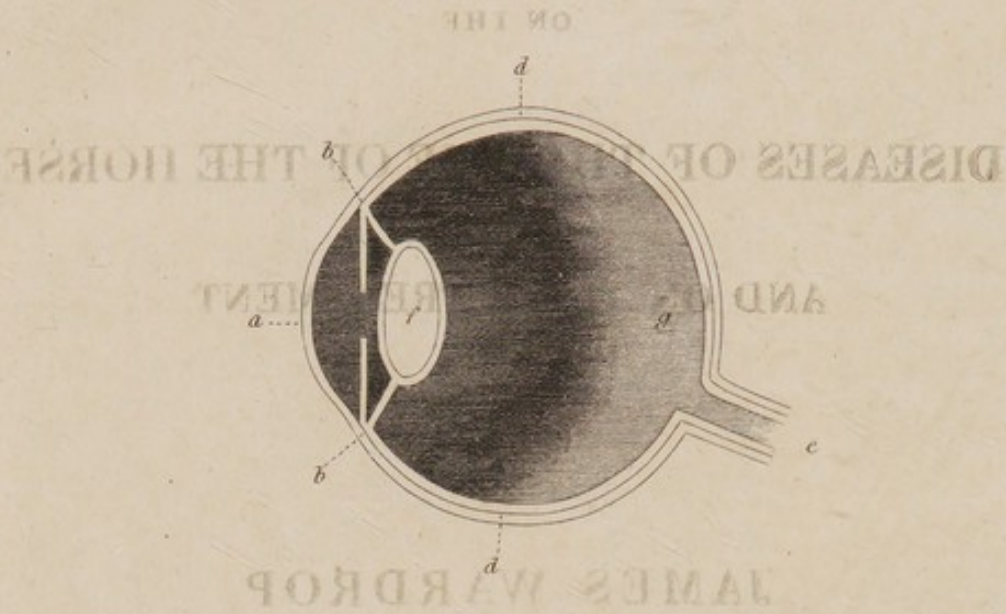
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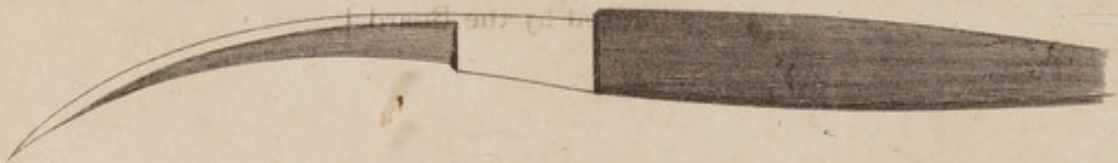
PLAN OF THE EYE OF THE HORSE.

ESSAY



PHYSICIAN EXTRAORDINARY TO THE PRINCE REGENT

From the First Volume, New Series, of the Communications to the Board of Agriculture being the Essay to which a Premium



LONDON

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AN

ESSAY

ON THE

DISEASES OF THE EYE OF THE HORSE,

AND ON THEIR TREATMENT.

BY

JAMES WARDROP,

SURGEON EXTRAORDINARY TO THE PRINCE REGENT.

[From the First Volume, New Series, of the Communications to the
Board of Agriculture, being the Essay to which a Premium
was adjudged by the Board.]

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ESSAY
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DISEASES OF GOATS AND SHEEP

General Observations.

SECTION I. OF THE NATURE AND CAUSES OF THE DISEASES.

When medicine was in its infancy, the diseases of animals greatly contributed to its advancement; but since the diseases of the human body have been the object of the investigation, and medicine advanced a rank among the sciences, and knowledge has increased, the diseases of animals, to illustrate the diseases of animals, in the same manner, their study has been neglected, and the diseases of animals have not improved in the same manner as the diseases of the human body. It is therefore to be regretted, that in the application of medical men to the diseases of the human body, the diseases of animals are not attended to, and that the diseases of animals are not improved in the same manner as the diseases of the human body. It is therefore to be regretted, that in the application of medical men to the diseases of the human body, the diseases of animals are not attended to, and that the diseases of animals are not improved in the same manner as the diseases of the human body.

A taste for pursuits of this kind among medical men might lead to still more important results, as any addition to our knowledge of the diseases of animals must serve to illustrate the diseases of the human body; and the frequent application of the human body and experiment in animals, and the facility of conducting such studies, would, if more fully pursued, manifestly promote such an object. From these researches the agriculturalist might also derive some useful hints, to guide him in improving the breeds of animals.

ON THE
DISEASES OF THE EYE OF THE HORSE.

GENERAL OBSERVATIONS.

WHEN medicine was in its infancy, the dissection of animals greatly contributed to its advancement; but since the diseases of the human frame have been very successfully investigated, and medicine assumed a rank among the sciences, that knowledge may be advantageously employed to illustrate the diseases of animals. In the same manner, therefore, as the natural philosopher has contributed to the improvement of the arts, and the different branches of agriculture, so it is reasonable to expect, that if the attention of medical men be directed to the economy and diseases of animals, this useful branch of knowledge will be established on the solid basis of scientific principles, and have such rules laid down as shall serve to guide those, on whom the practical part may be devolved.

A taste for pursuits of this kind among medical men, might lead to still more important results, as any addition to our knowledge of the diseases of animals must serve to illustrate the diseases of the human body; and the frequent opportunities of dissection and experiment in animals, and the facility in conducting such enquiries, would, if zealously pursued, materially promote such an object. From these researches the agriculturalist might also derive some useful hints, to guide him in improving the breeds of do-

mestic animals; a subject, which the pursuits of scientific men are likely materially to contribute*.

The diseases of all the organs of the lower animals, are not only less numerous, but they are more uniform in their progress and symptoms than those of the human body. The Eye of the Horse is subject to much fewer diseases than that of man, whilst at the same time these diseases do not assume that almost infinite variety of character, which is met with in the human eye, and which is in man, produced from the habits of society, and the various modes of life to which he is exposed.

The uniformity in the appearances of diseases in the Eye of the Horse, makes the treatment of them the more simple, less of that nice discrimination being required in treating individual cases, which is so essentially requisite in the practice of physic.

Before considering the different Diseases to which the Eye of the Horse is subject, it ought to be observed, that not only the progress of the diseases, but their treatment, must vary, according to the different circumstances under which the animal is placed; or as it is in common language called, the "Condition of the horse." It may therefore be proper to observe, that there are four different states of condition, in either of which the horse is usually found.

The *first* is, when he is at grass, or living on green food, exposed to all the vicissitudes of weather.

The *second*, when his food is more nutritious, and in that state of condition he is usually kept in by the agriculturalist.

The *third*, when he is living on dry food, and kept in a warm stable; as most horses are for the purposes of riding and harness.

The *fourth*, in the highest possible state of condition

* See Mr. Cline's excellent Paper, "On the Form of Animals," in the Communications to the Board of Agriculture, vol. iv. p. 440.

when the food is in the least bulk, the body warmly clothed, the horse confined in a hot stable, and exposed to the most violent bodily exertions, for the purposes of the field or turf.

In these different states of Condition, it is reasonable to suppose, that though the same kind of treatment be always applicable to the same disease, yet that treatment must be pursued in a very different degree in animals whose condition is not similar. Thus, if the Eye of a race-horse receives a blow, the quantity of blood necessary to be taken away, in order to prevent or allay the subsequent inflammation, ought to be much greater than what would be advisable to take from a horse at grass, who had received a wound of equal severity.

The value of horses in this country, both for the useful purposes which they serve, and the gratification of amusement, having made the breeding of that noble animal a source of considerable profit to the agriculturalist, it therefore becomes of great importance, not only to improve his strength and beauty, but the treatment and management of all the diseases to which he is subject, and by which his utility or appearances might be injured. Next to the vital organs, a healthy state of the Eyes of the Horse is perhaps of the greatest importance, as for most purposes in which he is employed, much depends on the safety of his movements; and in these, the Eyes have an important share. In man, a great deal of the character of the countenance arises from the brilliancy and expression of the eyes; so also in the horse, the form, colour, and position of the eyes, have the principal share in giving expression to the head.

From the position of the eyes in the head of man, an imperfection in one of these organs produces little or no defect in vision, the two eyes being always employed to look at the same object. But in the horse, the eyes are so

placed, that he at the same time observes different objects with each eye; when therefore one eye is imperfect, the horse is apt to shy and start, whereas, when one eye is completely destroyed, he generally seems to suffer little inconvenience. Many very safe and valuable hunters have only one eye.

In man, there is frequently an original or congenital difference in the two eyes. This, however, is not easily ascertained in the horse, though it appears very probable, from the difference to be almost universally observed in the two sides of the face, a difference which has even been closely imitated by ancient sculptors.

It is a common observation, that when one eye is attacked with any disease, the other is very apt to become affected with the same complaint. This sympathy observed between the two eyes, has been noticed in all those organs of animals of which there are a pair, and as shall afterwards be observed: a knowledge of this fact leads to important practical conclusions.

Another question worthy of attention in considering the diseases of the Eye of the Horse, is, to ascertain how far any of these affections are *hereditary*. There is no doubt, but that every race of animals inherits the bad, as well as the good qualities of the parents; and that in breeding, imperfection and deformity may be as successfully propagated, as perfections and beauty. This has been established beyond all controversy, and it is well known, that in mankind, families are not only subject to particular diseases, but in every race, one or more organs of the body are less perfect in structure, and functions, and more liable to disease. Numerous facts may be brought forward to establish the truth of this observation; but it is sufficient for the present purpose to remark, how often it happens, that in one family many of its branches are affected either with diseases of the lungs, or brain, or liver, or stomach. Some dis-

eases of the human eye are also known to be hereditary; it is, therefore, to be expected, that the eye of the horse shall be defective, and more liable to diseases in particular races, or as it is usually denominated, in certain "Lines of Blood." Breeders of horses are familiar with this observation, and its coincidence with similar facts in other organs, makes it worthy of attention*. In corroboration of this opinion, it may here be mentioned, that a mare of the Mercury Blood, belonging to the Royal Stud at Hampton Court, who had lost one eye, had last season a dead foal, which had a single eye; scarcely any vestige of the other being perceptible. Several of the produce of Treasurer, a son of this mare, have been foaled with defective eyes.

As has already been observed, the Diseases of the Horse's Eye are not numerous, and it is here proposed chiefly to consider those causes of blindness which are most frequent, and on which medical treatment has the most powerful influence. But before describing the diseases, it may be proper to make some general remarks on the anatomical structure of the Eye of the Horse in its healthy state, which may perhaps render the subsequent observations more clearly understood.

* It is well known, that some particular lines of blood are subject to spavins; others to curbs; and others to diseases and imperfections in the form of the feet.

SECT I.

OF THE STRUCTURE OF THE EYE OF THE HORSE.

THE Eye of the Horse, in its structure, resembles very much that organ in the human body.

Its form is nearly spherical, and would be so exactly, were not the forepart a little more convex than the posterior.

The humours of the eye are contained in a firm coat, called the sclerotic; the more convex and anterior part of which (*b, a, b*) is transparent, and from its consistency and horny appearance, it is called the Cornea.

Within the sclerotica is a second coat, called the choroides (*d, d*). This is much thinner than the sclerotic coat, and is composed of numerous blood-vessels, which are often the seat of disease, and its interior surface is covered with a black pigment, which serves an important purpose in vision. At the back part of the globe, the optic nerve (*e*) enters, and it expands within the eye-ball, spreading itself over the whole surface of the choroides like a delicate web, and is called the Retina.

At the junction of the choroides and cornea arises the Iris (*b*), a flat opaque membrane, which transversely divides the eye into the anterior and posterior chambers, and in the middle of which is a perforation, called the Pupil. In man, the Pupil is circular, but in the horse and all graminiverous animals, it is of an oblong form, placed horizontally to extend the sphere of sight on the surface of the earth; and this opening is capable of contracting and dilating, according to the degree of light to which the eye is exposed. From the upper part of its edge there hangs a fringe or curtain, which is peculiar to the horse, and probably intended for the more complete closing of this aperture.

The cavity of the eye-ball is filled with three different humours.

The first, from its fluidity, is called the Aqueous Humour, and fills the space between the cornea and iris.

A little behind the pupil is situated the lens (*f*), or Crystalline Humour, which, when it becomes opaque, forms what is called a cataract. It is nearly of the consistence of firm jelly, decreasing in density from the centre to the circumference, and having the form of a double convex lens.

The cavity between the crystalline humour and back part of the eye, is filled with a transparent fluid, rather more viscid than the aqueous humour, and called the Vitrious humour (*g*).

The three humours serve for the purpose of refracting the rays of light within the eye, and painting on the retina pictures of external objects.

The eye-lids, with the tears, serve to protect and preserve the transparency of the cornea. These are lined by a very delicate membrane, similar to that which covers the interior surface of the nose and mouth; and this thin skin, called the Conjunctiva, not only covers the internal surface of the eye-lids, but is reflected over the whole anterior portion of the globe of the eye.

SECT. II.

OF THE SIMPLE INFLAMMATION OF THE EYE OF THE HORSE.

INFLAMMATION, as it is the most common, so it is the most important disease, in the Eye of the Horse. It proceeds or accompanies almost all the diseases to which that organ is subject, and it is the constant effect of injuries. The treatment of inflammation in the horse's eye must therefore be well understood.

Simple inflammation of the eye is marked by striking symptoms. Though the inflammation be not violent, the animal keeps the eye-lids closed; the eye-lashes adhere together, from the secretion of mucus, which has become inspissated; the eye-lids are more or less swollen, their veins are distended with blood; and there is an unnatural flow of tears, which is more or less copious. When the eye-lids are opened, their internal surface appears redder than natural; the *haws* are inflamed and swollen; the white of the eye is covered with red vessels, and the cornea, or horny coat, loses its pellucidity and lustre, and becomes dim; a general mud-diness either affecting the whole of that tunic, or confined to one part, forming the commencement of a speck or film.

When the progress of inflammation of the eye is not arrested by proper remedies, the cornea becomes more and more dim; matter is formed below it in the cavity of the aqueous humour, and finally the cornea ulcerates; the matter with the aqueous humour then escapes, and thus both the appearances and utility of the eye are destroyed.

Inflammation of the eye, is usually accompanied by more or less general fever, marked by heat in the mouth, and thirst, loss of appetite, frequency of the pulse, unhealthy appearance of the coat, coldness of the ears and legs, with alternate heats and chills.

Inflammation of the eye frequently succeeds injuries. It

arises from colds also, and fevers, sudden chills after violent exercise; and like inflammation of all other organs, it most commonly attacks young horses, and those in high condition.

Treatment.—Much depends on the first means which are adopted in the treatment of Inflammation; for if the disease does not receive a sudden check, the same decided measures cannot be adopted in all the future stages of the disease, the cure then becomes protracted, and effects of the disease remain, which blemish, if they do not injure the organ.

The chief means to be employed to relieve inflammation in the horse's eye, are, bleeding, purging, blistering, and attention to food and air.

A copious evacuation of blood is the first thing to be done, and I would advise that the blood be taken from the neck, in preference to any vein in the immediate vicinity of the inflamed organ. The common opinion is, that the nearer the inflamed part from which the blood is taken, so much more effectual is the remedy. It will, however, be found, that although the inflammation appear immediately to subside by local bleeding, yet whenever the system is at all disturbed, blood taken from a large vein, or general blood-letting, is much more powerful in relieving the constitutional derangement, whilst it has an equal power in allaying the local inflammation. It will also be found, that if blood be taken from vessels in the immediate vicinity of the inflamed part, the irritation caused by the operation is generally considerable, and though the redness is relieved at the time, it very soon returns by the supply from the collateral vessels, which does not take place after general blood-letting. The orifice made in the vein should be large, and as much depends on the immediate effects of the first bleeding in all cases of inflammation, from three to five quarts may be taken, according to the violence of the symptoms. A

second bleeding may be had recourse to, in from twelve to twenty-four hours, should the symptoms increase, or remain undiminished.

At the same time the horse should be given a purgative-ball, or what is perhaps the safer and more efficacious practice, a common purgative-ball may be divided into three doses, and one portion given every four or six hours. This merely acts gently on the intestines, whilst by making the animal sick, it diminishes the force of the circulation; and it is not attended by the debilitating effects which often follow strong purging. Horses, indeed, whilst they can bear bleeding to a great extent, sink rapidly by purging.

Nothing is to be done to irritate the inflamed eye; but it is to be frequently fomented with a decoction of poppy-heads, or chamomile flowers. A second, or even a third bleeding may be necessary, to remove the inflammation; but these will be in a less quantity than the first, and are not to be had recourse to till a reasonable time has elapsed after the exhibition of the other remedies, so that their effects may be observed. After the acute symptoms have subsided, the eye generally continues more or less weak, and irritable, and the white of the eye remains red, though the vessels are of a duller hue. In this state, blistering the cheek and temple may be of service, but the blister should be cautiously and carefully used, to prevent any blemish. The vinous tincture of opium is also an excellent application, and may be applied by taking a camel's-hair pencil dipped in it, and then touching the ball of the eye once or twice a-day. Saturnine and vitriolic lotions are recommended, and they may sometimes be advantageously employed, singly, or combined with opium. In some cases too, of old inflammation, where such remedies have failed, a seton put in the cheek has been useful; and in cases of this kind, a course of alterative medicines may also be given.

It is of great consequence, in the treatment of all diseases

of the Eye of the Horse, to pay attention to the air of the stable; for as this is often impure, it is proper to keep him in a well-aired place, and his head placed so that he shall not be annoyed with light, or obliged to stoop for food.

With respect to food, the horse should have no corn until the inflammatory symptoms subside, but live on green meat or mashes.

The practice of scarifying the eyes, is one which is seldom or ever necessary to resort to, and when not performed with great dexterity, the irritation created by the operation does more harm, than the blood taken away does good. The cruel practice of cutting out the haws, from considering it as a diseased growth, is much to be condemned, as not only useless but hurtful.

When matter is formed in the eye, it may be of great use to discharge it along with the aqueous humour, and thus prevent the ball from bursting. This is an operation that requires a good deal of nicety, and is to be done by penetrating the anterior chamber of the eye with a sharp-pointed knife, something like a common lancet, the eyeball and lids being previously cautiously and well secured.

SECT. III.

OF THE PURIFORM INFLAMMATION OF THE EYE,
OF THE HORSE.

THIS inflammation of the Eye of the Horse, differs from that which has been described, in the part of the eye which is affected, as well as in some of the symptoms of the disease. In the puriform inflammation, the disease is confined to the membrane which lines the eye-lids and covers the eye-ball, called the conjunctiva, or mucous membrane; and its chief character is the profuse discharge of a puriform fluid. Besides the discharge of mucus, which is more or less mixed with tears, the eye-lids are very much swollen, and their edges glued together; their internal membrane is also swelled, formed into folds with matter deposited among them. The cornea appears depressed, from the swelling of the conjunctive membrane on the white of the eye, sometimes forming large bladders, which the ignorant have considered as new growths, and conceived proper to remove. The puriform inflammation of the eye is generally the effect of cold, resembling the common catarrh, and it often spreads among all the horses of a stable; for like the same disease in the human body, if the matter touches a sound eye, it produces the disease.

The treatment of this species of inflammation, is to be conducted on the same general plan as in that already detailed. The depletive system of bleeding and purging is to be had recourse to, and pursued according to the violence and obstinacy of the attack. The eye or eyes, for it usually attacks both, should be fomented with the anodyne and emollient decoctions, the animal kept in a well-aired stable, and fed moderately. When the more severe inflammatory symptoms are subdued, the extract of lead, undiluted, may be applied once or twice a-day to the eye with a camel's-

hair pencil, in the same manner as directed with regard to the vinous tincture of opium ; or a small portion of the red precipitate ointment, may be put between the eye-lids with a camel's-hair pencil, or probe, every second day.

SECT. IV.

OF THE SPECIFIC INFLAMMATION OF THE EYE OF
THE HORSE.

THE disease now to be described, is perhaps the most common, and certainly is by far the most dangerous disease of the Eye of the Horse. It has seldom been distinguished from the simple and puriform inflammations of this organ, though its more serious consequences are well known.

This inflammation is seated in the internal parts of the eye-ball, affecting more particularly the choroid coat and the iris.

There usually comes on very suddenly, perhaps in a single night, a great tenderness in one eye, commonly marked by the eye-lids being shut, a copious secretion of tears, the white of the eye appearing slightly red, and the whole anterior chamber of the eye dim and clouded; there being no distinct speck on the cornea, as takes place in the common inflammation of the eye. The redness of the eye-ball is never very remarkable, even though the disease assumes its most aggravated form; but the dimness of the anterior chamber increases rapidly, and in two or three days, or even a shorter period, a yellow spot appears at the bottom of that cavity, arising from the formation of pus. Sometimes the quantity of pus is very considerable, and I have seen it fill at least two-thirds of the anterior chamber.

After lasting one, two, or three weeks, the inflammation and watering usually begin gradually to subside. The pus, though in a very large quantity, is sometimes almost entirely absorbed, so that scarcely any vestige is to be seen; and in other instances, thin webs of opaque matter remain, which destroy the transparency and lustre of the eye, and which by their adhesion to the edges of the pupil, interfere with its motions, and destroy its form.

It is astonishing, how acute dealers in horses are, in discovering an eye which has had an attack of this kind.

Sooner or later, whilst the horse appears in a state of perfect health, the eye is again attacked, the disease being accompanied by the same symptoms, making a similar progress, and having the same termination; whilst each new attack is accompanied with the deposition of more and more opaque matter. These attacks succeed each other at very different, and sometimes at very distant intervals, until the whole pupil is filled with an opaque white matter, and the sight of the eye completely destroyed.

During this progress, the disease is often confined to one eye, at least one eye is usually much more severely affected than the other. In some cases the two eyes are simultaneously affected, and finally, by a succession of attacks, the horse becomes completely blind.

If an eye, which has in this manner suffered, be dissected, it will be found that the external changes have been accompanied with still more serious internal derangements. The crystalline lens, which lays behind the opaque matter effused in the pupil, has lost its natural transparency, forming in the human eye what is called a Cataract, or in the horse, "*Moon blindness.*" The capsule of the lens has also become quite white and opaque, and there is usually found, collected between the choroid coat and retina, a quantity of coloured fluid, sometimes of a straw yellow, and sometimes bloody, which, by its accumulation and pressure, causes an absorption of the vitrious humour, and at the same time compressing the whole retina into a chord or bundle.

It has already been noticed, that horses are very subject to this disease. It attacks them of all ages, of all classes, and in all states of condition; though, as far as I have been able to observe, it is most common in those that are high bred, and in high condition. It is therefore probable, that dark,

hot, and ill-ventilated stables, must have great influence in the production of this disease.

It is supposed to be most frequent in particular lines of blood; and those who breed horses for the turf, are averse to breed from mares or stallions who have weak or blind eyes.

From the foregoing remarks*, this opinion appears to be founded on accurate observation; and it deserves attention in the selection of stock.

This disease has usually been found incurable, and when a horse's eye has once been affected with it, the proprietor is generally anxious to sell the horse, aware of the disease returning sooner or later, and finally terminating in blindness.

Bleeding, moderate purging, a cooling diet, and a well-aired stable, afford a temporary relief, and by moderating the severity of the symptoms, diminish the permanent dimness of the anterior chamber. Considerable benefit is derived, in some cases, from the application of the vinous tincture of opium two or three times a-day, in the manner formerly directed. A seton in the temple, or cheek, has also been advised by some; but as far as I have been able to observe, however beneficial these remedies may be in diminishing the severity of the symptoms, yet they never prevent the repetition of attacks, and the ultimate destruction of the organ.

I have already noticed, that there is a remarkable sympathy between the two eyes, and when a disease attacks one, the other is very apt to become more or less affected †. This fact is strikingly illustrated in the diseases of the human eye; and having many years ago remarked, that the disease which

* See General Observations, Sect. I.

† When a tooth of the horse decays, the corresponding tooth on the opposite side soon after becomes diseased. It is the same in man.

has now been described in the horse, generally first affects one eye, and then the other; it occurred to me, that if the eye first affected were to be altogether destroyed, the progress of the disease in the other would be arrested, and one eye thus preserved. An opportunity of making the experiment soon occurred. A valuable race-horse had one eye considerably injured, from repeated attacks of this disease, and the other eye, during one of these, appeared tender. I made an incision through the cornea of the bad eye, with a sharp pointed bistoury, through which the aqueous humour escaped. The lens was then squeezed out, and along with it the whole vitrious humour, which seemed in a healthy state. A poultice was applied over the eye-lids, the eye suppurated, and ultimately completely sunk. The other eye resumed its natural lustre and transparency, and I heard of this horse upwards of six years afterwards, when he was a very valuable hunter; the eye having remained perfectly well.

Since making this experiment, I have found that there was nothing new in the observations I had made; for many conversant with horses are aware, that if one eye be so severely affected that it is quite destroyed, they consider that there is a great chance of the other remaining sound. I have even heard some farriers remark, that if the bad eye happens to meet with an accident, and the injury hasten its destruction, the other will be saved; and further, that aware of this, some have even ventured to adopt the practice of destroying the diseased eye, which they have rudely done by putting quick-lime between the eye-lids, or by thrusting a nail into the eye-ball, so as to excite violent inflammation, suppuration, and destruction of the organ.

When, therefore, a horse is affected with this terrible disease, it is of much importance to have the means of saving one eye, as for every useful purpose, one eye is found to be as valuable as both. Few will adopt this practice before the disease has made considerable progress in one eye, or until

the second eye appears to be affected. In this latter case no time ought to be lost. The operation is in itself simple. A curved sharp pointed bistoury*, is to be introduced into the anterior chamber, close to the circumference of the cornea, and its point is to be passed into the pupil, so as to puncture the capsule of the lens. It is then to be carried to the opposite side of the cornea, so that in withdrawing it, there is a large incision made in the cornea.

The aqueous humour immediately escapes, and by afterwards squeezing the eye-ball, the lens can be easily removed, and along with it the vitrious humour; or, if that be absorbed, by the coloured fluid collected between the choroid coat and retina. In this collapsed state of the eye-ball the wound suppurates, and little inflammation supervenes. When the horse is deprived of one eye, he may for some time have the vision with the other confused, but this is rectified by a little experience. In some instances it may happen, that the eye which is saved has been originally an imperfect one, so that the horse never acquires perfect sight†.

* See Plate.

† To avoid deformity, Glass Eyes have been used for Horses.

SECT. V.
INJURIES OF THE EYE OF THE HORSE, AND OF
EXTRANEOUS SUBSTANCES GETTING BETWEEN
THE EYE-LIDS.

WHEN the eye receives an injury, the first thing to be guarded against, is the subsequent inflammation; this being more or less according to the severity of the injury.

If none of the coats of the eye or eye-lids have been divided, it will be sufficient to foment the eye with a decoction of chamomile flowers, to take some blood from the vein in the neck, and to give a purgative-ball.

It sometimes happens, that the cornea is divided by a sharp instrument, and it also sometimes gives way from the concussion of a blow on the eye-ball. This injury is often followed by a good deal of inflammation, very copious and repeated bleeding being necessary to abate it.

When the inflammation subsequent to an injury has subsided, more or less irritability, and weakness of the Eye, often remain, and for the removal of this, nothing is more effectual than the application of the vinous tincture of opium, in the way before mentioned, fomentations being at this time desisted from.

When particles of dust, or any extraneous substance gets into the eye, it often creates a good deal of uneasiness. As these adhere but slightly to the membrane lining the eye-lids, they may generally be removed with a camel's-hair pencil, or the point of a probe; or some milk and water may be thrown forcibly with a syringe between the eye-lids.

I have seen a husk of corn stick very firmly to the cornea, and produce a great deal of irritation; but whenever any extraneous substance is removed, the inflammation and irritation caused by it rapidly subside, and there is seldom any thing necessary to be done for its removal, except bathing the eye with hot water.

SECT. VI.

OF FILMS, OR SPECKS ON THE EYE.

FILMS or specks of the cornea are always the consequence of some previous inflammation, whether that has been the effect of an injury, or any other cause.

In ordinary cases, the obscurity of the cornea diminishes along with the accompanying inflammation; but in others, a distinct speck remains after all inflammation has subsided.

A variety of stimulating and highly irritating substances are employed for the removal of such films, and many of them may be of equal utility. I have, however, generally remarked, that they are used too frequently, and it will be found that such applications act more powerfully when used seldom.

A small piece of the red precipitate ointment, applied every third, or even every sixth day, is an excellent remedy; and this may alternately be used with great effect, with a powder composed of one part of burnt alum to four of sugar; or pure calomel may be used in a similar manner; but as the stimulating effect of these soon ceases, they ought to be employed at least once a day.

SECT. VII.

CONCLUDING OBSERVATIONS.

BESIDES the diseases of the eye, which have been described, there are some others, which either from their rare occurrence, or less serious consequences, may be but briefly noticed.

From what has been remarked in a former Section*, it will be perceived that the Cataract in the Horse, or what is commonly denominated, "*Moon blindness*," is not, as in the human body, a distinct disease, but is always accompanied with other diseased changes. Besides, even was the horse subject to a simple opacity of the lens, the removal of that part of the organ would be followed by no advantages; as without a magnifying glass, his vision would be imperfect.

It may also be here noticed, that there is a disease which frequently affects the eyes of horses in India, but which, as far as I know, has never been observed in Europe. A worm, which, from the description I have received from different people, may be compared to the common *ascaris*, is generated in the anterior chamber, and can at times be distinguished swimming about with apparently great vigour, in the aqueous humour. It produces a good deal of irritation and inflammation, the effects of which ultimately destroy the organ. The natives of India cure the disease by making an incision through the cornea, and extracting the worm. Though I have never had an opportunity of examining an eye affected with this curious disease, the circumstantial accounts from several accurate observers, leave no doubt in my mind of its existence; and the fact accords with what is known to take place regarding the formation of worms, not

* See Sect. IV.

only in the human body, but more particularly in the liver, lungs, brain, and other organs of the inferior animals.

Warts and little *tumours* are sometimes formed on the eye-lids, and are often the source of irritation as well as of deformity. These may be best removed by snipping them off with scissars, and destroying the remaining portion with caustic.

Small polypous excrescences also, sometimes arise from the iris; but these can seldom require any treatment.

The Eye of the Horse is also subject, like all the other organs of animals, to deformities from birth. I have already mentioned the instance of a mare with one eye, that had a foal with the same defect. In another instance, a large tuft of *hair* was found growing from each cornea. Sometimes this is of a curious colour, producing the Wall-Eye. But these defects cannot be remedied, and though the organ may not be injured by them, they must depreciate, to most people, the value of the horse*.

* The medicines referred to, are such as are usually kept in the shops, made up according to the London Pharmacopœia.

